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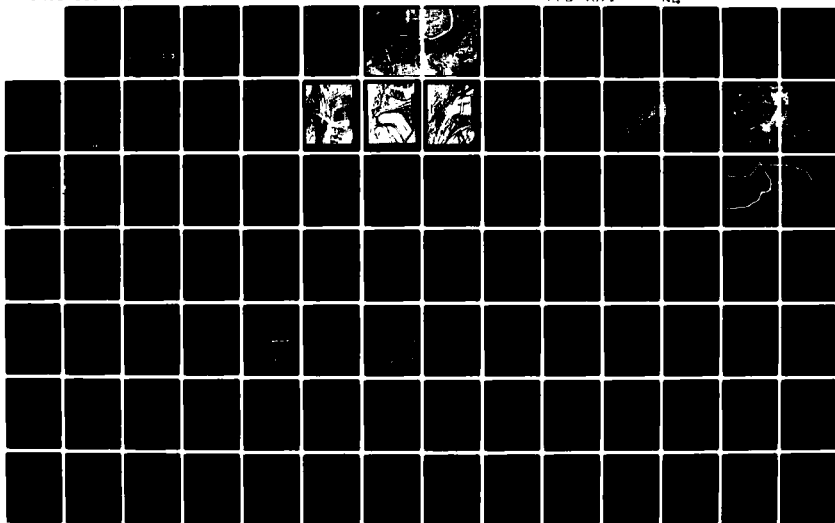
FLOOD CONTROL MINNESOTA RIVER MINNESOTA MANKATO-NORTH
MANKATO-LE HILLIER..(U) CORPS OF ENGINEERS ST PAUL MN
ST PAUL DISTRICT JUN 81

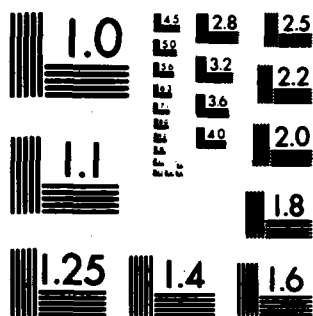
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FLOOD CONTROL
MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER.

DESIGN MEMORANDUM NO. 8, PART I, (Location Study),
AND
DRAFT SUPPLEMENT II TO THE
FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR
BRIDGE RELOCATIONS.

MAIN STREET,
TRUNK HIGHWAY 60 BRIDGE
OVER THE MINNESOTA RIVER BETWEEN
MANKATO AND NORTH MANKATO.

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DEPARTMENT OF THE ARMY
St. Paul District, Corps of Engineers
St. Paul, Minnesota

June 1981

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A120868	3. RECIPIENT'S CATALOG NUMBER
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11. CONTROLLING OFFICE NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
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18. SUPPLEMENTARY NOTES Issued in three parts. Design Memorandum for Chicago and Northwestern Trans. Co. bridge (April 1981) Design Memorandum for Trunk Highways 169 and 60 over the Blue Earth River (Nov. 80)		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Environmental impact statements Flood control Bridge relocation		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The St. Paul District is constructing flood control works on the Minnesota and Blue Earth Rivers to protect developed portions of Mankato, North Mankato and Le Hillier lying in the floodplain from frequent flood damage. The Main Street bridge over the Minnesota must be raised or replaced to an elevation approxi- mately 30 feet above the existing bridge to clear the railroad on the Mankato side. Two plans were selected for detailed study. The tentatively selected plan 1CA would begin in North Mankato on Belgrade Ave. at the same location as		

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the existing bridge and connect to Mulberry Street one block north of Main Street. Adverse neighborhood impacts would be most severe in Mankato.

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FLOOD CONTROL
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MANKATO-NORTH MANKATO-LE HILLIER

DESIGN MEMORANDUM NO. 8 - PART I (Location Study)

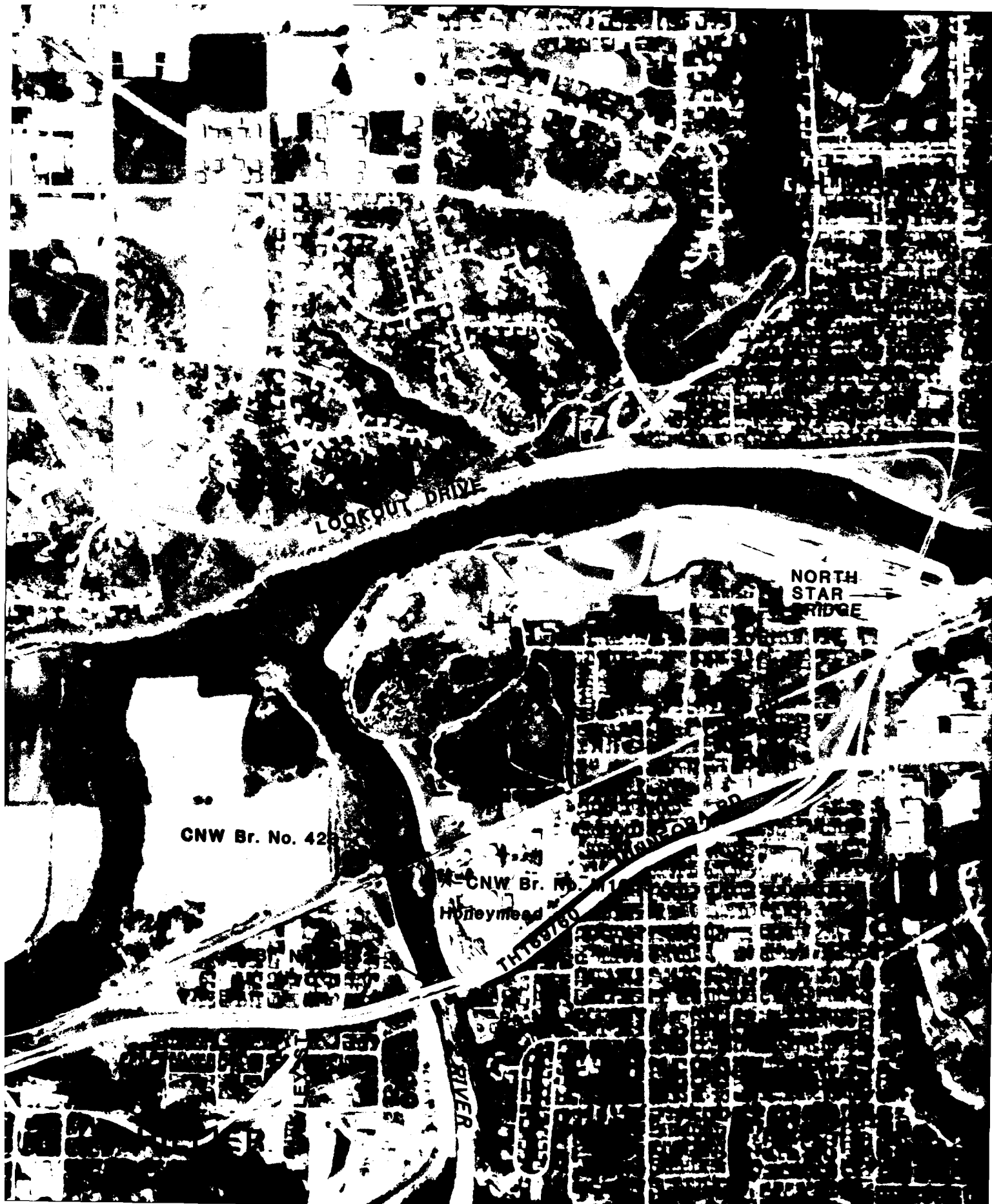
AND

DRAFT SUPPLEMENT II TO THE
FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR
BRIDGE RELOCATIONS

MAIN STREET
TRUNK HIGHWAY 60 BRIDGE
OVER THE MINNESOTA RIVER BETWEEN
MANKATO AND NORTH MANKATO

DEPARTMENT OF THE ARMY
St. Paul District, Corps of Engineers
St. Paul, Minnesota

June 1981



LOOKOUT DRIVE

NORTH
STAR
BRIDGE

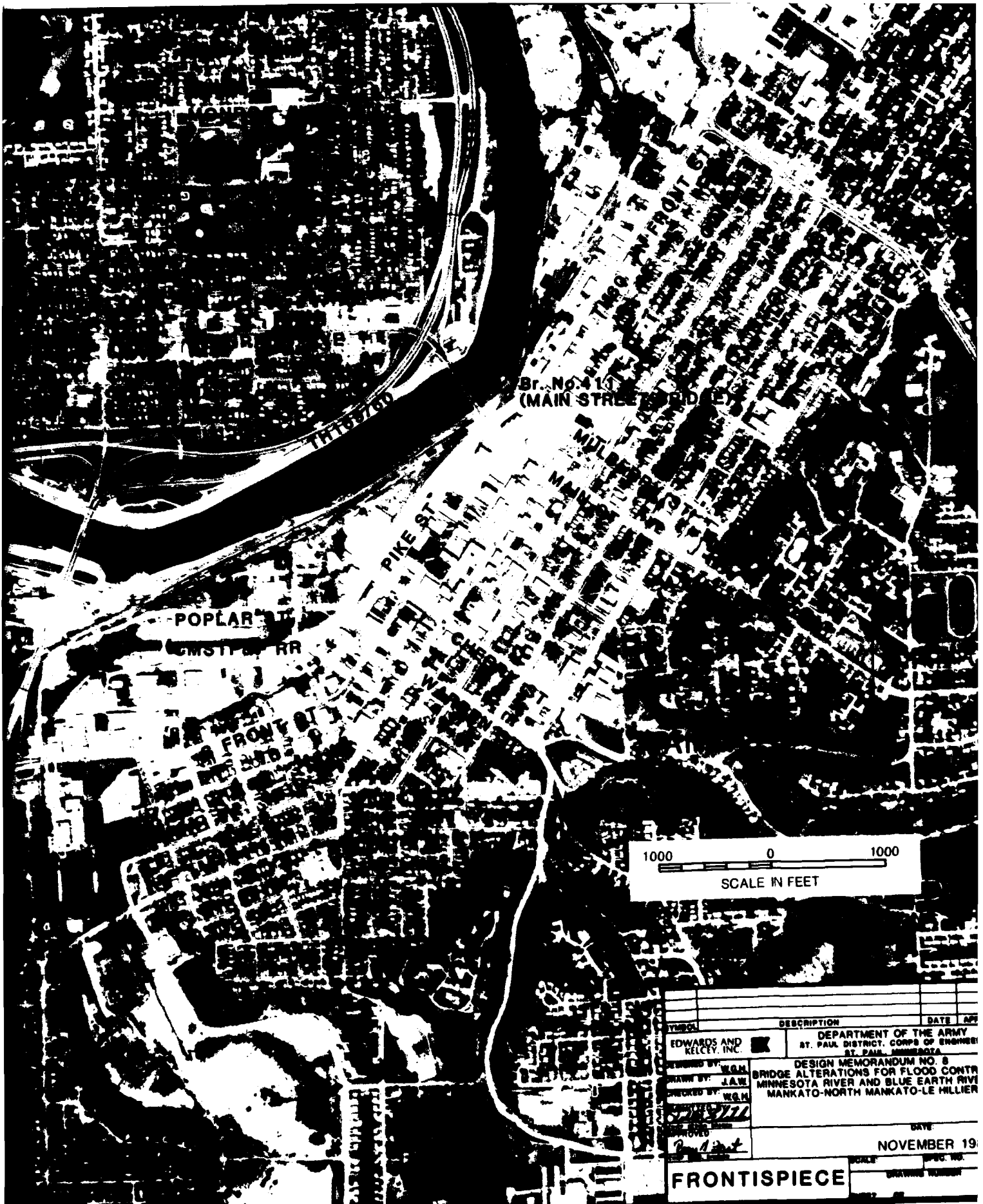
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Honeyfield

TH 169760

RIVER



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DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTR		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED BY: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
DATE:	NOVEMBER 19		
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TECHNICAL REPORTS

Related to the technical reports prepared in conjunction with the study, copies of them are available from the St. Paul District, Office of Engineering.

References

- 1. "Report and Proposed Traffic Study and Study."
- 2. "Report and Proposed Traffic Study and Study."
- 3. "Report and Proposed Traffic Study and Study."
- 4. "Report and Proposed Traffic Study and Study."
- 5. "Report and Proposed Traffic Study and Study."

INTRODUCTION

1. The St. Paul District, Corps of Engineers is constructing a flood control system along the Minnesota and Blue Earth Rivers to provide flood protection for the communities of Mankato, North Mankato and Le Hillier. The flood protection project requires major alterations of existing conditions at three bridge sites. The alterations include raising and replacement of these bridges and their approaches.
2. The three bridge sites are shown on Figure 1 and are described as follows:
 - a. State bridges 9413 (steel) and 4952 (concrete arch) carrying U.S. Trunk Highway 169 and State Trunk Highway 60 (TH 169/60) over the Blue Earth River between Mankato and Le Hillier.
 - b. Chicago and North Western Transportation Company (CNW) bridges M1605 and 423 over the Blue Earth River between Mankato and Le Hillier.
 - c. State Trunk Highway 60 (Main Street) bridge 411 over the Minnesota River between Mankato and North Mankato.

STUDY AUTHORITY

3. Public Law 85-500, 85th Congress approved 3 July 1958, authorized the development and construction of the Minnesota River, Mankato-North Mankato-Le Hillier Flood Control Project. This authority directed Standard Project Flood protection be provided and that the required alterations to the CNW bridges across the Blue Earth be effected at Federal expense. Section 104 of the 1976 Water Resources Development Act, P. L. 94-587, approved 22 October 1976, provided that alterations to the TH 169/60 highway bridges over the Blue Earth River and the Main Street Bridge over the Minnesota River, including rights-of-way, shall also be accomplished at complete Federal expense.

SCOPE OF THE STUDY

4. The bridge alterations are not covered in "Final Environmental Impact Statement (FEIS) Minnesota River, Minnesota Mankato-North Mankato-Le Hillier Flood Control: Phase 1", U.S. Army Engineer District, St. Paul, 18 January 1972. This report is one of three volumes prepared as the Design Memorandum (DM) No. 8 - Part I (Location Study) and "Draft Supplement II" to the FEIS to cover the proposed bridge alterations.

5. Location studies for each of the three bridge sites were conducted concurrently. However, during the course of these studies, it became apparent that the three sites were physically and functionally separate and the issues and area of concern were also different. Therefore, three separate volumes have been prepared.

6. This volume investigates and evaluates the alternatives for raising or replacing the Main Street bridge carrying Trunk Highway 60 over the Minnesota River between Mankato and North Mankato. All alternatives studied, by necessity, are consistent with the requirements of the flood control system in satisfying existing Corps of Engineers standards.

7. The scope of significant issues and impacts addressed in this volume are:

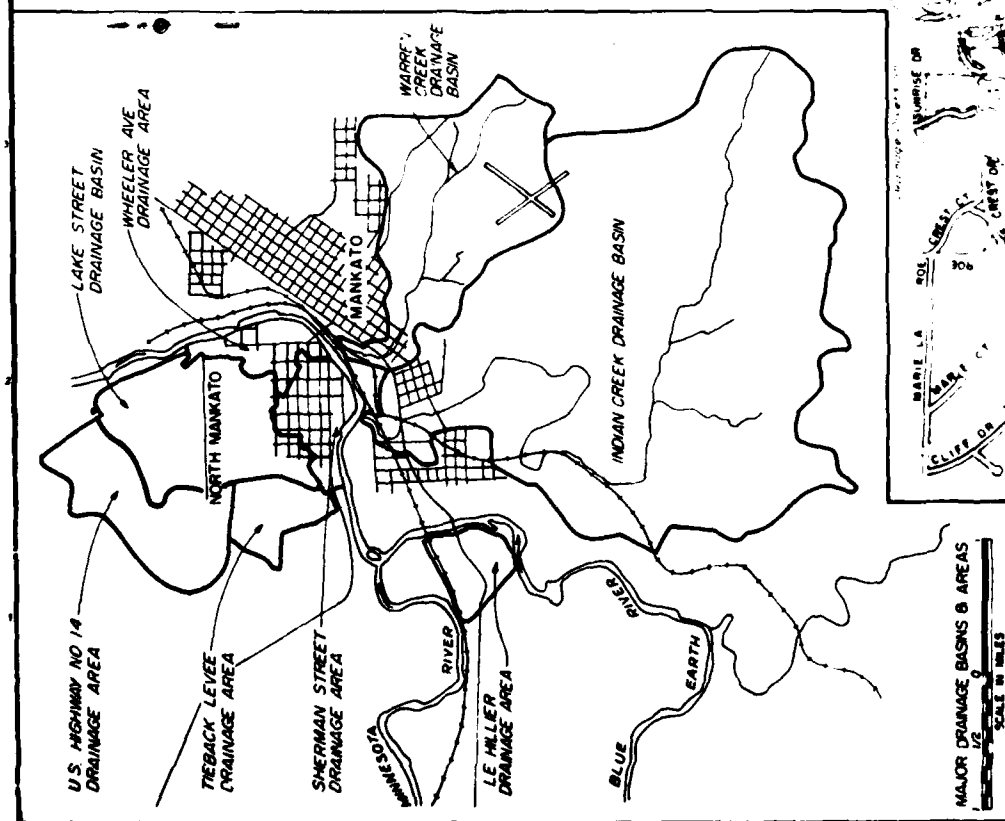
- a. Traffic service and safety
- b. Displacements, business and residential
- c. Noise
- d. Neighborhood land use, character and cohesion and property value impacts
- e. Business district and redevelopment area land use and economic impacts
- f. Aesthetics
- g. Disruptions and hazards during construction
- h. Capital cost

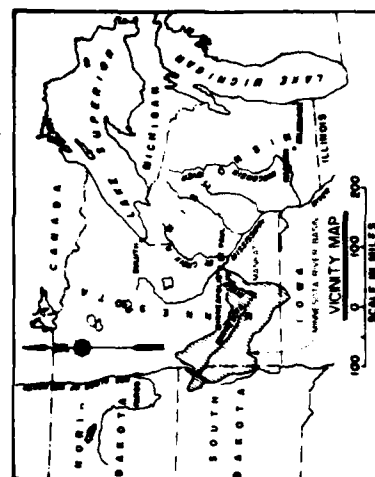
STUDY PARTICIPANTS AND COORDINATION

8. The study was conducted by the St. Paul District, Corps of Engineers with the Minnesota Department of Transportation functioning as a cooperating agency for the TH 169/60 and Main Street bridges. An on-going, working cooperative arrangement was maintained with the Cities of Mankato and North Mankato, and with the Chicago and North Western Transportation Company. Coordination with the other involved local, State and Federal agencies was maintained by correspondence, briefings, and a project newsletter. Coordination was also maintained with staff members of private utility companies having facilities in the project area.

9. The views of the public were actively solicited throughout the course of the study. Individuals, groups and civic organizations, and governmental agencies were brought into the study process through a broadly based public information program with regular and periodic briefings on project matters. Specific elements of the public information program included:

- a. A local public information office
- b. Periodic newsletters
- c. News media coverage





- LEGEND**
- FLOOD BARRIER
 - EARTH LEVEE
 - FLOOD WALL
 - PONDING AREA
 - TOP OF RIPRAP SLOPE
 - PROPOSED
 - EXISTING
 - ROAD RAISE
 - BRIDGE RELOCATION



SYMBOL	DESCRIPTION	DATE	APPROVAL
<p>DESIGN MEMORANDUM NO. 8</p> <p>BRIDGE ALTERATION FOR FLOOD CONTROL</p> <p>MINNESOTA RIVER AND BLUE EARTH RIVER</p> <p>MANKATO - NORTH MANKATO - LE HILLER</p> <p>GENERAL PLAN</p>			
<p>DESIGNED BY J.C.A.</p> <p>CHECKED BY J.C.A.</p> <p>SUBMITTED BY J.C.A.</p> <p>APPROVED J.C.A.</p>		<p>DATE NOVEMBER 1980</p>	
<p>FIGURE 1</p>		<p>DRAWING NUMBER SHEET 1 OF 1</p>	

- d. Public information meetings
- e. Interviews with citizens directly affected by potential property acquisitions
- f. Presentations to interested civic organizations

The overall public information program covered the entire project, i.e., all three bridge crossings to be altered. Press release and public information bulletins were prepared and distributed for each specific bridge location.

PRIOR STUDIES AND REPORTS

10. Other studies and reports significant to the entire project were:

- a. Bridge Location Study, Cities of Mankato and North Mankato, Minnesota, May 15, 1974. Edwards and Kelcey, Inc.
- b. Flood Control Report, Mankato-North Mankato, Minnesota, October 1975. City Manager, Mankato, Minnesota.
- c. Final Environmental Impact Statement for U.S. 14 Mankato Bypass, March 13, 1975. Federal Highway Administration and Minnesota Department of Highways.
- d. Railroad Impact Study for Proposed Flood Control Improvements, Mankato, Minnesota, October 1976. De Leuw, Cather and Company.
- e. Design Memorandum No. 1 through 7, Flood Control Minnesota River, Minnesota, Mankato-North Mankato-Le Hillier.
- f. Final Environmental Impact Statement, Minnesota River, Minnesota, Mankato-North Mankato-Le Hillier, Flood Control, Phase I.

THE REPORT AND STUDY PROCESS

11. This volume documents the planning studies conducted for the relocation and alterations to the Main Street bridge over the Minnesota River. The studies were conducted under the Corps of Engineers' three stage process to incrementally develop the precision of plans and eliminate unfeasible or imprudent alternatives.

12. The following schedule summarizes the study process, the preparation of DM 8, and steps toward construction.

- a. Stage 1, Development of a Plan of Study (Project Development Report, September 1978)
- b. Data collection
- c. Public information meeting, November 1978

- d. Stage 2, Development of intermediate plans
- e. Public information meeting, January 1979
- f. Stage 3, Development of detailed plans
- g. Formulation, assessment and evaluation of detailed plans
- h. Public information meeting, May 1979
- i. Design Memorandum No. 8 - Part I (Location Study) and Draft Supplement II to the Final Environmental Impact Statement
- j. Statutory review and public hearing
- k. Final Environmental Impact Statement
- l. Record of decisions
- m. Design study and hearings
- n. Design Memorandum No. 8 - Part II (Design Study)
- o. Construction plans and rights-of-way acquisition
- p. Construction

PROBLEM IDENTIFICATION

13. The flood control project is being constructed to protect the communities of Mankato, North Mankato and Le Hillier against the Standard Project Flood (SPF). This volume is concerned with that part of the project relating to raising or relocating the existing Main Street bridge over the Minnesota River. The existing bridge deck would be below the water surface during the SPF event. Consequently, the bridge, if left in place, would cause detrimental effects due to debris and ice jams. To clear the SPF and railroad tracks located at the Mankato end of the bridge, a total raise of about 30 feet will be required.

14. This section describes the present Main Street bridge crossing, national objectives, existing conditions in the bridge relocation study area, and conditions if no Federal action is taken. Planning constraints, related problems, needs and opportunities, and objectives with regard to the bridge are also identified and described.

DESCRIPTION OF CROSSING, MAIN STREET BRIDGE

15. The Main Street bridge (No. 411) was constructed in 1916. Originally, the 5-span concrete-arch bridge was designed to carry streetcars and two lanes of vehicular traffic. It formerly served as a crossing for U.S. Highway 14. With the recent construction of a U.S. 14 bypass to the north, it has been redesignated as the crossing for State Trunk Highway (TH) 60.

16. Two major remodeling projects have been performed on the bridge since its original construction. At the present time, the bridge carries three lanes of traffic with a width of 34 feet between Minnesota Type J curb railings. There are 5-foot sidewalks and a

3.5-foot chain link fence outside of the barriers on both sides of the bridge. It carries an 8-inch gas main under the west side of the deck and formerly carried six 4-inch telephone conduits under the downstream (east) side of the deck.

17. The TH 169-Belgrade Street interchange is adjacent to the northwest (North Mankato side) abutment of the bridge. Immediately adjoining the southeast (Mankato side) abutment lie the railroad tracks of the Chicago and North Western Transportation Company (CNW). Any raising or replacing of the bridge would require adequate clearance above the floodwalls presently under construction and these tracks.

18. The bridge meets neither present peak traffic needs or projected needs for the year 2000. Further, the bridge constitutes a major impediment to the Standard Project Flood flow for the flood control project.

19. Although the bridge is 63 years old and general deterioration has occurred, the Minnesota Department of Transportation has estimated that the residual life of the bridge is about 25 years. However, since it is not feasible to increase its traffic capabilities, and since it is impractical to raise a rigid concrete-arch bridge, replacement is considered to be the only viable alternative.

20. The bridge and surrounding vicinity are pictured in the aerial photographs (Figures 1A to 1C) on the following pages.

NATIONAL OBJECTIVES

21. The overall flood control project was formulated to achieve National Economic Development (NED) and Environmental Quality (EQ) as equal national objectives. This integral portion of the project will be developed to further these objectives.

22. NED is to be achieved by increasing the value of the nation's output of goods and services and improving national economic efficiency. EQ is to be achieved by the management, conservation, preservation, creation, restoration, or improvement of the quality of certain natural and cultural resources and ecological systems.

23. Local interests and various governmental agencies through public meetings, by reports, and through correspondence, provided their views of objectives of the project. For the Main Street bridge, the following have been stated:

- Provide flood protection
- Minimize disruption of existing conditions in the approach areas
- Maintain rail service on the Mankato side, but eliminate grade crossings



AERIAL VIEW - VICINITY OF MAIN STREET BRIDGE
(LOOKING WEST)

FIGURE 1A



AERIAL VIEW - SOUTH & WEST OF MAIN STREET BRIDGE
(LOOKING NORTHEAST)

FIGURE 1B



AERIAL VIEW - NORTH & EAST OF MAIN STREET BRIDGE
(LOOKING NORTHEAST)

FIGURE 1C

- Consider pedestrian safety and access on the river crossing and between neighborhoods and businesses in the approach areas
- Improve street access and service capabilities to the Mankato and North Mankato central business districts, Old Town, Madison East Shopping Center, and Mankato State University
- Reduce or minimize traffic in residential neighborhoods and on North Front Street
- Restrict property takings to a minimum
- Minimize adverse property value impacts
- Improve and enhance business districts in North Mankato and Mankato
- Maintain integrity of neighborhoods
- Reduce traffic noise
- Design project elements for optimum capacity and safety
- Maintain continuity in highway systems
- Minimize traffic disruptions during construction
- Maintain Sioux Uprising historic site
- Give ample attention to aesthetic considerations in planning and construction

EXISTING CONDITIONS

Available Planning Data

24. In addition to the reports listed under "Prior Studies and Reports" above, the following are significant to the project planning process and provide general background data:

- a. "Flood Control, Minnesota River, Minnesota, Mankato-North Mankato-Le Hillier, Design Memorandum No. 1, General", Department of the Army, St. Paul District, Corps of Engineers, St. Paul, Minnesota, April 1967.
- b. "Final Environmental Statement, Minnesota River, Minnesota, Mankato-North Mankato-Le Hillier, Flood Control - Phase I Amended December 1971", U.S. Army Engineer District, St. Paul, 18 January 1972.
- c. "Special Flood Hazard Information, Minnesota River and Tributaries, Mankato, North Mankato, Le Hillier". Department of the Army, St. Paul District, Corps of Engineers, St. Paul, Minnesota, October 1973.

Areawide Population and Economy

25. In 1978, Mankato and North Mankato had estimated populations of 34,430 and 9,780, respectively, and immediately adjacent townships added another 6,700 persons for a total population of 50,910. The area is expected to reach a population of nearly 66,000 by the year 2000. See Technical Report No. 4, "Social and Economic Resources".

26. Agriculture is highly significant to the economy of the immediate area. Corn and soybeans are the principal crops, while oats and hay, though still important, have been declining in importance in the last 20 years. Wheat production, which dominated the agriculture of the region earlier, has declined to a level of minor importance in recent years. Hogs, beef and dairy cattle are also raised in the area. The size of farms and value of rural land have risen steadily. The average farm size is now nearly 300 acres and farm land sales now average about \$2,100 per acre.

27. The manufacture of agricultural products in the area is dominated by the Honeymead soybean processing plant, the ADM Grain Company, and the Hubbard Mill, all in Mankato. Other industries include sales and service outlets, concrete products, manufacturing and quarrying.

28. The economic indicators demonstrate that the economy of the Greater Mankato area is strong and appears to be expanding. Area cash sales for crops and livestock, the number of building permits, and bank deposits have all increased markedly in recent years.

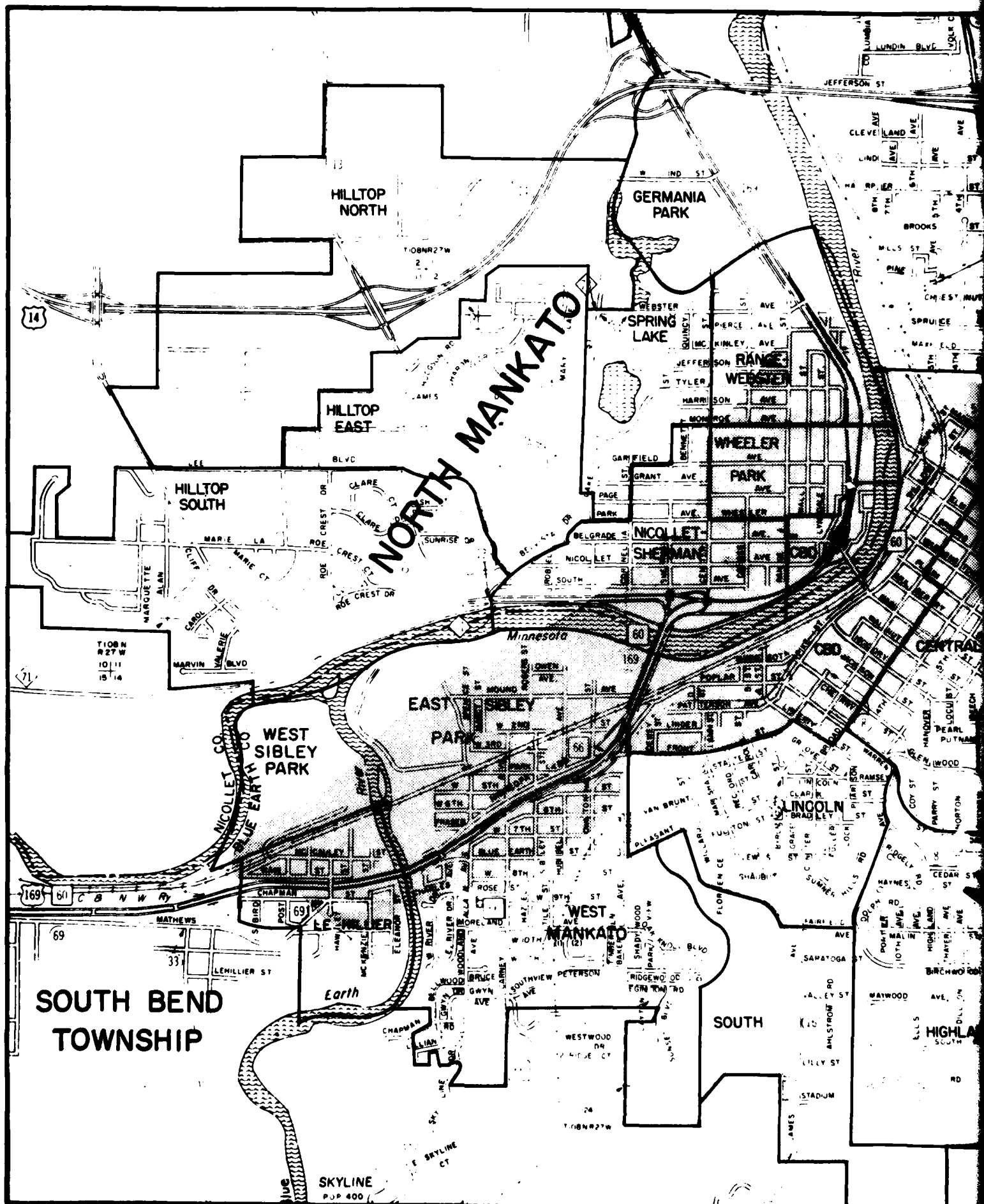
29. Less than 10 percent of the area population is employed in agriculture. Trade and services, manufacturing, and construction account for the major portion of the employment. The total number of jobs has increased from approximately 17,500 in 1972 to over 20,000 in 1977.

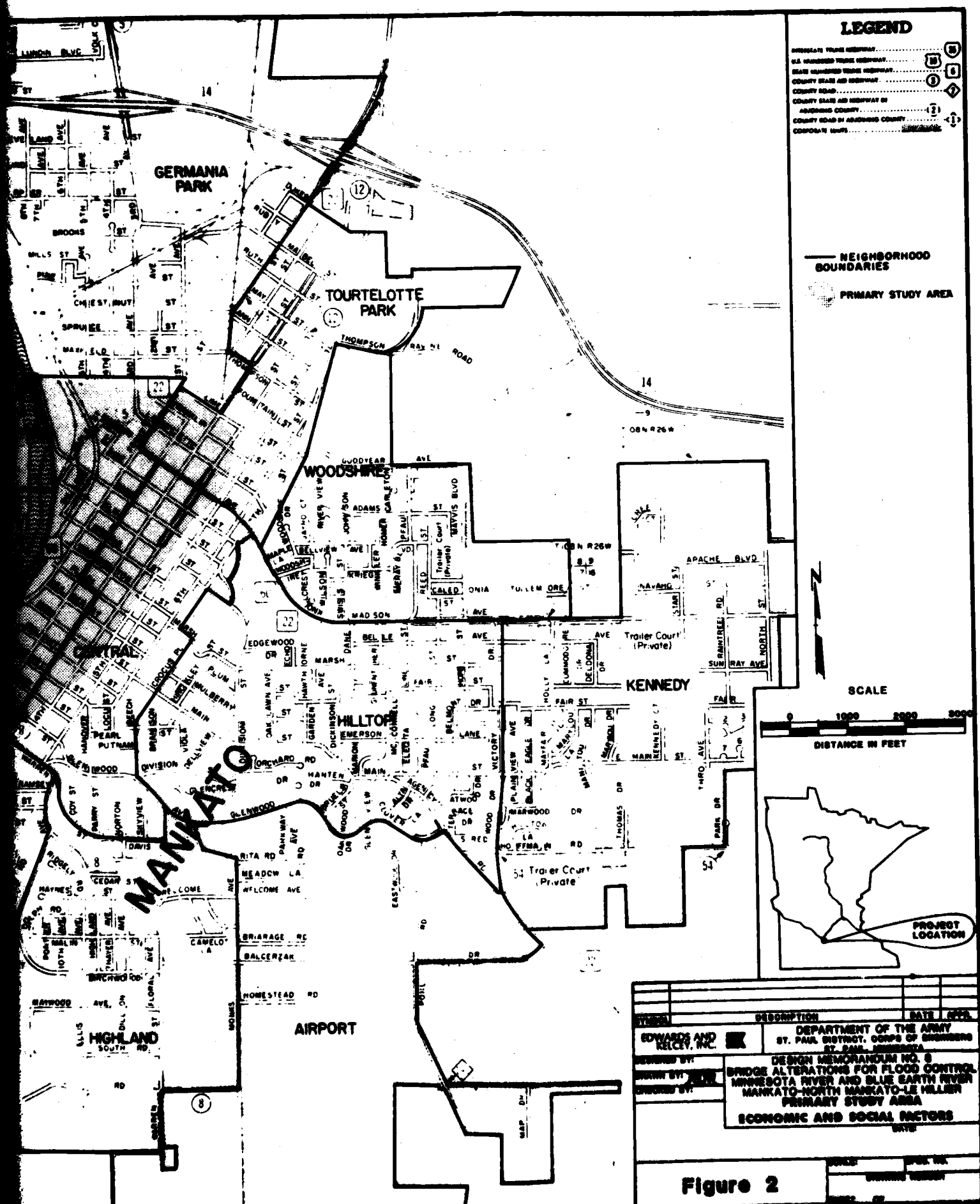
Land Use and Neighborhood Characteristics

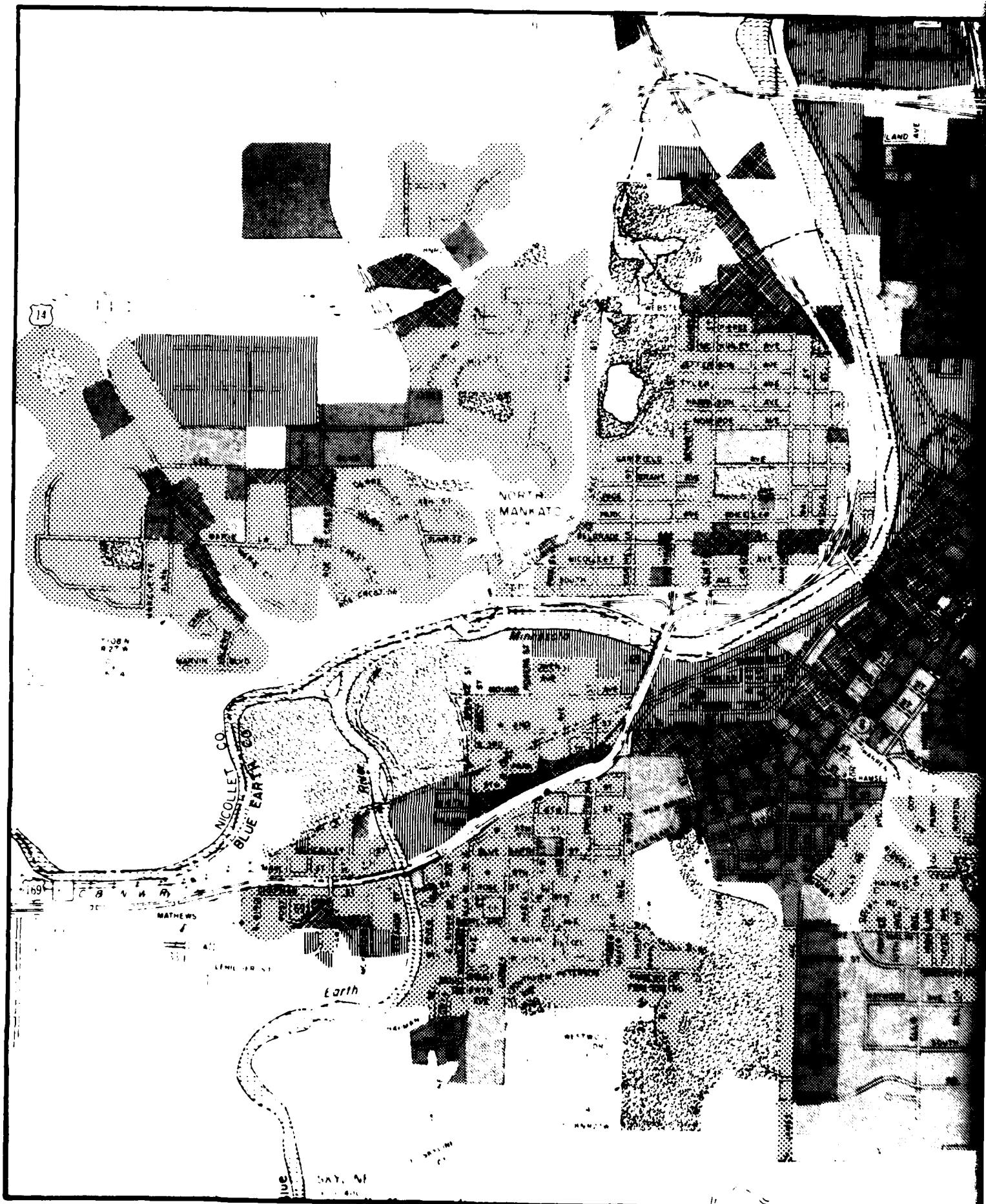
30. Eight identifiable "neighborhood" areas of Mankato and North Mankato may be directly or indirectly affected as a result of alterations to the Main Street bridge. They include the Mankato and North Mankato Central Business Districts (CBD's); Mankato's Central, Tourtelotte Park and Lincoln neighborhoods; and North Mankato's Nicollet-Sherman, Wheeler Park, and Range-Webster neighborhoods. These areas are shown on Figure 2. Existing land use and zoning for these areas are illustrated on Figures 3 and 4, respectively. Major land use and social characteristics of each neighborhood are described below. Additional details can be found in Technical Report No. 4, "Social and Economic Resources".

31. Mankato CBD - Existing land use in the Mankato CBD is comprised of retail, service, and office facilities. The most intense commercial development is located in Mankato's "downtown" shopping district and the "Old Town" shopping area.

32. The "downtown" area is generally regarded as being encompassed by Pike, Second, Main, and Warren Streets. The downtown area is located within the larger-encompassing Key City Urban Renewal Area. This renewal area contains 107 acres and includes the central portion of the CBD neighborhood. The enclosed Mankato Mall shopping complex redevelopment project contains approximately 76 businesses including



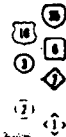






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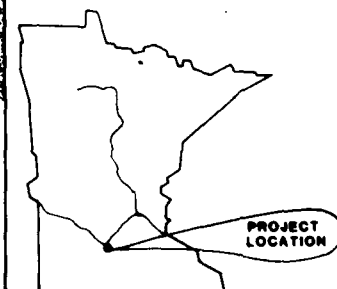
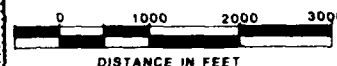
INTERSTATE TRUNK HIGHWAY
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 ADJACENT COUNTY
 COUNTY ROAD BY ADJACENT COUNTY
 CORPORATE LIMITS



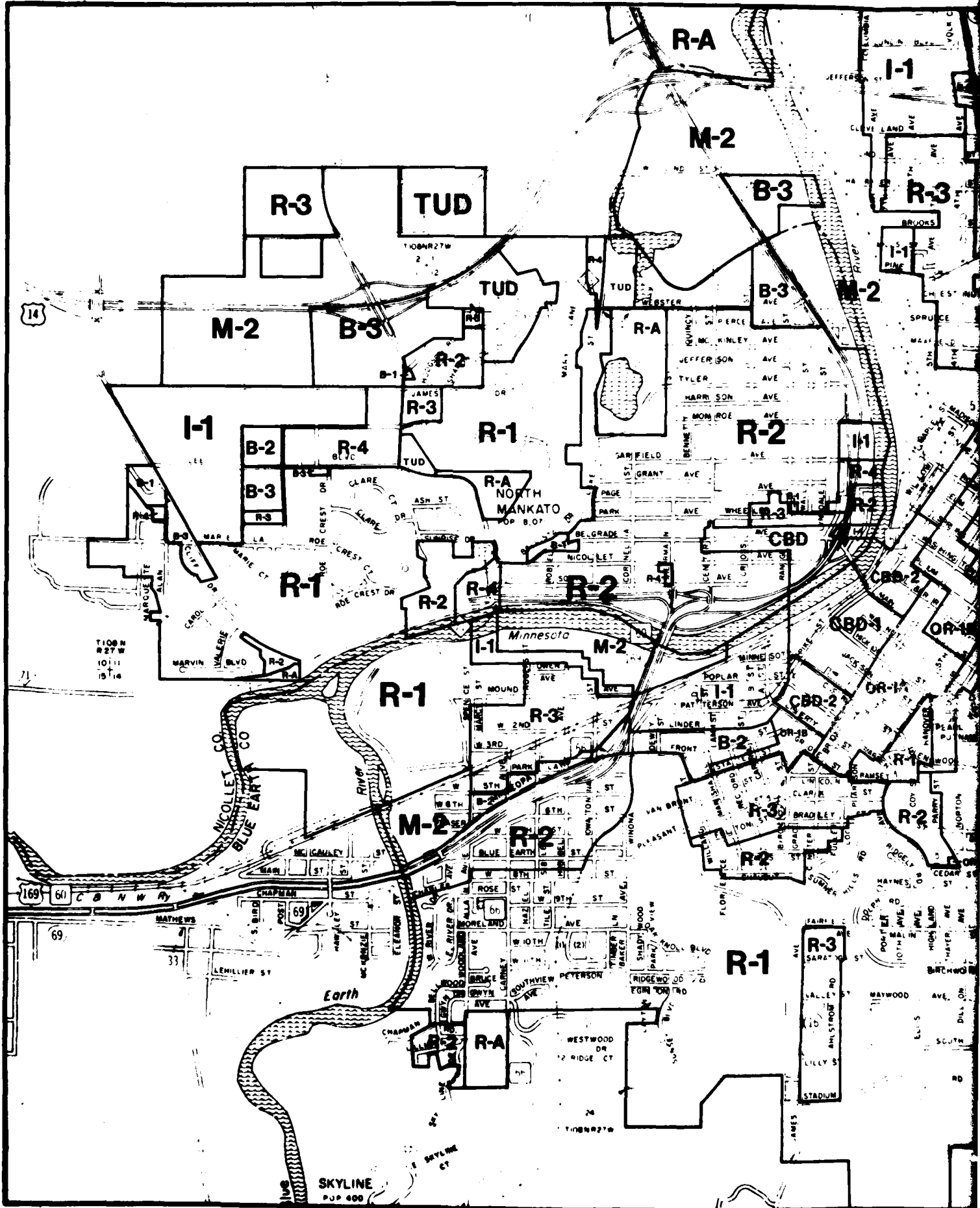
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- MULTI FAMILY RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- PUBLIC/ INSTITUTIONAL
- RECREATIONAL/ OPEN SPACE
- VACANT

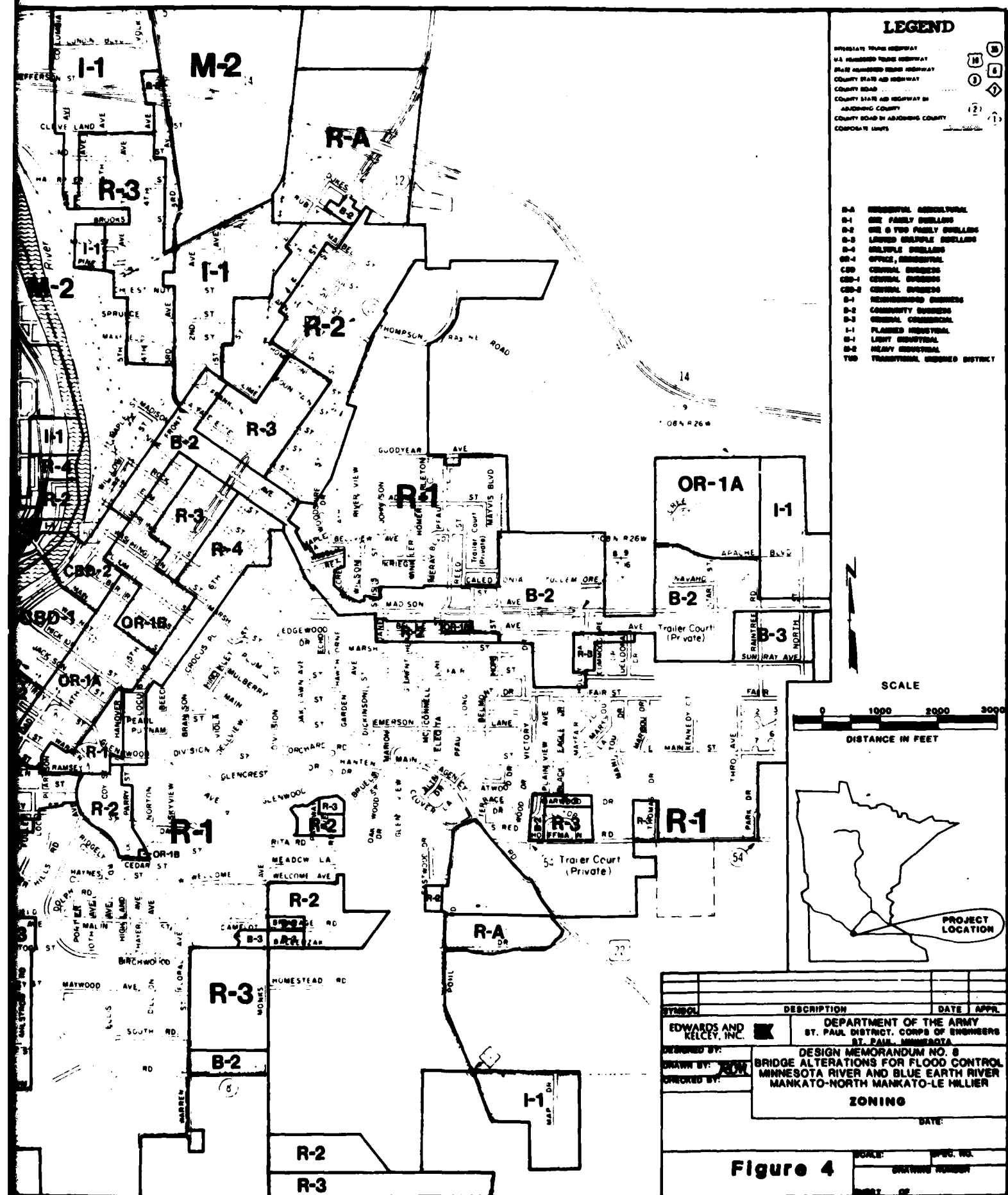


SCALE



SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCEY, INC.		DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA	
DESIGNED BY:	DESIGN MEMORANDUM NO. 8		
DRAWN BY:	BRIDGE ALTERATIONS FOR FLOOD CONTROL MINNESOTA RIVER AND BLUE EARTH RIVER MANKATO-NORTH MANKATO-LE HILLER		
CHECKED BY:	GENERALIZED EXISTING LAND USE		
DATE			
Figure 3		SCALE:	SPEC. NO.
		DRAWING NUMBER	
		SHEET OF	





Brett's Department Store, J.C. Penny Co., and assorted clothes stores, drug stores, restaurants and specialty shops. The success of the Mankato Mall has spurred adjacent redevelopment, such as a one block pedestrian mall just south of the enclosed mall, three large parking ramps, and a major hotel complex (Holiday Inn) at the intersection of Main and Pike Streets, adjoining the Main Street bridge. Continuing effort to re-establish the area as the principal commercial sector of the local economy is evidenced by numerous new and/or expanded businesses in the renewal area.

33. The "Old Town" shopping area is generally considered to be in an area bounded and adjacent to Front Street, Plum Street, Second Street, and Madison Avenue. The "Old Town" area is bisected by a major traffic artery (Front Street) connecting Madison Avenue and North Front Street with the present Main Street Bridge and the downtown shopping district. The "Old Town" shopping area is distinctly different in function from the downtown shopping area, being comprised mostly of specialty shops.

34. Old Town Neighborhood, Inc., a neighborhood association of merchants and residents, has developed a "Concept Plan" for improvement of the area. The primary element is renewal of the North Front Street Commercial Core through concentrated improvements to the streets and other public areas, and preservation and enhancement of historic structures. Although the Concept Plan has not been formally adopted by the Mankato City Council, it serves as the basis for the City of Mankato's multi-year (1979-1981) community development block grant program in the "Old Town" neighborhood. However, not all of the Concept Plan proposals or recommended changes are being implemented by the City of Mankato. In particular, the City is not planning to reduce Front Street to two lanes on the western half of the current street width, with a landscaped median separating the traffic from diagonal parking. However, to reduce traffic congestion, the City does foresee the eventual elimination of parking along both sides of Front Street between Plum and Rock, and the development of off-street parking areas to serve the Front Street businesses. The City has not yet addressed the Concept Plan's proposed development of a River-front recreation area adjoining the "Old Town" area.

35. Between the downtown and "Old Town" shopping areas is the Regional Library, a new Indian Memorial Monument, Ember's Restaurant, the Burton Hotel, the National Bank of Commerce, Mathes Printing, and some vacant urban renewal parcels. Although part of the renewal area, development in this area has halted pending the outcome of the bridge relocation project and possible significant impacts.

36. One of Mankato's industrial areas is located adjacent to the "Old Town" shopping area, between Front Street and the Minnesota River. The Hubbard Milling Company, the Dotson Company and other heavy industrial manufacturing firms are located here.

37. The Minnesota-Poplar Street Redevelopment Project, which is virtually complete, has resulted in the clearance and reassemblage of land for light industrial and commercial use in the southwestern portion of the CBD. Several new businesses have already located in the area, including Pfeiffers Plumbing and Heating and the Plumbery Home Center. Considerably more redevelopment activity is anticipated in future years. This area, plus an adjoining triangular tract to the north-east between Pike Street and the CNW railroad tracks currently occupied by a City parking lot and the railroad depot, has been designated as the "Pike-Poplar" redevelopment area for the purpose of impact analysis in subsequent sections of this report.

38. The current zoning in the CBD (Figure 4) is consistent with existing land uses. The downtown and "Old Town" shopping areas exist in commercial zones (CBD-1 and CBD-2). Likewise, predominant office and residential land uses in the eastern portions of the CBD exist in a corresponding office/residential zone (OR-1). Industrial zoning (M-2) exists immediately west of the "Old Town" area and in the Minnesota-Poplar Street area (I-1) southwest of the downtown.

39. The compatible relationship of current zoning and existing land uses indicates the city's intention to maintain a similar land use pattern in the area in future years. Redevelopment of portions of the CBD has taken place and will probably continue in the future. It is anticipated that replacement land uses will be of the same general nature as existing land uses.

40. Major community facilities in the CBD Neighborhood include the YWCA located at the northeast corner of Second and Warren Streets, and the YMCA located on Park Lane at its junction with T.H. 169. The YMCA and YWCA both serve as Mankato Area Recreational Council (MARC) community centers. Also in the CBD Neighborhood are Mankato Commercial College on South Front Street at the south end of the Mankato Mall, and the Multi-Center Church located at Second and Cherry Streets.

41. The population of the CBD declined by 25 percent between 1970 and 1978 due to the removal of a substantial number of housing units (mostly substandard) by the City of Mankato within the Minnesota-Poplar Street Redevelopment Project and Key City Urban Renewal Project areas. It is projected that the Mankato CBD Neighborhood will show a slight gain in population by the year 2000 (to approximately 1300 persons). The Mankato CBD neighborhood has a very high proportion of elderly residents, multi-family structures, renter-occupied housing units, and one-person households, and a significantly low youth population. Such housing and population characteristics are not unusual for an inner-city neighborhood.

42. Second Street between Plum Street and Madison Avenue has been identified as a sub-neighborhood that would be impacted due to alterations in traffic flow under the various Main Street Bridge

replacement alternatives. Examination of recent housing data for the area indicates that there have not been any significant changes in Second Street neighborhood character since 1973. Both the percentage of owner occupied houses and the number of non-residential structures have remained relatively constant. However, the mobility index (percent of households in the same dwelling unit for 1 year or more) suggests that this neighborhood is relatively unstable, due mainly to the high percentage of renters (more than 50 percent) and the high rate of annual renter turnover (more than 55 percent).

43. Central Neighborhood. The portion of the Central Neighborhood subject to impact from the Main Street bridge alterations lies to the west of Fifth Street. The sub-neighborhood of greatest concern, designated as the "Washington Park" neighborhood in the impact assessment section of this report, extends along Broad and Fourth Streets between Main and Madison Streets.

44. Residential development consisting of a mixture of single family and multiple family residences is the predominant land use in the Central neighborhood. This well established, primarily older neighborhood has experienced some conversion of large, older homes into both multiple family rental units and limited commercial activities. This conversion has occurred primarily because of the proximity to the former "Lower Campus" of Mankato State University. Since the "Lower Campus" was vacated in the spring of 1979, some rental units have converted back to single family structures. The residential sector of the neighborhood is widespread and comprises a majority of the eastern portion of the area. Some new multiple family development of significant size has occurred throughout this neighborhood. Scattered new apartment buildings are present along with major apartment complexes or facilities. As existing older homes have become blighted and deteriorated, replacement structures have tended to be multiple-family living facilities.

45. The southern portion of the Central neighborhood contains a complex of recently vacated buildings of the "Lower Campus" of Mankato State University. Some of the buildings are currently being converted to a variety of uses including multiple family dwelling units, governmental offices, and professional offices. Plans exist for the eventual total reuse of the "Lower Campus" area.

46. Another vacated facility adapted for reuse is the Immanuel Hospital building located on Fourth Street between Washington and Spring Streets. Since being vacated by St. Joseph's Hospital, part of the facility has been occupied by the Detoxification Center. Rehabilitation of the structure and conversion into subsidized housing for the elderly (105 units) has recently been completed. This facility, now known as the Gus Johnson Home, is currently operating at or near capacity (source: Mankato city staff).

47. Union School, located at Broad and Mulberry Streets, is used for vocational classes and also houses the Community Services Office. Other community facilities include three private schools, the National Guard Armory, Blue Earth County Courthouse, five churches, two government buildings and Washington Park, a primarily passive recreational facility on Fourth Street.

48. The population of the Central neighborhood declined slightly between 1970 and 1978 (from 4,598 to 4,500) due to removal of sub-standard housing units by the City within the Key City Urban Renewal area. A slight population increase is expected by the year 2000 due to the addition of some 200 housing units (mostly new multi-family, but with some conversions). Like the Mankato CBD neighborhood, the potentially affected portion of the Central neighborhood has a high proportion of elderly residents, multi-family structures, renter-occupied housing units, and one-person households; and a low percentage of youth population.

49. Examination of recent housing data for the "Washington Park" sub-neighborhood indicates that there have not been any significant changes in neighborhood character since 1973. Both the percentage of owner-occupied houses and the number of non-residential structures have remained relatively constant. The mobility index for Broad Street reflects a relatively transient neighborhood due to the high percentage of renters and the high rate of annual renter turnover. The mobility index for Fourth Street suggests that this portion of the neighborhood is slightly less transient. Even though the percentage of renters on Fourth Street is as high or higher than the percentage of renters on Broad, the average annual rate of turnover among renters on Fourth Street is lower.

50. Two neighborhood organizations currently exist within the Central Neighborhood: the Neighborhood Action Group and the Washington Park Group. The latter group is an ad hoc organizations composed of residents (both property owners and renters) who either live along Fourth Street or in the vicinity of Washington Park. The group has emerged in response to the Main Street Bridge relocation, has participated actively at the public information meetings, and is particularly concerned with potential adverse traffic impacts on Fourth Street. The Neighborhood Action Group is an ad hoc organization composed of residents and property owners who live near the "lower campus" of Mankato State University. This group formed primarily to counter proposals which would cause the "lower campus" to become a commercial center.

51. Tourtelotte Park Neighborhood. Existing land uses in the Tourtelotte Park neighborhood are predominantly single and multiple family residential toward the interior and eastern portions of the neighborhood, with a variety of commercial uses along the western and southern borders. Commercial activity has tended to locate

along major transportation routes (Front Street and Madison Avenue), which has promoted highway oriented businesses such as auto dealers, service stations and drive-in restaurants. The potentially impacted southwest corner of the neighborhood is primarily characterized by this roadside commercial development. However, also existing in the neighborhood are Franklin Elementary School, Franklin Middle School (also a MARC Community Center), Good Council Hill School (K-12), Bethel Baptist Church, Our Savior Lutheran Church, Fire Station No. 1, and several homes.

52. Commercial zoning (B-2) currently exists along the southern and western borders of the neighborhood, reflecting the predominant land use (Figure 3). Remainder of the neighborhood contains R-2 and R-3 zoning. Little change in the overall character of the neighborhood is anticipated.

53. The population of this neighborhood has remained stable between 1970 and 1978, although the number of housing units has increased by nearly 20 percent due to declining household size. This trend is expected to continue; as a result the Tourtelotte Park Neighborhood is projected to decline in population by the year 2000 by about 10 percent, from 2,100 (1978) to 1,880.

54. Only about 12 percent of the residents of the Tourtelotte Neighborhood live located within the potential impact area. The area is characterized by predominantly single-unit housing, over 60 percent owner-occupied. The proportion of female-headed households, youth population and elderly population are all above city-wide averages; one person households below the city-wide average.

55. Lincoln Neighborhood. The Lincoln neighborhood is a predominantly residential neighborhood located south of the Mankato CBD. The portion of the neighborhood which lies north of Pleasant Street and Clark Street is subject to potential indirect traffic impacts as a result of the Main Street bridge alterations.

56. The population of this neighborhood has stabilized at about 3,300, although the number of housing units is increasing slightly. This pattern is attributable to a combination of two factors: (1) the area is fully developed and mature (additions to the housing stock usually entail removing and replacing existing older single family homes with new multi-family apartment complexes); (2) a decline in household size.

57. About two-thirds of the residents of the Lincoln Park Neighborhood are located within the potential impact area. A significant proportion of these potentially affected residents live in group quarters, mainly fraternity and sorority houses associated with Mankato State University. Due to the presence of a large college population, it is not surprising to find that the affected area has a low percentage of youths and an average number of elderly residents.

The potential impact area has more renters than owners, a high incidence of one-person households, and a high percentage of multi-unit structures.

58. One established neighborhood organization, the Lincoln Park Neighborhood Association, Inc. has been in existence for about five years. Its primary concerns are the regeneration of the neighborhood, which is recognized for its historically significant residences, and the protection of its residential character. The group does not meet regularly but rather responds to issues as they arise, such as rezoning requests, development proposals, pedestrian safety, and traffic.

59. North Mankato CBD. The CBD neighborhood is primarily commercial, comprised of neighborhood businesses such as a hardware store, laundromat, taverns, cafe and bank. The Century Club Restaurant located immediately adjacent to the Minnesota River is a prominent commercial feature in this area and serves a clientele from within a large regional trade area.

60. Industrial facilities in the neighborhood include the Marigold Dairy (sold in February 1981) on Belgrade Avenue, and Lindsay Sash on River Drive. Both firms are low intensity operations and can be considered light industrial activities. A major land use feature in the neighborhood is T.H. 169. This elevated four lane highway bisects the neighborhood and utilizes a considerable amount of land for traffic lanes, median, and ramps.

61. Residential development in the neighborhood ranges from single-family homes to multiple-family units (both in converted single-family homes and in residential units above businesses). Residential units are located one block north and one block south of Belgrade Avenue and in an isolated pocket along River Drive between the Minnesota River and T.H. 169.

62. Current zoning (Figure 3) provides for a continuation of business development (CBD), industrial activities (I-1), and a variety of residential types (R-2 and R-3). These zoning districts reflect predominant existing land uses in the neighborhood, except for the commercial designation along Nicollet Avenue east of Range Street which is presently occupied by single-family residences. The zoning reflects the long-term expectations of the City for its eventual conversion to business use.

63. The North Mankato CBD neighborhood differs significantly from the City of North Mankato as a whole in several ways. It has a relatively high percentage of elderly residents and female-headed households. It has a relatively low average household size, youth population and percentage of single-unit residences. The total population is expected to show a slight increase to approximately 200 by the year 2000, disregarding potential displacements due to the bridge alterations.

64. The River Drive sub-neighborhood, which is subject to total acquisition for the bridge alterations, consists of a group of 10 single-family residences, eight of which are owner-occupied. Six are one-person households, 3 low-income and 2 female-headed. The total 24 current residents include three elderly and 10 youths. North Mankato currently experiences problems in providing city services (e.g. snow removal, emergency vehicles) to this isolated area and City officials have indicated a desire to relocate the residences and extend the proposed Riverview Park into the area.

65. The block of homes on Nicollet Avenue east of Range Street has been included with Nicollet Avenue residences to the west for purposes of impact assessment--see Nicollet-Sherman Neighborhood.

66. Nicollet-Sherman Neighborhood. Residential land use characterizes this well established and stable neighborhood. The majority of residences are single family units. However, two family and multiple family dwellings are interspersed.

67. The North Mankato central business district extends into the Nicollet-Sherman neighborhood along Belgrade Avenue to Center Street. Commercial uses include neighborhood and service type of businesses such as the Kwik Trip Food Store, A-1 Liquor Store, and a gas station. Another small commercial area exists further west on Belgrade Avenue at Park Avenue.

68. Within the Nicollet-Sherman neighborhood is the North Mankato City Hall which includes city offices, a fire station, and a library. Also in the area are the North Mankato Water Treatment Building, the Holy Rosary Church and School and the Belgrade Methodist Church. A high-rise apartment building for senior citizens (76 units) is located in the Nicollet-Sherman neighborhood at the intersection of Sherman Street and Nicollet Avenue. None of these community facilities are within the primary impact area.

69. The entire southern portion of the neighborhood is traversed by T.H. 169 or Lookout Drive (formerly U.S. 14). These major transportation routes align along the Minnesota River and have acted as a man-made boundary to residential development. The continuation of the existing residential character of the neighborhood is encouraged by the current zoning of R-2. Smaller commercial districts (CBD and B-1) accommodate the existing businesses. The senior citizens high-rise is accommodated by an R-4 zone.

70. The population increased slightly between 1970 and 1978 to nearly 2600 persons. The rise is attributed to a slight but noticeable turnover in the housing stock from elderly occupants to young families. Less than one-quarter of the residents of the neighborhood are located within the potential impact area, which differs significantly from the neighborhood and the City as a whole. A high proportion of the potentially affected residents are elderly and a low percentage are youths. Only 47 percent of the housing units are single-family

structures as compared to over 70 percent city-wide, whereas 53 percent of the housing units are in multi-family structures of less than 10 units. Slightly over half of the households are renters, over one-quarter are occupied by only one person, and the average household size is well below the City average.

71. Recent housing data was examined for a Nicollet sub-neighborhood along Nicollet Avenue from Sherman to Belgrade Avenue, including the block of homes to the west of Range Street in the North Mankato CBD. The data shows that this sub-neighborhood, which is used for impact analysis in subsequent sections of this report, has not experienced significant changes in neighborhood character since 1973. Both the percentage of owner occupied houses and the number of non-residential structures have remained relatively constant. The Nicollet sub-neighborhood has a slightly lower proportion of owners than the City as a whole does. However, the mobility index for Nicollet Avenue suggests that this neighborhood is highly stable.

72. Wheeler Park Neighborhood. The dominant land use in the Wheeler Park neighborhood is residential, as indicated on Figure 3. The neighborhood is well established, stable, and fully developed. Residential units include single family homes, some multiple family residences converted from single family homes and small apartment buildings. TH 169 aligns north-south along the eastern edge of the neighborhood and forms a man-made boundary for residential development.

73. Wheeler Park is a major feature in the neighborhood. The park provides both active and passive recreational opportunities and is utilized by the entire community. The park has been improved with paved roads, softball and baseball fields, tennis courts, horseshoe lanes, a wading pool, a skating rink, a picnic area, playground equipment, and a band shell. Other public land uses in the neighborhood include Monroe Elementary School, North Mankato Junior High School and River View Park.

74. The neighborhood has reached maturity and its population is anticipated to maintain a stable level of nearly 800. The neighborhood does not differ significantly in either housing or demographic characteristics from the City of North Mankato as a whole. It has about 70 percent single-family residences, 66 percent owner-occupancy and 22 percent single-person households. Elderly and youth comprise about 16 and 34 percent, respectively, of the total population.

75. Range-Webster Neighborhood. TH 169 borders the eastern portion of the neighborhood and has been a major influencing factor on land use and development. Commercial and industrial land uses are most prevalent along and in the vicinity of the highway in the northern portion of the neighborhood. These commercial and industrial developments such as the Holiday Inn North, Patterson Lumber, Kahler Motel, Wilson Trailer Sales and several gas stations, are dependent on high traffic volumes and/or large amounts of land for their operation.

76. The southern portion of the neighborhood is dominated by one and two-family residential land uses. TH 169 has formed a man-made boundary to residential development. There are no homes located east of the highway and along the Minnesota River. A portion of the river bank is planned for the development of a river front park. A small park (Wallyn Park) is located at Pierce Avenue and TH 169. The park serves as a neighborhood facility and acts to buffer some of the neighborhood's homes from highway traffic and noise. Also located in the neighborhood is St. Paul's Evangelical Lutheran Church at the intersection of Monroe Avenue and Range Street.

77. Current zoning parallels the existing land uses in this neighborhood, with the southern two-thirds being zoned R-2 and the northern portion being zoned for more intensive land uses. A B-3 District is located adjacent and west of TH 169, and an M-2 District is adjacent and east of TH 169. Both accommodate the current business activities.

78. The estimated 1978 population of this neighborhood was 1,490 persons, a slight increase from 1970. In comparison to the Wheeler Park neighborhood, the Range-Webster neighborhood is younger and is just now reaching maturity. There are few sites left within the neighborhood for new residential construction, and the existing housing stock is not old enough to warrant replacement.

79. The neighborhood is noticeably different from the other potentially impacted North Mankato neighborhoods and the City as a whole. The neighborhood has a high proportion of youths and a low percentage of elderly residents. Over four-fifths of the housing units are in single-family structures and almost 84 percent of the housing units are owner-occupied, compared to about 71 percent citywide. Average household size is well above the City average.

Traffic and Transportation

80. The Main Street bridge carries Trunk Highway 60 between Mankato and North Mankato, connecting the Central Business Districts (CBD) of the two cities. It lies at the location of the original connection between the two cities and is the link around which the two cities have developed. It serves as a major arterial link in the roadway network of the Mankato-North Mankato area, as illustrated on Figure 5.

81. On the North Mankato side, the bridge is the extension of Belgrade Avenue, the central arterial of the city, which connects via a signalized diamond interchange with TH 169, a major expressway between Minneapolis-St. Paul and south central Minnesota. To the south, TH 169 carries a joint trunk highway designation with TH 60.

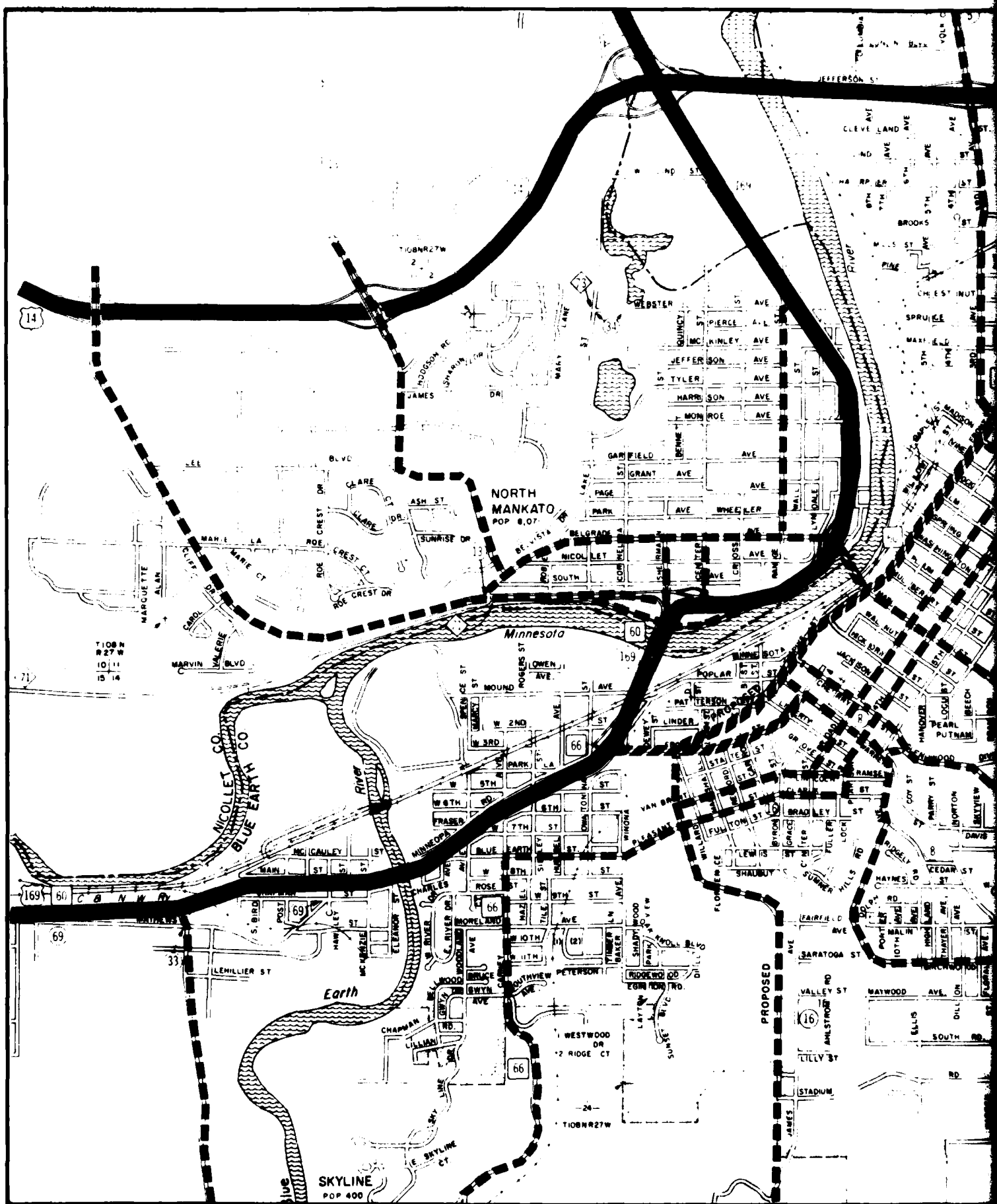
82. On the Mankato side, the Main Street bridge leads directly into Main Street at a signalized intersection with North Front Street - Pike Street which is the major north-south arterial of the city. TH 60 follows North Front Street to Madison Avenue and then turns easterly on Madison Avenue. Main Street and Front-Pike Streets serve

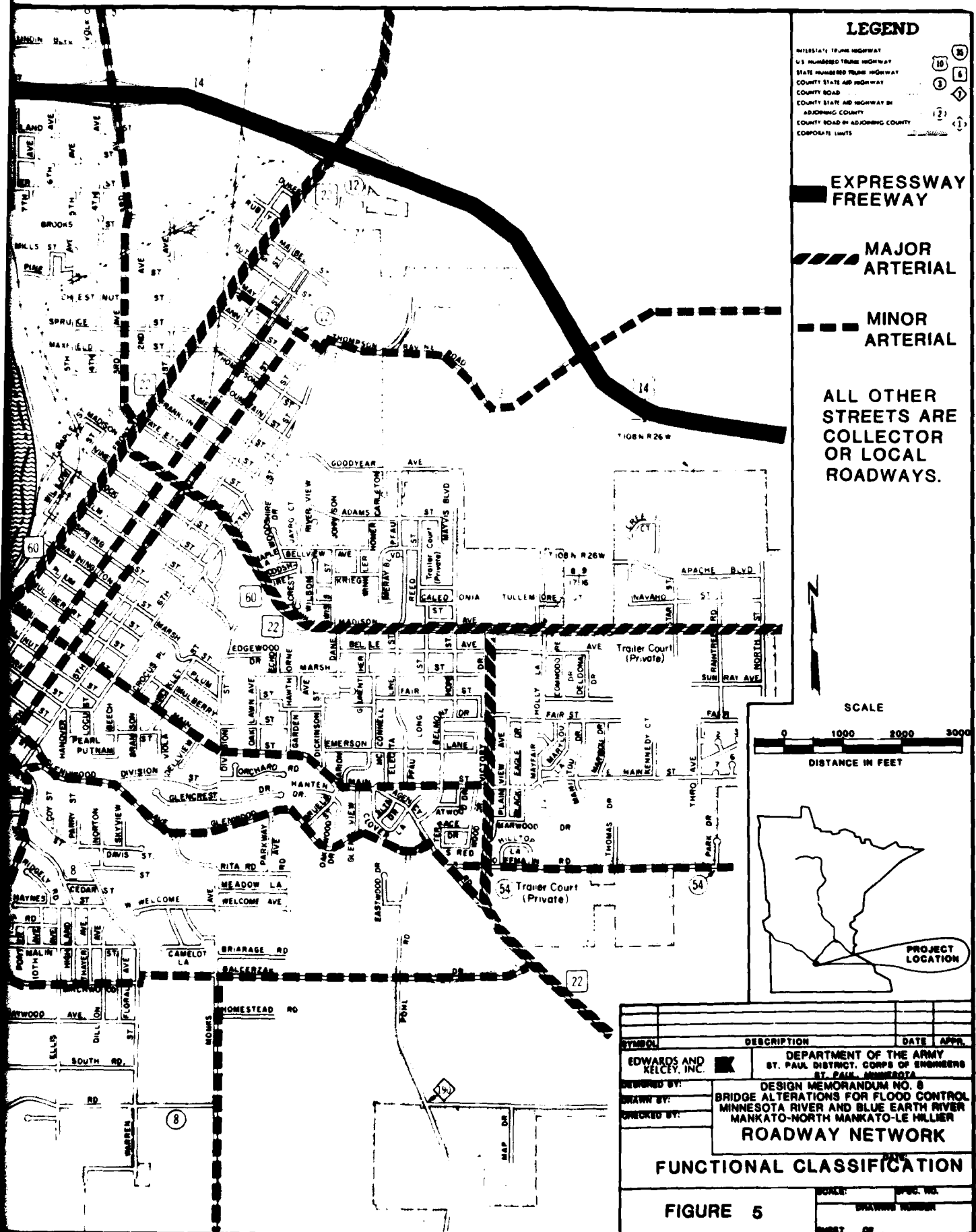
the Mankato CBD and the Old Town district which lies north of Main Street along Front Street. Main Street also provides access to the Central neighborhood via an intersecting pair of one-way north-south minor arterial streets, Broad and Fourth, and Second Street, a north-south collector roadway. Main Street is one of three routes which provide a connection from the lower central area of Mankato to the "hilltop" area on the bluff, the other two being Madison Avenue on the north and the Warren-Cherry Street one-way pair on the south. All three intersect the four north-south roadways mentioned previously. Main Street bridge traffic is collected and distributed over the above roadways.

83. Current (1978) average weekday and peak hour traffic volumes on the Main Street bridge and adjoining street network are shown on Figure 6. The Main Street bridge accommodates an average weekday traffic (AWDT) flow of 25,500 vehicles per day. Average daily traffic, including weekends, is 24,000 vehicles per day, with Saturday and Sunday traffic approximately 90 percent and 70 percent, respectively, of weekday volumes. Morning traffic peaks between 7:30 and 8:30 AM, at 1700 vehicles per hour, with 1000 vehicles eastbound and 700 vehicles westbound. Afternoon traffic peaks between 4:15 and 5:15 PM at 2,100 vehicles per hour, with 800 vehicles eastbound and 1300 vehicles westbound. Midday traffic averages approximately 1600 vehicles per hour, with about half traveling in each direction. To accommodate the afternoon "rush hours", two of the three traffic lanes on the bridge are designated for westbound flow between 4:00 and 6:00 PM. During the remainder of the day, the bridge operates with two lanes eastbound and one westbound. Overhead lane signals are used to control the direction of flow. A detailed description of traffic characteristics for the Main Street bridge and adjoining street network is provided in Technical Report No. 1, "Present and Projected Traffic".

84. Three railroad tracks cross Main Street at-grade at the easterly end of the bridge. One, the nearest to the river, is the main track of the CNW. The second is a CNW yard track connecting the railroad's east and west yards and the third is a Milwaukee branch line track which serves a yard southwest of Main Street. This yard includes the interchange track for transfer of cars between the Milwaukee and the CNW. In addition to frequent switching operations over the crossing, 5 CNW through trains are scheduled daily at various hours. Additional trains are operated during periods of heavy grain movement. Because these trains operate at yard speed, maximum 10 MPH, and they typically consist of 90 to 175 cars, the crossing is blocked to street traffic for 5 to 10 minutes during their passage.

85. The crossing is protected by a railroad crossing guard 24 hours per day. The traffic signal controlling the intersection of Main and Pike Streets has phasing provisions for clearing the





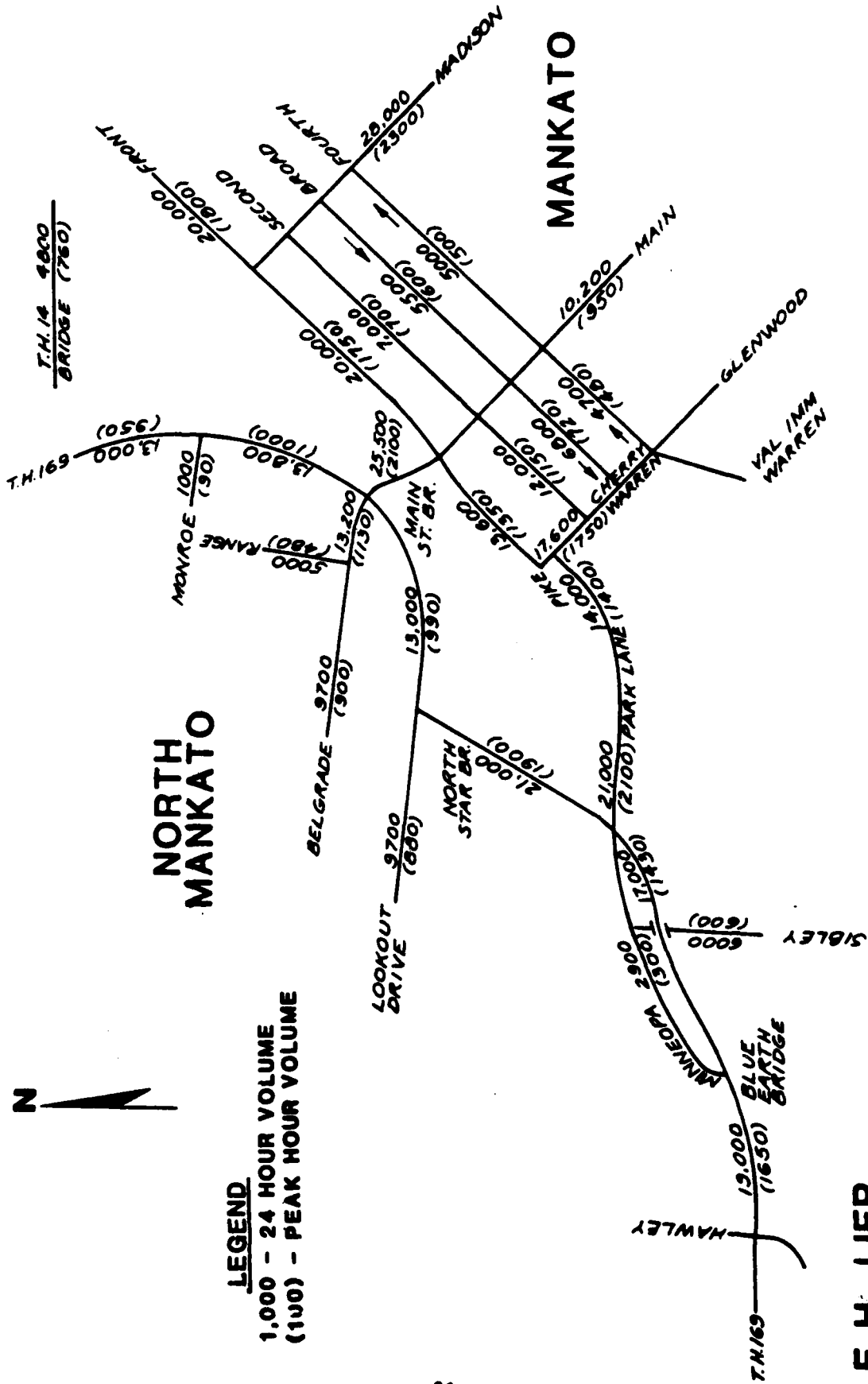


FIGURE 6
1978 AVERAGE WEEKDAY TRAFFIC

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track prior to train passage and for maintaining non-bridge traffic flow while the crossing is blocked by trains. The preemption of regular signal operation to institute these special functions is under the manual control of the railroad crossing guard.

86. Substandard lane widths on the bridge and lack of space for adequate intersection approaches at each end create inefficient and hazardous traffic operation. At the easterly end, operational problems are compounded by the at-grade railroad crossing. Peak period congestion and delays are common, with vehicle queues during train passages extending across the bridge and onto the TH 169 ramps at Belgrade Avenue in North Mankato and into the Mankato CBD along Main, Pike and North Front Streets. Some drivers divert to alternate, more circuitous routes via the TH 14 and TH 169 bridges during such periods.

87. Figure 7 illustrates the origins and destinations of Main Street bridge traffic on each side of the Minnesota River, based on travel surveys conducted in October 1978. As shown, the bridge serves a wide range of origins and destinations on each side of the river.

88. On the North Mankato side, nearly 45 percent of the bridge crossing trips are generated in the valley residential and commercial areas, with slightly over 25 percent destined for the North Mankato hilltop. The remaining 30 percent are generated outside of North Mankato, approximately 20 percent using TH's 169 and 14 to the northwest and 10 percent recrossing the Minnesota River via the "North Star Bridge" to the southwest on TH 169/60.

89. On the Mankato side, nearly 45 percent of the trips are generated in the CBD, Old Town and adjoining residential areas. Approximately 35 percent are generated in the hilltop area, with the remaining 20-plus percent distributed among surrounding townships and highways.

90. At the time of the survey, the TH 14 bypass to the north of Mankato was not fully completed. While the TH 14 Minnesota River crossing was open, access was completed only as far as Third Avenue on the Mankato side of the river. The recent completion of the bypass has diverted some former Main Street bridge users to the TH 14 crossing, particularly "thru" trips on the trunk highways. Allowance for such diversion was made in all projections of future travel demands for the Main Street bridge. Thus, future projections show the proportion of Main Street bridge trips generated in the Mankato CBD and adjoining areas increasing to over 55 percent, while trips to/from surrounding townships and highways on the Mankato side decrease to less than 10 percent.

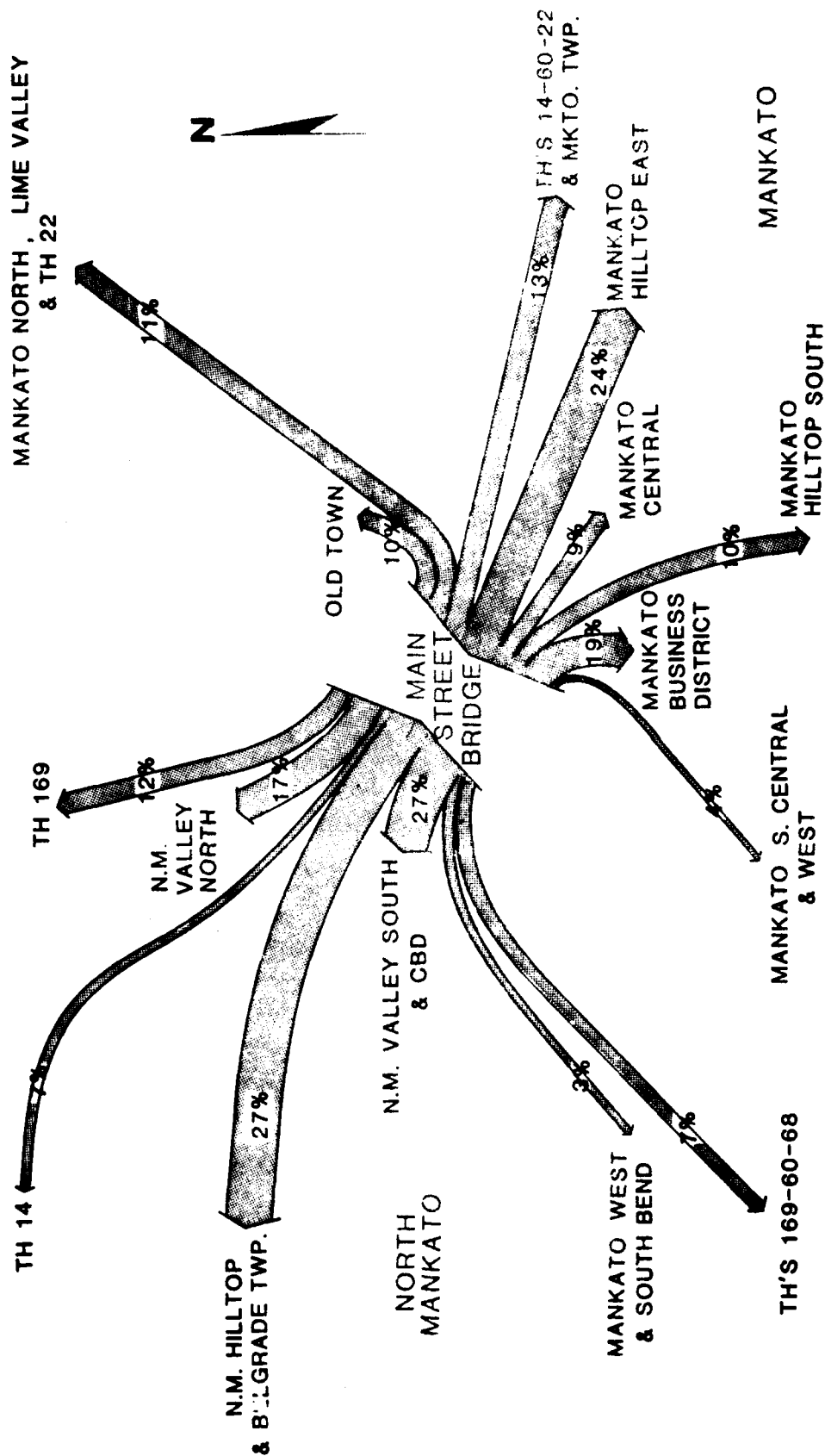


FIGURE 7
 MAJOR TRAFFIC DESIRES-MAIN STREET BRIDGE
 WEEKDAY TRAFFIC-DISTRIBUTION OF ORIGIN-DESTINATIONS
 ON EACH SIDE OF BRIDGE (% OF TOTAL)

91. Primary trip purposes identified by the bridge users were 37 percent to and from work, 23 percent company business, 13 percent shopping, 7 percent school and 5 percent recreation. Average vehicle occupancy was slightly over 1½ persons per vehicle.

92. The Main Street bridge also provides a link for pedestrian and bicycle travel between Mankato and North Mankato. During the October weekday survey, approximately 150 pedestrians and 75 bicyclists used the bridge between the hours of 7 AM and 7 PM, with heaviest use during the late afternoon "rush" hour.

93. Local bus service in Mankato is provided by the City along four regular bus routes. Buses operate at 20-minute intervals between 6:30 AM and 6:00 PM. In the Main Street bridge vicinity, service is provided on Main Street, Pike Street, North and South Second Street, North Fourth Street, Cherry and Warren Streets, and Park Lane. Special mini-bus service on non-fixed routes is also available for handicapped and senior citizens. Local service to North Mankato is provided on a fifth route that operates via the TH 169 North Star Bridge. The service is not operated via the Main Street bridge because of interruptions and delays caused by the at-grade railroad crossing on the Mankato end of the bridge. Greyhound and Midwest Coaches intercity bus routes to and from the Twin Cities do use the Main Street bridge. These routes operate via TH 169 on the North Mankato side; via Main, Broad and South Second Streets on the Mankato side.

Noise and Air Quality

94. Noise is most commonly measured in units called decibels (dB). The "A" weighted scale (units expressed as dBA) has been found to compare well with human reaction to noise annoyances. Among the descriptors that correlate human response with a statistical record of noise environment are L_{50} , the median noise level, and L_{10} , the noise measurement that is exceeded 10 percent of the time. The latter provides a measure of loudest noise events and degree of noise level fluctuations from noise sources such as roadways. Single event peak noise levels are expressed as L_{maximum} . Table 1 lists examples of comparable noise levels of common generators.

TABLE 1
COMMON ENVIRONMENTAL NOISE LEVELS (dBA)

<u>Indoor Noise Levels</u>	<u>Decibels</u>	<u>Outdoor Noise Levels</u>
	140---	THRESHOLD OF PAIN
	130---	Pneumatic riveter
Oxygen torch	120---	
	110---	Elevated Train
Rock and roll band	100---	Jet flyover at 1000 ft.
		Farm tractor
		Lawn mower at 3 ft.
Boiler room	90---	Motorcycle at 25 ft.
Food blender at 3 feet		
Garbage disposal at 3 feet	80---	Lawn mower at 100 ft.
Shouting voice at 6 feet	70---	Car, 50 mph at 50 ft.
Normal speech at 3 feet	60---	Heavy traffic at 300 ft.
Average business office	50---	
Average residence		Bird calls
	40---	
Library		
	30---	
Broadcasting studio		Quiet rural area at night
	20---	Rustling leaves
	10---	
	0---	THRESHOLD OF HEARING

95. Typical noise levels in the study area as determined from field measurements and traffic noise models are summarized in Table 2. In general, present noise levels are within Federal Highway Administration Design Noise Levels ($L_{10} = 70$ dBA for residences and related uses and $L_{10} = 75$ dBA for commercial and industrial uses). By contrast, State daytime standards are slightly exceeded (by 1 to 4 dBA) through much of the area, with State nighttime standards exceeded (by 1 to 7 dBA) throughout most of the project area. Such noise levels are, however, typical for similar urban areas. State standards are $L_{10} = 65/L_{50} = 60$ dBA daytime and $L_{10} = 55/L_{50} = 50$ dBA nighttime at residential and related uses; $L_{10} = 70/L_{50} = 65$ dBA at commercial uses and $L_{10} = 80/L_{50} = 75$ dBA for industrial uses. A detailed description of existing noise levels and noise standards is provided in Technical Report No. 3, "Preliminary Noise Analysis".

96. Air quality data on the concentration of transportation-related pollutants is not available for the Mankato area. However, the Minnesota Pollution Control Agency has evaluated such pollutants on a statewide basis in the development of its State Implementation Plan (SIP) to achieve and maintain State and Federal ambient air quality standards. Transportation Control Plans have been developed for areas requiring special measures to meet standards for transportation related pollutants. Mankato has not been identified as an area requiring such controls.

Climate

97. The climate of the area is characterized by warm and moderately humid summers, with maximum rainfall generally occurring in the spring and early summer. The annual mean temperature is 46° F, with July the warmest month, averaging 72° F, and January the coldest, averaging 16° F. The area receives an average of 29.5 inches of precipitation per year, about 14 percent of which occurs as snow. The relative humidity averages 70%, with an average annual temperature range of 118 degrees Fahrenheit. Average annual wind velocity is 9.6 miles per hour. The prevailing winter winds are from the northwest and prevailing summer winds from the southeast. Strongest winds are normally from the south or southwest. Severe thunderstorms, and occasionally tornadoes, occur in the area.

Topography, Geology and Soils

98. The glaciers that once covered this region greatly modified the original surface features of this area. The present Minnesota River and its tributaries now occupy a broad valley eroded by glacial waters during the last (Wisconsin) stage of glaciation. The Minnesota River originates on the western boundary of Minnesota and flows southeasterly to the study area, where it bends northeast and flows to its confluence with the Mississippi River at Minneapolis-St. Paul. The Blue Earth River originates in south central Minnesota and flows northward to its confluence with the Minnesota River at the west edge of Mankato.

99. The lower portions of both Mankato and North Mankato, including the existing and alternative Main Street Bridge locations, lie in the broad Minnesota River valley. Valley floor elevations in the Main Street bridge vicinity vary from approximately 770 to 780 feet above sea level. The relatively flat plain that surrounds the Mankato area atop the valley bluffs varies in elevation from approximately 1000 to 1100 feet above sea level.

100. Bedrock in the Mankato area consists of deposits from the mid-continental ocean. Oneota dolomite, Blue Earth siltstone, Jordan sandstone and St. Lawrence dolomite occur progressively downward from the surface. The bedrock surface in the Main Street bridge area appears to vary from about elevation 700 to 725.

TABLE 2
EXISTING AMBIENT NOISE LEVELS (dBA)

Location	Zoning	DAYTIME (7 AM to 10 PM)		NIGHTTIME (10 PM to 7 AM)	
		<u>L₁₀</u>	<u>L₅₀</u>	<u>L₁₀</u>	<u>L₅₀</u>
<u>Mankato</u>					
N. Front Street	Business	73-76	67-69	70-72	63-65
N. Second Street	Business, Office-Residential	64-66	56-58	57-59	46-48
N. Broad Street	Office-Residential	66-68	59-61	60-62	48-50
N. Fourth Street	Office-Residential	64-67	57-61	58-61	47-49
Main Street	Business, Office-Residential	68-71	61-63	64-67	55-57
Mulberry Street	Business, Office-Residential	57-60	52-55	50-53	48-50
Warren Street	Business, Office-Residential	69-72	60-64	63-66	55-57
<u>North Mankato</u>					
TH 169	Business, Industrial	63-67	55-60	57-62	50-54
Belgrade Avenue	Residential				
Nicollet & Range	Business	66-70	60-64	60-65	53-58
	Residential, Business	55-59	51-55	44-48	39-42

101. Valley sediments in the project area generally consist of pervious sands and gravels with layers of silt and clay. The thickness of valley fill varies from approximately 20 feet to 90 feet. This fill rests on the sandstone, limestone and shale of the Jordan and St. Lawrence formations. The valley walls consist of exposed Jordan sandstone, Oneota dolomite, and glacial till. Soils in the area are generally coarse grained because of the high energy of the Minnesota River. However, there are also areas of buried peat that are remnants of old backwater areas. Some borings near the river indicate a dense stratum of sand about 30 feet below the surface with an underlying stratum of very hard clay. Pile foundations will likely be required for all or most of the bridge piers and abutments.

102. A more detailed discussion of the geological conditions and foundation requirements at each of the alternative bridge sites may be found in Technical Report No. 2, "Soils and Geology".

Hydrology and Hydraulics

103. Summer rainstorms of short duration and high intensity are common in the region. The greatest 24-hour precipitation recorded at Mankato was 7.72 inches on August 10, 1948. While floods on the Minnesota River produce relatively slow changes in stage, flood stage changes on the Blue Earth River are rapid and may permit little advance warning of danger. The maximum known flood on the Minnesota River at Mankato, 94,100 cfs, occurred in April 1965, while the peak on the Blue Earth River during the same month but not at the same time was 65,000 cfs.

104. The Standard Project Flood (SPF) on the Minnesota River at Mankato has been estimated as 155,000 cfs. The SPF water surface elevation at the Main Street crossing is 784 (feet above mean sea level) if the bridge is raised or removed. The stage for the SPF flow would be about six feet higher if the bridge remains. This is due to the backwater effect caused by the in-place bridge. The potential for plugging with ice and debris could further increase the backwater effect. The design of the flood protection measures is based on the SPF surface elevation of 784.

Natural Resources

105. The principal mineral deposits of the area consist of sand, gravel, limestone and sandstone. A limestone quarry is located on the Mankato side of the river between the CNW railroad and Front Street near Madison Avenue.

106. Vegetation in the area potentially affected by the Main Street bridge alterations consists primarily of ornamental trees and shrubs, and landscape plantings in the adjoining residential and commercial areas. Vegetation in the "open" areas adjoining the river and CNW railroad tracks is generally sparse, highly disturbed and confined

to weedy species. A vegetation survey conducted in October 1979 revealed no threatened or endangered plant species. In addition, no special or unique vegetational zones or habitats were found that would warrant special protection or mitigation measures, or warrant exclusion of any alternative locations from a botanical point of view.

107. Wildlife of the project area consists mostly of species common to a southern Minnesota urban habitat: squirrels, rabbits, small rodents, pigeons and tree-nesting birds. The location affording the most diverse wildlife potential is a large area piled with debris along the Mankato side of the river near Madison Street. No threatened or endangered wildlife species are known to inhabit the project area.

108. The Minnesota and Blue Earth River uses under State water pollution control regulations are classified as "2B, Fisheries and Recreation" and "3B, Industrial Consumption". Because of high concentrations of calcium and magnesium, the waters of the Blue Earth and Minnesota Rivers are very hard -- in excess of 180 milligrams per liter. Both rivers are also quite turbid and have a high sediment concentration, mostly clay and silt. Nutrient levels are quite high, which is attributable to runoff from fertilized fields and waste water discharge. Industrial and domestic wastes from Mankato and North Mankato receive primary and secondary treatment. Le Hillier sewage is treated in septic tanks. Water quality compliance with trace metal standards indicates a low level of industrial development.

109. River bottom sediment samples taken throughout the project area indicate that concentrations of such heavy metals as lead, chromium, barium, cadmium and mercury are similar to those normally found in the Minnesota River. The low concentration of such elements in the water quality testing suggests that they are not readily released from the sediments. The only potential "hot spot" (location where the concentration is far above ambient levels) was found in the backwater area downstream from the existing Main Street bridge. Two sediment cores taken at this location contained above normal lead levels, probably due to the Mankato storm sewer effluent pipe which enters the Minnesota River at that point.

110. Work of the Minnesota-Wisconsin PCB Interagency Task Force in 1976 indicated that the game fish in the Minnesota River near Mankato have higher polychlorinated biphenyl (PCB) levels than the fish either upstream or downstream. However, analysis of PCB's and other chlorinated hydrocarbons from recent sediment cores taken by the U.S. Geological Survey in the project area indicate no presence of PCB "hot spots".

111. Benthos, clam and fish studies indicate that the established aquatic communities are tolerant of the high turbidity and siltation of the river. Field surveys and data review revealed that no

threatened or endangered aquatic species are known to exist in the project area. No major river pools or wetlands areas occur in the potential impact area. A detailed description of the natural resources of the area and consultations with State and Federal agencies is contained in Technical Report No. 6, "Natural Resources".

Parks and Recreation

112. There are 27 parks in Mankato and 17 in North Mankato. Of these, five in Mankato and three in North Mankato could be affected by one or more of the alternatives under consideration for the relocation or alteration of the Main Street bridge. Data on these parks is given in Table 3.

Historic and Archaeological Resources

113. In accordance with Section 106 of the National Historic Preservation Act of 1966, the National Register of Historic Places has been consulted. As of 6 May 1981, there were 23 properties listed on the National Register within the potential impact area for the Main Street bridge replacement. Eight of these properties are individual listings. The remaining fifteen properties make up the North Front Street Commercial District. A list of these 23 properties is included in Table 4.

114. An additional sixty-six (66) properties considered "potentially eligible" for listing on the Register were also identified in the area of possible impact, including the Sioux Indian Hanging and proposed memorial site adjoining the new library at Main Street and Pike Street near the southeast end of the existing bridge.

115. For those "potentially eligible" properties that will be impacted by the selected alternative, the comments of the State Historic Preservation Officer will be sought in order to determine if any of the properties are eligible for inclusion on the National Register. Any impacts to properties listed on, or found to be eligible for listing on, the National Register will be mitigated in accordance with the Advisory Council on Historic Preservation Guidelines, 36 CFR 800. A detailed description of the historic standing structure resources of the area is contained in Technical Report No. 5, "Historic Resources".

116. As of 6 May 1981, no archaeological sites were listed on or pending nomination to the National Register within the proposed project area. An archaeological survey of the proposed project area will be conducted during 1981. All sites located during this survey will be tested to determine their National Register eligibility. For those sites found to be eligible for the National Register, mitigation will be completed prior to construction in accordance with the guideline of the Advisory Council on Historic

TABLE 3
CITY PARKS

(Potential Impact Area - Main Street Bridge Alterations)

<u>Name</u>	<u>Acreage</u>	<u>Location</u>	<u>Facilities</u>
<u>MANKATO</u>			
Washington	3.5	South of Washington St., north of Mulberry St., east of North Fourth St., and west of Washington Court	Playfield, playground equipment
Hubbard	0.31	Southwest corner of Broad and Warren Streets	Open space, flower gardens
Palmer Centennial	0.30	Northwest corner of Broad and Warren Streets	Open space, flower gardens
Plaza	0.20	100 block of E. Hickory St., across from First National Bank Drive-In Northeast corner of Front and Warren Streets	Open space, benches
Unnamed-- (proposed)	0.20	Northeast corner of Front and Warren Streets	---
<u>NORTH MANKATO</u>			
Wheeler	12.5	South of Garfield Avenue, north of Page Avenue, east of Center Street, west of Range Street	Tennis courts, basketball court, soft-ball fields, playground equipment, picnic shelters and tables, skating rink and warming house, wading pool, rest rooms
Wallyn	2.3	End of Wall Street on McKinley Avenue	Athletic or ball fields, playground equipment, skating rink
Riverview (proposed)	1.8	East of TH 169, west of Minnesota River, between McKinley and Garfield Avenues	Proposed: picnic facilities, hiking and biking trails, boat launching areas

TABLE 4

NATIONAL REGISTER PROPERTIES
(Potential Impact Area - Main Street Bridge Alterations)

<u>Property Name</u>	<u>Location</u>	<u>Additional Facts</u>
R.D. Hubbard House (Blue Earth County Historical Society)	606 Broad Street S.	French Second Empire c1870's (remodeled c1880's)
First National Bank	229 Front St. S.	Prairie Style 1913 by Ellerbe & Round
Post Office Building	401 2nd Street S.	
Lorin Cray House (YMCA)	603 2nd Street S.	Romanesque Revival c1897
Mankato Public Library and Reading Room	120 Broad Street S.	Carnegie Library
Union Depot	112 Pike Street	c1896
First Presbyterian Church	220 Hickory St. E.	Richardsonian Romanesque w/Gothic Details c1893
Blue Earth County Courthouse	204 4th Street S.	Romanesque 2nd French Second Empire; 1889 by Healy and Allen

North Front Street Commercial District

Stahl Hotel	301 Front Street N.	Renaissance Revival c1883
Hottinger Jewelry	307 Front Street N.	
Commercial Building	309 Front Street N.	
Commercial Building	311 Front Street N.	Italianate c1880
Kiffe's Old Town Liquors	313 Front Street N.	Italianate c1888
Clay Pot Ceramics	327 Front Street N.	Italianate c1888
Rudie's	329 Front Street N.	Victorian c1891
Pete's Barber & Clock Shop	401 Front Street N.	Victorian Italianate c1871
Diamond Jim's Bakery	403 Front Street N.	Italianate c1876
Savemore Antiques	405 Front Street N.	Italianate c1876
Stained Glass Galleria	407 Front Street N.	Italianate c1875
Chrysalis Gift Shop	409 Front Street N.	Italianate c1896
Hagen Hardware	411 Front Street N.	Italianate c1893
Minneapolis Rag Stock Company	413 Front Street N.	Italianate c1893
Winiarski Interiors	415 Front Street N.	Italianate c1910

Preservation Guidelines, 36 CFR Part 800. The results of this survey will be prepared as Technical Report No. 7, "Archaeological Resources" printed under separate cover as an appendix to the final supplement to the EIS.

Utilities

117. The present Main Street bridge carries an 8-inch gas main under the upstream (south) side of the deck. This main would have to be relocated on any bridge which would replace the existing bridge at or near the present site. For sites at some distance from the present location, the main would either have to be rerouted or buried in the stream bed. The bridge also formerly carried six, 4-inch telephone conduits under the downstream (north) side of the deck. The latter have recently been relocated in the bed of the river and thus need be considered only in relation to the bridge approaches. Any bridge revision which would affect street alignments or grades would require alterations to one or more subterranean utility lines.

CONDITIONS IF NO FEDERAL ACTION IS TAKEN

118. If the bridge crossings are not modified, the flood control project, which is now otherwise largely completed, would not provide protection from the Standard Project Flood (SPF). Pertinent elevations (feet above mean sea level) at the Main Street bridge are:

Average Discharge	755 ⁺
Existing Bridge	
Crown Elevation of Arches	777 to 780 ⁺
Roadway	780 to 783 ⁺
Top of Barrier Curb	783 to 786 ⁺
Standard Project Flood with Bridge Raise	784 ⁺
Top of Project Levee	787 ⁺
Standard Project Flood without Bridge Raise	790 ⁺

119. These elevations indicate that the existing bridge would be under water during the SPF event if no action is taken. If the bridge is not raised or removed, the backwater effect caused by the in-place bridge would increase the SPF elevation by approximately six feet. The potential for plugging with ice and debris could further increase the backwater effect. The levees and flood walls would be overtopped, a departure from the intent of the authorizing legislation. Refer to As-Built Drawing No. M34-P-64/115 Stage 2A Flood Barrier, Corps of Engineers.

120. Closing of the bridge during flood conditions would seriously disrupt traffic flow and related social and economic ties between the Cities of Mankato and North Mankato. Alternate crossings (particularly the TH 169/60 North Star Bridge) and their approach

roads would be subject to major congestion, with motorist travel times and lengths considerably extended and pedestrian crossing effectively precluded. While such conditions could likely be tolerated for a few days during high water, the bridge would be subject to damage or wash-out under extreme flood conditions or due to ice and debris. In such case, bridge closure could extend to months or year- for appropriate repairs, or the design and construction of a replacement structure. Social and economic consequences for bridge users and the adjoining communities and businesses would be disastrous. The Corps of Engineers and the affected communities consider such conditions to be totally unacceptable.

Alternatives to Raising the Bridge

121. Alternatives to raising the bridge include (1) flood proofing the bridge in combination with floodwall and levee raises, (2) constructing a new hydraulically efficient bridge in combination with floodwall and levee raises, and (3) constructing a movable lift bridge.

122. To achieve SPF protection by constructing temporary closure walls or sandbagging the bridge openings at the abutments for flood proofing and raising the existing floodwalls and levees would prove difficult and extremely costly. Adding to the height of the flood walls would not be practicable without extensive reconstruction. Furthermore, raising the levees would require increasing base widths. This would involve additional acquisition and other related problems; there would still remain a material hazard from the collection of ice and debris on the bridge because of its present low and restrictive profile, and the problem of bridge damage or loss described above.

123. The alternative of building a hydraulically efficient new structure at the present elevation would require the bridge to be submerged during times of severe flooding. This alternative would require extensive reinforcement and lateral bracing (which would normally not be required) to provide protection against overturning and damaged from debris and ice. While the new structure can be designed to reduce the backwater effect, conditions would still require raising the in-place upstream floodwalls and levees, and the construction of closure walls at all openings.

124. This project also considered the replacement of the existing structure with a lift bridge. The alternative of constructing a bascule or lift type structure to clear the channel is costly -- about 3 to 4 times as expensive as typical steel structures. The movable structure would require an attendant at the site in addition to normal inspection and maintenance to insure continuous service. This alternative would also require closure walls and would be unusable for traffic crossing during high flood stages.

125. If the bridge is not raised or if less than full channel is spanned, a bridge or a section of one could tip over. This would create a dam effect, causing upstream flood barriers to overtop. The loss of a bridge and overtopping of the upstream flood barriers would cause long term disruption to the community and users. In summary, raising the bridge to complete the flood control project is considered to be the only prudent and viable course of action.

PLANNING OBJECTIVES AND CONSTRAINTS

126. The primary objective of the proposed Main Street bridge relocation is to provide flood protection, as one of the remaining key elements in an otherwise largely completed flood control system for the Mankato area. Secondary objectives are to improve the crossing to current design standards and to provide adequate capacity for present and projected traffic demands, thereby enhancing traffic safety, circulation and access to and between the adjoining communities. Such improvements should be developed so as to avoid or minimize adverse impact upon, and enhance where practicable, the social, economic and natural environment of the site and adjoining neighborhoods.

127. Relocation of the bridge in a highly developed urban area severely restricts the range of viable location alternatives and constrains the ability to achieve desirable -- or in some cases minimum acceptable -- design standards and characteristics. Suitable ties to the arterial roadway system must be maintained. The proximity to developed neighborhoods also dictates that some adverse effects will be unavoidable under any of the alternatives. Location of the CNW railroad along the eastern bank of the river requires that the relocated structure clear not only the floodwalls, but the adjoining railroad tracks. While this provides the opportunity to eliminate the present undesirable railroad grade crossing, it also presents geometric design constraints and dictates the location of the touchdown or end points for the relocation alternatives. Details are provided in the following sections.

FORMULATION OF PRELIMINARY PLANS

128. This section of the report describes the two stage formulation of preliminary plans. It sets forth the basic criteria and standards to be met, describes initial (Stage 1) plan formulation including elimination of impractical alternatives, and summarizes second level (Stage 2) comparative assessments and evaluations. Concluding the two stage preliminary process is the selection of alternative plans for Stage 3 detailed study.

PLAN FORMULATION CRITERIA

129. In developing alternatives, three engineering elements must be considered: flood control and rail clearance, traffic service, and highway design.

Flood Control and Rail Clearance

130. Levees and flood walls to provide a channel for the Standard Project (design) Flood are mostly complete. These flood control works determine the location of abutments for bridges at all alternative Main Street locations. Normally the design flood height would determine the elevation or extent of the required bridge raise. However, the required clearance over the railroad tracks on the east bank of the river dictates that the raise be about fifteen feet greater than that required by the flood elevation. Consideration was given to lowering the railroad tracks to improve the bridge profile. However, throughout the study area the combination of extensive yard and industry trackage and the railroad's eastbound ruling grade effectively preclude any significant revision in the railroad track elevation. Clearance over TH 169 on the west side of the river also requires a higher elevation than would be required for flood control under some alternatives.

Traffic Service

131. The primary function of the Main Street bridge is to provide access between and into the central business districts and adjacent neighborhoods of Mankato and North Mankato. In recognition of this vital role, the primary traffic service criteria used in formulating the alternatives were:

- a. Maintain convenient vehicular and pedestrian linkages between and into the above areas;
- b. Provide adequate capacity on the bridge, its approaches and the adjoining street network intersections to accommodate projected design year (2000) traffic demands;

- c. Retain or suitably replace, where possible, connections to the adjoining expressway and arterial roadway network of the area;
- d. Minimize circuitry of travel and overall travel requirements for bridge users.

Highway Design

132. The design speeds for TH 169/60 and the expressway interchange ramp are 60 and 30 mph, respectively. The desirable minimum design speed for major arterials (the bridge) is 40 mph and for local streets and minor arterials, 30 mph. Mn/DOT standards for a 60 mph expressway and 30 mph ramps are:

Expressway lane width: 12 feet
 Paved left shoulder: 4 feet
 Paved right shoulder: 10 feet
 Ramps 1-lane paved width: 16 feet
 Maximum grade, main roadway: 3% desirable, 4% absolute
 Maximum grade, ramps: variable, controlled by stopping sight distance
 Maximum superelevation: .06 foot/foot
 Maximum degree of curvature, expressway: $4.5^{\circ} = 1273$ ft. radius
 Maximum degree of curvature, ramps: $21^{\circ} = 273$ ft. radius
 Maximum rate of vertical curvature: $K = \frac{\text{Length of Curve in Feet}}{\text{Algebraic Difference in Grade in Percent}}$
 Expressway crest $K = 257$, sag $K = 123$
 Ramps crest $K = 29$, sag $K = 36$

133. For 40 mph major arterial streets, the standards are:

Lane width: 12 feet (minimum offset to curbing = 2 feet)
 Maximum grade: variable, controlled by stopping sight distance and intersection geometry
 Maximum superelevation: .04 foot/foot; normal crown is desirable
 Maximum degree of curvature: $10^{\circ} = 573'$ radius
 Maximum rate of vertical curvature: crest $K = 64$, sag $K = 56$

Vertical clearance at underpasses:

Expressway, ramps and arterials: 16.33 feet
 Railroads: statutory 22.0 ft; Mn/DOT Design, 23.0 ft.

134. The Main Street bridge alternatives would consist of four to six 12-foot vehicular lanes separated by a 6-foot raised median with 2-foot curb offsets, two 6-foot shoulders, and one or two 8-foot sidewalk/bikeways. The number of vehicular lanes and sidewalk/bikeways provided varies by location, as described in following sections.

ANALYSIS OF PLANS - STAGE 1

135. Alternatives for the replacement of the Main Street bridge include both locational alternatives and design options for each general location. The first step in the analysis process was to select the locations at which suitable connections between the street systems on both sides of the river could be made. The 1974 "Bridge Location Study" had conducted a comprehensive analysis of feasible locations and found four. These were reviewed by project and city staff considering changes that occurred since that time. The four locations were also presented to the public with solicitations for suggestions for possible additional locations. This process resulted in the conclusion that these four 1974 locations were still the only feasible ones. These locations, shown in Figure 8 and discussed below, are:

Location 1 (includes design Alternatives 1A & 1C) - Belgrade Avenue
to Mulberry
Street

Location 1B - Belgrade Avenue to Main Street

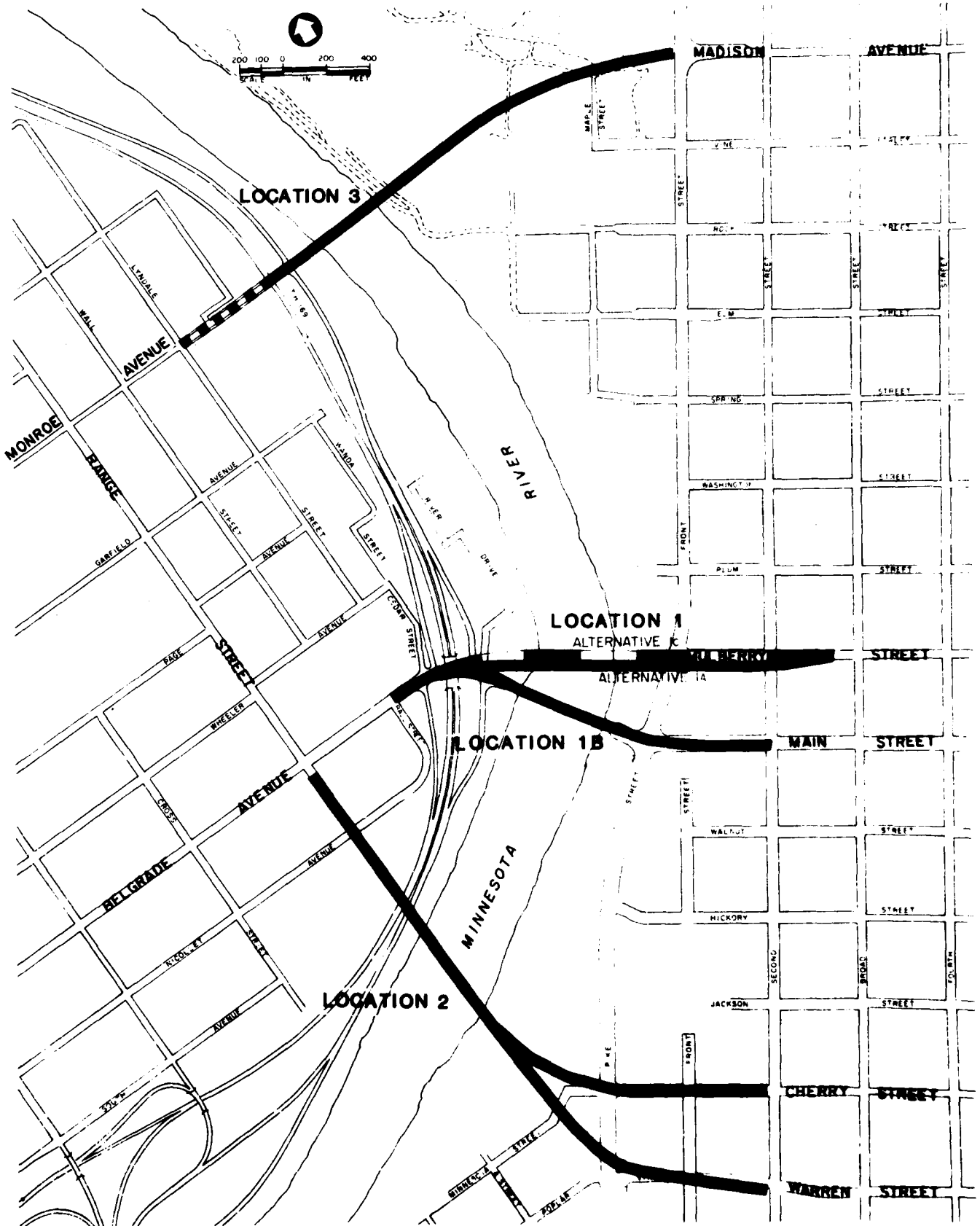
Location 2 - Range Street to Warren Street and Cherry Street

Location 3 - Monroe Avenue to Madison Avenue

136. The design year (2000) traffic assignments for Locations 1, 2 and 3 are shown in Figures 9 and 10. Except on Mulberry Street, traffic volumes for Location 1B would be similar to those shown for Location 1.

Location 1, Belgrade-Mulberry (Design Alternative 1A)

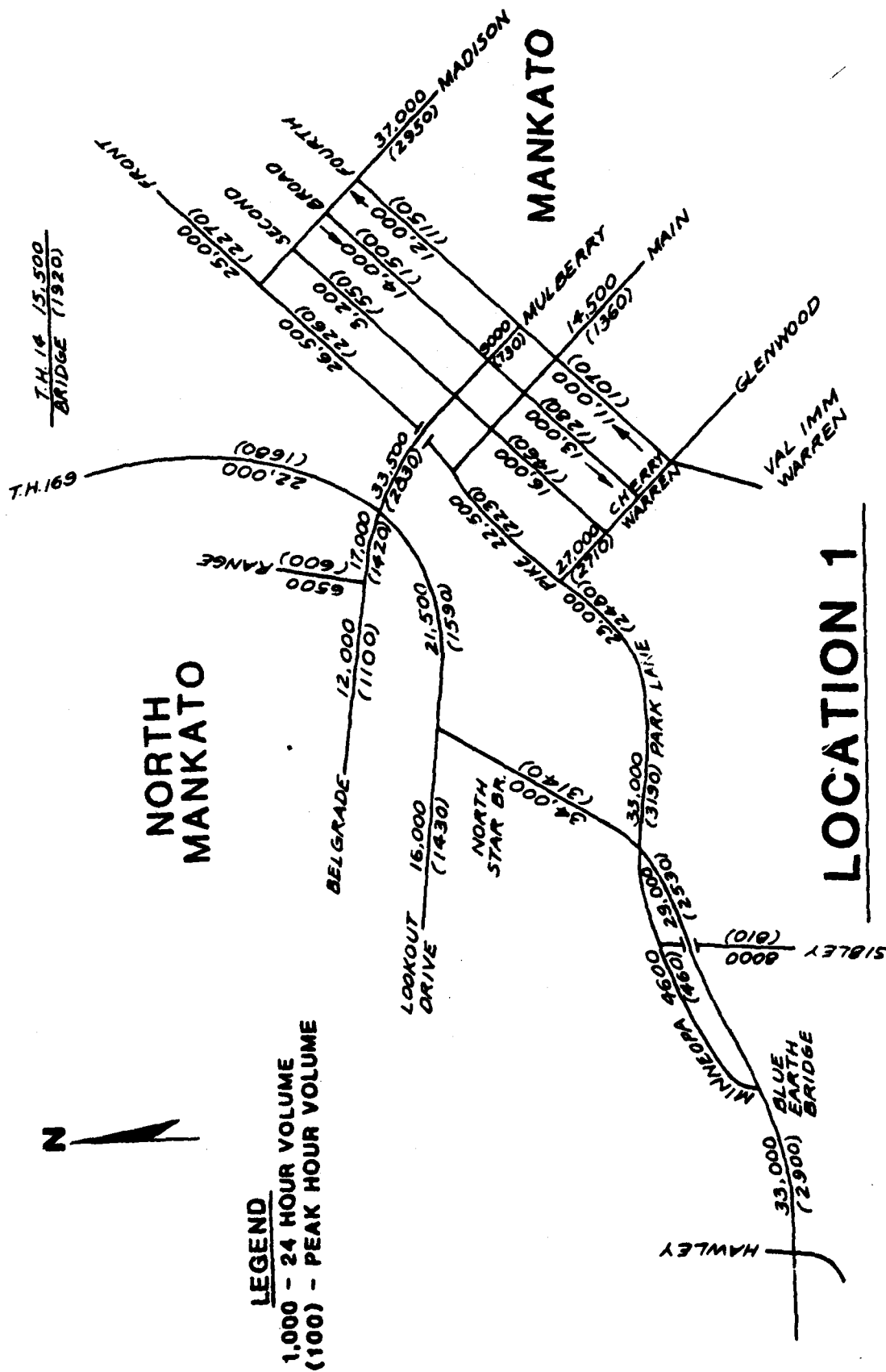
137. This plan consists of a proposed alignment from Belgrade Avenue in North Mankato to Mulberry Street in Mankato. The route would pass under TH 169 on the left bank and over the railroad tracks on the right bank. It is essentially the same plan as recommended in the 1974 report, but includes design modifications suggested by Mn/DOT to make it consistent with current highway standards. The preservation of the North Mankato River Drive neighborhood, which lies downstream from the existing bridge, was considered desirable in the 1974 report. However, because of the isolated nature of the area, comprising as it does only 10 houses and one business on a dead end street riverward of TH 169, local interests requested that consideration be given to the possibility of improving the plan by removing the existing homes and business.

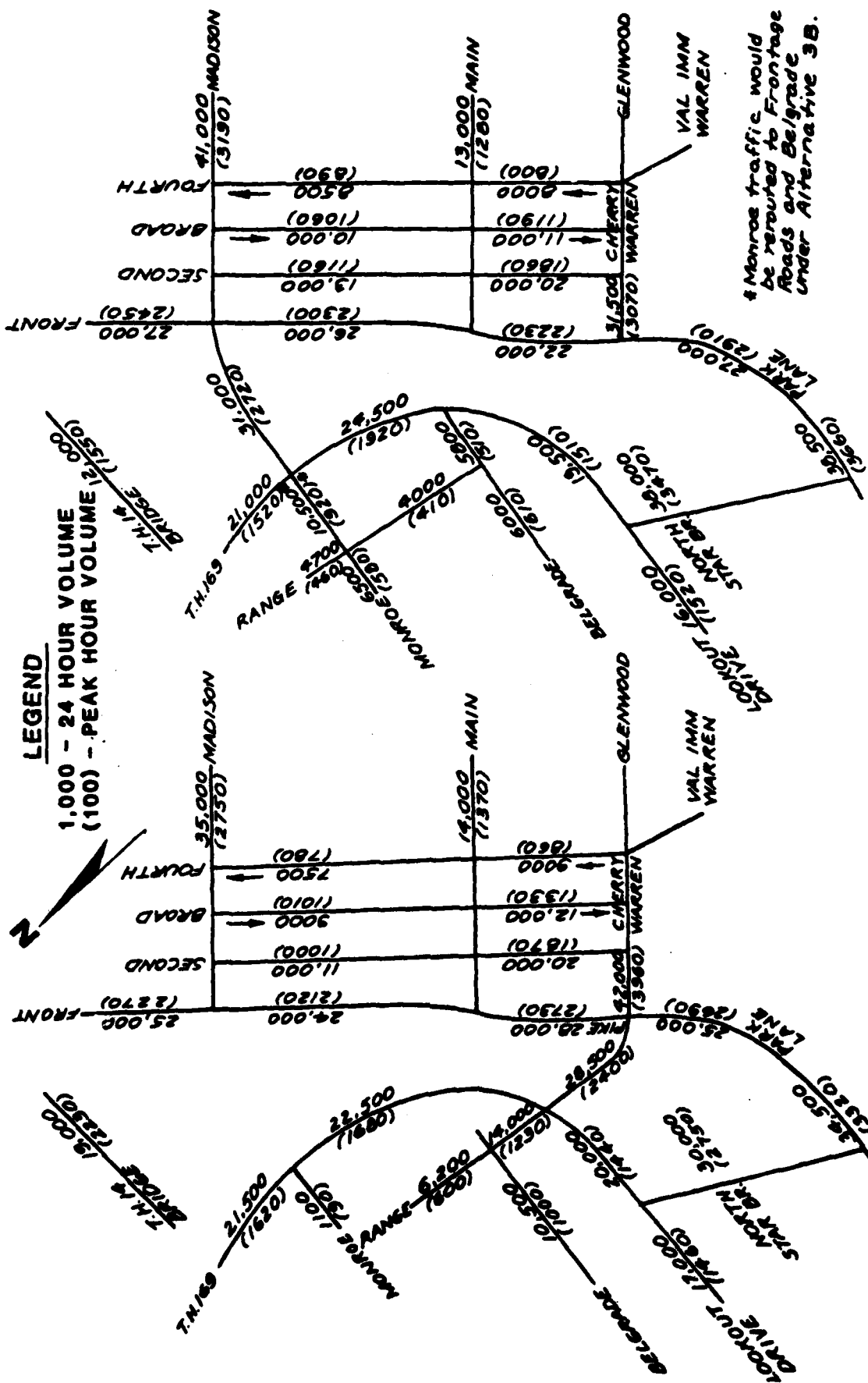


**MANKATO FLOOD
CONTROL**

FIGURE 8

**MAIN STREET BRIDGE
LOCATION ALTERNATIVES**





138. Plate A-1 in Appendix A shows the original 1A alternative that follows the 1974 study design, under which as much as possible of the River Drive neighborhood would be preserved. This was accomplished by holding the diamond interchange ramps as close to TH 169 as possible, by building retaining walls where necessary to save significant structures, and by providing access to the severed area via a proposed new bridge at Wheeler Avenue.

139. Plate A-3 in Appendix A shows the revised 1A alternative, modified as requested by North Mankato officials. The River Drive neighborhood would be acquired and the resulting space used to improve the interchange design. Examination of the plan shows that a significant increase in the distance between the ramp intersections along Belgrade Avenue is achieved.

140. These two sub-alternatives were subjected to careful evaluation and comparison to determine if either was clearly superior to the other. The comparison of significant impacts follows:

141. Land Use. The River Drive neighborhood, consisting of 10 single-family residences and one business that would be retained under the original Alternative 1A, is presently on a dead end street isolated by TH 169 from the rest of the community. The city experiences some difficulty providing services because of this isolation and attendant poor circulation. The new construction would not only perpetuate this condition, but would aggravate it to a degree. Acquiring the property under the revised Alternative 1A would provide additional valuable open space on the riverfront.

142. Family Displacement. Ten households would be displaced from the River Drive neighborhood by the revised Alternative 1A, of which eight are owners, two are renters, three are low-income, and two are female-headed. A total of 24 persons would be displaced, including three elderly residents and 10 youths. Median value of the owner-occupied units was approximately \$31,000 and average monthly rent for the renters was approximately \$160. Two families have indicated a willingness to move. The remainder appear content to continue to live in the area, but would probably interpose no serious objection to moving if necessary (Personal interviews, Fall 1978).

143. Parks and Recreation. The revised Alternative 1A would prohibit vehicular access from River Drive to the riverfront park being developed immediately to the north by the City. However, access could be provided by an entrance from the TH 169 service road at the north end of the proposed park area. The open space created by the taking of the property would permit extension of the park to the bridge. Vehicular access for maintenance of the Wheeler Avenue flood control pumping station would be provided through the Park.

144. Aesthetics. With the TH 169 profile raise necessitated by the proposed bridge, views from the existing houses in the River Drive neighborhood would be adversely affected under the original alternative. The view from the road would be improved if the houses and business were replaced by a landscaped area, as under the revised alternative.

145. Business and Employee Displacement. One additional business with 20 employees would be displaced under the revised alternative, but the owner has indicated his intention to relocate elsewhere in North Mankato. Thus, neither jobs nor tax base would likely be lost to the City.

146. Property Values and Tax Loss. The increased isolation of residences and business retained under the original alternative would tend to depress property values thus indirectly reducing tax revenues, while increasing the costs to provide services. Taking the properties would result in a direct tax loss of approximately \$5,900 per year.

147. Traffic Service and Safety. The traffic capacity of the interchange would be increased by the wider separation of the Belgrade Avenue ramp terminals afforded by taking the property. The wider separation permits more satisfactory storage space for left turns and more efficient traffic signal phasing. By reducing congestion and separating vehicle conflicts, the wider separation of ramp terminals would also tend to improve traffic safety.

148. Noise. Highway noise would no longer be a concern for the people who would be displaced under the revised alternative.

149. Cost. The estimated additional construction cost to retain the neighborhood would be \$750,000. The estimated cost to acquire all of the property would be \$610,000 indicating a net saving of \$140,000 in favor of acquisition. (Note: Estimated 1978 costs were used during Stage 1 analysis.)

150. Conclusion. The conclusion drawn from this analysis was that the taking of the River Drive neighborhood was preferable for Alternative 1A. The revised Alternative 1A was thus selected for further consideration in Stage 2.

Location 1, Belgrade-Mulberry (Design Alternative 1C)

151. Alternative 1C, shown on Plate A-2 of Appendix A, also connects Belgrade Avenue and Mulberry Street, but differs from Alternative 1A in two basic respects. On the North Mankato side of the river, the bridge profile is designed to pass over rather than under TH 169. This would require the relocation of TH 169 toward the river and the taking of the River Drive neighborhood, similar to the revised Alternative 1A. On the Mankato side, the alignment would be held to the center of Mulberry Street straddling a major storm drain, rather

than staying to the south of it as in 1A. This alignment assumed the taking of the Burton Hotel on the northeast corner of Second and Mulberry Streets to prevent encroachments on the south side of Mulberry Street and provide a higher quality alignment than 1A. Alternative 1C was selected for further consideration in Stage 2.

Location 1B, Belgrade-Main

152. This plan consists of replacing the existing bridge by a new structure on the same alignment as the existing bridge (Belgrade Avenue to Main Street). The route would pass under Trunk Highway 169 on the left bank and above the railroad tracks on the right bank. During the period that the bridge replacement has been considered, major disadvantages of this plan have become apparent. These are discussed below.

153. Major Traffic Circulation and Capacity Problems. Alternative 1B provides poor circulation to Pike-Front Streets, which form the major north-south arterial on the Mankato side of the river. The Main and 2nd Street intersection would have inadequate traffic capacity, even with the taking of the two buildings on the corners to provide turning lanes.

154. Geometrics. The geometrics required to fit the location are sub-standard for a major facility. The 5.5 percent grade on Main Street necessary to meet the intersection with Second Street is excessive, the 4.5 percent grade required on Belgrade Avenue is undesirable, and a 30 mph design speed is the best that could be reasonably attained. The latter is undesirably low for such a high volume facility.

155. New Development. The facility would not fit between the newly constructed Minnesota Valley Regional Library and the Holiday Inn opposite. One of these structures would have to be removed. Access to the remaining structure would be severely restricted along Main Street, and the aesthetics would be very poor with the bridge only a few feet away.

156. Problems During Construction. Because the proposed alignment lies directly over the existing bridge, the bridge would have to be removed at the start of construction and traffic detoured over the TH 14 and TH 169 bridges for the entire 2 to 3 year construction period. This would be very inconvenient and costly to motorists of the area.

157. Conclusion. These negative factors far outweigh the favorable retention of the present direct connection to Main Street under Location 1B. With local assent, this alternative was not considered further.

158. In connection with the decision to cease consideration of Location 1B, a citizen suggestion was made to study a Main Street - Mulberry Street one-way system. This suggestion and other plans which would provide some direct tie to Main Street were examined. It was found that to provide satisfactory design standards, these plans required additional takings in the Main, Second, Plum, and Broad Street block or the construction of an elevated roadway between the new Holiday Inn and the Library. Further, they did not eliminate the need for takings in the Plum, Mulberry, North Front and Second Street block, nor did they provide as good access to Pike Street or otherwise offer any significant advantages over the Mulberry Street connections of Alternatives 1A and 1C.

Location 2, Range-Warren

159. The 1974 design for Location 2 was based on the then current requirement to maintain service on the Chicago, Milwaukee, St. Paul and Pacific Railroad (Milwaukee) branch line track which parallels Pike Street in Mankato and served several industries at and beyond the proposed crossing. Studies at that time, therefore, assumed the bridge approach would cross over this track and Pike Street as well as the CNW tracks. The optimum design under these conditions consisted of elevated ramp connections to Warren Street for eastbound traffic and to Cherry Street for westbound traffic. These ramps passed over South Front Street and touched down at the intersection of each street with Second Street.

160. By 1978, service on most of the branch line had been abandoned and only two customers remained southwest of Cherry Street. With this in mind, the City of Mankato requested that studies be made assuming railroad service terminated northeast of Cherry Street. Under this assumption, a plan was developed with a bridge approach starting with an at-grade intersection with Pike and Warren Streets. To accomplish this, it was necessary to raise Pike Street and to adopt absolute minimum design standards. This plan, designated Alternative 2A (See Appendix A, Plate A-14) overcame a major shortcoming of the original plan for Location 2, which did not provide reasonable connections to Pike Street, the major north-south arterial in the area. In reviewing the two plans with the City staff, it was agreed that Alternative 2A, in spite of its low design standards, was clearly the more desirable alternative at this location. Considerable doubt was expressed that the original plan for Location 2 could be made acceptable to Mankato. Although the City Council of North Mankato was adamantly opposed to the Range Street location in North Mankato, it agreed that Alternative 2A should be investigated in detail since significant favorable arguments had been made for it by Mankato representatives.

161. Prior to advancing Alternative 2A to Stage 2 level of investigation, additional preliminary studies were made to try to improve on the low design standards necessary for the development of this plan. Various arrangements of diamond type ramps and loop ramps were studied, and relocations and profile changes of Pike Street were investigated. No solutions superior to Alternative 2A were found.

Location 3, Monroe-Madison

162. Alternative 3, the 1974 design for this location, extended the bridge approach directly into Monroe Avenue in North Mankato. This would direct a high volume of intercity traffic to local residential and collector streets. As this was highly objectionable to North Mankato, the City requested that an alternative at this location be studied which would not feed traffic directly into Monroe Avenue. Alternative 3B was developed to comply with this request.

163. Current design standards and forecasted traffic volumes indicated that the TH 169/Monroe Avenue interchange design of the 1974 study required modification to accommodate weaving movements on TH 169 between Belgrade Avenue and Monroe Avenue. A new design was developed that included separate collector-distributor roads for the weaving traffic. It was designated Alternative 3A to differentiate it from the original plan for Location 3. These two Alternatives, 3A and 3B, were carried forward to Stage 2 for more detailed evaluation.

ANALYSIS OF PLANS - STAGE 2

Description of Plans

164. In Stage 2, seven basic alternatives were analyzed, four at Location 1 (Belgrade-Mulberry), one at Location 2 (Range-Warren) and two at Location 3 (Monroe-Madison). These were designated Alternatives 1AA, 1AC, 1CC, 1CA, 2A, 3A and 3B.

165. Location 1, Belgrade-Mulberry. In Stage 1 two alternatives were developed -- Alternatives (Alignments) 1A and 1C. Each differed from the other in the design of the approach on the two sides of the river. However, because they occupy the same general location, the design of the two ends can be interchanged. This results in four distinct alternatives:

<u>Alternative</u>	<u>No. Mankato Approach</u>	<u>Mankato Approach</u>
1AA	Under TH 169	South edge of Mulberry St.
1AC	Under TH 169	Center of Mulberry St.
1CC	Over TH 169	Center of Mulberry St.
1CA	Over TH 169	South edge of Mulberry St.

166. Since the impacts of the river bridge itself are similar in all four cases and the impacts on the opposite sides of the river are independent of each other, it was possible to analyze all four alternatives by comparing the approach options on each side of the river and to select the combination which proved best.

167. The North Mankato bridge approaches for Alternative 1A (see Appendix A, Plate A-1) and 1C (See Appendix A, Plate A-2), although materially different in elevation, would have the same basic interchange configuration -- a signalized diamond type. It was concluded in Stage 1 that acquisition of the River Drive neighborhood would be desirable for Alternative 1A. For Alternative 1C, the neighborhood would definitely need to be acquired since the space would be needed for the relocation of TH 169 and the construction of ramps.

168. On the Mankato side of the river the two designs are identical in basic traffic service provided, but differ slightly in location and geometry. The geometric differences would minimally affect the relative quality of traffic service, but the small locational shift would be very significant regarding property and related social impacts.

169. For both alternatives, access from the bridge to Pike Street on the Mankato side would be via an off-ramp to Second and Main Streets and thence via Main Street, while access from Pike Street would be via Plum Street and thence via an on-ramp starting at Plum and Second Streets. Second Street would be severed at Mulberry Street, and Mulberry Street would be widened to carry four lanes of traffic from Second to Fourth Street. To provide satisfactory design standards, four commercial properties would have to be acquired in the Front, Plum, Second, and Mulberry Street block.

170. The alternatives utilizing the south side of Mulberry Street (1AA and 1CA) would require taking of property occupied by drive-in bank facilities, but would retain the Burton Hotel. The alternatives utilizing the center of Mulberry Street (1AC and 1CC) would avoid taking the bank, but would require taking the Burton Hotel and three residences on the north side of the street between Broad and Fourth Streets.

171. Location 2, Range-Warren. Alternative 2A, shown in Appendix A, Plates A-14 to A-20, would connect Range Street in North Mankato with Warren and Pike Streets in Mankato. It includes a signalized diamond interchange with TH 169 and Lookout Drive in North Mankato. No interchange would be provided with southbound TH 169 because the proximity to the adjoining TH 169 interchange with Lookout Drive, Center Street and Sherman Street makes a conventional connection impossible. Special ramp provisions and TH 169 modifications would be extremely costly and disruptive, requiring substantial additional acquisition from the adjoining residential neighborhood. Further, traffic analysis indicates that such a connection would be little used.

172. Range Street (presently a collector street) intersects at-grade with Belgrade Avenue at the western end of the North Mankato Central Business District (CBD), which lies along Belgrade Avenue between Range Street and the river. Bridge traffic would be distributed from this intersection via Range Street to the north and Belgrade Avenue to the east and west. Warren Street in Mankato lies along the south edge of the Mankato CBD and leads from Pike Street up the bluff to the "hilltop" and Mankato State University. Bridge traffic would be distributed in Mankato via a major signalized intersection at Warren and Pike Streets.

173. Location 3, Monroe-Madison. Alternative 3A would connect Monroe Avenue, 2000 feet north of Belgrade Avenue in North Mankato, to Madison Avenue, 2500 feet northeast of Main Street in Mankato. Monroe Avenue is a collector street serving a square mile grid of residential streets, whereas Madison Avenue is the major arterial street connecting the lower section of Mankato to the upper or "hilltop" section.

174. The North Mankato approach would start on Monroe Avenue at Lyndale Street and would pass over TH 169 which would be depressed. At Belgrade Avenue, the existing diamond ramps to and from southbound TH 169 would be retained. Diamond ramps to and from northbound TH 169 would be constructed at Monroe Avenue. Because the distance between Belgrade and Monroe Avenues is insufficient to accommodate both an on-ramp and an off-ramp in the same direction, a collector-distributor (C-D) road would be provided in both directions, thus permitting movements from Madison Avenue and TH 169 to Belgrade Avenue, and from TH 169 and Belgrade Avenue to Madison Avenue. To minimize weaving movements on the C-D roads and crossing movements southbound at Belgrade Avenue and northbound at Monroe Avenue, slip type on-ramps to TH 169 would be provided from each C-D road between Belgrade and Monroe Avenues.

175. A northbound TH 169 motorist wishing to cross the river would exit from TH 169 at the Belgrade Avenue off-ramp and follow the C-D roadway to Monroe Avenue, then turn right onto the bridge. A motorist coming from Belgrade Avenue and wishing to go north on TH 169 would turn left onto the C-D roadway and then follow a slip ramp to TH 169. A northbound on-ramp from the river bridge to TH 169 would serve traffic from Madison Avenue. Southbound traffic coming from the north of North Mankato on TH 169 would exit from TH 169 at the Monroe Avenue off-ramp and either turn left across the bridge to Madison Avenue, right to Monroe Avenue, or continue straight ahead on the C-D roadway to Belgrade Avenue. Westbound bridge traffic would proceed directly to Monroe Avenue or turn left onto the C-D roadway, either to enter southbound TH 169 via a slip ramp or continue to Belgrade Avenue. Traffic destined south on TH 169 from Belgrade Avenue would do so via the existing on-ramp which would be retained. The ramp terminals at Monroe Avenue would be about 400 feet apart to provide satisfactory and safe traffic flow.

176. On the Mankato side, the bridge would pass over the Milwaukee and CNW tracks and return to grade at the intersection of North Front Street and Madison Avenue. This intersection and its approaches would be modified to accommodate the large increase in traffic volume that would result under this alternative.

177. Alternative 3B is similar to 3A except that no connection to Monroe Avenue would be provided. This would reduce the number of different traffic movements occurring in the TH 169 interchange and would permit the ramp terminals over TH 169 to be placed closer together, thus reducing the amount of property required.

Comparative Assessment and Evaluation

178. Location 1, Belgrade-Mulberry. Of the four previously described alternatives at this location, Alternative 1CA was found to be the most viable and desirable. This determination was accomplished by a separate examination of the impacts on each side of the river for the two basic alternatives.

179. On the North Mankato side, the significant differences between Alignments 1C and 1A are described below:

- a. Alignment 1C would displace three fewer families (two renters and one homeowner) and one less business (a small welding shop) than 1A. This would result in a saving in right-of-way and relocation costs of approximately \$230,000 and a reduction in the annual tax loss to the City of approximately \$2,000.
- b. Alignment 1C would have a slightly flatter grade on Belgrade Avenue through the interchange. This would result in smoother traffic operation and greater safety than 1A. Also, the configuration of the ramps in 1C with Belgrade Avenue over TH 169 provides deceleration on upgrade ramps and acceleration on downgrades, a more desirable condition than the converse situation which occurs under 1A.
- c. The depressed profile of TH 169 in Alignment 1C would reduce noise impacts from the expressway, whereas the raised profile of 1A would tend to increase noise levels.
- d. The location of the grade separation at TH 169 permits better alignment of the construction bypass road under Alignment 1C than under 1A.

180. Based on these circumstances, Alignment 1C was the clear choice over 1A for the North Mankato end of the bridge.

181. In Mankato, the choice was not as evident. The difference in impacts ultimately lay in the consideration of the long- and short-term impacts on the Burton Hotel. Over the years, the Burton has been converted to a residential hotel housing mainly low income residents, including university students and a significant number of senior citizens. Its location on the northeast corner of Mulberry and Second Streets is within convenient walking distance of Old Town, the Library and the Mankato CBD. The 1A alignment would avoid the hotel, while 1C would require the demolition of the hotel and three residences along the north side of Mulberry Street between Broad and Fourth Streets. The Burton, if left, as under 1A, would have its direct pedestrian and vehicle access to the CBD cut off at ground level. If the Burton were to be taken, occupancy survey data (1978) indicated that housing would have to be found for 31 low-income households, including 20 elderly residents. This amount of comparable housing was not available or projected to be available in the Mankato area. In addition, the four small businesses housed in the building would be displaced.

182. Public and professional opinions regarding the future of the Burton Hotel vary. Some believe the best long-term alternative is to take the Burton and convert the land to a more compatible use. Others believe that the additional costs -- estimated at \$860,000 including relocation costs -- and the impacts of relocation would be too severe to justify the taking. Ultimately, the Stage 2 decision depended on the finding that sufficient comparable low-income replacement housing was not available or likely to be available in the foreseeable future. Therefore, Alignment 1A was selected as most prudent and feasible for the Mankato end of the bridge.

183. Estimated total costs for the four combinations, based on 1978 price levels used for the Stage 2 cost comparisons, were:

<u>Alternative</u>	<u>Total Cost (1978)</u>
1AA	\$15.5 Million
1AC	16.0 Million
1CA	15.0 Million
1CC	15.7 Million

184. During the latter phases of Stage 2 analysis, a fifth design alternative at the Belgrade-Mulberry location was also investigated. This alternative was designated Alternative 1DA, since it primarily affected the design on the North Mankato end of the crossing. The purpose for the supplemental investigation was to determine the feasibility of reducing construction costs by altering the design to avoid replacement of the existing TH 169 bridge over Belgrade Avenue. The design is shown in Appendix A, Plates A-14 and A-15. It would require increasing approach grades to approximately 4.6 percent on each side of the bridge. The proposed roadway elevation would be

lowered by five feet at the floodwall on the North Mankato side, requiring the bridge to be set below the top of the floodwall. As a result, the western portion of the bridge would be partially submerged during the Standard Project Flood. The Belgrade Avenue ramp terminals would be reconstructed to improve their present inadequate geometry and to connect to the raised roadway profile east of the TH 169 underpass.

185. The Minnesota Department of Transportation (Mn/DOT), with Federal Highway Administration (FHWA) concurrence, found Alternative 1DA to be "unacceptable" because of (a) its "excessive" grades for the prevailing traffic conditions through the Belgrade Avenue ramp intersections and (b) its substandard level of traffic service under projected traffic demands at the ramp terminals, even with their reconstruction. Alternative 1DA was thus eliminated from further consideration. Copies of letters from Mn/DOT and FHWA describing their conclusions are contained in Appendix E.

186. On the basis of the preceding evaluations, Alternative 1CA was selected as the most desirable and viable design alternative at the Belgrade-Mulberry location for comparison with the other location alternatives. The total estimated 1978 cost for Alternative 1CA was approximately \$15.0 million. It would displace 19 households with 48 residents and 7 businesses with 202 employees. It would provide overall good traffic service and a satisfactory quality of roadway design. Second Street would be cut off at Mulberry Street, foreclosing its use for north-south through traffic. Traffic volumes on Fourth and Broad Streets would be expected to increase substantially, with resulting adverse impacts on this neighborhood and Washington Park. The impacts on the North Mankato and Mankato business districts would be generally positive, but the amount of developable land in the Mulberry Street vicinity would be reduced.

187. Location 2, Range-Warren. The total estimated 1978 cost for Alternative 2A was approximately \$18.5 million. It would displace 40 households with 71 residents and 10 businesses with 98 employees. Physical constraints of the site dictate marginal quality of roadway design with regard to both capacity and safety. Projected volumes at the Pike and Warren Street intersection in Mankato would exceed design capacity by 30 percent and be at or near possible capacity, indicating a high level of congestion. The bridge approach on the northeast leg of the intersection would have a combined steep grade and sharp curvature, meeting absolute minimum standards but highly undesirable for a high volume signalized intersection. Overall, river crossing travel is more circuitous than for the Belgrade-Mulberry location, requiring about 1.5 million more vehicle travel miles per year. Inability to provide ramp connections would preclude service for motorists to/from TH 169 on the North Mankato side. According to Mn/DOT officials, trunk highway designation (TH 60 is currently routed via the Main Street Bridge and TH 169 to the south) would also be precluded, thus leaving bridge jurisdiction and maintenance responsibilities to the adjoining county and municipal governments.

188. Traffic volumes in the Fourth and Broad Street (Washington Park) corridor of Mankato would increase less than under the other alternatives, with only moderate impacts in this neighborhood. Second Street would remain open as a north-south through street. Adverse physical and traffic related impacts would occur in the Nicollet Avenue-Range Street vicinity of North Mankato. Alternative 2A would have a generally positive influence on the central business districts. It would stimulate early development of the remaining land in the Pike-Poplar Streets area in Mankato and not require acquisition of developable land in the Mulberry Street vicinity.

189. Location 3, Monroe-Madison. Compared to Alternative 3B, 3A offered only one advantage: direct traffic service from the bridge for residents and some businesses of the northerly section of the lower North Mankato neighborhood. It would require the taking of at least 13 homes and 2 business properties and would result in the attraction of a significant amount of non-local traffic to the local street system. The city and its residents indicated early their desire to preserve the neighborhood rather than gain traffic service. Alternative 3A was therefore dropped from further consideration.

190. The total estimated 1978 cost for Alternative 3B was approximately \$12.5 million. A pedestrian bridge over the river to maintain the link between Belgrade Avenue and Main Street would cost an additional \$400,000. Five families and two businesses would be displaced. The quarry of Mankato Stone Co. would be cut in half. Alternative 3B would not provide good overall travel service. Except for trips to East Madison Avenue from North Mankato, travel would be circuitous with 4.4 million more miles of travel annually than under Alternative 1CA. Severe congestion would occur at the intersection of North Front Street and Madison Avenue. (An interchange to solve this problem would entail extensive property takings and high additional construction costs). This alternative would leave the two cities without a direct tie between their CBD's and the poor traffic service provided would lower economic values in the CBD's.

Conclusions

191. Alternatives 1CA and 2A were selected for detailed, Stage 3 analysis. Each has a base of public support and offers significant advantages over other alternatives at its respective location. Despite its lower initial cost, Alternative 3B was considered not to be a suitable replacement for the existing bridge because of its poor location with respect to the travel service needs of Mankato and North Mankato. It was eliminated from further consideration.

ASSESSMENT AND EVALUATION OF ALTERNATIVES

192. Alternatives 1CA and 2A were each subjected to detailed impact assessment, and an evaluation and tradeoff analysis during Stage 3 planning. Mitigation requirements, implementation responsibilities and public views were also identified for each alternative.

DESCRIPTION

Alternative 1CA

193. Alternative 1CA would connect Belgrade Avenue in North Mankato to Mulberry Street in Mankato. The new bridge would accommodate three 12-foot travel lanes, a 6-foot shoulder and an 8-foot sidewalk/bikeway in each direction. The existing interchange with TH 169 on the North Mankato side would be reconstructed, with TH 169 realigned toward the river and lowered to pass under the new Belgrade Avenue approach to the bridge. New, improved ramps to TH 169 and signalized ramp intersections with Belgrade Avenue would be constructed. River Drive north of Belgrade Avenue and the portion of Cedar Street between Wheeler and Belgrade Avenues would be closed.

194. On the Mankato side, the new crossing would pass over Pike-North Front Street connecting to existing Mulberry Street between Second and Broad Streets. Access ramps would be provided to and from Second Street, although Second Street would be closed to through traffic. Mulberry Street would be widened from Second to Fourth Streets to accommodate four travel lanes. New traffic signals and intersection improvements would be required at the intersections of Mulberry with Broad and Fourth Streets. Roadway and intersection improvements on Main and Plum Streets between Pike-North Front and Second Streets would be required to facilitate traffic circulation, particularly truck movements, to and from Pike-North Front Street. On Madison Avenue, signal and intersection modifications at Fourth Street and bridge route signing would be installed to facilitate traffic flow between the bridge and the Mankato "Hilltop" area. Parking restrictions would be required on Mulberry Street and in the immediate vicinity of each of the above intersection modifications.

195. The proposed plan for Alternative 1CA is shown in Appendix A on Plate A-8. Profiles for the new river crossing, ramps and revised TH 169 are shown on Plates A-9 to A-13. Typical cross sections are shown on Plate A-25.

Alternative 2A

196. Alternative 2A would connect Range Street in North Mankato to Warren Street in Mankato. As under Alternative 1CA, the new bridge would accommodate three 12-foot travel lanes, a 6-foot shoulder and an 8-foot pedestrian and bicycle walkway in each direction. The

interchange with TH 169 in North Mankato would be relocated from Belgrade Avenue to Range Street, although the existing Belgrade underpass of TH 169 would be retained to provide access to the businesses and River Drive neighborhood located between TH 169 and the river. The new interchange ramps on the south would provide access to and from Lookout Drive, but not TH 169, due to the close proximity to the adjoining interchange. The ramps on the north would retain access to and from TH 169. TH 169 would require reconstruction (realignment and profile changes) from north of Belgrade Avenue to the vicinity of the North Star Bridge. Portions of Lookout Drive and the TH 169-Center Street connection would also require reconstruction.

197. Range Street in North Mankato would be widened to accommodate four travel lanes from TH 169 north to Wheeler Avenue. Belgrade Avenue would be widened from Range Street west to Cross Street, with signalization and right-turn channelization added at the Belgrade-Range intersection. Nicollet Avenue would be "dead-ended" in cul-de-sacs on each side of Range Street.

198. In Mankato, Warren Street would be reconstructed to accommodate two-directional traffic with a median separation from Pike to Second Streets. (Warren Street is currently one-way eastbound.) Pike Street would be reconstructed south of Cherry Street. The City of Mankato plans to extend Pike Street southeast from Warren Street to provide a direct connection into South Front Street. While the alignment of this connection has not been determined to date, the Pike-Warren intersection layout was developed to accommodate the southeast extension of Pike Street. This intersection would be raised approximately five feet, and traffic signals and turn lane channelization would be installed. Dual left-turn lanes would be required on the eastbound Warren Street and southbound Pike Street approaches. Site constraints dictate that an undesirable steep grade (4.8%) and roadway curvature (12° - 30') be used on the Warren Street bridge approach in order to accommodate an intersection at Pike Street.

199. The proposed plan for Alternative 2A is shown in Appendix A on Plates A-16 and A-17. Profiles for the new river crossing, ramps and revised TH 169 and Pike Street are shown on Plates A-18 to A-23. Typical cross sections are shown on Plates A-26 and A-27.

IMPACT ASSESSMENT

200. The impacts of Alternatives 1CA and 2A were found to center around specific public issues and concerns. After defining the affected areas and categories of significant impacts, it was

possible to evaluate the two alternatives in an understandable way. This evaluation was accomplished not only by the project staff, but also by members of the staff and city councils of Mankato and North Mankato in special workshops. The principal issues and concerns identified were: a) costs, b) displacements, c) traffic service and safety, d) impacts on neighborhoods, e) impacts on redevelopment areas, and f) impacts on existing business districts. The significant findings for each category are summarized in Tables 3 through 8. Estimated costs for the Stage 3 alternatives were updated to 1980 price levels.

TABLE 5. COSTS

(1980 Prices)

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
Construction*	\$ 15,785,000	\$ 20,771,000
Right-of-Way	<u>3,779,000</u>	<u>4,149,000</u>
Total	\$ 19,564,000	\$ 24,920,000
Annual Maintenance and Operation	\$ 41,000	\$ 44,000

*Includes Engineering, Design, Supervision and Administration

TABLE 6. DISPLACEMENT IMPACTS

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>		<u>ALTERNATIVE 2A RANGE-WARREN</u>	
<u>Residential</u>				
Structures Displaced	15		30	
Single-Family	14		23	
Two-Family	0		5	
Multi-Family	1		2	
Housing Units Displaced	19		43 (3 unoccupied)	
Partial Taking Only	1		0	
Households Displaced	19		40	
Renter	8		16	
Owner Occupied	11		24	
Low Income	5		23	
Individuals Displaced	48		71	
Elderly	4		23	
Minority	0		1	
Youth	16		10	
Average Value of Owner-Occupied Residence	\$ 31,500		\$ 40,000	
Average Monthly Rent for Renters	\$ 189		\$ 160	
Household Relocation Potential*:	<u>Owner Occupied</u>	<u>Renters</u>	<u>Owner Occupied</u>	<u>Renters</u>
No Major Problem Anticipated	7	7	13	11
Potential Relocation Problem	4	1	8	3
Definite Relocation Problem	-	-	3	-
No Determination Possible	-	-	-	2

*Household relocation potential is based on an evaluation of resident age and income characteristics, present equity, estimated market values and expressed relocation preferences in relation to present and projected housing and rental market conditions and public housing program characteristics.

See Technical Report No. 4, "Social and Economic Resources" for additional details.

TABLE 6. DISPLACEMENT IMPACTS (CONT.)

AREA/CATEGORY	ALTERNATIVE 1CA BELGRADE-MULBERRY			ALTERNATIVE 2A RANGE-WARREN		
	Relocation Potential*			Relocation Potential*		
	Good	?	Total	Good	?	Total
<u>Business</u>						
Structures Displaced		7			8	
Businesses Displaced		7			10	
<u>Characteristics of Affected Businesses:</u>						
Number	4	3	7	3	7	10
Gross Annual Sales (\$ Million)	8.2**	2.6	10.8**	0.8	1.5	2.3
% Total Mankato Area Sales	1.5**	0.5	1.9**	0.1	0.3	0.4
<u>Employees:</u>						
Full Time	78	66	144	31	24	55
Part Time	12	46	58	1	42	43
TOTAL	90	112	202	32	66	98
Annual Employee Payroll (\$ Million)	1.0	0.6	1.6	0.3	0.3	0.6
% Total Mankato Area Payroll	1.8	1.2	3.0	0.6	0.6	1.2
<u>Direct Annual Property Tax Loss***</u>	<u>Loss</u>		<u>% Total Taxes</u>	<u>Loss</u>		<u>% Total Taxes</u>
Mankato	\$24,500		0.24	\$21,200		0.21
No. Mankato	11,700		0.54	12,800		0.58
TOTAL	\$36,200		0.29	\$34,000		0.28

*Relocation potential is based on interviews with affected merchants and local officials and on nature of business involved. "?" indicates questionable status.

**Includes firm sales at non-displaced location that could not be separated from total.

***Direct annual tax lost due to property acquisition only. Indirect tax loss due to property value changes or potential tax gains due to increased development are discussed in following sections for each affected area.

See Technical Report No. 4, "Social and Economic Resources" for additional details.

TABLE 7. TRAFFIC SERVICE AND SAFETY IMPACTS

AREA/CATEGORY	ALTERNATIVE 1CA BELGRADE-MULBERRY	ALTERNATIVE 2A RANGE-WARREN
<u>Convenience & Access</u>		
General	Centrally located to overall origins and destination of bridge users. Least overall travel required. (Average annual mileage on study system = 28.5 million vehicle miles). Eliminates delays at rail crossing.	Less central location with respect to overall origins and destinations of bridge users; additional average annual travel of 1.5 million vehicle miles (total on study system = 30.0 million). Eliminates delays at rail crossing.
Mankato	Direct access to Central Business District, Old Town and Central Areas; centrally located with respect to other destinations. Local access to blocks adjoining Second and Mulberry would be disrupted (less convenient but not eliminated) by ramps and Second Street closing.	Direct access to Central Business District and South Central, convenient to Hilltop South. Less convenient to Hilltop South. Less convenient access to other destinations. Direct connection to Pike St. Access via bridge to and from T.H. 169 south would be lost.
North Mankato	Would maintain convenient access to Central Business District (CBD) satisfactory access to other destinations. Northbound T.H. 169 access to and from Monroe Ave. would be lost.	Would limit access to Central Business District (CBD) and adjoining Nicollet neighborhood. Belgrade-Range access to and from south on T.H. 169 would be lost.
Pedestrian	Would maintain traditional pedestrian tie, convenient to both CBD's, library and Old Town (approx. length between touchdowns = 2000'; max. grade 4%). Pedestrian access to vicinity Second and Mulberry (including Burton Hotel) would be disrupted.	Traditional pedestrian link would be altered; would retain CBD connection but inconvenient to library and Old Town (approx. length between touchdowns = 2500'; max. grade = 4.8%). Opportunity to connect bridge walkways to Mall via parking ramp walkways over Pike Street.

TABLE 7. TRAFFIC SERVICE AND SAFETY IMPACTS (CONT.)

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
<u>Convenience & Access (Cont.)</u>		
Rail Operations	Savings to CNW from elimination of at-grade crossing of Main St. would be approximately \$110,000 per year.	Savings to CNW from elimination of at-grade crossing of Main St. would be approximately \$110,000 per year.
<u>Design Elements- Safety</u>		
Mankato	Flat horizontal curvature coupled with slightly flatter grades than on Alt. 2A should produce safer operation on bridge and approaches.	The radius of curvature is absolute minimum for urban conditions and is not desirable for a multi-lane facility with the high volume of traffic forecasted. Its undesirability is aggravated by its presence on the intersection approach, the steep grade it is combined with, and a duel left-turn lane. Sight distances are restricted and stopping distances are increased. A less safe design than Alt. 1CA; could be particularly hazardous during inclement weather.
	Off of the bridge and its approaches, the city street standards are fairly uniform throughout the affected areas -- no significant differences between the alternatives.	
North Mankato	Grade (3.2%) would be steeper than desirable (2%) through an intersection, but the relatively flat horizontal curvature and adequate ramp spacing should permit relatively safe operating conditions under signalization.	Grade (3.6%) would be slightly steeper than under Alt. 1CA (3.2%). The horizontal curvature would be flatter, but intersection angles more skewed. The ramp terminals would be closer together, slightly reducing sight distances. With signalization, safety would be slightly inferior to Alt. 1CA.

TABLE 7. TRAFFIC SERVICE AND SAFETY IMPACTS (CONT.)

AREA/CATEGORY	ALTERNATIVE 1CA BELGRADE-MULBERRY	ALTERNATIVE 2A RANGE-WARREN
<u>Design Elements- Safety (Cont.)</u>	Range and Belgrade safety conditions should be about the same under either Alt. 1CA or 2A.	
<u>Design Elements- Capacity</u>	<p>Touchdown intersection traffic volumes (V) would be less than design capacity (C_d) (i.e., $V/C_d < 1.0$). Capacity limitations of Madison Ave. left turn into Broad St. would likely result in alternative use of Second and Front Streets during peak periods. The total capacity is sufficient at design level for these left turns. Intersection modifications would be required at Fourth and Madison Sts. to better accommodate the right turn from Fourth St. to Madison Ave.</p> <p>Existing deficiencies and continued traffic growth will require future improvements to Park Lane interchange under either Alternative.</p>	<p>Design volumes at Pike and Warren Streets touchdown intersection would exceed design capacity by 30% ($V/C_d = 1.3$) and would be at possible capacity ($V/C_p = 1.0$). Operation at possible capacity would be very congested and would cause traffic to divert to other routes. Short left turn lanes at the T.H. 169 interchange due to restricted ramp terminal separation would also limit capacity. Intersection modifications to better accommodate right turn from Fourth St. to Madison Ave. would be desirable.</p> <p>Traffic routed to Park Lane interchange to go south on T.H. 169 would aggravate the capacity problem at the Park Lane interchange.</p>

TABLE 7. TRAFFIC SERVICE AND SAFETY IMPACTS (CONT.)

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
<u>System Continuity</u>		
Trunk Highways	Compatible with trunk highway system. Retains Trunk Highway 60 continuity through Mankato with minor modification: the trunk highway designation must be routed from the bridge via Second-Main and Plum-Second loops between Front Street and the bridge.	Incompatible with trunk highway system. TH 60 connection through Mankato (including trunk highway designation on bridge) would likely be lost since access between the bridge and TH 169/60 to the south would not be provided.
Other	Second Street function as an access route to the Mankato CBD from north would be severed. (Second Street classified as a collector.)	Would retain a direct principal arterial (non-trunk) connection between Pike St. and TH 169 to north.
<u>Maintenance of Traffic During Construction</u>		
TH 169- North Mankato	Would require a bypass of all traffic past the site of the Belgrade Ave. bridge over TH 169 during construction of bridge and approaches. Would require signalized intersection between TH 169 bypass road and Main St. bridge traffic. Sufficient capacity for the design hour can be provided. Estimated duration of this bypass is two construction seasons. Would also require temporary detour of north-bound off-ramp traffic during final connection of ramp to new bridge. Estimated duration 2-4 weeks.	Would require a bypass of all TH 169 traffic past the site of the new Range St. bridge over TH 169. Estimated duration two construction seasons. After opening the new river bridge, the existing TH 169 bridge over Belgrade Ave. would be widened to accommodate the new acceleration and deceleration lanes. 4-lane, 2-way traffic would be carried over a portion of the existing bridge during this time. Estimated duration 1 to 2 construction seasons. The Center St.

TABLE 7. TRAFFIC SERVICE AND SAFETY IMPACTS (CONT.)

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
<u>Maintenance of Traffic During Construction (Cont.)</u>		
TH 169- North Mankato (Cont.)		off-ramp would be closed during the reconstruction of the bridge over southbound TH 169. Estimated duration 1-2 construction seasons.
Other Streets		
North Mankato	No significant effects.	No significant effects.
Mankato	No significant effects.	During reconstruction, Pike Street and Warren Street traffic would be detoured via Cherry and Front Streets. Esti- mated duration 1 construction season.

TABLE 8. NEIGHBORHOOD/IMPACTS

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1A BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
<u>Washington Park (Broad-Fourth)</u>	Increased traffic would occur on Broad & Fourth Sts. Initial increase approx. 50%; by design year approx. 150% increase. (Existing Average Weekday Traffic (AWDT) Fourth St. = 5000, Broad Street = 5500; Design Year AWDT Fourth St. = 12,000, Broad St. = 14,000). These streets are currently designed to accommodate the anticipated increases. Parking can be retained on both sides of these streets except in the vicinity of their intersections with Madison Ave. and Mulberry St.	No significant change due to bridge; traffic expected to increase approx. 60% by design year due to general growth. (Design Year Average Weekday Traffic (AWDT) Fourth St. = 7500, Broad St. = 9000).
Land Use	Compatible with existing zoning (office-residential and multi-family residential) and with minor arterial street designation, but incompatible with existing single-family residential uses and active use neighborhood park. Would likely accelerate conversions to higher density residential and office use.	Generally compatible with existing zoning and land use and minor arterial street designation. Conversion to higher density residential and office likely but at slower rate.
Character & Cohesion	Would accelerate change in character away from single-family residence to higher density residential and office uses. It would further tend to increase the rental character of the neighborhood. Existing neighborhood cohesiveness and ties to the park would be adversely affected.	No significant impact anticipated.

TABLE 8. NEIGHBORHOOD/IMPACTS (CONT.)

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
Parks	Additional traffic past 3.5 acre Washington Park would increase the current adverse effect of Fourth St. on neighborhood park, particularly playground use.	Less traffic growth on Fourth St. would tend to minimize the adverse effect on park use.
Property Values and Taxes	Immediate loss, or deceleration in rate of increase, of single-family residence property values. Would tend to increase economic value for office and higher density residential use, with possible long-term gain in property tax yield.	No significant impact anticipated.
Noise	<p>Potential significant increase.</p> <p>Broad St.: Existing L₁₀ Day = 64(dBA) Night = 58 Design Yr. L₁₀ Day = 74 Night = 62</p> <p>Fourth St.: Existing L₁₀ Day = 67 Night = 61 Design Yr. L₁₀ Day = 76 Night = 65</p> <p>Truck prohibition on Broad & Fourth is needed to mitigate above increases.</p>	<p>Potential some increase.</p> <p>Broad St.: Design Yr. L₁₀ Day=67(dBA) Night = 60</p> <p>Fourth St.: Design Yr. L₁₀ Day = 70 Night = 62</p> <p>Truck prohibition on Broad & Fourth Streets would be desirable.</p>
<u>Second Street</u>	Closing of Second St. at Mulberry to through traffic would eliminate Second St. function as an access route to CBD: traffic reduction over 50% by design year (Existing AWDT = 7000, Design Year = 3200).	Retains Second St. function as access route to CBD; traffic increase over 50% by design year. (Design Year AWDT = 11,000) More consistent than 1CA with recent Second St. roadway improvements.

TABLE 8. NEIGHBORHOOD IMPACTS (CONT.)

AREA/CATEGORY	ALTERNATIVE 1CA BELGRADE-MULBERRY	ALTERNATIVE 2A RANGE-WARREN
Land Use	Would encourage retention of residential use; long term transition to higher densities likely, probably through development of new apartments. Incompatible with current zoning on west side of street, compatible on east side.	Conversions to higher density residential and business use would continue, particularly on west side of street. Generally compatible with existing zoning.
Character and Cohesion	The neighborhood is currently a high turnover, transient area lacking cohesive neighborhood characteristics. Residential stability and neighborhood cohesion would likely increase in long term due to improvement in neighborhood amenities. Remaining residences would likely remain in relatively poor condition during conversion process.	Existing trend in character from a residential to business community would likely continue. Remaining residences likely to remain in relatively poor condition during conversion process.
Noise	Noise levels would be slightly reduced. Existing L10 Day = 66, Night = 59; Design Yr. L10 Day = 64, Night = 56(dBA).	Minimal change in noise levels. Design Yr. L10 Day = 67, Night = 61(dBA)
Property Values and Taxes	Likely use for higher density residential development should produce long term positive effect on property values and property tax yield.	Probable short term increase in property values faster than with Alternative 1CA (due to commercial conversion); long term values likely at similar level.

TABLE 8. NEIGHBORHOOD IMPACTS (CONT.)

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
<u>Lincoln Park</u>	No impact.	No direct impact. Peak period congestion in nearby bridge touchdown area would likely cause some non-bridge traffic to seek alternate routes (e.g., Van Brunt and Willard) through Lincoln Park neighborhood.
<u>Nicollet</u>		
Land Use	No impact.	Approximately 5 acres of residential property would be converted to highway use. Residential properties on Nicollet east of Range would likely be converted to commercial use.
Character and Cohesion	No significant impact.	Loss of 28 residences, increased noise levels, loss of trees, roadway embankments (up to approx. 15' above existing grade), and traffic impacts from temporary TH 169 bypass during construction would all adversely impact a stable and highly cohesive residential neighborhood. Nicollet residences east of Range would be isolated from remainder of community.
Noise	No significant change.	Estimated L ₁₀ at nearest remaining residence: Existing Day = mid 50's (dBA) Night = low 50's Design Yr. Day = 70, Night = 59 During Construction: Day = 74, Night = 69 Noise walls would be needed to mitigate above increases.

TABLE 8. NEIGHBORHOOD IMPACTS (CONT.)

AREA/CATEGORY	ALTERNATIVE 1CA BELGRADE-MULBERRY	ALTERNATIVE 2A RANGE-WARREN
Property Values and Taxes	No significant impact.	The above visual, noise and taking disruptions would negatively affect (initial decline, long range deceleration in rate of growth) property values and resultant tax yield for neighborhood residences remaining in the vicinity of the bridge touchdown area.
<u>River Drive</u>	River Dr. neighborhood would be eliminated under this alternative. Conversion of existing residential and commercial area to highway and park use would be inconsistent with existing zoning, but consistent with City desire to relocate the isolated residences and to extend the proposed Riverview Park into the area. Consideration of "neighborhood" character and cohesion impact is not applicable. (Note: Displacement impacts on current residents covered under "Displacements").	Neighborhood would remain isolated by TH 169 from remainder of North Mankato. Present problems of providing city services to this isolated area would remain.

TABLE 9. REDEVELOPMENT AREA IMPACTS

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
<u>Mulberry</u>		
Land Use and Redevelopment Potential	<p>Additional 4 businesses would be displaced from Mulberry-Plum Block, (2 of which are incompatible with CBD (zoning). Existing auto-bank facilities would have to be reoriented. Key City Renewal Plan provided for bridge at this location, including acquisition of present open parcels, but not additional acquisitions above. Redevelopment of parcels within the bridge access loops would likely be limited to public use (e.g., park or parking for library). Redevelopment flexibility for parcels east of Second St. would be limited by access constraints. Holiday Inn location decision on nearby development parcel was made in anticipation of bridge at this location. Adjoining library was located and designed to accommodate bridge at this location. Estimated potential development value of 1.7 acres of redevelopment parcels not taken by bridge = \$3.0 million.</p>	<p>Land previously acquired for bridge and ramps would become available for commercial development (2.79 acres). Additional displacement of 4 businesses would be avoided. Estimated potential development value of redevelopment parcels = \$4.9 million.</p>

TABLE 9. REDEVELOPMENT AREA IMPACTS (CONT.)

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA, BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A, RANGE-WARREN</u>
<u>Mulberry (Cont.)</u>		
Aesthetics	<p>Scale and visual impacts would be significant due to bridge structure and road fills for approach from Pike to east of Second Street. Special design measures would be necessary to help mitigate this impact, particularly on library (e.g., compatible bridge type and material, landscaping, pedestrian tie to library, park development of areas within loops -- latter could be used to strengthen visual and functional tie to Old Town on north).</p> <p>Sioux Indian Hanging Site and proposed memorial is located approx. 130' south of the proposed bridge, adjoining the northwest corner of the library. Potential visual impact requires mitigation as described above.</p>	No impact.
Property Taxes	Estimated potential annual tax gain from redevelopment parcels = \$70,000.	Estimated potential annual gain from redevelopment parcels = \$116,000.
Other	Burton Hotel would remain, but access would be more difficult (particularly pedestrian access to the CBD, which is important to elderly tenants of the Burton). The Burton would also be adversely affected by visual and traffic noise impacts.	

TABLE 9. REDEVELOPMENT AREA IMPACTS (CONT.)

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
<u>Pike-Poplar</u>		
Land Use and Development	Would not create immediate stimulus for development. However, would retain entire area for redevelopment and would retain good access to area.	Direct access to Pike St. a positive development impetus for Minnesota - Poplar Redevelopment District. However, 1.55 acres of redevelopment land will be lost for roadway and embankments. Estimated potential development value of this land = \$1.4 million. Three existing businesses would be displaced. Gamble-Robinson would be isolated from remainder of industrial uses.
Aesthetics	No impact.	Bridge and approach fills have significant scale and height. However, areas impacted are not generally sensitive to visual effects of this nature.
Property Values	Estimated potential annual tax gain from redevelopment parcels that would be precluded from development if Alternative 2A were chosen = \$32,000. However, the tax gain from remainder of area would not likely be realized as soon as under Alternative 2A.	Development value and resultant tax benefits for this area not taken for bridge approaches would probably be realized at an earlier date than under Alternative 1CA, due to development stimulus provided by the bridge and the railroad closing. Tax benefits from the taken portion would not be realized.

TABLE 10. BUSINESS DISTRICT IMPACTS

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
<u>Mankato CBD</u>	Improved access and increased capacity from North Mankato should have a positive overall impact, encouraging infill of vacant parcels and general redevelopment efforts. Should increase overall property values and taxes.	<p>Predominant left-hand turn access from bridge to downtown parking lots and potential peak period congestion in touchdown areas a slight drawback.</p> <p>Two existing businesses would be dislocated.</p> <p>Mulberry or Pike-Poplar redevelopment stimuli could have some positive carryover effect to the existing CBD.</p>
<u>North Mankato CBD</u>	No significant effect on land use anticipated. Would reinforce existing auto-oriented businesses, with a slight positive effect on property values. Depressing of TH 169 roadway would have a positive visual impact.	Loss of businesses at Range and Belgrade could have negative effect on business activity and viability of remaining CBD. Rerouting of traffic would also negatively affect the generally auto-oriented businesses on Belgrade. Creates uncertainty with respect to future of CBD and land use plans. Small indirect tax loss possible due to increase in property values.

TABLE 10. BUSINESS DISTRICT IMPACTS (CONT.)

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-WARREN</u>
<u>Old Town</u>	<p>Location of the bridge will have no appreciable effect on Front St. traffic volumes through Old Town business district. Traffic is anticipated to increase somewhat under either alternative (30% under 1CA, 20% under 2A) by design year. Current and projected traffic levels under either alternative are inconsistent with the Old Town Concept Plan to reduce Front St. to two through traffic lanes, but consistent with its City arterial and State trunk highway designations. Traffic would be compatible with industrial and service land uses, incompatible with retail (speciality shops) uses.</p> <p>Bridge would tend to decrease spillover economic value of CBD to Old Town. Old Town vehicular access via Second St. would be limited. Design would play a crucial role in the economic and aesthetic impact at this location. Particular attention to design details would be needed to mitigate potential adverse visual impacts and maintain pedestrian tie to CBD.</p>	

EVALUATION AND TRADEOFF ANALYSIS

201. The preceding tables demonstrate that both alternatives have both beneficial and detrimental effects. Summarized below are the beneficial aspects of each alternative, along with the detrimental effects that would have to be tolerated to gain the benefits.

Alternative 1CA

202. Because of its central and traditional location with good connections to the street system and its generally high design standards, Alternative 1CA would provide good traffic service and safety. It would have relatively small residential displacements for a project of this magnitude. The good access it would provide would have a beneficial effect on the central business districts (CBD) of both Mankato and North Mankato. Over the long term, this effect would extend to the Mankato Pike-Poplar redevelopment area.

203. The effects on the Mankato Second Street neighborhood would be generally beneficial with respect to land use, community character and cohesion, noise, and property values and taxes; and there would be no significant impact on the Mankato Lincoln Park or North Mankato Nicollet neighborhoods. The isolated North Mankato River Drive neighborhood would be eliminated, requiring relocation of ten households and one business, but achieving a land use objective considered desirable by the City administration.

204. The adverse effects of this alternative include a rather high number of business displacements. Traffic on TH 169 would be significantly delayed during construction since a signalized intersection would have to be established between Belgrade Avenue and the TH 169 bypass road. The Mankato Washington Park (Broad-Fourth) neighborhood would experience a significant increase in traffic and as a result would suffer with respect to existing land use, community character and cohesion, park use, property values and noise. Second Street access from the north to the CBD would be closed, and pedestrian access between the CBD and the Burton Hotel would be restricted. The Mankato Old Town area could experience a loss of spillover economic value from the CBD. Mankato's Mulberry redevelopment area would require some reorientation, and redevelopment flexibility would be reduced. The visual environment in the Mulberry Street area would be dominated by the bridge.

Alternative 2A

205. Alternative 2A, by means of its direct tie to Warren and Pike Streets, would provide generally good convenience and access. It would have no significant adverse impacts on the Washington Park neighborhood and current land use trends would continue along Second Street. In the Mulberry redevelopment area, land previously acquired for the bridge and ramps would be available for commercial development. The bridge would be a catalyst for early development in the

Pike-Poplar area. Because of its good access capabilities, it would have a generally favorable impact on the Mankato CBD. It would have little or no effect on Old Town because of its remote position therefrom.

206. Trade-offs for the benefits that would accrue under 2A would include the inferior level of traffic safety and capacity on the Mankato end of the bridge which would result from the marginal design standards necessary. According to Mn/DOT, retention of trunk highway designation (TH 60 is currently routed via the Main Street bridge and TH 169 to the south) would be unacceptable because of the marginal design standards and because no connection to the south can be reasonably provided on the North Mankato side of the river. Since the bridge would not be on the State trunk highway system, estimated annual maintenance costs of nearly \$45,000 would need to be assumed by local government.

207. Substantial residential displacements would occur in North Mankato, and the character, cohesion, and property values of the Nicollet neighborhood in North Mankato would be negatively impacted by loss of many homes, reduced internal circulation, and the intrusion of a new high-traffic facility at Range Street. The North Mankato CBD would be somewhat negatively affected as it is generally auto oriented and the bridge traffic from which it draws much of its business would necessarily bypass the area. Traffic disruptions during construction would occur along TH 169, Pike Street in Mankato, and at Center Street in North Mankato.

MITIGATION REQUIREMENTS

208. Some of the negative impacts of both alternatives could be mitigated by the application of appropriate procedures. With respect to necessary relocations, Public Law 91-646, "The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970", provides procedures and funds for the relief of persons displaced by virtue of the construction of a Federal project. Special relocation assistance needs of those households and businesses with potential relocation problems (See Table 6) will be investigated in detail for the selected alternative in a Relocation Study Design Memorandum, which will be completed prior to initiation of right-of-way acquisition.

209. To minimize disruptions during construction, specific requirements for maintenance of traffic and performance of work directly affecting the public would be written into the construction specifications. Payment items would be included in the construction contract where necessary to fulfill this intent. The impact of construction noise under either alternative can be minimized by restricting the hours of construction activity, utilizing the quietest equipment available, construction of temporary barriers, and by careful attention to see that all equipment is properly muffled. Minnesota Standard Specifications for Highway Construction, Section 7, Subsection 17.C2, states, in part, that the contractor shall comply with all applicable laws, ordinances, regulations, orders, and decrees in the performance of construction.

210. Potential water quality and aquatic life disturbances would be minimized by careful control of construction operations in the river and disposal of excavated sediments at approved disposal sites. Special precaution will be required under Alternative 1CA for construction activities near the Mankato storm sewer outfall where sediment samples have shown a high lead content. See the Section 404(b)(1) Evaluation on Pages EIS-60 to EIS-69. Provisions for stormwater drainage from the bridge to permit containment of toxic or hazardous material spills will be developed during the detailed design stage. Such plans will be developed in cooperation with the Minnesota Pollution Control Agency to meet requirements for bridge replacement certification under Section 401 of the Clean Water Act of 1977.

211. A summary of additional mitigation measures applicable to each of the two alternative plans follows.

Alternative 1CA

212. To mitigate the potential noise impacts of increased traffic in the Mankato Washington Park neighborhood, a through truck prohibition needs to be established on Fourth and Broad Streets north of Mulberry Street. Trucks would be routed between the bridge and Pike-North Front Street (the current primary truck route) via the new Second Street ramps and improved Main and Plum Street sections. With the prohibition, projected design year noise levels on Broad and Fourth Streets would remain at or near current levels. The removal of through trucks from this traffic flow would also improve the safety and appearance of these streets compared to conditions with trucks permitted.

213. Mitigation of the adverse visual qualities in the Mulberry Street area would be accomplished to the extent possible by appropriate attention to the design of the structure and landscaping. To minimize the inconvenience to pedestrians, the space under the bridge approach could be developed to provide a pedestrian tie between Main Street and Old Town.

Alternative 2A

214. Anticipated noise impacts on the Nicollet neighborhood can be partially mitigated by noise walls constructed along the TH 169 ramp bordering the neighborhood.

215. Prohibition of through truck movements would be desirable on Fourth and Broad Streets. With such prohibitions, design year noise levels would remain at or near current levels. Safety and aesthetic improvements would also result from this prohibition.

IMPLEMENTATION RESPONSIBILITIES

216. Under the modifications to the 1976 Water Resources Development Act, P.L. 94-587, approved 22 October 1976, the Main Street bridge replacement is to be constructed entirely at Federal expense. Under this law, any betterments would be local responsibilities, but none are anticipated under either alternative. Responsibility for financing and construction would lie with the Corps of Engineers.

217. The total first costs, all Federal, for this project would be approximately \$19.6 million for Alternative 1CA or \$24.9 million for Alternative 2A (1980 price levels; see Appendix B for detailed cost estimates). Roadway and bridge design criteria would be the responsibility of the Minnesota Department of Transportation. The bridge, when complete, will be turned over to, and become the property of the State (Alternative 1CA) or local government (Alternative 2A) for future operation and maintenance. Estimated annual maintenance costs would be in excess of \$40,000 per year (1980 prices). Implementation of the recommended prohibition of trucks on Broad and Fourth Streets would be a responsibility of the City of Mankato.

PUBLIC VIEWS

Federal Agencies

218. The National Park Service has advised that it has no responsibilities relative to the project. The Economic Development Administration (EDA) has advised that neither Blue Earth or Nicollet Counties are designated redevelopment areas under the Public Works and Development Act of 1965, as amended. Consequently, public works projects in these areas are not eligible for financial assistance through EDA. The U.S. Coast Guard advised that the section of river under study has been placed in the "advance approval" category and therefore a bridge permit will not be required, but measures to prevent oil spills during construction should be included in the plans. The Advisory Council on Historic Preservation and the Heritage Conservation and Recreation Service have provided information on cultural and historic resources and will comment on the Draft Supplement to the Final EIS. All other Federal agencies have withheld comment until the Draft Supplement to the Final EIS has been submitted for review.

State and County Agencies

219. The staff of the Minnesota State Historic Preservation Office reviewed, on site, the historic resources of the project area and the first draft of the Historic Resources Report. Their oral responses from this review have been incorporated in that report and are reflected in the evaluation of impacts on the historical resources.

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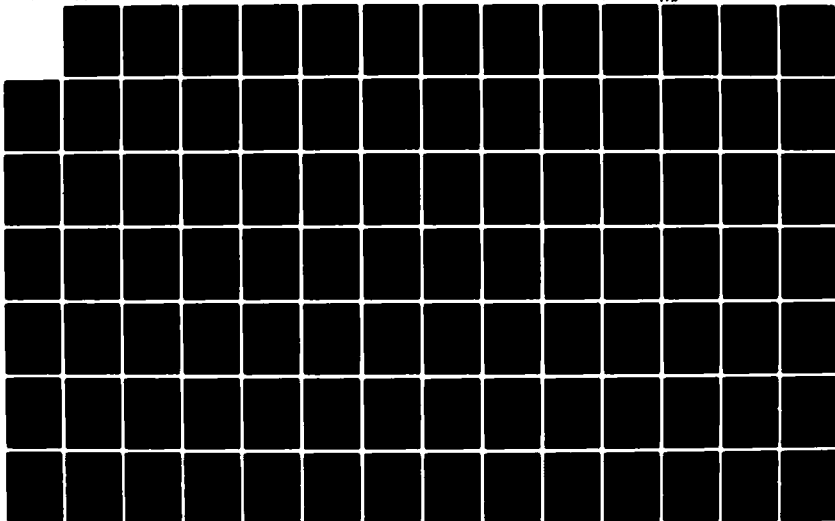
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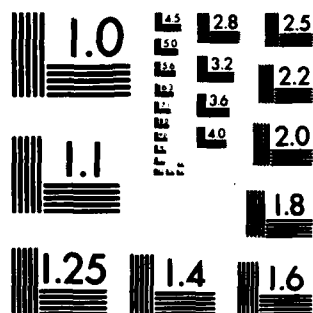
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220. Representatives of the Minnesota Pollution Control Agency and Blue Earth County participated in discussions relating to handling of the lead contaminated sediments in the Minnesota River in the vicinity of Mulberry Street. Their suggestions are included in the Natural Resources report and incorporated in the prescribed mitigative measures. The Blue Earth County Board of Commissioners early in the study (2 January 1979) adopted a resolution favoring the Belgrade-Mulberry location.

221. Other state agencies have indicated they will comment on the Draft Supplement to the Final EIS when submitted.

City Agencies

222. Both the Cities of Mankato and North Mankato have worked closely with the project staff throughout the study. In conjunction with the 1974 study, both City Councils passed resolutions adopting the Belgrade-Mulberry location as the preferred alternative. During the course of the present studies their evaluations of the new and modified alternatives led the City Councilors of Mankato to withdraw their approval in order to permit further consideration of the issues. The North Mankato City Councilors, on the other hand, unofficially reaffirmed their support for the Belgrade-Mulberry location.

223. The Mankato city staff and the City Councilors indicated concern regarding the adverse effects of Alternative 1CA in the Mulberry Street redevelopment area and the Washington Park neighborhood and their perception of beneficial effects of 2A in the Pike-Poplar and Mulberry redevelopment areas. North Mankato representatives pointed to the negative effects of 2A on the Nicollet neighborhood and the CBD in that city and the beneficial traffic service aspects of 1CA in both cities. Much valuable open discussion ensued over these and the other issues.

Others

224. The citizens and private interests showed vital concern over the project and participated actively at every opportunity. In general, as might be expected, residents strongly opposed an alternative which had direct negative impacts on them or their neighborhoods. Residents of the Nicollet neighborhood presented a petition showing broad support in North Mankato for their position against Alternative 2A. Residents in the Mankato Washington Park neighborhood likewise presented a petition, primarily from the Central Neighborhood, showing support for their position against Alternative 1CA. The expected high traffic volumes and attendant safety and noise problems in the Washington Park neighborhood were decried by the residents. In the Nicollet neighborhood, the issues of displacement and adverse effect on neighborhood character and cohesion were emphasized.

225. A significant number of Old Town business people expressed their feelings that Alternative 1CA would be detrimental to them. Representatives of the new Mankato Holiday Inn (Pike and Main Streets) stated that they preferred the Mulberry Street location and had selected their site in anticipation of the bridge ultimately being constructed at that point. Other business representatives expressed their concerns and opinions in interviews, but did not make public statements.

COMPARISON OF DETAILED PLANS

226. The multiplicity of factors and impacts as just described and evaluated makes a direct comparison of the two plans extremely difficult. To facilitate the comparison, a decision-making technique called "value methodology" was employed. In applying this technique, numerical values were assigned (1) to each concern to indicate its relative importance (weighting), and (2) to the effect on each concern of each alternative (rating). Multiplying these weightings and ratings together and totaling the products produces comparative scores for the alternatives which represent their relative overall worth.

METHODOLOGY

227. With one exception, capital cost, the concerns identified and used earlier in the evaluation of the alternatives were used to compare the alternatives. It was felt that capital cost being measurable and finite did not need to be included in the qualitative scoring and further that it could be more easily and understandably used by comparing it to the relative overall worth of the alternatives.

Value Scales

228. It is not possible to establish single, precise values to the weightings and ratings necessary to employ the methodology, but it is possible to establish reasonable ranges into which the values must fall. The establishment of these value ranges, depending as it does on human judgment, can be subject to the biases and convictions of the evaluator. To overcome this deficiency to the greatest extent possible, advantage was taken of the results of two workshops participated in by 22 persons, including City Councilors and staff members of Mankato and North Mankato, and members of the Mn/DOT, Corps and consultant's staffs. The participants in these workshops, by working through the step-by-step weighting and evaluation process, expressed their considered views of appropriate concern weights and impact ratings. The values assigned by these people were examined and the high, low and central tendency (mid) of the reasonable values were determined. Obviously biased extremes were eliminated. The mid weightings determined by this examination were adjusted to total 100, the scale used

in the workshops. The summation of all high, or all low weightings is, of course, higher or lower than 100. The ratings of the effects on each concern were assigned on a scale from 0, for poor, to 6, for good. A summary of the selected weighting and rating values is given in Table 11.

Application

Table 12 illustrates the application of the procedure using one of many reasonable combinations of weightings and ratings. This illustration, in which the central tendencies of all weights and ratings were used, results in scores of 327 for 1CA, and 301 for 2A, indicating 1CA to be overall slightly more favorable than 2A (exclusive of capital cost).

230. The reasonable combinations examined consisted of four different weighting arrangements each of which was combined with the high, low and mid-ratings of every concern. The weighting arrangements were:

- a. Central tendencies applied to all concerns.
- b. High weights applied to Displacements and Neighborhoods, with the balance of the 100 points prorated according to the low weights.
- c. High weights applied to Business Districts and Redevelopment Areas, with the balance as in (2).
- d. High weights applied to Traffic Service and Safety, and Business Districts, with balance as in (2).

The results of these applications are summarized in Table 13.

CONCLUSIONS

231. Table 13 shows that Alternative 1CA tends to score higher than 2A. For instance, when high ratings are matched with highs and lows with lows, etc., it always scores absolutely higher. Also, the highs and lows of the maximum ranges of 1CA are always higher than those of 2A. Although 2A rates higher than 1CA when its "highs" are compared to "lower" values of 1CA, 1CA always exhibits a greater superiority over 2A when the converse is done, i.e., the ratio of 1CA highs to 2A lows is greater than the ratio of 2A highs to 1CA lows. The conclusion that Alternative 1CA tends to be the more desirable alternative is inescapable. When total cost is considered, 1CA costing \$19.6 million compared to 2A at \$24.9 million is clearly superior overall.

TABLE 11
MAIN STREET BRIDGE
MAJOR CONCERNS, WEIGHTS AND RATINGS

MAJOR CONCERN	WEIGHTING RANGE			RATING RANGE					
	High	Mid	Low	1CA			2A		
				High	Mid	Low	High	Mid	Low
DISPLACEMENTS	20	15	10						
Residential	9	7	4	5	4	2	1	1	1
Business	9	7	5	2	1	1	3	3	2
Direct Tax Loss	2	1	1	2	2	2	3	3	3
TRAFFIC SERVICE & SAFETY	40	30	25						
Convenience & Access	10	8	6	5	5	4	4	3	2
Design Elements-Safety	10	7	6	5	4	4	3	2	2
Design Elements-Capacity	10	7	6	5	4	4	3	2	2
System Continuity	6	5	5	4	4	3	2	2	1
Traffic During Construction	4	3	2	2	2	1	3	3	2
NEIGHBORHOODS	25	20	15						
Washington Park (Broad & 4th)	10	7	6	2	1	1	5	4	4
Second Street	4	4	2	3	3	2	4	4	3
Lincoln Park	2	2	2	4	3	3	2	2	2
Nicollet	7	6	4	6	4	4	2	1	1
River Drive	2	1	1	3	3	1	3	3	1
REDEVELOPMENT AREAS	20	15	10						
Mulberry	13	9	7	3	2	2	6	5	4
Pike-Poplar	7	6	3	4	4	2	5	5	4
EXISTING BUSINESS DISTRICTS	25	20	15						
Mankato CBD	14	12	8	5	4	4	5	4	3
Old Town	4	3	3	3	2	2	4	3	3
North Mankato CBD	7	5	4	4	4	3	2	2	1

Total Mid Range Weighting = 100

TABLE 12
MAIN STREET BRIDGE
COMPARISON OF ALTERNATIVES

Using
Central Tendencies of All Weights and Ratings

CONCERN	WEIGHT	RATING		WEIGHTED RATING	
		1CA	2A	1CA	2A
<u>DISPLACEMENTS</u>	(15)				
Residential	7	4	1	28	7
Business	7	1	3	7	21
Direct Tax Loss	1	2	3	2	3
<u>TRAFFIC SERVICE & SAFETY</u>	(30)				
Convenience & Access	8	5	3	40	24
Design Elements-Safety	7	4	2	28	14
Design Elements-Capacity	7	4	2	28	14
System Continuity	5	4	2	20	10
Traffic During Construction	3	2	3	6	9
<u>NEIGHBORHOODS</u>	(20)				
Washington Park (Broad & 4th)	7	1	4	7	28
Second Street	4	3	4	12	16
Lincoln Park	2	3	2	6	4
Nicollet	6	4	1	24	6
River Drive	1	3	3	3	3
<u>REDEVELOPMENT AREAS</u>	(15)				
Mulberry	9	2	5	18	45
Pike-Poplar	6	4	5	24	30
<u>EXISTING BUSINESS DISTRICTS</u>	(20)				
Mankato CBD	12	4	4	48	48
Old Town	3	2	3	6	9
North Mankato CBD	5	4	2	20	10
<u>TOTALS</u>	<u>100</u>			<u>327</u>	<u>301</u>

TABLE 13
MAIN STREET BRIDGE
COMPARATIVE EVALUATION SUMMARY

<u>WEIGHTING</u>	<u>ALTERNATIVE</u>	<u>OVERALL SCORES</u>		
		<u>MAXIMUM RANGE</u>	<u>HIGH TO LOW</u>	<u>CENTRAL TENDENCY</u>
		<u>RATING</u>	<u>RATING</u>	<u>(MID RATINGS)</u>
1. All Concerns, Central Tendency (Mid)	1CA	400	- 274	327
	2A	360	- 240	301
2. Displacements and Neighborhoods, High	1CA	389	- 260	311
	2A	351	- 237	292
3. Business Districts and Redevelopment Areas, High	1CA	401	- 279	328
	2A	379	- 252	318
4. Traffic Service and Safety and Business Districts, High	1CA	406	- 295	340
	2A	356	- 227	291

RATIONALE FOR SELECTION OF THE NATIONAL ECONOMIC DEVELOPMENT (NED) PLAN

232. Alternative 1CA was selected as the NED plan on the basis of its significantly lower capital cost and more efficient traffic service. Alternative 2A has less potential for loss of gross sales and employee payroll due to business displacements, and slightly greater overall development potential for redevelopment parcels adjoining the Mankato end of the alternative locations. Considering relocation potential of the affected businesses, however, the net economic effect of these factors is minor in comparison to the capital cost and travel savings under Alternative 1CA. Both alternatives satisfy the primary objective of providing desired flood protection for the Mankato area in accordance with the project authorization. Both alternatives produce savings to the CNW and to motorists due to the elimination of the present at-grade rail crossing.

DISCUSSION OF THE ENVIRONMENTAL QUALITY (EQ) OBJECTIVE

233. Alternatives 1CA and 2A are essentially equal in terms of impacts on the natural and cultural environment. While neither was found to have significant adverse environmental effects, they are not considered to have a net positive contribution to the EQ objective.

RATIONALE FOR THE TENTATIVELY SELECTED PLAN

234. Alternative 1CA is recommended as the tentatively selected plan for the following reasons:

- Alternative 1CA has a significantly lower total cost.
- Alternative 1CA has superior design and location characteristics for traffic service and safety, including retention of State trunk highway route designation.
- Both alternatives would create adverse social impacts from resident displacement and from neighborhood disruption due to traffic changes, although such effects would occur at different locations. Considering (a) the net overall effects and (b) the good potential for mitigating relocation difficulties and potential adverse noise impacts on the neighborhoods, neither alternative should be dismissed or significantly favored from a social impact basis.
- Neither alternative would have significant adverse natural environmental impacts.
- Workshop ratings of comparative impacts (excluding cost) by local, State and Corps officials and staff revealed a higher overall rating of Alternative 1CA.

COMPLIANCE WITH EXECUTIVE ORDERS

Executive Order 11988, Floodplain Management, 24 May 1977

235. The proposed action is judged to be in compliance with E.O. 11988. All alternatives for relocation of the Main Street bridge, including the no-action alternative, would result in encroachment by placing bridge piers within the base floodplain. These piers are required to provide the authorized SPF level of protection. No practicable alternative exists that would maintain traffic service, allow the provision of SPF protection, and yet not require bridge abutments within the base floodplain. The tentatively selected plan would reduce the risks associated with flooding by: 1) providing for SPF protection improvements, 2) eliminating the present potential for bridge failure during floods, and 3) eliminating the potential for future floodplain encroachment by allowing completion of the project levee and floodwall works currently under construction. The tentatively selected plan would not result in significant adverse impacts upon natural or beneficial floodplain values (see Technical Report No. 6). Disturbances due to construction activities will be temporary and minimized to the maximum possible extent.

Executive Order 11990, Protection of Wetlands, 24 May 1977

236. No wetlands would be impacted by any alternative for relocation of the Main Street bridge. In addition, no secondary or indirect effects would accrue to these resources from implementation of the tentatively selected plan. Therefore, the project is judged to be in compliance with E.O. 11990.

Executive Memorandum, Analysis of Impacts on Prime and Unique Farmlands in EIS, CEQ Memorandum 30 August 1976

237. No prime or unique farmlands are located within the impact areas of any alternative for relocation of the Main Street bridge. In addition, no secondary or indirect impacts would accrue to these resources from implementation of the tentatively selected plan. Therefore, the project is judged to be in compliance with the Executive Memorandum.

DRAFT SUPPLEMENT II
TO THE
FINAL ENVIRONMENTAL IMPACT STATEMENT
MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER
FLOOD CONTROL - PHASE I
(AS AMENDED 18 JANUARY 1972)

Proposed Plan for the Alteration or Relocation of the Main Street, Trunk Highway 60 Bridge over the Minnesota River between Mankato and North Mankato, Minnesota

The responsible lead agency is the U.S. Army Engineer District, St. Paul. The responsible cooperating agency is the Minnesota Department of Transportation.

Abstract: The St. Paul District currently is constructing flood control works on the Minnesota and Blue Earth Rivers to protect developed portions of Mankato, North Mankato and Le Hillier lying in the flood plain from frequent flood damage. These works include the raising of bridges to clear the high water of the Standard Project Flood. The Main Street bridge over the Minnesota River must be raised or replaced to an elevation approximately 30 feet above the existing bridge to clear the railroad on the Mankato side. This necessitates extensive work on the approaches to the bridge as well as to the bridge itself. Of several plans considered, two were selected for detailed study. Plan 1CA would begin in North Mankato on Belgrade Ave. at the same location as the existing bridge and connect to Mulberry Street one block north of Main Street, touching down between Second and Broad Streets. Adverse neighborhood impacts would be most severe in Mankato. Plan 2A would begin in North Mankato on Range Street and connect to Warren Street at Pike Street in Mankato. Adverse neighborhood impacts would be most severe in North Mankato. Access patterns between the Central Business Districts of the two cities would be altered. Plan 1CA has been tentatively selected based on its performance in addressing the identified public concerns and its net positive contributions to the study objectives.

SEND YOUR COMMENTS TO THE
DISTRICT ENGINEER WITHIN 45 DAYS
AFTER THE NOTICE OF
AVAILABILITY IN THE FEDERAL
REGISTER

If you would like further information
on this statement please contact:

Mr. Robert F. Post
Chief, Environmental Resources Branch
Engineering Division
St. Paul District, Corps of Engineers
1135 U.S. Post Office and Customs House
St. Paul, Minnesota 55101
Telephone (612) 725-7070

NOTE: Information, displays, maps, etc., discussed in the Main Street Bridge Design Memorandum No. 8 and associated technical reports are incorporated by reference in the EIS.

SUMMARY

MAJOR CONCLUSIONS AND FINDINGS

1. Four potential locations for the replacement of the Main Street Bridge were analyzed. The alternatives were narrowed down to two designs: one connecting Belgrade Avenue in North Mankato to Mulberry Street in Mankato (Alternative 1CA); the other connecting Range Street in North Mankato to Warren Street in Mankato (Alternative 2A).
2. Alternative 1CA was selected as the National Economic Development (NED) plan on the basis of its significantly lower capital cost and more efficient traffic service. Alternative 2A has less potential for loss of gross sales and employee payroll due to business displacements, and slightly greater overall development potential for redevelopment parcels adjoining the Mankato end of the alternative locations. Considering relocation potential of the affected businesses, however, the net economic effect of these factors is minor in comparison to the capital cost and travel savings under Alternative 1CA. Both alternatives satisfy the primary objective of providing desired flood protection for the Mankato area in accordance with the project authorization. Both alternatives produce savings to the CNW and to motorists due to the elimination of the present at-grade rail crossing.
3. Alternatives 1CA and 2A are essentially equal in terms of impacts on the natural and cultural environment. While neither was found to have significant adverse environmental effects, they are not considered to have a net positive contribution to Environmental Quality (EQ).
4. Alternative 1CA is preferred as the tentatively selected plan based on its significantly lower total cost and its superior design and location characteristics for traffic service and safety, the net overall effect of other factors being essentially equal. While both alternatives were found to create adverse social impacts from resident displacement and neighborhood disruption (such effects occurring at differing locations), neither alternative was found to be significantly superior overall from a social impact perspective.

AREAS OF CONTROVERSY

5. The major basis for continuing controversy on the two alternatives lies in the disagreement between Mankato and North Mankato residents on the alternative locations. Disagreement centers on the question of which city, if either, would be more significantly harmed by potential adverse social and economic effects of displacements and neighborhood traffic impacts.

6. Both Mankato and North Mankato officially endorsed a Belgrade to Mulberry crossing in 1974, following initial feasibility studies for the bridge relocation. In April 1979, however, the Mankato City Council withdrew official support from the Belgrade-Mulberry location in favor of a neutral position pending final public hearings. The withdrawal of support was based on a concern for potential adverse impacts on Mankato neighborhoods, business districts, and redevelopment areas. Some Mankato staff members indicated an unofficial preference for the Range-Warren location as providing a greater redevelopment potential for the City. At the same time, North Mankato reiterated its support for the Belgrade-Mulberry location on the basis of its superior traffic service and design features, lower total displacements, and the relatively minor effects on the North Mankato neighborhoods and Central Business District.

7. Public opinion has centered primarily on neighborhood impacts, Mankato residents primarily concerned with potential adverse effects in Mankato under Alternative 1CA; North Mankato residents primarily concerned with potential adverse effects in North Mankato under Alternative 2A. Residents of Mankato's Washington Park neighborhood, in particular, have expressed strong opposition to Alternative 1CA. Residents of the North Mankato's Nicollet neighborhood, by contrast, have expressed strong opposition to Alternative 2A. Petitions against each of the locations have been circulated (see Appendix C).

8. Another source of controversy arose over the retention of State Trunk Highway (TH) 60 designation on the Main Street bridge. Of economic concern to the adjoining cities and counties is the potential loss of trunk highway designation, whereby operation and maintenance of the structure would become a local rather than a State responsibility. Mn/DOT has indicated that retention of TH 60 designation would be acceptable for Alternative 1CA, which maintains full service connections with adequate design standards to adjoining roadway sections currently designated as the TH 60 routing. If Alternative 2A were selected, ramp connections between the bridge and TH 169/60 to and from the south would be lost. Mn/DOT has found retention of trunk highway designation on Alternative 2A to be unacceptable due to the loss of system continuity to the south and its low design characteristics. Mn/DOT has indicated that under Alternative 2A, TH 60 routing would be relocated from North Front Street and Madison Avenue in Mankato to the new TH 14 bypass at the north edge of the City.

9. During workshop meetings held with local officials in the spring of 1979 (See Appendix C, page C-8), Mankato participants expressed disagreement with initial estimates of the potential development value for redevelopment parcels in the vicinity of

the Alternative 1CA and 2A bridge touchdown locations. Following the workshops, Corps representatives met with Mr. Phil Shealy, Assistant City Manager, and his staff to resolve the apparent differences. City development value assumptions for the land were accepted and used to calculate comparative market value and tax revenue estimates for the "Mulberry" and "Pike-Poplar" portions of the Key City Urban Renewal and Minnesota-Poplar Redevelopment areas, as described on page EIS-35 and in Technical Report No. 4, "Social and Economic Resources". While these values do not represent actual development commitments, they are considered to reflect a reasonable estimate for comparative assessment of the alternatives.

10. During the Stage 2 evaluation of alternatives, a decision was made to select the "A" alignment on the Mankato side of the Belgrade-Mulberry alternative in order to avoid displacing the Burton Hotel. (See page EIS-14 and Main Report page 60.) The selection was based on the decision that sufficient, comparable low-income replacement housing was not available or likely to be available in the foreseeable future. Public opinion regarding the most appropriate long-term solution for the Burton Hotel, however, continues to be divided. Because of adverse access, traffic and visual impacts on the Burton residents and businesses if it remains, some believe the best long-term alternative would be to acquire the Burton and convert the portion of the property remaining after bridge construction to a more compatible use. At this time, however, information is not available to indicate that current residents and business tenants of the Burton could be satisfactorily relocated or that the disruptions caused by relocation of the Burton would be outweighed by the benefits of removing it from close proximity to the ICA alignment. Thus, the Corps decision to prefer the "A" alignment remains in effect. Since the Belgrade-Mulberry alternative need not displace the Burton, however, the decision concerning the Burton Hotel has been made separately from the selection of a preferred bridge location.

UNRESOLVED ISSUES

11. Controversy and disagreement continues over the potential impacts of the relocation alternatives, as described in the preceding section. To answer questions, help avoid misunderstandings and facilitate a rational discussion of the alternatives, the Corps has provided an informational office, informational meetings, workshops and newsletters. The information provided in this statement and the forthcoming public hearing are parts of the continuing effort. Regardless of the alternative ultimately selected, certain neighborhoods and individuals will be subject to adverse impact. Efforts have been made to identify means to mitigate such effects (e.g., the recommended truck prohibitions on Broad and Fourth Streets). Minimizing the adverse effect of such highly emotional concerns as traffic noise can permit a more balanced decision to be made that emphasizes the overall merits and demerits of the alternatives.

12. A number of properties in the bridge relocation impact area have been identified in the historic site inventory as "potentially eligible" for listing on the National Register of Historic Places. Comments from the State Historic Preservation Officer are being sought to determine actual eligibility. For adversely affected properties that are found to be eligible, means to mitigate the impacts would be developed in accordance with guidelines of the Advisory Council on Historic Preservation, 36 CFR Part 800.

13. An archaeological survey of the proposed project areas will be undertaken during 1981. The results of this survey will be included as Technical Report No. 7. All sites located during this survey will be tested to determine their National Register eligibility. For those archaeological sites found to be eligible for the National Register, mitigation will be completed prior to construction in accordance with the guidelines of the Advisory Council on Historic Preservation, 36 CFR Part 800.

RELATIONSHIP TO ENVIRONMENTAL REQUIREMENTS

14. Table A presents the relationship of the detailed study alternatives to the requirements of federal environmental laws, executive orders and related policies; State and local laws and policies; local development plans; and permits and other entitlements needed to implement the detailed plans. Terms used in the table should be interpreted as follows: full compliance - have met all requirements for current stage of planning; partial compliance - have not met some of the requirements that are normally met at this stage of planning; non-compliance - violation of a requirement; not applicable - no requirements for the current stage of planning. Under the Local Development Plan portion of the table, the terms "generally or partially consistent" are used. These local plans are not statutes, laws or regulations as such, so the "compliance" language is not employed but extent of agreement is reported because it gives an indication of compatibility with local planning.

TIERING

15. The Final Environmental Statement Minnesota River, Minnesota, Mankato-North Mankato-Le Hillier Flood Control Phase I (Amended December 1971) dealt with the overall project for flood protection involving levees, floodwalls, road relocations, interior drainage and intermittent ponding. This supplement under the tiering concept, 40 CFR 1502.20, deals with the issues now ready for decision relating to relocating the Main Street bridge over the Minnesota River. The Final Environmental Statement referenced is available from:

St. Paul District, Corps of Engineers
1135 U.S. Post Office and Customs House
St. Paul, MN 55101

TABLE A
RELATIONSHIP OF PLANS TO ENVIRONMENTAL PROTECTION STATUTES
AND OTHER ENVIRONMENTAL REQUIREMENTS

(TENTATIVELY SELECTED PLAN IS ALTERNATIVE 1CA)

<u>Federal Policies</u>	<u>ALTERNATIVE 1CA</u>	<u>ALTERNATIVE 2A</u>
Archaeological and Historic Preservation Act, as amended, 16 U.S.C. 469 <u>et seq.</u>	----- Partial Compliance -----	
Clean Air Act, as amended, 42 U.S.C. 7401, <u>et seq.</u>	----- Full Compliance -----	
Clean Water Act, as amended (Federal Water Pollution Control Act), 33 U.S.C. 1251, <u>et seq.</u>	----- Full Compliance -----	
Endangered Species Act, as amended, 16 U.S.C. 1531, <u>et seq.</u>	----- Full Compliance -----	
Federal Highway Administration (FHWA) Design Noise Levels	----- Full Compliance ⁽¹⁾ -----	
Federal Water Project Recreation Act, as amended, U.S.C. 661, <u>et seq.</u>	----- Full Compliance -----	
Fish and Wildlife Coordination Act, as amended, U.S.C. 661, <u>et seq.</u>	----- Full Compliance -----	
Floodplain Management, EO 11988*	----- Full Compliance -----	
Impacts on Prime and Unique Farmlands*	----- Full Compliance -----	
National Environmental Policy Act, as amended, 24 U.S.C. 4321, <u>et seq.</u>	----- Full Compliance -----	
National Historic Preservation Act, as amended, 16 U.S.C. 470a, <u>et seq.</u>	----- Partial Compliance ----- Comments requested from SHPO	
Protection and Enhancement of Environmental Quality, EO 11514	----- Full Compliance -----	
Protection of Wetlands, EO 11990*	----- Full Compliance -----	
River and Harbor Act	----- Full Compliance -----	
Uniform Relocation Act (P.L. 91-646)	--- Full Compliance -----	

*Reference Main Report, p. 63-64.

(1) Required coordination has been accomplished to date; however, standards in some cases will be exceeded. Therefore, mitigation or exceptions will be necessary.

TABLE A (CONT.)
RELATIONSHIP OF PLANS TO ENVIRONMENTAL PROTECTION STATUTES
AND OTHER ENVIRONMENTAL REQUIREMENTS

	<u>ALTERNATIVE 1CA</u>	<u>ALTERNATIVE 2A</u>
<u>State and Local Policies</u>		
Minnesota Environmental Policy Act	-----	Full Compliance -----
Mn/DOT Design Standards	Full Compliance (Desirable Standards)	Full Compliance (Minimum Standards)
Municipal Zoning Ordinances	-----	Full Compliance -----
State Floodplain Management Program	-----	Full Compliance -----
State Implementation Plan (Air Quality)	-----	Full Compliance -----
State NPC 2 Noise Standards	-----	Full Compliance ⁽¹⁾ -----
<u>Local Development Plans</u>		
Key City Urban Renewal Plan	-----	Generally Consistent -----
Indian Memorial	-----	Generally Consistent -----
Minnesota-Poplar Redevelopment Plan	Generally Consistent	Partially Consistent
N. Mankato Riverfront Park	Generally Consistent-- Allows Extension	Generally Consistent
Old Town Plan	-----	Partially Consistent -----
Pike Street Extension	-----	Generally Consistent -----
<u>Entitlements</u>		
Bridge Replacement Certification (401)	-----	Full Compliance -----
Coast Guard Bridge Permit	-----	Not Applicable-----
DNR Work in Waters Permit (150)	-----	Full Compliance -----
Dredge & Fill Permit (404)	-----	Full Compliance -----

(1) Required coordination has been accomplished to date; however, standards in some cases will be exceeded. Therefore, mitigation or exceptions will be necessary.

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NEED FOR AND OBJECTIVES OF ACTION

STUDY AUTHORITY

16. The government has, under authority of Public Law 85-500, 85th Congress, approved 3 July 1958, undertaken the development of a project known as Minnesota River, Mankato-North Mankato-Le Hillier Flood Control Project. The authority for the project directed that Standard Project Flood protection for the project area be provided and that required alterations to the CNW bridges across the Blue Earth River be effected at Federal expense. Section 104 of the 1976 Water Resources Development Act, P.L. 94-587, approved 22 October 1976, modified the project to provide that changes to the TH 169/60 highway bridges over the Blue Earth River and the Main Street bridge over the Minnesota River, including rights-of-way and changes to approaches and relocations made necessary by the project and its present plan of protection, be accomplished at complete Federal expense.

17. The location and design of the bridge alterations are not covered in "Final Environmental Impact Statement Minnesota River, Minnesota Mankato-North Mankato-Le Hillier Flood Control - Phase 1", U.S. Army Engineer District, St. Paul, 18 January 1972. This "Draft Supplement" to the FEIS, one of three supplements prepared to cover the proposed bridge alterations, addresses alterations proposed for the Main Street bridge.

PUBLIC CONCERNS

18. Local interests and various governmental agencies through public meetings, by reports, and through correspondence, provided their views of objectives of the project. For the Main Street bridge, the following have been stated:

- Provide flood protection
- Minimize disruption of existing conditions in the approach areas
- Maintain rail service on the Mankato side, but eliminate grade crossings
- Consider pedestrian safety and access on the river crossing and between neighborhoods and businesses in the approach areas
- Improve street access and service capabilities to the Mankato and North Mankato central business districts, Old Town, Madison East Shopping Center, and Mankato State University
- Reduce or minimize traffic in residential neighborhoods and on North Front Street
- Restrict property takings to a minimum
- Minimize adverse property value impacts
- Improve and enhance business districts in North Mankato and Mankato

- Maintain integrity of neighborhoods
- Reduce traffic noise
- Design project elements for optimum capacity and safety
- Maintain continuity in highway systems
- Minimize traffic disruptions during construction
- Maintain Sioux Uprising historic site
- Give ample attention to aesthetic considerations in planning and construction

See Page EIS-57 and Appendix C for details.

PLANNING OBJECTIVES AND CONSTRAINTS

19. The primary objective of the proposed Main Street bridge relocation is to provide flood protection, as one of the remaining key elements in a nearly completed flood control system for the Mankato area. Secondary objectives are to improve the crossing to current design standards and to provide adequate capacity for present and projected traffic demands, thereby enhancing traffic safety, circulation and access to and between the adjoining communities. Such improvements should be developed so as to avoid or minimize adverse impact upon, and enhance where practicable, the social, economic and natural environment of the site and adjoining neighborhoods.

20. Relocation of the bridge in a highly developed urban area severely restricts the range of viable location alternatives and constrains the ability to achieve desirable -- or in some cases minimum acceptable -- design standards and characteristics. Suitable ties to the arterial roadway system must be maintained. The proximity to developed neighborhoods also dictates that some adverse effects will be unavoidable under any of the alternatives. Location of the CNW railroad along the eastern bank of the river requires that the relocated structure clear not only the floodwalls, but the adjoining railroad tracks. While this provides the opportunity to eliminate the present undesirable railroad grade crossing, it also presents geometric design constraints and dictates the location of the touchdown or end points for the relocation alternatives. Details are provided in the following sections.

ALTERNATIVES

PLANS ELIMINATED FROM FURTHER STUDY

21. Four feasible locations for replacement of the Main Street bridge were identified in the 1974 Bridge Location Study. These locations are shown on Figure 8, Page 49 of the Main Report (DM No. 8). Early consideration in the current study confirmed that there are no other feasible locations.

Location 1B (Belgrade-Main)

22. One of the original locations, Location 1B connecting Belgrade Avenue in North Mankato to Main Street in Mankato, was found to be no longer prudent and feasible because of new developments along Main Street. Other design variations that would connect to Main Street were found to require more right-of-way than alternatives connecting to Mulberry Street without reducing impacts or providing better traffic service.

Location 3 (Monroe-Madison)

23. Two alternatives running from the vicinity of TH 169 and Monroe Avenue in North Mankato to Madison Avenue at North Front Street in Mankato were studied. One of these, Alternative 3A, connected to Monroe Avenue and included an interchange with TH 169 on the left bank of the river. The other, 3B, did not connect to Monroe Avenue, but ended at an interchange with TH 169. Traffic analysis showed that because of their location removed from the Central Business Districts of both cities, these alternatives would not provide efficient travel service for a large and important portion of the trip desires. Primarily because of this failing, this location was determined not to be a suitable replacement for the existing bridge. Alternatives 3A and 3B were both eliminated from further study.

Location 2 (Range-Warren)

24. Two alternatives were also considered to connect Range Street in North Mankato with Warren and Cherry Streets in Mankato. Alternative 2 would pass over Front Street, Pike Street, and the Milwaukee branchline tracks in addition to the CNW. This design provided poor connections to Pike Street, was costly and had serious negative impacts along Cherry and Warren Streets. With the decline of rail service and customers beyond Cherry Street on the Milwaukee branchline, it was found to be feasible to have the bridge approach meet grade at the intersection of Pike and Warren Streets. This overcame the major disadvantages of Alternative 2 in Mankato. The revised plan, Alternative 2A, was judged to be far more desirable. Alternative 2 was thus dropped from further consideration.

Location 1 (Belgrade-Mulberry)

25. Alternatives at the Belgrade Avenue - Mulberry Street location consisted of two basic alignments, with design variations in both North Mankato and Mankato. Since all combinations of the variations were possible and would provide similar traffic circulation, it was appropriate to select one "best" combination on the basis of the relative social impacts and quality of traffic service.

26. One alignment, 1A, would pass under TH 169 in North Mankato, and touch down in Mankato on the southerly side of Mulberry Street, avoiding taking the Burton Hotel, but having negative visual and access impacts on it. On the North Mankato side of the river, two design variations were analyzed. One of these would avoid displacement of the isolated River Drive neighborhood; the other would displace it. The variation requiring the acquisition of the River Drive neighborhood was judged to be more desirable. This was based on the desirability of eliminating the developed use of this isolated parcel, coupled with the anticipation of no significant relocation difficulties, a net saving in construction and right-of-way cost, and an improvement in the traffic operational features of the interchange.

27. The second alignment, 1C, would pass over TH 169 and touch down along the center of Mulberry Street. This alignment would be superior to 1A in traffic operations and long term land use relationships, but would require the acquisition of the Burton Hotel.

28. Because alignments 1A and 1C would occupy the same basic location, the design of the ends can be interchanged. This results in four distinct alternatives:

<u>Alternative</u>	<u>No. Mankato Approach</u>	<u>Mankato Approach</u>
1AA	Under TH 169	South edge of Mulberry Street
1AC	Under TH 169	Center of Mulberry Street
1CC	Over TH 169	Center of Mulberry Street
1CA	Over TH 169	South edge of Mulberry Street

29. The assessment of these alternatives revealed that alternatives 1CC and 1CA were superior to alternatives 1AA and 1AC in North Mankato due to fewer displacements, flatter grades and better ramp characteristics, reduced noise impacts, and a preferable construction bypass road alignment. In Mankato, the choice lay primarily in the disposition of the Burton Hotel, which has significance as a convenient residence for senior citizens, students, and others with low incomes. Since sufficient replacement housing was apparently not available, it was concluded that Alternative 1AA or 1CA should be selected in Mankato. The common choice in both cities being Alternative 1CA, it was selected as the most desirable and viable design alternative for the Belgrade-Mulberry location, thus eliminating Alternatives 1AA, 1AC, and 1CC.

30. A fifth design alternative at the Belgrade-Mulberry location was also investigated. This alternative was designated Alternative 1DA, since it primarily affected the design on the North Mankato end of the crossing. The purpose for the supplemental investigation was to determine the feasibility of reducing construction costs by altering the design to avoid replacement of the existing TH 169 bridge over Belgrade Avenue. The Minnesota Department of Transportation (Mn/DOT), with Federal Highway Administration (FHWA) concurrence, found Alternative 1DA to be "unacceptable" because of (a) its "excessive" grades for the prevailing traffic conditions through ramp intersections and (b) its substandard level of traffic service under projected traffic demands. See Appendix E for details. Alternative 1DA was thus eliminated from further consideration.

WITHOUT CONDITIONS (No Action)

31. If the Main Street bridge is not modified, the flood control project, which is now largely completed, would not provide protection from the Standard Project Flood (SPF). The SPF water surface elevation at the Main Street crossing for the overall flood control project is based on the bridges being raised. If not, the bridges would act as a dam causing the water surface to exceed the height of the upstream barriers as presently constructed. This would cause serious disruption to the communities and users and be contrary to the legislation authorizing protection for the SPF.

32. To achieve SPF protection, either the existing flood barriers and levees or the bridges would have to be raised. Raising or adding to the height of the flood barriers would require extensive reconstruction, increased base widths, and be extremely costly. This would involve additional acquisition and other related problems, and the collection of ice and debris would still remain a material hazard due to the present low and restrictive profiles of the bridges. Thus, raising the bridges to complete the project is considered essential.

PLANS CONSIDERED IN DETAIL

Alternative 1CA (Belgrade-Mulberry)

33. Alternative 1CA would connect Belgrade Avenue in North Mankato to Mulberry Street in Mankato. The new bridge would accommodate three 12-foot travel lanes, a 6-foot shoulder and an 8-foot sidewalk/bikeway in each direction. The existing interchange with TH 169 on the North Mankato side would be reconstructed, with TH 169 realigned toward the river and lowered to pass under the new Belgrade Avenue approach to the bridge. New, improved ramps to TH 169 and signalized ramp intersections with Belgrade Avenue would be constructed. River Drive north of Belgrade Avenue and the portion of Cedar Street between Wheeler and Belgrade Avenues would be closed.

34. On the Mankato side, the new crossing would pass over Pike-North Front Street connecting to existing Mulberry Street between Second and Broad Streets. Access ramps would be provided to and from Second Street, although Second Street would be closed to through traffic. Mulberry Street would be widened from Second to Fourth Streets to accommodate four travel lanes. New traffic signals and intersection improvements would be required at the intersections of Mulberry with Broad and Fourth Streets. Roadway and intersection improvements on Main and Plum Streets between Pike-North Front and Second Streets would be required to facilitate traffic circulation, particularly truck movements, to and from Pike-North Front Street. On Madison Avenue, signal and intersection modifications at Fourth Street and bridge route signing would be installed to facilitate traffic flow between the bridge and the Mankato "Hilltop" area. Parking restrictions would be required on Mulberry Street and in the immediate vicinity of each of the above intersection modifications.

35. The proposed plan for Alternative 1CA is shown in Appendix A on Plate A-8. Profiles for the new river crossing, ramps and revised TH 169 are shown on Plates A-9 to A-13. Typical cross sections are shown on Plate A-25.

Alternative 2A (Range-Warren)

36. Alternative 2A would connect Range Street in North Mankato to Warren Street in Mankato. As under Alternative 1CA, the new bridge would accommodate three 12-foot travel lanes, a 6-foot shoulder and an 8-foot sidewalk/bikeway in each direction. The interchange with TH 169 in North Mankato would be relocated from Belgrade Avenue to Range Street, although the existing Belgrade underpass of TH 169 would be retained to provide access to the businesses and River Drive neighborhood located between TH 169 and the river. The new interchange ramps on the south would provide access to and from Lookout Drive, but not TH 169, due to the close proximity to the adjoining interchange. The ramps on the north would retain access to and from TH 169. TH 169 would require reconstruction (realignment and profile changes) from north of Belgrade Avenue to the vicinity of the North Star Bridge. Portions of Lookout Drive and the TH 169-Center Street connection would also require reconstruction.

37. Range Street in North Mankato would be widened to accommodate four travel lanes from TH 169 north to Wheeler Avenue. Belgrade Avenue would be widened from Range Street west to Cross Street, with signalization and right-turn channelization added at the Belgrade-Range intersection. Nicollet Avenue would be "dead-ended" in cul-de-sacs on each side of Range Street.

38. In Mankato, Warren Street would be reconstructed to accommodate two-directional traffic with a median separation from Pike to Second Streets. (Warren Street is currently one-way eastbound.) Pike Street would be reconstructed south of Cherry Street. The City of Mankato plans to extend Pike Street southeast from Warren Street to provide a direct connection into South Front Street. While the alignment of this connection has not been determined to date, the Pike-Warren intersection layout was developed to accommodate the southeast extension of Pike Street. This intersection would be raised approximately five feet, and traffic signals and turn lane channelization would be installed. Dual left-turn lanes would be required on the eastbound Warren Street and southbound Pike Street approaches. Site constraints dictate that an undesirable steep grade (4.8%) and roadway curvature (12° - 30') be used on the Warren Street bridge approach in order to accommodate an intersection at Pike Street.

39. The proposed plan for Alternative 2A is shown in Appendix A on Plates A-16 and A-17. Profiles for the new river crossing, ramps and revised TH 169 and Pike Street are shown on Plates A-18 to A-23. Typical cross sections are shown on Plates A-26 and A-27.

Implementation Responsibilities

40. Under the modifications to the 1976 Water Resources Development Act, P.L. 94-587, approved 22 October 1976, the Main Street bridge replacement is to be constructed entirely at Federal expense. Under this law, any betterments would be local responsibilities. None are anticipated under either alternative.

41. The Corps of Engineers has responsibility for financing and constructing the bridge replacement. Roadway and bridge design criteria are the responsibility of the Minnesota Department of Transportation. The bridge, when complete, will be turned over to, and become the property of the State (Alternative 1CA) or local governments (Alternative 2A) for future operation and maintenance. Implementation of the recommended prohibition of trucks on Broad and Fourth Streets would be a responsibility of the City of Mankato.

Mitigation Requirements

42. Some of the negative impacts of both alternatives can be mitigated by the application of appropriate procedures. With respect to necessary relocations, Public Law 91-646, "The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970", provides procedures and funds for the relief of persons displaced by virtue of the construction of a Federal project. Special relocation assistance needs of those households and businesses with potential relocation problems (See Table D) will be investigated in detail for the selected alternative in a Relocation Study Design Memorandum, which will be completed prior to initiation of right-of-way acquisition.

43. To minimize disruptions during construction, specific requirements for maintenance of traffic and performance of work directly affecting the public would be written into the construction specifications. Payment items would be included in the construction contract where necessary to fulfill this intent. The impact of construction noise under either alternative can be minimized by restricting the hours of construction activity, utilizing the quietest equipment available, construction of temporary barriers, and by careful attention to see that all equipment is properly muffled. Minnesota Standard Specifications for Highway Construction, Section 7, Subsection 17.C2, states, in part, that the contractor shall comply with all applicable laws, ordinances, regulations, orders, and decrees in the performance of construction.

44. Potential water quality and aquatic life disturbances would be minimized by careful control of construction operations in the river and disposal of excavated sediments at approved disposal sites. Special precaution will be required under Alternative 1CA for construction activities near the Mankato storm sewer outfall where sediment samples have shown a high lead content. See the Section 404(b)(1) Evaluation on Pages EIS-60 to EIS-69. Provisions for stormwater drainage from the bridge to permit containment of toxic or hazardous material spills will be developed during the detailed design stage. Such plans will be developed in cooperation with the Minnesota Pollution Control Agency to meet requirements for bridge replacement certification under Section 401 of the Clean Water Act of 1977.

45. Under Alternative 1CA, a through truck prohibition needs to be established on Fourth and Broad Streets north of Mulberry Street to mitigate the potential noise impacts of increased traffic in the Mankato Washington Park neighborhood. Trucks would be routed between the bridge and Pike-North Front Street (the current primary truck route) via the new Second Street ramps and improved Main and Plum Street sections. With the prohibition, projected design year noise levels on Broad and Fourth Streets would remain at or near current levels. The removal of through trucks from this traffic flow would also improve the safety and appearance of these streets compared to conditions with trucks permitted. A similar prohibition would be desirable under Alternative 2A.

46. Mitigation of adverse visual impact in the Mulberry Street area under Alternative 1CA would be accomplished to the extent possible by appropriate attention to the design of the structure and landscaping. To minimize the inconvenience to pedestrians, the space under the bridge approach could be developed to provide a pedestrian tie between Main Street and Old Town.

47. Anticipated noise impacts on the Nicollet neighborhood under Alternative 2A can be partially mitigated by noise walls constructed along the TH 169 ramp bordering the neighborhood.

National Economic Development and Environmental Quality Aspects

48. Alternative 1CA contributes in a greater degree than Alternative 2A to National Economic Development (NED), because of its significantly lower capital cost and superior traffic service. Neither plan displays superiority with respect to other economic impacts. Both alternatives satisfy the primary NED objective of providing desired flood protection for the Mankato area in accordance with the project authorization. Both alternatives produce savings to the CNW and to motorists due to the elimination of the present at-grade rail crossing.

49. Alternatives 1CA and 2A are essentially equal in terms of impacts on the natural and cultural environment. While neither was found to have significant adverse environmental effects, they are not considered to have a net positive contribution to the Environmental Quality (EQ) objective.

Tentatively Selected Plan

50. Careful consideration of the features and impacts of the two plans, plus the application of a comparative "value methodology" procedure clearly demonstrated the superiority of Alternative 1CA over Alternative 2A. Alternative 1CA is preferred as the tentatively selected plan for the following reasons:

- Alternative 1CA has a significantly lower total cost.
- Alternative 1CA has superior design and location characteristics for traffic service and safety, including retention of State trunk highway route designation.
- Both alternatives would create adverse social impacts from resident displacement and from neighborhood disruption due to traffic changes, although such effects would occur at different locations. Considering (a) the net overall effects and (b) the good potential for mitigating relocation difficulties and potential adverse noise impacts on the neighborhoods, neither alternative should be dismissed or significantly favored from a social impact basis.
- Neither alternative would have significant adverse natural environmental impacts.
- Workshop ratings of comparative impacts (excluding cost) by local, State and Corps officials and staff revealed a higher overall rating of Alternative 1CA.

Comparative Impacts of Alternatives

51. The impacts of Alternatives 1CA and 2A were found to center around specific public issues and concerns. Comparative evaluation based on these issues and concerns was carried out not only by the project staff, but also by members of the staffs and city council of Mankato and North Mankato in special workshops. The issues and concerns identified were: project costs, displacements, traffic service and safety, and impacts on neighborhoods, on redevelopment areas and on existing business districts. Related environmental concerns include water resources, noise, air quality, parks and historic sites. Comparative costs and impacts are summarized in Table 2. Further detail is provided in the following sections.

AFFECTED ENVIRONMENT

ENVIRONMENTAL CONDITIONS

52. Mankato and North Mankato dominate economically a fairly prosperous, agriculture-oriented area. The cities, together with the small unincorporated community of Le Hillier, furnish employment and housing for a population of about 44,000 persons. The manufacture of agricultural products, small industries, sales and service organizations, construction, and related businesses and professions comprise the economic activities of the metropolitan region.

53. The bridge relocation area is highly developed. Land use patterns are generally consistent with existing zoning. In both cities, the termini of the various alternatives are at or near the Central Business Districts (CBD), where land uses consist of commercial developments, small manufacturing plants, and sales and service outlets. Immediately contiguous to the CBD's are residential and office-residential areas which contain single and multiple family dwellings and apartments, schools, churches, parks and small offices.

54. The lower portions of both Mankato and North Mankato, including the existing and alternative Main Street Bridge locations, lie in the broad Minnesota River valley. Valley floor elevations in the Main Street bridge vicinity vary from approximately 770 to 780 feet above sea level. The relatively flat plain that surrounds the Mankato area atop the valley bluffs varies in elevation from approximately 1000 to 1100 feet above sea level.

55. The Minnesota River has high total hardness and turbidity levels and is subject to periods of high siltation. Benthos, clam and fish studies indicate that the established aquatic communities are tolerant of the high turbidity and siltation. Nutrient levels are quite high, which is attributable to runoff from fertilized fields and waste water discharge. Water quality compliance with trace metal standards indicates a low level of industrial development. Analysis of polychlorinated biphenyl (PCB) and other chlorinated hydrocarbon levels from recent sediment cores taken by the U.S. Geological Survey in the project

TABLE B. COMPARATIVE IMPACT OF ALTERNATIVES

CONCERN	ALTERNATIVE 1CA BELGRADE-MULBERRY	ALTERNATIVE 2A RANGE-WARREN
<u>ESTIMATED COSTS</u>		
Capital (Federal)	\$ 19.6 million	\$ 24.9 million
Annual Maintenance and Operation	\$ 41,000 (State)	\$ 44,000 (Local)
<u>DISPLACEMENTS</u>		
Households	19	40
Businesses	7	10
<u>TRAFFIC SERVICE & SAFETY</u>		
Convenience and Access	Good overall; maintains traditional service.	Adequate, but alters traditional service with increased overall travel.
Design Elements	Meets desirable safety and capacity criteria.	Undesirable safety and capacity characteristics.
Maintenance of Traffic During Construction	Bypass road and at-grade intersection on TH 169.	Bypass road on TH 169. Pike and Warren Streets detours.
<u>NEIGHBORHOOD AND NOISE IMPACTS</u>		
Washington Park	Increased traffic; accelerated land use conversions adverse to neighborhood cohesion; reduced value for single-family residence, increased value for higher density residential and office use permitted by zoning; potential significant noise increase requires truck prohibition to mitigate.	Less traffic growth; slower land use conversion; truck prohibition desirable to mitigate noise.
Second Street	Reduced traffic; slower conversion to business use; potential long term positive effect on residential stability, community cohesion and property values; slight decrease in noise levels.	Continues present trend of traffic growth and business conversion; minimal noise level changes.
Lincoln Park	No impact.	Potential for increased traffic.
Nicollet	No significant impact.	Loss of residences adverse to neighborhood cohesion; adverse visual and noise impacts (noise walls likely needed).
River Drive	Eliminated, consistent with City plans.	Remains isolated from remainder of City.

TABLE B. COMPARATIVE IMPACT OF ALTERNATIVES (CONT.)

<u>CONCERN</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>	<u>ALTERNATIVE 2A RANGE-BARREN</u>
<u>REDEVELOPMENT AREAS</u>		
Mulberry	Displaces 4 businesses; limits redevelopment use (estimated potential \$3.0 million); visual impacts require special design measures.	Estimated development potential \$4.9 million.
Pike-Poplar	No immediate stimulus, but retains entire area for development.	Immediate development stimulus, but three businesses and 15 acres of redevelopment land lost.
<u>BUSINESS DISTRICTS</u>		
Mankato CBD	Overall positive impact.	Overall positive impact.
Old Town	Special design features needed to mitigate potential adverse visual impacts and maintain pedestrian ties to CBD.	No significant impact.
North Mankato CBD	No significant impact.	Creates uncertainty for CB viability and land use.
<u>WATER RESOURCES</u>		
	No significant impact. Special sediment disposal precaution required.	No significant impact.
<u>AIR QUALITY</u>		
	No significant impact.	No significant impact.
<u>PARKS</u>		
	1 access alteration and potential enlargement, 1 indirect impact (traffic)	1 minor acquisition. 2 indirect (traffic).
<u>HISTORIC SITES</u>		
National Register Properties (On or Nomination Pending)	No adverse impacts.	1 indirect impact (traffic).
Potentially Eligible Properties	1 displacement, 5 indirect impacts (traffic).	3 displacements, 1 indirect impact (traffic).

area indicate no presence of PCB "hot spots" (location where the concentration is far above ambient levels). The only potential "hot spot" for heavy metals was found in the backwater area downstream from the existing Main Street Bridge. Two sediment cores taken at this location contained above normal lead levels, probably due to the Mankato storm sewer effluent pipe which enters the Minnesota River at that point.

56. Vegetation and wildlife are typical of disturbed, urban habitats in southern Minnesota. No threatened or endangered flora or fauna are known to exist in the area. No major river pools or wetlands areas occur in the potential impact area.

57. There are 23 properties listed on the National Register of Historic Places within the potential impact area for the Main Street bridge replacement. Eight of these properties are individual listings. The remaining 15 properties make up the North Front Street Commercial District. An additional 66 properties considered "potentially eligible" for listing on the Register were also identified in the area of possible impact.

SIGNIFICANT CONCERNS

58. Five impact categories were specifically identified as significant concerns by public interests. They are displacements, neighborhoods, redevelopment areas, existing business districts, and traffic service and safety. Other concerns of significance on the basis of laws, standards and technical criteria include water resources, noise, air quality, parks, and historic sites. Each of these concerns and their significance are summarized below.

Displacements

59. Physical displacement of households and businesses is a concern not only in terms of the direct relocation costs, but also because of potential social, psychological and financial hardships placed on those dislocated, and the tax loss to the affected municipalities. The severity of the impact is closely dependent on the characteristics and relocation potential of those affected.

Neighborhoods

60. Together with traffic changes, physical displacements can also directly or indirectly impact the character and cohesive nature of residential neighborhoods by altering traditional neighborhood ties and land use, and by affecting traffic and pedestrian safety, noise levels, aesthetics and property values. Within the eight neighborhoods of Mankato and North Mankato potentially impacted by the

Main Street bridge alterations, five residential or mixed office-residential "sub-neighborhood" locations were identified as most subject to impact from the detailed study alternatives ICA and 2A. They are the Washington Park, Second Street and Lincoln Park areas of Mankato and the Nicollet and River Drive areas of North Mankato. Brief descriptions of each area are included below. Detailed descriptions can be found on pages 12 to 26 of the Main Report and in Technical Report No. 4, "Social and Economic Resources".

61. Washington Park - This area, which extends along Broad and Fourth Streets between Main and Madison Streets, embraces a mixture of single and multi-family residences and office uses. Slightly over half of the housing units on each street are renter occupied. Both the percentage of owner-occupied houses and number of non-residential structures have remained relatively constant during the 1970's. High turnover rates on Broad Street indicate a relatively non-cohesive neighborhood. Turnover on Fourth Street is slightly lower, particularly among renters, indicated a somewhat more stable neighborhood environment.

62. Second Street - Lying on the boundary between the Central neighborhood and the CBD and extending from Plum Street to Madison Street, this area is characterized a predominance of multi-family renter-occupied housing. The neighborhood is a high turnover, transient area lacking cohesive community characteristics.

63. Lincoln Park - This area is an essentially residential neighborhood, adjoining the CBD on the south, that would be subject to potential traffic impacts from the project. The area is a fully developed and mature area, with a mixture of single-family and multi-family units, slightly over half renter-occupied.

64. Nicollet - This area, extending generally along the eastern portion of Nicollet Avenue near the Main Street bridge, is a stable and highly cohesive single-family residential neighborhood. Approximately two-thirds of the units are owner-occupied. The area has a high proportion of elderly residents.

65. River Drive - This area, which lies immediately downstream (north) of the existing Main Street bridge in North Mankato, contains ten single-family residences and one small manufacturer. The area is isolated from the remainder of North Mankato and the City finds providing the area with municipal services to be difficult and costly.

Redevelopment Areas

66. Portions of the Key City Urban Renewal Area and Minnesota-Poplar Street Redevelopment Area directly adjoin the Mankato end of the two detailed study bridge relocation alternatives. Mankato has expressed concern that the redevelopment potential and resulting property tax

value of these areas would be significantly affected by the bridge location. Under either alternative, portions of currently vacant redevelopment parcels would be precluded from development and previously developed parcels would be displaced by bridge ramps and approaches. Redevelopment potential of the remaining adjoining parcels would also be subject to change.

67. The portion of the Key City Urban Renewal Area adjoining the Mankato end of Alternative 1CA has been designated the "Mulberry" redevelopment area for purposes of this study. Lying in the northern portion of the Mankato CBD, this area extends roughly from Front to Broad Streets along Mulberry Street and embraces, west of Second Street, the Burton Hotel, the Minnesota Valley Regional Library, and the new Holiday Inn. Part of the area was acquired and has been held vacant by the City for bridge access ramps (2.79 acres).

68. The Minnesota-Poplar Street Redevelopment Project has resulted in the clearance and reassemblage of land for light industrial and commercial use in the southwestern portion of the CBD adjacent to the Mankato end of Alternative 2A. Several new businesses have already located in the area, including Pfeiffers Plumbing and Heating and the Plumbery Home Center. Considerably more redevelopment activity is anticipated in future years. This area, plus an adjoining triangular tract to the northeast between Pike Street and the CNW railroad tracks in the Key City Renewal Area, has been designated as the "Pike-Poplar" redevelopment area for the purpose of this study. The triangular tract is currently occupied by a City parking lot and a railroad depot. Plans for commercial development of the site as an extension of the Madison Mall opposite Pike Street to the east are currently in negotiation between the City and a private developer. As part of the project, the City is in the process of acquiring the Milwaukee rail branchline property adjoining Pike Street. Rail service on the branchline has been discontinued.

Business Districts

69. Concern over accessibility and related economic and land use impacts extend beyond the immediate redevelopment tracts to the adjacent business districts of Mankato and North Mankato: the "downtowns" or Central Business Districts (CBD's) of each City and the "Old Town" shopping area of Mankato.

70. Mankato CBD - Existing land use in the Mankato CBD is comprised of retail, service, and office facilities. The "downtown" area is generally regarded as being encompassed by Pike, Second, Main, and Warren Streets. The enclosed Mankato Mall shopping complex contains approximately 76 businesses including Brett's Department Store, J.C. Penney Co., and assorted clothes stores, drug stores, restaurants and specialty shops. The success of the Mankato Mall has spurred adjacent redevelopment, such as a one block pedestrian mall just south of the enclosed mall, three large parking ramps, and a major

hotel complex (Holiday Inn) at the intersection of Main and Pike Streets, adjoining the Main Street bridge. Continuing effort to re-establish the area as the principal commercial sector of the local economy is evidenced by numerous new and/or expanded businesses.

71. Old Town - The "Old Town" shopping area is generally considered to be in an area adjacent to Front Street bounded by Plum Street, Second Street, and Madison Avenue. The "Old Town" area is bisected by a major traffic artery (North Front Street) connecting Madison Avenue and the Germania and Tourtelotte Park neighborhoods of Mankato with the present Main Street bridge and the downtown shopping district. The "Old Town" shopping area is distinctly different in function from the downtown shopping area, being comprised mostly of specialty shops.

72. Old Town Neighborhood, Inc., a neighborhood association of merchants and residents, has developed a "Concept Plan" for improvement of the area. The primary element is renewal of the North Front Street Commercial Core through concentrated improvements to the streets and other public areas, and preservation and enhancement of historic structures. Although the Concept Plan has not been formally adopted by the Mankato City Council, it serves as the basis for the City of Mankato's multi-year (1979-1981) community development block grant program in the "Old Town" neighborhood. However, not all of the Concept Plan proposals or recommended changes are being implemented by the City of Mankato. In particular, the City is not planning to reduce Front Street to two lanes on the western half of the current street width, with a landscaped median separating the traffic from diagonal parking. However, to reduce traffic congestion, the City does foresee the eventual elimination of parking along both sides of Front Street between Plum and Rock, and the development of off-street parking areas to serve the Front Street businesses.

73. North Mankato CBD - North Mankato's commercial area is concentrated within about 1½ blocks of the Main Street bridge and mainly along Belgrade Avenue. It is comprised of neighborhood businesses such as a hardware store, laundromat, taverns, cafe and bank. The Century Club Restaurant located immediately adjacent to the Minnesota River is a prominent commercial feature in this area and serves a clientele from within a large regional trade area. The portion of the area zoned for CBD uses along Nicollet Avenue east of Range Street adjoining the touchdown location for Alternative 2A currently remains occupied by single-family housing.

Traffic Service and Safety

74. While the primary objective of the project is to complete the flood protection project, the major secondary objective is to provide safe and efficient vehicular and pedestrian traffic service to and between the adjoining communities. All alternatives have been developed to comply with minimum design standards. However, the characteristics and constraints of each location result in significant differences in the travel convenience and access, safety and capacity characteristics, roadway system continuity, and maintenance of traffic during construction afforded under the study alternatives. These differences form a major concern affecting the selection of a preferred alternative.

Water Resources

75. The Minnesota River is the predominant natural resource of the study area. All relocation alternatives require construction activity in the river for new bridge piers. The primary concerns regardless of the alternative selected are (1) provision of adequate construction procedures to minimize disturbance to the river and avoid significant pollution from construction activities and (2) provision of stormwater runoff controls in the bridge design to permit containment of toxic or hazardous material spills. Federal and State regulations require coordination with various agencies responsible for water resource management and pollution control.

76. The Minnesota River is quite turbid and has high concentrations of calcium, magnesium, and nutrients. Sediment samples taken near the Main Street bridge indicated a high lead content near the Mankato storm sewer outlet. No major river pools or wetland areas occur in the potential impact area. Groundwater in the project area has been developed for domestic, industrial and municipal use. Municipal and industrial sources are primarily deep bedrock wells, with some supplemental municipal and private domestic shallow wells in the valley alluvium.

Noise

77. Present noise levels in the area are generally within Federal Highway Administration (FHWA) design noise level standards, but State daytime and nighttime noise standards are exceeded throughout much of the area, as indicated in Table C. Therefore, any substantial increases that cannot be mitigated would not be acceptable. While noise impacts are neighborhood concerns, they have been considered separately (in addition to other neighborhood impacts) because of the standards that exist.

TABLE C
EXISTING AMBIENT NOISE LEVELS AND NOISE STANDARDS
(dba)

<u>Location</u>	<u>Zoning</u>	<u>DAYTIME</u> (7 AM to 10 PM)		<u>NIGHTTIME</u> (10 PM to 7 AM)	
		<u>L₁₀</u>	<u>L₅₀</u>	<u>L₁₀</u>	<u>L₅₀</u>
<u>Mankato</u>					
N. Front Street	Business	73-76	67-69	70-72	63-65
N. Second Street	Business, Office-Residential	64-66	56-58	57-59	46-48
N. Broad Street	Office-Residential	66-68	59-61	60-62	48-50
N. Fourth Street	Office-Residential	64-67	57-61	58-61	47-49
Main Street	Business, Office-Residential	68-71	61-63	64-67	55-57
Mulberry Street	Business, Office-Residential	57-60	52-55	50-53	48-50
Warren Street	Business, Office-Residential	69-72	60-64	63-66	55-57
<u>North Mankato</u>					
TH 169	Business, Industrial	63-67	55-60	57-62	50-54
Belgrade Avenue	Residential	66-70	60-64	60-65	53-58
Nicollet & Range	Residential, Business	55-59	51-55	44-48	39-42
<u>Standards</u>	<u>Use</u>				
FHWA	Residential	70*	-	-	-
	Commercial	75*	-	-	-
State	Residential (NAC-1)	65	60	55	50
	Commercial (NAC-2)	70	65	70	65

*Upper limit during design hour (P.M. Peak) traffic conditions.

Air Quality

78. Transportation related pollutants are not considered to present a problem in the Mankato area. However, Federal and State guidelines require a screening technique evaluation of potential "worst case" concentrations to insure that ambient air quality standards are not exceeded.

Parks

79. Five Mankato parks and three North Mankato parks lie within the potential bridge impact area. These include Washington (3.5 acres), Hubbard (0.3 acres), Palmer Centennial (0.3 acres), Plaza (0.2 acres), and an unnamed park (0.2 acres) in Mankato, and Wheeler (12.5 acres), Wallyn (2.3 acres) and Riverview (1.8 acres) in North Mankato. Street locations and facilities provided at each park are listed in Table 3 of the Main Report. In recognition of the significance of parks to the human environment, Federal transportation policy prohibits the use of parkland unless there is no feasible and prudent alternative. Potential traffic related impacts were also identified as a public concern.

Historic Sites

80. There are 23 properties listed on the National Register of Historic Places within the potential impact area for the Main Street bridge replacement. Eight of these properties are individual listings. The remaining fifteen properties make up the North Front Street Commercial District. An additional 66 properties considered "potentially eligible" for listing on the Register were also identified in the area of possible impact.

81. Federal historic preservation laws require coordination with the State Historic Preservation Officer and application of a "Criteria of Effect" to identify impacts upon historic properties and mitigation procedures to minimize any adverse impacts. Local concern was also expressed that impacts on historic properties be avoided or minimized to the extent practicable.

ENVIRONMENTAL EFFECTS

DISPLACEMENTS

82. Nineteen households and seven businesses would be displaced under Alternative 1CA. Forty households and ten businesses would be displaced by Alternative 2A. Characteristics and relocation potential of the displaced households and businesses are shown in Table D. This assessment is based on data collected in interviews with potentially affected owners and residents during 1978 and early 1979.

83. Under Alternative 2A, 39 of the 40 household displacements would occur in North Mankato, including 33 households in the Nicollet Avenue neighborhood--predominantly from owner-occupied, single family residences. Residential surveys indicated that over two-thirds of the owner occupants have lived in the same house for over ten years, with strong neighborhood personal and social ties. Considering a combination of age and income characteristics, present equity, estimated market values and expressed relocation preferences in relation to housing and rental market conditions, three of the households would experience definite relocation problems. An additional 11 households have potential relocation problems, as indicated in Table D. Under Alternative 1CA, 18 of the 19 household displacements would also occur in North Mankato, including 10 from the River Drive neighborhood. Five of these households are subject to potential relocation problems, as indicated in Table D. Public Law 91-646, "The Uniform Relocation Assistance and Real Properties Acquisition Policies Act of 1970" provides procedures and funds for the relief of persons displaced by virtue of the construction of a Federal project. Special relocation assistance needs of the above households will be investigated in detail in the Relocation Study Design Memorandum for the alternative ultimately selected.

84. While Alternative 2A would displace three more businesses than Alternative 1CA, it would be the least disruptive overall in terms of potential loss in gross sales, total employees affected, and potential loss in annual payroll. However, when relocation potential is considered, the differences between the two alternatives diminishes considerably, as shown in Table D. A substantial portion of the sales and employment value occurs in businesses with good relocation potential that would not likely be adversely affected by displacement.

85. Direct annual property tax loss to both Mankato and North Mankato due to property acquisition would be similar under either alternative. The loss represents approximately one-third of one percent of the taxes collected by the two communities.

NEIGHBORHOODS

Washington Park

86. Alternative 1CA would induce impacts on the Washington Park neighborhood due to increased traffic on Broad and Fourth Streets. Closing of Second Street at Mulberry and the eastward relocation of the bridge touchdown are expected to initially increase volumes by approximately 50 percent from current levels (5000 to 5500 vehicles per day), with an increase by the year 2000 of approximately 150 percent. These one-way, 44-foot wide streets are constructed to accommodate the anticipated increases. Parking can be retained on both sides of these streets except in the vicinity of

TABLE D. DISPLACEMENT IMPACTS

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1A BELGRADE-MULBERRY</u>		<u>ALTERNATIVE 2A RANGE-WARREN</u>	
<u>Residential</u>				
Structures Displaced	15		30	
Single-Family	14		23	
Two-Family	0		5	
Multi-Family	1		2	
Housing Units Displaced	19		43 (3 unoccupied)	
Partial Taking Only	1		0	
Households Displaced	19		40	
Renter	8		16	
Owner Occupied	11		24	
Low Income	5		23	
Individuals Displaced	48		71	
Elderly	4		23	
Minority	0		1	
Youth	16		10	
Average Value of Owner-Occupied Residence	\$ 31,500		\$ 40,000	
Average Monthly Rent* for Renters	\$ 189		\$ 160	
Household Relocation Potential*:	<u>Owner Occupied</u>	<u>Renters</u>	<u>Owner Occupied</u>	<u>Renters</u>
No Major Problem Anticipated	7	7	13	11
Potential Relocation Problem	4	1	8	3
Definite Relocation Problem	-	-	3	-
No Determination Possible	-	-	-	2

*Household relocation potential is based on an evaluation of resident age and income characteristics, present equity, estimated market values and expressed relocation preferences in relation to present and projected housing and rental market conditions and public housing program characteristics.

See Technical Report No. 4, "Social and Economic Resources" for additional details.

TABLE D. DISPLACEMENT IMPACTS (CONT.)

<u>AREA/CATEGORY</u>	<u>ALTERNATIVE 1CA BELGRADE-MULBERRY</u>			<u>ALTERNATIVE 2A RANGE-WARREN</u>		
<u>Business</u>						
Structures Displaced	7			8		
Businesses Displaced	7			10		
Characteristics of Affected Businesses:	<u>Relocation Potential*</u>			<u>Relocation Potential*</u>		
	<u>Good</u>	<u>?</u>	<u>Total</u>	<u>Good</u>	<u>?</u>	<u>Total</u>
Number	4	3	7	3	7	10
Gross Annual Sales (\$ Million)	8.2**	2.6	10.8**	0.8	1.5	2.3
% Total Mankato Area Sales	1.5**	0.5	1.9**	0.1	0.3	0.4
Employees:						
Full Time	78	66	144	31	24	55
Part Time	<u>12</u>	<u>46</u>	<u>58</u>	<u>1</u>	<u>42</u>	<u>43</u>
TOTAL	90	112	202	32	66	98
Annual Employee Payroll (\$ Million)	1.0	0.6	1.6	0.3	0.3	0.6
% Total Mankato Area Payroll	1.8	1.2	3.0	0.6	0.6	1.2
<u>Direct Annual Property Tax Loss***</u>	<u>Loss</u>		<u>% Total Taxes</u>	<u>Loss</u>		<u>% Total Taxes</u>
Mankato	\$24,500		0.24	\$21,200		0.21
No. Mankato	<u>11,700</u>		<u>0.54</u>	<u>12,800</u>		<u>0.58</u>
TOTAL	\$36,200		0.29	\$34,000		0.28

*Relocation potential is based on interviews with affected merchants and local officials and on nature of business involved. "?" indicates questionable status.

**Includes firm sales at non-displaced location that could not be separated from total.

***Direct annual tax lost due to property acquisition only. Indirect tax loss due to property value changes or potential tax gains due to increased development are discussed in following sections for each affected area.

See Technical Report No. 4, "Social and Economic Resources" for additional details.

their intersections with Madison Avenue and Mulberry Street. With a recommended truck prohibition, neighborhood noise levels are anticipated to remain at or near current levels. Because of separate noise standards, noise impacts are treated separately (i.e., in addition to related neighborhood character and property value effects) in a following section.

87. The traffic increases are compatible with existing multiple-residence and office zoning and with the present minor arterial street designation of Broad and Fourth Streets. However, increased traffic would be incompatible with existing single-family residential uses, since it would likely accelerate conversions to higher density residential and office use and would further tend to increase the rental character of the neighborhood. Existing neighborhood cohesiveness would be adversely affected, with an immediate loss, or deceleration in rate of increase, of single-family residence property values. It would tend to increase economic value for office and higher density residential use, with a possible long term gain in property tax yield.

88. Child and pedestrian safety near Washington Park is a prime concern to area residents. Traffic increases under Alternative 1CA would increase the potential for conflict. Pedestrian approaches and location of facilities within the park must be carefully considered so that hazards to pedestrians can be significantly reduced. Adoption of the recommended truck prohibition on Fourth Street by the City would significantly reduce the potential safety hazard.

89. Alternative 2A would cause no significant change due to the bridge; however, traffic is expected to increase approximately 60 percent by the year 2000 due to general growth. Alternative 2A would be generally compatible with existing zoning, land use and minor arterial street designation of Fourth and Broad Streets. Conversion to higher density residential and office use would likely continue, but at a slower rate than under Alternative 1CA. Truck traffic prohibitions on Broad and Fourth Street and pedestrian safety measures should also be considered for Alternative 2A.

Second Street

90. Under Alternative 1CA, closing of Second Street at Mulberry to through traffic would eliminate the Second Street function as an access route to the CBD, reducing traffic by over 50 percent. Lower traffic volumes may harm some Second Street businesses--many of which are located in converted residences--that benefit from being visible to passing customers. Generally, lower traffic volumes would encourage the retention of residential land uses, but a slow transition to higher densities is expected to occur over the long run. Many single family residences have already been subdivided into

apartments. Such conversions are likely to continue even with the reduction in traffic. As neighborhood amenities and land values increase, Second Street would become potentially more attractive for high quality new apartment development.

91. Although it is not anticipated that the loss of traffic on Second Street would significantly change the percentage of owner-occupied units (i.e., no reversal back to single-family owner-occupied residences is expected) residential stability and community cohesion would likely increase over the long term due to the improvement in neighborhood amenities. During the transition to higher densities, existing absentee-rental properties may remain in relatively poor condition. However, use for higher-density residential development should produce a long-term positive effect on property values and property tax yield.

92. Alternative 2A would retain Second Street's function as an access route to the CBD, with a projected traffic increase of over 50 percent by the year 2000. It would be generally compatible with existing zoning and recent improvements to Second Street. The present trend toward a change in character from low-density residential land uses to higher-density residential development and business uses would likely continue under Alternative 2A. Also, the proportion of owner-occupied housing would probably continue to decline.

93. A short-term increase in property values would probably occur faster under Alternative 2A than Alternative 1CA due to commercial conversions; however, long-term values would likely attain a similar level. During the transition to higher intensity uses, existing absentee rental properties may remain in relatively poor condition.

Lincoln Park

94. No impact on the Lincoln Park neighborhood is anticipated under Alternative 1CA. No direct impact is expected under Alternative 2A. However, peak period congestion in the nearby bridge touchdown area would likely cause some non-bridge traffic to seek alternative routes (e.g., Van Brunt and Willard Streets) through the neighborhood. This additional traffic would not significantly affect noise levels or property values, but may create safety problems for pedestrians.

Nicollet

95. Alternative 1CA would have no significant impact on the character and cohesion of the Nicollet neighborhood.

96. Under Alternative 2A, approximately five acres of residential property would be converted to highway use. Residential properties on Nicollet Avenue east of Range Street would be isolated from the remainder of the neighborhood. Over the long run, these isolated residences would probably be displaced or converted to commercial uses, since the block is zoned (CBD) for commercial uses. Loss of 28 residential structures, increased noise levels, loss of trees, Range Street and ramp embankments (up to approximately 15' above existing grade), partial loss of access to the neighborhood (via Nicollet Avenue and Range Street from Belgrade Avenue), and traffic impacts from a temporary T.H. 169 bypass during construction would all adversely impact the remaining residential properties west of Range Street, which currently form a highly stable and cohesive residential neighborhood. These disruptions would probably adversely affect property values (initial decline, long range deceleration in the rate of increase) and their resultant tax yields.

River Drive

97. Under Alternative 1CA, the River Drive neighborhood would be eliminated. Conversion of this existing residential and commercial area to highway and park use would be inconsistent with existing zoning, but consistent with the desire of the City of North Mankato to relocate the isolated residences and to extend the proposed Riverview Park into the area. Relocation impacts on the displaced residents are included under "Displacements".

98. Under Alternative 2A, the River Drive neighborhood would not be significantly affected. It would, however, remain isolated by TH 169 from the remainder of North Mankato. Present problems of providing city services to this isolated area would continue.

REDEVELOPMENT AREAS

99. The combined potential development value of redevelopment parcels in the Mulberry and Pike-Poplar portions of the Key City Urban Renewal and Minnesota-Poplar Street Redevelopment areas would be an estimated \$0.4 million greater under Alternative 2A than Alternative 1CA. Such development would produce a net gain of approximately \$14,000 in annual property tax revenues to the City of Mankato.

Mulberry

100. Under Alternative 1CA, four businesses (two incompatible with CBD zoning) would be displaced from the Mulberry-Plum Block. Existing auto-bank facilities would have to be reoriented. The Key City Renewal Plan provided for a bridge at this location, including acquisition of present open parcels, but not the additional acquisitions.

101. Redevelopment of parcels within the bridge access loops would likely be limited to public use (e.g., a small landscaped park or parking for the adjoining library). Redevelopment flexibility for

parcels east of Second Street would be limited by access constraints. Holiday Inn's decision to locate on a nearby development parcel was made in anticipation of a bridge at this location. The adjoining library was located and designed to accommodate a bridge at this location.

102. The estimated potential development value of redevelopment parcels not taken by a bridge is \$3.0 million, with an estimated potential annual tax gain of \$70,000. Scale and visual impacts would be significant due to the bridge structure and road fills. Special design measures would be necessary to help mitigate such impacts, particularly on the library (e.g., compatible bridge type and material, landscaping, pedestrian tie to library, park development of area within loops -- the latter could strengthen visual and functional ties to Old Town on north).

103. The Burton Hotel would remain, but access would be more difficult; particularly pedestrian access to the CBD, which is important to elderly tenants of the Burton. The visual setting for the Burton would also be adversely affected by the adjoining approach roadways and ramps. See "Areas of Controversy" and "Noise Impacts" sections for additional discussion of potential impacts on the Burton Hotel.

104. Under Alternative 2A, land previously acquired for bridge and ramps would become available for commercial (CBD) development and the additional displacement of 4 businesses would be avoided. Estimated potential development value of the redevelopment parcels is \$4.9 million, with an estimated potential annual tax gain of \$116,000; \$1.5 million and \$46,000 greater, respectively, than values for Alternative 1CA.

Pike-Poplar

105. Alternative 1CA would not create an immediate stimulus for development of this area. However, it would retain the entire area for redevelopment and would retain good access to the area. The estimated potential annual tax gain from redevelopment parcels under 1CA, which would be precluded from development if Alternative 2A were chosen, is \$32,000. Also, displacement of three existing businesses and isolation of Gamble-Robinson from the remainder of the industrial uses would be avoided.

106. Alternative 2A would provide direct access to Pike Street at Warren Street, a positive development impetus for the Minnesota-Poplar Redevelopment Area. The development value and resultant tax benefits for the portion of this area not taken for bridge approaches would probably be realized at an earlier date than under Alternative 1CA, due to this development stimulus. However, nearly 1.55 acres of the Redevelopment Area would be lost because of roadway and embankments. The estimated potential development value of this land is \$1.4 million. The \$32,000 annual tax benefits from development of the taken portion would not be realized under Alternative 2A.

107. The Alternative 2A bridge and approach fills have significant scale and height. However, the areas impacted are not generally sensitive to visual effects of this nature.

BUSINESS DISTRICTS

Mankato CBD

108. Improved access and increased capacity from North Mankato under either alternative should have a positive overall impact, encouraging infill of vacant parcels, general redevelopment efforts, and an increase in overall property values and taxes.

109. The predominant right-hand turn access from bridge to downtown parking lots under Alternative 1CA is a slight advantage. The predominant left-hand turn access from bridge to downtown parking lots and potential peak period congestion in touchdown areas under Alternative 2A would be a slight drawback. In addition, Alternative 2A would dislocate two existing CBD businesses.

Old Town

110. The location of the bridge would have no appreciable effect on Front Street traffic volumes through the Old Town business district. Traffic is anticipated to increase somewhat under either alternative by the design year -- 30 percent under Alternative 1CA, 20 percent under Alternative 2A. Current and projected traffic levels under either alternative are inconsistent with the Old Town Concept Plan to reduce Front Street to two through-traffic lanes, but consistent with City and State designation as a major arterial and trunk highway. Traffic increases would be compatible with industrial and service land uses, but incompatible with retail (specialty shops) uses. Alternative 1CA would tend to decrease the potential spillover economic value of the CBD to Old Town. Old Town vehicular access via Second Street would be limited. Design would play a crucial role in the economic and aesthetic impact at this location. Particular attention to design details would be needed to mitigate potential adverse visual impacts and maintain the pedestrian tie to the CBD.

North Mankato CBD

111. Alternative 1CA would have no significant overall effect. It would reinforce existing auto-oriented businesses, resulting in a slight positive effect on property values. Depressing of the TH 169 roadway would have a positive visual impact.

112. Under Alternative 2A, the loss of businesses at Range Street and Belgrade Avenue could have a negative effect on business activity and viability of the remaining CBD. Rerouting of traffic would also negatively affect the generally auto-oriented businesses on Belgrade Avenue. Alternative 2A would create uncertainty with respect to the future of the CBD and land use plans, thereby potentially producing a small indirect tax loss due to a decrease in property values.

TRAFFIC SERVICE AND SAFETY

Convenience and Access

113. Elimination of the railroad grade crossing at the Mankato end of the existing Main Street Bridge under either of the relocation alternatives will eliminate traffic delays and congestion during train passage, including frequent switching operations at the crossing. Vehicle queues during train passage commonly extend across the bridge onto the TH 169 ramps in North Mankato and into the Mankato CBD along Main, Pike and North Front Streets. The crossing elimination will also improve railroad operating efficiency and eliminate the need for crossing guard protection, producing an estimated annual savings of \$110,000 for the CNW.

114. Alternative 1CA is centrally located to overall origins and destination of bridge users, and thus requires the least overall travel mileage. (Average annual mileage on the study system = 28.5 million vehicle miles.) It provides direct access to the Mankato CBD, Old Town and Central Areas, and is centrally located with respect to other destinations. Local access to blocks adjoining Second and Mulberry Streets would be made less convenient, but not eliminated, by ramps and the closing of Second Street.

115. In North Mankato, Alternative 1CA would maintain convenient access to the CBD and satisfactory access to other destinations. Northbound TH 169 access to and from Monroe Avenue would be lost. Alternative 1CA would maintain traditional pedestrian ties, convenient to both CBD's, the library and Old Town (approximate length between touchdowns = 2000'; max. grade 4%). Pedestrian access to the vicinity of Second and Mulberry Streets (including Burton Hotel) would be disrupted.

116. Alternative 2A would provide a less central location with respect to overall origins and destinations of bridge users; it would require an additional average annual travel of 1.5 million vehicle miles compared to 1CA (total on study system = 30.0 million). It provides direct access to Pike Street, the Mankato CBD, and the South Central and Hilltop South areas. It would provide less convenient access to other destinations. Access via the bridge to and from TH 169 south would be lost.

117. In North Mankato, Alternative 2A would limit access to the CBD and the adjoining Nicollet neighborhood. Belgrade-Range access to and from the south on TH 169 would be lost. Traditional pedestrian links would be altered; it would retain an adequate North Mankato-Mankato CBD connection but would be inconvenient to the library and Old Town (approximate length between touchdowns = 2500'; max. grade = 4.8%). It would create an opportunity to correct the bridge walkways to the Mankato Mall via the recently constructed parking ramp walkways over Pike Street near Cherry Street.

Design Elements - Safety

118. The maximum grades (4% Mankato side and 3.2% North Mankato side) on Alternative 1CA would be steeper than desirable (2%), but the relatively flat horizontal curvature and adequate ramp spacing should permit relatively safe operating conditions under signalization.

119. The radius of curvature on Alternative 2A approaching Pike Street would be an absolute minimum for urban conditions and undesirable for a multi-lane facility with the high volume of traffic forecasted. The undesirability would be compounded because the curvature would occur on intersection approach and is combined with a steep grade (4.8%) and a dual left-turn lane. Sight distances are restricted and stopping distances would be increased.

120. On the North Mankato side, the Alternative 2A grade (3.6%) would be slightly steeper than under Alternative 1CA. The horizontal curvature would be flatter, but intersection angles more skewed. The ramp terminals would be closer together, slightly reducing sight distances -- a less safe design than Alternative 1CA. It could be particularly hazardous in poor weather.

121. Off of the bridge and its approaches, the city street standards are fairly uniform throughout the affected areas and overall safety conditions should be similar under either alternative.

Design Elements - Capacity

122. Under Alternative 1CA, design traffic volumes (V) at all intersections in the bridge touchdown area are expected to operate within design capacity (C_d) (i.e., $V/C_d \leq 1.0$). Capacity limitations on Madison Avenue for the left-turn lane into southbound Broad Street would likely result in alternative use of Second and Front Streets during peak periods. The total capacity is sufficient at design level for these left turns. Intersection modifications would be required at Fourth and Madison Streets to better accommodate the right turn from Fourth Street to Madison Avenue.

123. Design volumes under Alternative 2A at the Pike and Warren Streets touchdown intersection would exceed design capacity ($V/C_d = 1.3$) and would be at possible capacity ($V/C_p = 1.0$). Operation at possible capacity would be considered very congested and would cause traffic to divert to other routes. Short left-turn lanes at the TH 169 interchange due to restricted ramp terminal separation would also limit capacity. Intersection modifications to better accommodate the right turn from Fourth Street to Madison Avenue would be desirable.

124. Existing deficiencies and continued traffic growth will require future improvements to the Park Lane interchange regardless of the Main Street bridge alternative chosen. However, traffic routed to the Park Lane interchange to go south on TH 169 under Alternative 2A would aggravate the capacity problem.

System Continuity

125. Alternative 1CA is compatible with the existing trunk highway and arterial system. It retains TH 60 continuity through Mankato with a minor modification: the trunk highway designation must be routed from the bridge via the Second-Main and Plum-Second Street loops between Front Street and the bridge. Second Street's current function as an access route to the CBD from north would be severed under Alternative 1CA. (Second Street is classified as a collector street.)

126. Alternative 2A is incompatible with the trunk highway system. The TH 60 connection through Mankato (including trunk highway designation on the bridge) would likely be lost since access between the bridge and TH 169/60 to the south would not be provided. Alternative 2A would retain a direct principal arterial (non-trunk) connection between Pike Street and TH 169 to the north.

Maintenance of Traffic During Construction

127. Alternative 1CA would require a bypass of all traffic past the site of the Belgrade Avenue bridge over TH 169 during construction of the new bridge and approaches. It would require a signalized intersection between the TH 169 bypass road and Main Street bridge traffic. Sufficient capacity for the design hour can be provided. The estimated duration of this bypass is two construction seasons. A temporary detour of northbound off-ramp traffic during the final connection of ramp to new bridge would also be required (estimated duration two to four weeks). No significant effects on other streets are anticipated.

128. Alternative 2A would require a bypass of all TH 169 traffic past the site of the new Range Street bridge over TH 169; estimated duration two construction seasons. After opening the new river bridge, the existing TH 169 bridge over Belgrade Avenue would be widened to accommodate the new acceleration and deceleration lanes. Four-lane, two-way traffic would be carried over a portion of the existing bridge during this time (estimated duration one to two construction seasons). The Center Street off-ramp would be closed during the reconstruction of the bridge over southbound TH 169 (estimated duration one to two construction seasons). Pike and Warren Street traffic would be detoured via Cherry and Front Streets during reconstruction of Pike and Warren Streets; estimated duration one construction season.

WATER RESOURCES

129. No significant impacts upon the water quality or aquatic ecosystems of the Minnesota River or groundwater resources of the area are anticipated under either alternative. Potential water quality and aquatic life disturbances can be minimized by careful control of construction operations in the river and disposal of excavated sediments at approved disposal

sites. Special precaution will be required under Alternative 1CA for construction activities near the Mankato storm sewer outfall where sediment samples have shown a high lead content. See the Section 404(b)(1) Evaluation on Pages EIS-60 to EIS-69 and Technical Report No. 6, Natural Resources.

130. Provisions for stormwater drainage from the bridge to permit containment of toxic or hazardous material spills will be developed during the detailed design stage. Such plans will be developed in cooperation with the Minnesota Pollution Control Agency to meet requirements for bridge replacement certification under Section 401 of the Clean Water Act of 1977.

NOISE

131. Table E summarizes predicted design year noise levels and potential mitigation measures for ten potential traffic noise impact areas affected by the Main Street bridge relocation. Predicted noise levels at the nearest receiver locations for the two detailed study alternatives are compared to existing levels and to FHWA and State noise standards. (See Table C on Page EIS-28) The number and types of sites in each area potentially exceeding the standards are shown as "Noise Impact Sites". Proposed abatement measures are shown, where applicable, indicating the type and number of sites that would be protected. These impacts and proposed mitigative measures are tentative until final plans are developed. Each of the areas is discussed below.

Front Street

132. State standards are currently exceeded at the 30 commercial sites along Front Street, a major arterial. An increase of approximately 2-3 dBA is anticipated by the design year due to traffic growth regardless of the alternative chosen. Federal standards would be slightly exceeded, since the estimated current peak L_{10} level is at the Federal standard of 75 dBA for commercial sites. Mitigative measures are not considered practicable because of Front Street's limited right-of-way and the need to maintain both local access and major arterial status.

Second Street

133. Present noise levels slightly exceed both daytime and nighttime State noise standards for 74 residential and mixed residential-commercial sites along Second Street. The closing of Second Street at Mulberry Street would reduce Second Street noise levels by 1-3 dBA under Alternative 1CA, meeting the daytime State standard. An increase of 1-3 dBA due to non-bridge related traffic growth can be anticipated under Alternative 2A. Federal standards are met under either alternative.

TABLE E
NOISE IMPACT ASSESSMENT & MITIGATION MEASURES

IMPACT AREA	LAND USE TYPE	ALTERNATIVE	PREDICTED NOISE LEVEL (YEAR 2000 - NEAREST RECEIVER)						STANDARDS MET		NOISE IMPACT SITES		PROPOSED MITIGATION	
			Day			Night			Federal	State	Type	Number	No. Sites Protected	Treatment Proposed
			L10	L50	L90	L10	L50	L90						
Front Street North of Main	Commercial	Existing	75	68	72	64	Yes	No	No	No	Com.	30	30	
		ICA	78	70	76	67	No	No	No	No	Com.	29	29	
		2A	77	70	75	66	No	No	No	No	Com.	30	30	
Second Street North of Main	Residential, Commercial & Mixed Use	Existing	66	60	59	48	Yes	No	No	No	Res. & Mixed	74	74	
		ICA	64	58	56	45	Yes	Yes	No	No	Res. & Mixed	0	74	
		2A	67	61	61	52	Yes	No	No	No	Res. & Mixed	74	74	
Broad Street North of Main	Residential & Mixed Use	Existing	64	57	58	47	Yes	Yes	No	No	Res. & Mixed	0	94	
		ICA	74/63*	66/60*	62/59*	54/52*	No/Yes*	No/Yes*	No	No	Res. & Mixed	94/0* 94/94*	94 (Day)**	Truck Prohibition
		2A	67/63*	60/59*	60/59*	51/50*	Yes	Yes*	No	No	Res. & Mixed	94/0* 94/94*	92 (Day)**	Truck Prohibition
Fourth Street North of Main	Residential Mixed Use & Recreational	Existing	67	60	61	49	Yes	No	No	No	Res. & Mixed	53	65	
		ICA	76/66*	68/62*	65/63*	56/54*	No/Yes*	No	No	No	Res. & Mixed	83/53* 82/82*	30 (Day)**	Truck Prohibition
		2A	70/65*	63/60*	62/61*	51/50*	Yes	Yes*	No	No	Res. & Mixed	66/0* 65/65*	66 (Day)**	Truck Prohibition
Main Street East of Second	Commercial	Existing	71	63	66	57	Yes	No	Yes	Yes	Com.	10	0	
		ICA	74	66	66	56	Yes	No	Yes	Yes	Com.	10	0	
		2A	74	65	66	56	Yes	No	Yes	Yes	Com.	10	0	
Mulberry Street East of Broad	Residential	Existing	60	50	52	48	Yes	Yes	Yes	Yes	Res.	0	0	
		ICA	72/65*	63/60*	61/60*	52/51*	No/Yes*	No/Yes*	No	No	Res.	5/0* 5/5*	5 (Day)	Truck Prohibition
		2A	61	51	53	48	Yes	Yes	Yes	Yes	Res.	0	0	
Warren Street East of Front	Residential -Cultural	Existing	72	64	66	57	No	No	No	No	Res./Cult.	10	8	
		ICA	73	67	68	59	No	No	No	No	Res./Cult.	10	8	
		2A	76	69	70	62	No	No	No	No	Res./Cult.	10	8	
Cedar Street Adjoining TH 169	Residential	Existing	66	57	60	51	Yes	No	No	No	Res.	1	5	
		ICA	66	56	58	51	Yes	No	No	No	Res.	1	3	
		2A	71	65	65	59	Yes	No	No	No	Res.	7	7	
Nicollet-Ranger Adjoining TH 169	Residential	Existing	66	60	60	51	Yes	No	No	No	Res.	3	8	
		ICA	69	62	63	56	Yes	No	No	No	Res.	7	11	
		2A	69	62	64	56	Yes	No	No	No	Res.	3	10	4
Away from TH 169	Residential	Existing	mid 50's low 50's mid 40's low 40's	mid 50's low 50's mid 40's low 40's	mid 50's low 50's mid 40's low 40's	mid 50's low 50's mid 40's low 40's	Yes	Yes	Yes	Yes	Res.	0	0	
		ICA	mid 50's low 50's mid 40's low 40's	mid 50's low 50's mid 40's low 40's	mid 50's low 50's mid 40's low 40's	mid 50's low 50's mid 40's low 40's	Yes	Yes	Yes	Yes	Res.	0	0	
		2A	70	59	63	53	Yes	No	No	No	Res.	3	8	3

*00/00 denotes trucks/without trucks

**Sites protectable to below standards; all sites protectable to at or near existing levels

134. At the Burton Hotel, noise levels along Second Street and on the Mulberry side near the corner of Second Street would remain near current levels under either alternative, as shown in Table F below. These levels are above both Federal and State standards. Along the Mulberry side, noise levels fall off by approximately 10 dBA near the rear corner, a condition that would remain under Alternative 2A. Under Alternative 1CA, by contrast, noise levels near the rear of the Burton would rise to levels currently experienced at the front of the building, due to the increased traffic on Mulberry Street. The recommended truck prohibition on Broad and Fourth Streets would help minimize the change, as shown, since truck traffic would enter and exit via the Second Street ramps.

TABLE F
ESTIMATED NOISE LEVELS (dBA) AT THE BURTON HOTEL
(Peak Traffic Hours)

	Day		Night	
	<u>L₁₀</u>	<u>L₅₀</u>	<u>L₁₀</u>	<u>L₅₀</u>
<u>Along Second Street & Mulberry Street at the Corner of Second Street</u>				
Existing	74	65	67	56
Alternative 2A	74	66	68	57
Alternative 1CA*	72/71	65/65	65/65	57/57
<u>Mulberry Street at Rear Corner</u>				
Existing	62	52	54	50
Alternative 2A	63	54	55	50
Alternative 1CA*	74/68	64/62	68/66	56/55

*00/00 denotes with trucks/without trucks on Broad and Fourth Streets

Broad Street

135. Daytime State noise standards are currently met, but nighttime standards are slightly exceeded at some 94 residential and mixed office-residential sites along Broad Street, a one-way southbound minor arterial. Without truck prohibitions, increases of 8-10 dBA daytime and 4-7 dBA nighttime would be expected under Alternative 1CA, primarily due to truck diversion from Front Street. Increases of 3 dBA daytime and 2-4 dBA

nighttime can be expected under Alternative 2A. Both daytime and nighttime standards would be exceeded at the 94 sites.

136. With truck prohibition to avoid diversion from Front Street, noise levels would remain at or near current levels under either alternative; night standards would continue to be exceeded. Federal standards would be exceeded under Alternative 1CA without a truck prohibition, but met in all other cases. City of Mankato adoption of a truck prohibition on Broad Street is recommended regardless of the alternative chosen.

Fourth Street

137. Both daytime and nighttime State standards are currently exceeded at some 53 residential and mixed use sites, mostly along the northwest side of Fourth Street, a one-way, northbound minor arterial. Nighttime standards are exceeded at an additional 12 sites along the southeast side. Without truck prohibitions, increases of 8-10 dBA daytime and 4-6 dBA nighttime would be expected under Alternative 1CA. Both daytime and nighttime standards would be exceeded at 82 residential and mixed use sites, with daytime standards exceeded at Washington Park. Increases of 3-5 dBA daytime and 1-3 nighttime would occur under Alternative 2A, with standards exceeded day and night at 65 sites, plus daytime at Washington Park.

138. With truck prohibitions to avoid diversion from Front Street, noise levels would be at or near current levels under either alternative. Nighttime standards would continue to be slightly exceeded, while daytime standards would remain slightly exceeded under Alternative 1CA, with Alternative 2A levels at the daytime standard. Federal standards would be exceeded under Alternative 1CA without a truck prohibition but met in all other cases. City of Mankato adoption of a truck prohibition on Fourth Street is recommended regardless of the alternative chosen.

Main Street

139. State daytime standards are currently exceeded for some 10 commercial sites along Main Street, a minor arterial. Daytime levels can be expected to increase by approximately 2-3 dBA under either alternative due to traffic growth. Nighttime levels should remain at or near current levels. Federal standards are met under either alternative.

Mulberry Street

140. Current noise levels are within State and Federal standards. Without a truck prohibition on Broad and Fourth Streets, increases of 12-13 dBA daytime and 4-9 dBA nighttime can be expected under Alternative 1CA, raising levels to above both State and Federal standards for the five residences on Mulberry between Broad and Fourth Streets. With the truck prohibitions, the increases would be 5-10 dBA daytime and 3-8 dBA nighttime, meeting Federal and State daytime standards, but exceeding State nighttime standards for residences by 1-6 dBA. It is anticipated that

the residences will be converted to office use consistent with current zoning for the area. In such event, the State standards would not be exceeded. Under Alternative 2A, noise levels would remain at or near current levels.

Warren Street

141. State and Federal standards are currently exceeded at eight residential sites and two cultural buildings (daytime only) on Warren, a one-way eastbound minor arterial. Non-bridge related traffic growth is expected to increase design year noise levels by an estimated 1-3 dBA under Alternative 1CA. Traffic increases under Alternative 2A would increase design year noise levels by 4-5 dBA. The eight residential uses are subject to future conversion to office use, consistent with existing zoning and their location on an arterial street adjoining the Central Business District.

Cedar Street

142. Noise from TH 169 mainline and ramps to Belgrade currently exceed State standards at one residence daytime and four residences nighttime. Under Alternative 1CA, relocation of the ramp would displace three residences, with design year noise levels at the nearest remaining residence at or near current levels despite increased traffic. One residence daytime and three residences nighttime would experience levels slightly above standard. Federal standards would continue to be met. Under Alternative 2A, normal traffic increases by the design year would increase noise levels by 4-9 dBA, with State standards exceeded at seven residential sites. The Federal standard would also be slightly exceeded. Shielding appears impracticable under either alternative in view of the roadway profiles, local topography and space limitations.

143. During construction of Alternative 1CA, a proposed bypass road would increase noise levels at the nearest receptor by up to 6-8 dBA, with peak daytime $L_{10} = 70$ dBA and peak nighttime $L_{10} = 66$ dBA, exceeding State standards.

Nicollet-Range

144. Portion Adjoining TH 169/60: State standards are currently exceeded at three residences daytime and eight residences nighttime adjoining TH 169/60. Under Alternative 1CA, traffic growth would increase design year levels by 2-3 dBA daytime and 3-4 dBA nighttime. As a result, an estimated four additional residences daytime and three additional residences nighttime would experience above standard levels.

145. Under Alternative 2A, seven of the eight sites presently above State standards would be displaced. However, noise levels at the nearest remaining residences would increase to levels similar to the current nearest residences, with three residences daytime and ten residences nighttime experiencing above standard levels. The remaining six residences are located in the CBD zone and would likely be converted or displaced for business use in the future.

146. Federal standards are not exceeded under either alternative. However, during construction of Alternative 2A, a proposed bypass road would increase noise levels at the nearest receptor by up to 15-20 dBA, with peak daytime L_{10} = 74 dBA (above Federal standard) and peak nighttime L_{10} = 69 dBA.

147. Portion Away from TH 169/60: Current L_{10} noise levels are mid-50's daytime and mid-40's nighttime, well below State and Federal standards. Alternative 1CA would not affect these levels. Under Alternative 2A, noise levels would increase up to 10-15 dBA daytime and nighttime at the nearest receptor, with increases of 5-10 dBA throughout much of the area. An estimated three residences daytime and eight residences nighttime would experience levels above State standards. Construction of a noise barrier to abate the anticipated noise increases along Range Street and the southbound ramp to Lookout Drive should be considered in the detailed design studies. However, detailed evaluation of cost and neighborhood aesthetic considerations along the elevated Range Street southbound ramp section could make a noise wall impracticable.

148. Under Alternative 2A, a bypass road during construction would produce noise levels of up to L_{10} = 74 day/69 night and L_{50} = 67 day/61 night at the nearest receptor in this area, or approximately 15 to 20 dBA above current levels.

Other

149. Typical construction noise disturbance (e.g., from trucking of construction materials and pile driving) can be expected in the adjoining areas under any of the alternatives. Such impacts can be minimized by restricting the hours of construction activity, utilizing the quietest equipment available, construction of temporary barriers, and by careful attention to see that all equipment is properly muffled.

AIR QUALITY

150. The proposed improvement is not anticipated to have significant air quality impacts and is considered consistent with the approved State Implementation Plan (SIP).

151. The project does not require an indirect source assessment and permit from the Minnesota Pollution Control Agency (MPCA) since:

- (1) Mankato is not within a Standard Metropolitan Statistical Area (SMSA);
- (2) The project is a modification of an existing roadway with a projected traffic increase of less than 10,000 vehicles per day in the ten years following construction.

Furthermore, prior consultation with MPCA is considered as accomplished under a MPCA Memorandum of Understanding with the Minnesota Department of Transportation.

152. The U.S. Environmental Protection Agency's screening procedures in "Guidelines for Air Quality Maintenance Planning and Analysis, Volume 9 (Revised): Evaluating Indirect Sources", September 1978, were used to estimate peak carbon monoxide concentrations at the nearest receptors along this project. The screening procedure "worst case" assumptions include a one meter per second wind at a 6° angle to the roadway, a Pasquall-Gifford stability classification of "D", and 20 percent cold starts at an ambient temperature of 20° F.

153. Peak concentrations were estimated for the tentatively selected plan (Alternative 1CA) at the two receptor sites nearest the intersection with the highest traffic volumes and volume to capacity ratio (Front Street and Plum Street intersection). This intersection was selected as having the greatest potential for traffic delay and congestion and therefore the greatest potential for exceeding air quality standards (i.e., if standards are met at this "worst-case" location, they would be met at all other locations). The estimated 1985 (year of completion) and 1995 peak one-hour and eight-hour concentrations, including background, are below the Federal standards of 35 ppm and 9 ppm and Minnesota standards of 30 ppm and 9 ppm, as shown below.

	<u>1985</u>		<u>1995</u>	
	<u>Receptor A</u>	<u>Receptor B</u>	<u>Receptor A</u>	<u>Receptor B</u>
Peak 1-hour CO				
Concentration (ppm)	10.5	17.9	6.8	12.9
Peak 8-hour CO				
Concentration (ppm)	5.1	8.0	3.6	6.0

154. In addition, a similar analysis was carried out for two nearest receptor sites adjoining the temporary intersection of Belgrade Avenue and the proposed TH 169 bypass road during construction (1983-1985). Again, estimated "worst case" levels were found to fall below Federal and State standards, as follows:

	<u>Receptor A</u>	<u>Receptor B</u>
Peak 1-hour CO Concentration (ppm)	14.3	14.1
Peak 8-hour CO Concentration (ppm)	6.7	6.4

155. An analysis of the airborne lead from this project indicates no violations of the lead standard. The airborne lead concentration at the nearest critical receptor along the proposed project was analyzed using a procedure based upon a 1-31-78 Mn/DOT memorandum, "Proposed National Ambient Air Quality Standard for Lead". No violation of the lead standard (1.50 micrograms per cubic meter) was indicated. The highest concentration after completion of construction was estimated at 0.3 micrograms per cubic meter.

PARKS

156. No publicly owned parklands would be required for street or bridge right-of-way under Alternative 1CA. However, two publicly owned parks would be affected. Washington Park in Mankato would be adversely affected by increased traffic on Fourth Street. Projected traffic levels would be incompatible with the active use of the playgrounds in this neighborhood park. Neighborhood ties and pedestrian access to the park would also be adversely affected. Adoption of the recommended truck prohibition on Fourth Street would help minimize the potential safety hazard and avoid adverse noise impacts on the park. In North Mankato, vehicular access to the proposed Riverview Park would be shifted from River Drive, as originally proposed, to a new entrance road from the north via Webster Avenue and the TH 169 east frontage road. However, elimination of the River Drive neighborhood under Alternative 1CA would allow the City to extend Riverview Park southward. The extension would facilitate the connection of the bikeway and pedestrian sidewalk on the bridge with the proposed recreational trail along the river northward through the park. Adoption of the necessary revisions to the park plans has been withheld pending resolution of the bridge relocation project.

157. Under Alternative 2A, a small tract proposed for park development by the City of Mankato would be acquired for the widening of Warren Street. Loss of the 0.2 acre tract, which is excess street right-of-way acquired in the recent City reconstruction of Warren Street, is not considered significant to the overall City park system. Two other Mankato parks would be indirectly adversely affected under Alternative 2A. Washington Park would be subject to increased traffic along Fourth Street, but to a lesser extent than under Alternative 1CA, as discussed under neighborhood impacts. Palmer Centerial Park, a small urban open space that contains flower

gardens but no active recreation facilities, would be subject to minor adverse impact from increased traffic activity along Warren and Broad Streets adjoining the park.

HISTORIC SITES

158. As of 6 May 1981, there were no properties listed on or pending nominations to the National Register of Historic Places that would be impacted by Alternative 1CA. One potentially eligible property, the M. C. Johnson Building, would be removed for right-of-way. Five potentially eligible properties would be indirectly impacted.

159. As of 6 May 1981, one site which is listed on the National Register of Historic Places, the Lorin Cray House, would be indirectly impacted by Alternative 2A. Three potentially eligible properties would be removed for right-of-way. In addition, one potentially eligible property would be indirectly affected.

160. Under Alternative 1CA, the M. C. Johnson Building (now Campbell Apartments) would be removed for the bridge right-of-way. The Heinrich Hotel (now Burton Hotel) at 201 North Second Street would be indirectly affected. Its surrounding environment would be altered by the removal of three businesses on the west side of North Second Street; by the closure of North Second Street at Mulberry Street; and by the visual, vehicular and pedestrian separation from the Central Business District due to the placement and low elevation of the bridge structure at this location. Traffic and noise levels would increase along the Mulberry Street side of the building. The Lang House at 204 North Fourth Street, a duplex at 127 North Broad Street, the Union School at 203 North Broad Street, and a house at 322 Mulberry Street, all potentially eligible, would also be indirectly affected by increased traffic and noise levels.

161. The Lorin Cray House (YWCA), a property listed on the National Register, would be indirectly adversely impacted under Alternative 2A. The property's surrounding environment would be altered by the removal of the E. R. Demaray House and by the partial taking of the YWCA property (parking area) located across Warren Street. The Cray House property would also be indirectly impacted by increased traffic and noise levels projected for Warren and Second Streets. Alternative 2A would require the acquisition of three potentially eligible properties for street right-of-way: the E. R. Demaray House at 614 South Second Street in Mankato and the Stewart Building (now New Deal Cafe) at 300 Belgrade Avenue and Peoples State Bank (now Spinner's Bar) at 301 Belgrade Avenue in North Mankato. Gamble-Robinson at 502 Pike Street in Mankato would be indirectly affected. The property's surrounding environment would be altered and the property would be subject to traffic congestion due to its location at the intersection of Pike and Warren Streets, where the bridge would touch down.

162. Comments of the State Historic Preservation Officer will be sought in order to formally determine National Register eligibility of each of the affected "potentially eligible" properties.

163. For all properties listed on or determined eligible for inclusion on the National Register, impacts of the selected alternative will be mitigated in accordance with the Advisory Council on Historic Preservation regulations, 36 CFR Part 800.

ARCHAEOLOGICAL SITES

164. No archaeological sites are currently listed on or pending nomination to the National Register within the proposed project area. An archaeological survey of the proposed project area will be conducted during 1981. All sites located during this survey will be tested to determine their National Register eligibility. For those sites found to be eligible for the National Register, mitigation will be completed prior to construction in accordance with the guideline of the Advisory Council on Historic Preservation Guidelines, 36 CFR Part 800. The results of this survey will be prepared as Technical Report No. 7, "Archaeological Resources" printed under separate cover as an appendix to the final supplement to the EIS.

LIST OF PREPARERS

The following people were primarily responsible for preparing this environmental impact statement.

<u>Name</u>	<u>Expertise</u>	<u>Experience</u>	<u>Role in Preparation of EIS</u>
Mr. Robert Anfang	Forest Ecology	2 years, Research Assistant, University of Minnesota; 1½ years Forestry Technician and Biological Laboratory Technician; U.S. Forest Service; 6 years, Forester, St. Paul District, Corps of Engineers.	Biological evaluation, review documents prepared by contractor; prepared Section 404(b)(1) Evaluation.
Mr. Merlin H. Berg	Engineering, Hydraulics	45 years, Hydraulics and Planning; 32 years Corps of Engineers, 13 years private practice.	Subconsultant, Technical Writing.
Mr. George G. Brophy	Planner	2 years, Planner, HUD; 3 years Planning Consultant; 3 years Director Physical Planning, Minnesota Region 9 Development Commission; 4 years Director of Planning, Rieke Carroll Muller, Inc.	Subconsultant Project Manager, Planning, Zoning, Community Development.
Mr. James J. Craig, Jr.	Engineer	2 years soils engineering, Geotechnical Eng. Corp.; 5 years soils and foundations engineering, Braun Engineering Testing Co.	Subconsultant, Soils and Geology.
Mr. Roger A. Davis	Planner	2 years, City of North Mankato; 2 years, Professor Political Science, Mankato State University, 8 years, Professor of Urban Studies, MSU; 2 years, Senior Planner, Rieke Carroll Muller, Inc.	Subconsultant, Planning, Zoning, Community Development.
Mr. William G. Hohle, Jr.	Engineer	6 years highway engineer; 4 years hydraulics engineer, Edwards and Kelcey, Inc.	Consultant Staff, Civil Engineering. Noise Analysis.
Ms. Ann Leviton	Planner	7 years, Planner for local governments (specialty in historic preservation 3 years); 1 year Senior planner, Rieke Carroll Muller, Inc.	Subconsultant, Planning, Zoning, Community Development, Historic Preservation.

LIST OF PREPARERS (Continued)

<u>Name</u>	<u>Expertise</u>	<u>Experience</u>	<u>Role in Preparation of EIS</u>
Mr. David Miller	Sociologist	2 years Research Assistant, Rural Sociology Department, University of Minnesota - 3 years Sociologist, St. Paul District, Corps of Engineers.	EIS Coordinator, reviewed contractors' documents, social/economic impacts, alternative evaluations.
Mr. Robert Penniman	Civil Engineer	10 years, Project Manager/Water Resources Projects, St. Paul District, Corps of Engineers.	Study Manager, contract administrator, reviewed technical and alternative evaluations.
Ms. Terry J. Pfitzenreuter	Archaeology	5 years, Archaeologist, Minnesota Historical Society; 6 months, Archaeologist, Corps of Engineers.	Reviewed and coordinated cultural resources technical report.
Dr. Henry Quade	Limnologist, Ecologist	10 years, Professor of Biology, Mankato State University, EIS studies; consultant to Minnesota Pollution Control Agency and County Boards.	Subconsultant, Natural Resources.
Mr. Amardo J. Romano	Engineer	28 years, Civil and Structural Engineering, Project Management and EIS Studies; Vice President, Edwards and Kelcey, Inc.	Consultant Principal-in-Charge, Civil Engineering.
Mr. Robert P. Sands	Planner, Engineer	14 years, Land Use Planner, Transportation Engineering and EIS Studies, Edwards and Kelcey, Inc.	Consultant Staff, Alternative Evaluations, Transportation Engineering, Air & Noise Analysis
Mr. Dale Shaw	Engineer	20 years, Civil Engineering, Project Engr., District 7 Survey Engr. Minn. Dept. of Transportation.	Mn/DOT Coordinator, Civil Engineering.
Ms. Audrey Thomas	Archaeology	3 years Archaeologist, St. Paul District, Corps of Engineers.	Reviewed cultural resources technical report.
Mr. Thomas E. Wetmore	Civil Engineer	28 years, Transportation Engineering, Project Management and EIS Studies, Edwards and Kelcey, Inc.	Consultant Project Engineer, Civil Engineering.

PUBLIC INVOLVEMENT

PUBLIC INVOLVEMENT PROGRAM

165. The study has been conducted by the St. Paul District, Corps of Engineers, with the Minnesota Department of Transportation functioning as a cooperating agency for the TH 169/60 and Main Street bridges. As required by guidelines of the Council on Environmental Quality, a scoping process was conducted as a part of the ongoing coordination and public involvement activities. A cooperative working arrangement has been maintained with the Cities of Mankato and North Mankato. The Chicago and North Western Transportation Company and the Chicago, Milwaukee, St. Paul and Pacific Railroad were contacted with reference to possible effects on railroad facilities and operations. Coordination with the other involved local, State and Federal agencies was maintained by correspondence, briefings and the project newsletter. Direct working relationships were also maintained with private utility companies having facilities in the project area.

166. The views of the public were actively solicited throughout the course of the study. Individuals, groups and civic organizations, and governmental bodies were brought into the study process through a broadly-based public information program with regular communications on project matters.

167. Elements of the public information program included:

- a. A local public information office
- b. Periodic newsletters
- c. News media coverage
- d. Public information meetings
- e. Interviews with citizens directly affected by potential property acquisitions
- f. City Council and staff workshops
- g. Presentations to interested civic organizations

168. The overall public information program covered the entire project, i.e., all three bridge crossings to be altered. Specific public information releases were prepared to deal with the three separate bridge locations as appropriate. See Appendix C for details.

REQUIRED COORDINATION

169. Following completion of this draft supplement to the FEIS, the only coordination remaining will be: the securing of necessary permits from the Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency and the Corps of Engineers for the construction of the bridges; and review and comment on responses to the draft supplement, including views expressed during the public hearing.

170. During construction, all of the agencies having direct concern with the work will have to be kept informed. A regularly scheduled series of progress meetings to which all concerned would be invited may prove to be most effective for this purpose.

STATEMENT RECIPIENTS

171. This Draft Supplement EIS is being sent to the following for review and comment:

Distribution List Federal, State and Local Agencies and Officials

United States Senators

Honorable David Durenberger
Honorable Rudy Boschwitz

United States House of Representatives

Honorable Thomas Hagedorn
Honorable Bill Frenzel

Governor of Minnesota

Honorable Albert H. Quie

Federal Agencies

United States Department of Interior

United States Fish and Wildlife Service, Field Office
United States Fish and Wildlife Service, Regional Office
Assistant Secretary for Program Policy
Acting Assistant Director, United States Geological Survey
United States Geological Survey, Conservation Division,
Area Water Power
Bureau of Indian Affairs
Heritage Conservation and Recreation Service
Office of Archaeology and Historic Preservation
Interagency Archaeological Services

United States Department of Transportation

Federal Highway Administration, St. Paul, Minnesota
Second Coast Guard District, St. Louis, Missouri
Federal Highway Administration, Homewood, Illinois

United States Department of Agriculture

Eastern Region Forest Service
United States Forest Service
Soil Conservation Service, River Basin Planning Branch
Soil Conservation Service, Minnesota State Conservationist

United States Department of Commerce
Deputy Assistant Secretary for Environmental Affairs
Deputy Assistant Secretary for Regulatory Policy
Economic Development Representative, Duluth, Minnesota
National Oceanic & Atmospheric Administration -
National Marine Fisheries Service

United States Department of Health and Welfare
Director of Environmental Affairs
Region V Environmental Office

United States Department of Housing and Urban Development
Region V Environmental Clearance Officer

United States Department of Energy
Federal Energy Regulatory Commission
Division of NEPA Affairs

United States Environmental Protection Agency
Region V Administrator

Advisory Council on Historic Preservation
Executive Director

Minnesota State Agencies

Department of Natural Resources
Office of Economic Opportunity
Department of Agriculture
Energy Agency
Minnesota State Historic Preservation Office
State Archaeologist
Environmental Quality Board
Environmental Quality Board, Citizen's Advisory Committee
Minnesota Pollution Control Agency
Minnesota State Planning Agency
Minnesota State Planning Agency, Intergovernmental Planning
Minnesota Department of Transportation
Minnesota Senate
Minnesota State House of Representatives
Minnesota Environmental Education Board
Minnesota Department of Economical Development
Minnesota Department of Health, Division of Environmental
Health Association
Water Resources Board, Administrative Secretary, Minnesota
Minnesota-Wisconsin Boundary Area Commission
Natural Resources and Agriculture Senate Comm

Regional, County, Local Agencies

City of Mankato, Mayor
City of Mankato, Planning Director
City of Mankato, Director of Public Works
City of North Mankato, Mayor
City Engineer, North Mankato
Blue Earth County Engineer
Blue Earth County Board
Nicollet County Engineer
Nicollet County Board
Southern Minnesota Rivers Basin Commission
Region Nine Regional Development Commission

Libraries

Minneapolis Public Library
State Capitol Legislative Library
Hill Reference Library
University of Minnesota Library
Mankato State College Library
Minnesota Valley Regional Library, Mankato
Minnesota Valley Regional Library, North Mankato
Colorado State University Library

Newspapers, Media

The St. Peter Herald
Mankato Free Press
Mankato State College, Mankato Reporter
Waterways Journal

Interest Groups

Friends of the Earth, Minnesota Branch
Izaak Walton League of America
Izaak Walton League, Minneapolis Chapter
Ducks Unlimited
Minnesota Environmental Control Citizens Association
Minnesota Public Interest Research Group
Sierra Club, North Star Chapter
Minnesota League of Women Voters
Soil Conservation Society of America
Environmental Defense Fund, Inc.
National Audubon Society, North Midwest Region

National Audubon Society, North Midwest Representative
National Wildlife Federation
Minnesota Futurists Chapter of World Future
Environmental Resources
Water Resources Development Commission, River
Bend Association

Individuals and Companies

Chicago and North Western Transportation Company
H. Paul Friesma, Butler University
John Holden, Mankato State University
Honeymead Products Company, Mankato
James Jack, Mankato State University
Steve and Kathy Laird, Mankato
Mankato Citizens Telephone Company
Rick Van Doeren, Midwest Acoustics, Minneapolis
Midwestern Gas Transmission
Minnesota Gas Company
Northern States Power Company
Lee Watson, St. Paul, Minnesota

PUBLIC VIEWS AND REPOSSES

172. Local interests and various governmental agencies provided through public meetings, by reports, and through correspondence, their views on the desired objectives of the project. Summarized below are the public views expressed and the project responses.

<u>Views</u>	<u>Responses</u>
a. Provide flood protection.	Bridge alterations proposed herein will complete the flood control project thus providing protection against the Standard Project Flood.
b. Minimize disruption of existing conditions in the approach areas.	Consideration of all alternatives included thorough study of traffic and physical disruptions both during and after construction.
c. Maintain rail service on the Mankato side, but eliminate grade crossings.	Railroad grade crossings in the approaches are eliminated under all the relocation alternatives.

Views

- d. Consider pedestrian safety and access on the river crossing and between neighborhoods and businesses in the approach areas.
- e. Improve street access and service capabilities to the Mankato and North Mankato Central Business Districts, Old Town, Madison East Shopping Center and Mankato State University.
- f. Reduce or minimize traffic in residential neighborhoods and on North Front Street.
- g. Restrict property takings to a minimum.
- h. Minimize adverse property value impacts.
- i. Improve and enhance business districts in North Mankato and Mankato.
- j. Maintain integrity of neighborhoods.

Responses

These factors were examined in all studies of alternatives. Both detailed study alternatives include pedestrian walkways on the bridge and approaches.

Wherever possible, within the limitations imposed by the authorization, the alternatives were developed to improve access. Both detailed study alternatives improve overall traffic service.

Efforts were made to select plans which would not aggravate present traffic problems. Where this was found impracticable, appropriate traffic controls and procedures were considered to at least partially mitigate the impacts. Reduction of North Front Street traffic is not practicable in view of its designation as the major north-south arterial through the Mankato CBD.

The negative effects of possible residential and business displacements were accorded thorough investigation.

Careful study was made on the effects of the various alternatives on property values, and where feasible, construction features were planned to minimize potential adverse impact.

The viability of the business districts in both cities was a major concern in the study of all the alternatives.

Efforts were made to avoid severance of fragments of neighborhoods from present cohesive residential areas.

Views

Responses

- | | |
|---|--|
| k. Reduce traffic noise. | A comprehensive study was made of the existing and potential noise sources and effects. Remedial measures are recommended at certain locations where increased traffic noise is anticipated. |
| l. Design project elements for optimum capacity and safety. | The highest practicable highway design standards were applied in all studies of the alternatives. |
| m. Maintain continuity in the highway system. | In the final selection process, trunk highway system discontinuity was identified as a problem under Alternative 2A. No suitable access from the bridge for south and westbound traffic on TH 60 could be developed. Consequently, continued TH 60 designation on the bridge was found to be unacceptable. Alternative 1CA interrupts the continuity of Second Street, a collector roadway, for through movements to the Mankato CBD from the north. |
| n. Minimize traffic disruptions during construction. | Traffic disruptions were accorded detailed study in the analysis of all alternatives. |
| o. Maintain Sioux Uprising historic site. | The Sioux Uprising site would be preserved under any of the alternatives studied. |
| p. Give ample attention to aesthetic considerations in planning and construction. | Aesthetic factors were identified and considered in the development of alternative and impact assessment process. |

SECTION 404(b)(1) EVALUATION
FLOOD CONTROL, MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER
BRIDGE MODIFICATIONS

The following is an evaluation of the proposed construction and fill activity in accordance with the requirements of Section 404 of the Clean Water Act of 1977 (33 U.S.C. 1344).

1. PROJECT DESCRIPTION

This evaluation describes the proposed bridge relocations for the flood control project at Mankato-North Mankato-Le Hillier, Minnesota, with emphasis on construction and fill activities that affect navigable waters in the project area.

Fill activities are associated with the following project features:

Construction of replacement bridges for the Highway 169 and the Chicago and Northwestern Railroad Bridges over the Blue Earth River, and for the Trunk Highway 60 (Main Street) Bridge over the Minnesota River.

a. Description of the proposed discharge of dredged or fill materials.

(1) General characteristics of material - Materials to be used as fill in the various stages of construction activities are classified as concrete, pervious fill, impervious fill, filter layer, and riprap. The pervious fill, consisting of sands and gravels available from local pits, would be used for fill placed under water. The impervious fill would be used for shaping the river-bank above water. The impervious fill would be clayey material obtained from borrow areas in the higher ground along the river valley. No organic material will be permitted in either the pervious or impervious fill. The filter layer and riprap would be coarse granular and quarried rock materials placed on the finished slopes for erosion protection. Bridge reconstruction requires placement of concrete bridge piers in the river. Cofferdams constructed out of steel sheeting would be utilized to place the new bridge piers. A description of the construction activities associated with each of the bridge relocations is presented below.

The following fill activities would occur at the new Trunk Highway 60 (Belgrade/Mulberry) Bridge over the Minnesota River:

Construction of temporary cofferdams for pier footings.

Install piling, concrete footings, and concrete shafts for piers 1 and 2.

Backfill with washed sand and gravel over pier footings (source of fill from Minnesota Department of Transportation (MN/DOT) approved borrow sites).

Riprap over washed sand and gravel at pier locations to approximate elevation 748, or temporary cofferdams left in place to elevation 748.

The following fill activities would occur at the Chicago and Northwestern Transportation Company Bridges and pedestrian walk over the Blue Earth River:

Placement of abutment piling, footings, walls, and wing walls.

Placement of riprap on slopes.

Construct temporary cofferdams for pier footings.

Install piling, concrete footings, and concrete shafts for all piers.

Backfill with washed sand and gravel behind abutment walls and over pier footings (source of fill from MN/DOT approved borrow sites).

Riprap over washed sand and gravel at pier location to approximate elevation 755, or temporary cofferdams left in place to elevation 755.

The following fill activities would occur at the TH 169 and 60 Bridge over the Blue Earth River:

Furnish and install abutment piling.

Remove and replace riprap on slopes.

Construct temporary cofferdams for pier footings.

Install piling, concrete footings, and concrete shafts for piers 1 and 2.

Backfill with washed sand and gravel behind abutment walls and over pier footings (source of fill from MN/DOT approved borrow sites).

Riprap over washed sand and gravel at pier locations to approximate elevation 755, or temporary cofferdams left in place to elevation 755.

(2) Quantity of material proposed for discharge - The approximate quantities of materials involved in river construction (although not all would be placed below normal high water mark) are as follows for each bridge relocation:

The Belgrade/Mulberry Bridge requires the following fill materials and quantities:

Steel Sheet piling - Cofferdams	250 tons
Selected Backfill - Piers	800 cubic yards
Steel H-Piling - Piers	4,800 linear feet
Concrete - Piers	2,200 cubic yards
Riprap Slope Protection - Piers	200 cubic yards

The railroad bridge modification requires the following materials and quantities:

Steel Sheeting - Cofferdams	180 tons
Selected Backfill	2,000 cubic yards
Steel H-Piling	11,200 linear feet
Concrete - Piers	2,000 cubic yards
Concrete - Abutments	400 cubic yards
Riprap Slope Protection	4,300 cubic yards

The TH 169 and 60 Bridge over the Blue Earth River requires the following fill materials and quantities:

Steel Sheeting - Cofferdams	140 tons
Selected Backfill	1,500 cubic yards
Steel H-Piling	12,000 linear feet
Concrete - Piers	1,400 cubic yards
Concrete - Abutments	700 cubic yards
Riprap Slope Protection	3,200 cubic yards

(3) Source of material - Backfill for around bridge piers would be obtained from Minnesota Department of Transportation approved borrow sites. Sand, gravel, and quarried rock used in the riprap and filter layer would be obtained from local pits. Concrete would be purchased from local commercial sources.

b. Description of the proposed disposal sites for fill material

(1) Location - Fill activities are associated with proposed project works located between miles 109 and 104 on the Minnesota River and on the lower 1-mile reach of the Blue Earth River.

(2) Type of disposal sites - The river valley in the project area is composed mostly of sand. Fill areas would be along the shore and, for the bridge piers, in the river.

(3) Method of discharge - Fill will be placed with normal construction equipment such as bulldozers and cranes equipped with buckets.

(4) When will disposal occur? - The bridge alterations are scheduled to begin by spring 1983 and should be completed by fall 1984.

(5) Projected life of fill sites - The life of the project is 100 years.

(6) Bathymetry - The river has been channelized and consists mostly of a shifting sand bottom. About 10 feet deep at normal water level, the river increases to about 30 feet for the design flood.

2. PHYSICAL EFFECTS (40 CFR 230.4-1(a))

a. Potential destruction of wetlands - effects on (40 CFR 230.4-1(a)(1)(i-vi))

(1) Foodchain production - Because of the existing poor water quality, the shifting sand bottom, and previous channelization work that has already degraded the aquatic environment, the proposed work should not have an appreciable effect on foodchain production.

In general, the production of algae and aquatic invertebrates is inhibited in the project area by excessive silt, which reduces light penetration and destroys the utility of rocky substrate as invertebrate habitat.

(2) General habitat - Because the channelized river provides little habitat value, there would be little effect on aquatic or terrestrial species. Temporary effects of increased siltation during the short term of project construction would be harmful to aquatic biota, especially the algae and invertebrates which form the fishery forage base. There should be very little long-term impact upon river biota because the base flow characteristics will not be modified.

(3) Nesting, spawning, rearing, and resting sites for aquatic or land species - Essentially no nesting or spawning sites are available in the project area. Some aquatic species such as mollusks and benthic invertebrates would be affected by silting and direct placement of fill material. Long-term effects on aquatic and land species would be minimal, however.

(4) Those areas set aside for aquatic environment study or sanctuaries or refuges - Not applicable. No such areas are located within the area of project influence.

(5) Natural drainage characteristics - The project would not alter the natural drainage characteristics of the area.

(6) Sedimentation patterns - Sedimentation patterns are not expected to be changed because the large ambient sediment load and the base flow characteristics of the river channel will not be changed.

(7) Salinity distribution - No salinity parameters are applicable to the project.

(8) Flushing characteristics - Base or flood flow characteristics of the river channel will not be changed by the proposed fill activities.

(9) Current patterns - Base or flood flow characteristics of the river channel will not be changed.

(10) Wave action, erosion, or storm damage protection - Fill and riprap activities associated with the project would protect the riverbank from erosion by normal water flow and from high energy storm flows.

(11) Storage areas for storm waters and floodwaters - Fill activities will not affect storage areas for storm waters and floodwaters.

(12) Prime natural recharge areas - Groundwater and prime natural recharge areas are not expected to be affected by fill activities.

b. Impact on water column (40 CFR 230.4-1(a)(2))

(1) Reduction in light transmission - Increased turbidity during and immediately after construction would temporarily reduce light transmission.

(2) Aesthetic values - Fill activities would have little effect on the aesthetics of the water column because of the high ambient sediment load in the river.

(3) Direct destructive effects on nektonic and planktonic populations - Direct destruction of these populations would be minor due to the existing poor water quality and poor spawning habitat in the construction area. In general, the production of algae is inhibited in the project area by excessive silt, which reduces light penetration and destroys the utility of river habitat.

c. Covering of benthic communities (40 CFR 230.4-1(a)(3))

(1) Actual covering of benthic communities - In general, excessive silt, which destroys the utility of the substrate as invertebrate habitat, inhibits the production of aquatic invertebrates in the project area. Some aquatic invertebrate populations are apparent in the project area. Those animals dwelling directly in the path of the fill and riprap activities would be covered and thus eliminated by project construction.

(2) Changes in community structure or function - Fill and riprap activities would cover and eliminate some benthic communities. This would be a short-term adverse impact until "seed" organisms from similar habitats in the river could colonize the new substrate. Riprap activity would alter the substrate from mostly sand and silt to the riprap rock, allowing organisms which are adapted to a rock substrate to colonize the riprap area. This new habitat would increase the diversity of the number of species because of the increased surface area. Total community function is limited by the overall poor quality of the aquatic ecosystem.

d. Other effects (40 CFR 230.4-1(a))

(1) Changes in bottom geometry and substrate composition - Riprap would cover the existing uneven, sandy surface of the riverbank with a flat surface of rocks with slopes of 1 vertical to 2-1/2 or 3-1/2 horizontal. Bridge piers would cover and replace the existing surface with a concrete pier stretching from the river bottom to above the waterline.

(2) Water circulation - Base or flood flow characteristics of the river channel will not be changed by the project.

(3) Salinity gradients - Not applicable.

(4) Exchange of constituents between sediments and overlying water with alterations of biological communities - Fill activities would cover the existing fine-grained sandy sediments. The new condition with the fill would not be a probable habitat for organisms which have the ability for chemical exchange between constituents in the sediments and overlying water.

3. CHEMICAL - BIOLOGICAL INTERACTIVE EFFECTS (40 CFR 230.4-1(b))

a. Does the material meet the exclusion criteria?

The exclusion criteria state that dredged or fill material may be excluded from this evaluation if it is composed predominantly of sand, gravel, or any other naturally occurring sedimentary material with particle sizes larger than silt, characteristic of and generally found in areas of high current or wave energy such as streams with high bedloads or coastal areas with shifting bars and channels, or when the material proposed for discharge is taken from a site sufficiently removed from sources of pollution to provide reasonable assurance that such material has not been contaminated by such pollution. The fill material to be used for this project would meet these standards. Fill material would consist of sand, quarried rock, fieldstone, or any other naturally occurring sedimentary or glacial material with particle sizes larger than silt, generally found in areas having high current or wave energy. The fieldstone would be of glacial origin. The fill material would be obtained from MN/DOT approved borrow sites. Concrete would be obtained from commercial sources.

4. DESCRIPTION OF SITE COMPARISON (40 CFR 230.4-1(c))

a. Total sediment analysis (40 CFR 230.4-1(c)(1))

Sediment analysis performed in the study area shows that, except for high lead counts downstream of the Main Street Bridge, the values for heavy metals are similar to those found in the Minnesota River and do not represent a problem. The high lead content is due to storm sewer runoff in that area. One sample site near the Main Street Bridge also revealed the presence of PCB's (6 ug/kg). Any polluted sediments which are excavated will be placed in approved disposal sites and not returned to the river. Clean sand, gravel, and other material would be used as fill; and use of this material would present no major environmental impact in regard to concentration differences of critical constituents between the fill site and the fill material.

b. Biological community structure analysis (40 CFR 230.4-1(c)(2))

The composition of the biological community was sampled in the study area. The insect association is generally representative of a warm water lotic environment but is limited due to periodic siltation. The clam and fish populations in the area are also limited. The existing water quality is rather poor, while a shifting sand bottom and previous channelization work have degraded the aquatic environment. The non-aquatic nature of the fill material is unlikely to be a factor in the biological community structure at the fill sites.

5. REVIEW APPLICABLE WATER QUALITY STANDARDS

a. Compare constituent concentrations

The water quality of the Minnesota River study area is rather poor, with high turbidity and bedload movement at certain times of the year. The Minnesota River study area (including parts of tributaries) is classified as 2B fisheries and recreation and 3B industrial consumption. The constituent concentrations of the fill material are related to the source of the fill material. All fill material would be clean gravel, sand, rock, or concrete.

b. Consider mixing zone

The seepage water from the cofferdam would be pumped back into the river. Because the seepage water would be essentially the same as the existing river water, minor impacts are anticipated and consideration of the mixing zone is not applicable.

c. Will fill operation be in conformance with applicable standards?

According to the criteria outlined in Minnesota State Regulations, Minnesota Pollution Control Agency WPC 14, the project would not affect the river's ambient quality.

6. SELECTION OF DISPOSAL SITES (40 CFR 230.5) FOR FILL MATERIAL

a. Need for the proposed activity

The bridges have to be modified to pass the design standard project flood.

b. Alternatives considered

Alternatives other than the placement of fill are rather limited. Bridge removal with no replacement is neither acceptable nor practical; therefore, pier construction and backfilling is needed, which requires the placement of a cofferdam. The steel sheetpile cofferdam, concrete bridge piers, riprap, and clamshell placement of fill material are alternatives that would minimize turbidity and help reduce future water quality impacts.

c. Objectives to be considered in discharge determination (40 CFR 230.5(a))

(1) Impacts on chemical, physical, and biological integrity of aquatic ecosystem (40 CFR 230.5(a)(1)) - Due to their clean nature, fill activities would not have a significant impact on the chemical, physical, or biological properties of the aquatic ecosystem. Fill activities would not alter the temperature, flow rate, or other physical parameters of the river. Fill activities would not have a significant impact on the biological integrity of the aquatic ecosystem. The runoff from the decks of the constructed bridges, resulting from precipitation events or spills, would not drain directly into the river but would be routed to points on land to the storm sewer system where it would be possible to contain the runoff if necessary. (A more detailed description of this impact is presented in the Environmental Impact Statement.)

(2) Impact on foodchain - Because of the existing poor water quality, the shifting sand bottom, and previous channelization work that has already degraded the aquatic environment, the proposed work should have no effect on foodchain production. In general, excessive silt currently inhibits the production of algae and aquatic invertebrates in the project area.

(3) Impact on diversity of plant and animal species - Biological diversity is fairly low in the fill area of the project. As a result, fill activities are not expected to have a significant impact on plant and animal diversity.

(4) Impact on movement into and out of feeding, spawning, breeding, and nursery areas - Habitat in the fill area is not conducive for such activities. Fill activities are not expected to have a significant impact on this movement.

(5) Impact on wetland areas having significant functions of water quality maintenance - No wetland areas with this function are near the fill activities of the project area.

(6) Impact on areas that serve to retain natural high waters or floodwaters - No natural floodwater retaining areas of significant size are in the project area.

(7) Methods to minimize turbidity - Construction below the normal high water level would be accomplished during low flow periods to minimize turbidity. Using steel sheet piles and making the cofferdams as small as possible yet still able to provide sufficient construction work area would also reduce turbidity. The use of clean fill material would minimize impacts on aquatic organisms and reduce effects on water quality parameters.

(8) Methods to minimize degradation of aesthetic, recreational, and economic values - The cofferdam would be a temporary fill activity with short-term minor aesthetic and recreational impacts. The altered bridge piers would have aesthetic, recreational, and economic impacts similar to the existing conditions, and these would be considered minor.

(9) Threatened and endangered species - No Federal or State threatened or endangered species would be affected by the proposed fill activities.

(10) Other measures that avoid degradation of aesthetic, recreational, and economic values of navigable waters - The fill portions of the project would have no significant impacts on aesthetic, recreational, or economic values of the navigable waters.

d. Impacts on water used at proposed fill sites (40 CFR 230.5(b)(1-10))

(1) Municipal water supply intakes - The fill sites are not near any public water supply intakes.

(2) Shellfish - The fill sites are not in an area of shellfish production.

(3) Fisheries - No significant fish habitat would be affected by the fill activities.

(4) Wildlife - During construction, equipment associated with the placement of fill would temporarily disturb some wildlife.

(5) Recreation activities - Water-related recreation activities are not important in the project area.

(6) Threatened and endangered species - No Federal or State threatened or endangered species are located in the project area.

(7) Benthic life - In general, benthic life is inhibited in the project area by excessive silt, which destroys the utility of the substrate as benthic habitat. However, fill activities would cover any benthic life existing at the fill sites. This would be a short-term adverse impact because recolonization would occur.

(8) Wetlands - Wetlands would not be affected by fill activities.

(9) Submersed vegetation - The fill sites do not contain a significant population of submersed vegetation.

(10) Size of disposal site - The size of the disposal site would have minor environmental impacts in the project area. In addition, the disposal sites are the smallest possible that still provide required construction space.

(11) Coastal Zone Management programs (40 CFR 230.3(e)) - Not applicable.

e. Considerations to minimize harmful effects (40 CFR 230.5(c)(1-7))

(1) Water quality criteria - According to the criteria outlined in Minnesota State Regulations, Minnesota Pollution Control Agency WPC 14, the project would not affect the river's ambient quality.

(2) Alternatives to open water fill - There are no practical alternatives to the fill required to accomplish the bridge modifications.

(3) Physical characteristics of alternative fill sites - The flood control project, as designed, requires modifications to the bridges. Alternatives are not compatible with the project.

(4) Ocean dumping - Not applicable.

(5) Covering contaminated fill material with cleaner material - All fill material would be clean.

(6) Methods to minimize effects of runoff from confined areas on the aquatic environment - All fill material is clean, and no confined areas other than the cofferdams would be utilized.

(7) Coordinate potential monitoring activities at the fill site with EPA - Because of the clean nature of the fill material, no monitoring activities are planned.

7. STATEMENT AS TO CONTAMINATION OF FILL MATERIAL IF FROM A LAND SOURCE (40 CFR 230.5(d))

The fill material would be commercially purchased and would consist of clean rock, gravel, sand, and concrete. Minnesota Department of Transportation approved borrow sites would be used.

8. DETERMINE MIXING ZONE

Determination of a mixing zone is not applicable. Because the discharged seepage water would be of the same quality as the receiving water, no significant impacts are expected. The seepage water discharge may cause some increased turbidity, but this impact would be minor.

INDEX REFERENCES AND APPENDIXES
(Alternative 1CA, Belgrade-Mulberry over Minnesota River)

<u>Subjects</u>	<u>Environmental Impact Statement</u>	<u>Main Report (References Incorporated)</u>	<u>Report Appendixes and Technical Reports (References Incorporated)</u>
Affected Environment	pp.EIS-20, 23-29	Frontispiece pp. 8-43	Tech. Reports 1-6
Air Quality	pp.EIS-29, 46-48	pp. 34, 36	--
Alternatives	pp.EIS-13-20	pp. 48-59, 63-64 28-36	Appendix A
Areas of Controversy	pp.EIS-3-5	--	--
Business Districts	pp.EIS-22, 25-26, 37	pp. 12, 19-20, 24, 81-82	Tech. Report 4
Comparative Impacts of Alternatives	pp.EIS-20-22	pp. 59-62, 69-84, 88-92	--
Costs	pp.EIS-3, 21	pp. 53, 60, 65	Appendix B
Displacements	pp.EIS-21, 23, 29-33	pp. 52-53, 60-62, 66-67	Tech. Report 4
Historic Properties	pp.EIS-6, 22, 23, 29, 49-50	pp. 40-43, 79	Tech. Report 5
Hydrology and Hydraulics	--	pp. 38, 43	General D.M. No. 1
Implementation Responsibilities	p. EIS-17	p. 86	--
List of Preparers	pp.EIS-51-52	--	--
Major Conclusions and Findings	p.EIS-3	pp. 89-93	--
Mitigation Requirements	pp.EIS-17-18	pp. 84-85	--
Need for and Objectives of Action	pp.EIS-11-12	pp. 6-11, 45	--

INDEX REFERENCES AND APPENDIXES (Continued)

<u>Subjects</u>	<u>Environmental Impact Statement</u>	<u>Main Report (References Incorporated)</u>	<u>Report Appendixes and Technical Reports (References Incorporated)</u>
Neighborhoods	pp.EIS-21,23- 24,30-35	pp. 12-27, 73-77	Tech. Report 4
Noise	pp.EIS-21,27- 28,41-46	pp. 34-37, 74-76 84-85	Tech. Report 3
Parks and Recreation	pp.EIS-22,29, 48-49	pp. 40,41,74,77	Tech. Report 4
Planning Objectives	p.EIS-12	p. 45	--
Plans Con- sidered in Detail	pp.EIS-15-20	pp. 63-94	Appendix A
Plans Eliminated from Further Study	pp.EIS-13-15	pp. 48-62	--
Plan, Profile and Section Drawings	--	--	Appendix A
Public Concerns	pp.EIS-3-5, 11-12, 51-59	pp. 7, 11	Appendix C
Public Involvement, Views and Responses	pp.EIS-53-59	pp. 2,7,11,86-88	Appendix C
Rail Operations	p.EIS-38	pp. 28, 69	--
Recipients of EIS	pp.EIS-54-57	--	--
Redevelop- ment Areas	pp.EIS-22,24- 25,35-36	pp. 12,20,78-80	Tech. Report 4
Relationship to Environmental Requirements	pp.EIS-6-8	--	--
Required Coordination	pp.EIS-53-54	--	--

INDEX REFERENCES AND APPENDIXES (Continued)

<u>Subjects</u>	<u>Environmental Impact Statement</u>	<u>Main Report (References Incorporated)</u>	<u>Report Appendixes and Technical Reports (References Incorporated)</u>
Significant Concerns	pp.EIS-23-29	pp. 2,64-65	Tech. Reports 2-6
Soils and Geology	--	pp. 36,38	Tech. Report 2
Study Authority	p.EIS-11	p. 1	--
Summary	pp.EIS-3-6	--	--
Tentatively Selected Plan	pp.EIS-3,19	p. 93	--
Tiering	p.EIS-6	--	--
Traffic Service and Safety	pp.EIS-21,27, 38-40	pp. 27-34,53, 68-72	Tech. Report 1
Unresolved Issues	pp.EIS-5-6	--	Appendix B
Utilities	--	p. 43	--
Vegetation and Wildlife	p.EIS-23	pp. 38-40	Tech. Report 6
Water Resources	pp.EIS-20, 22-23,27, 40-41, 60-69	pp. 38-40,85	Tech. Reports 2,6
Without Conditions	p.EIS-15	pp. 43-45	--

FLOOD CONTROL
MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER

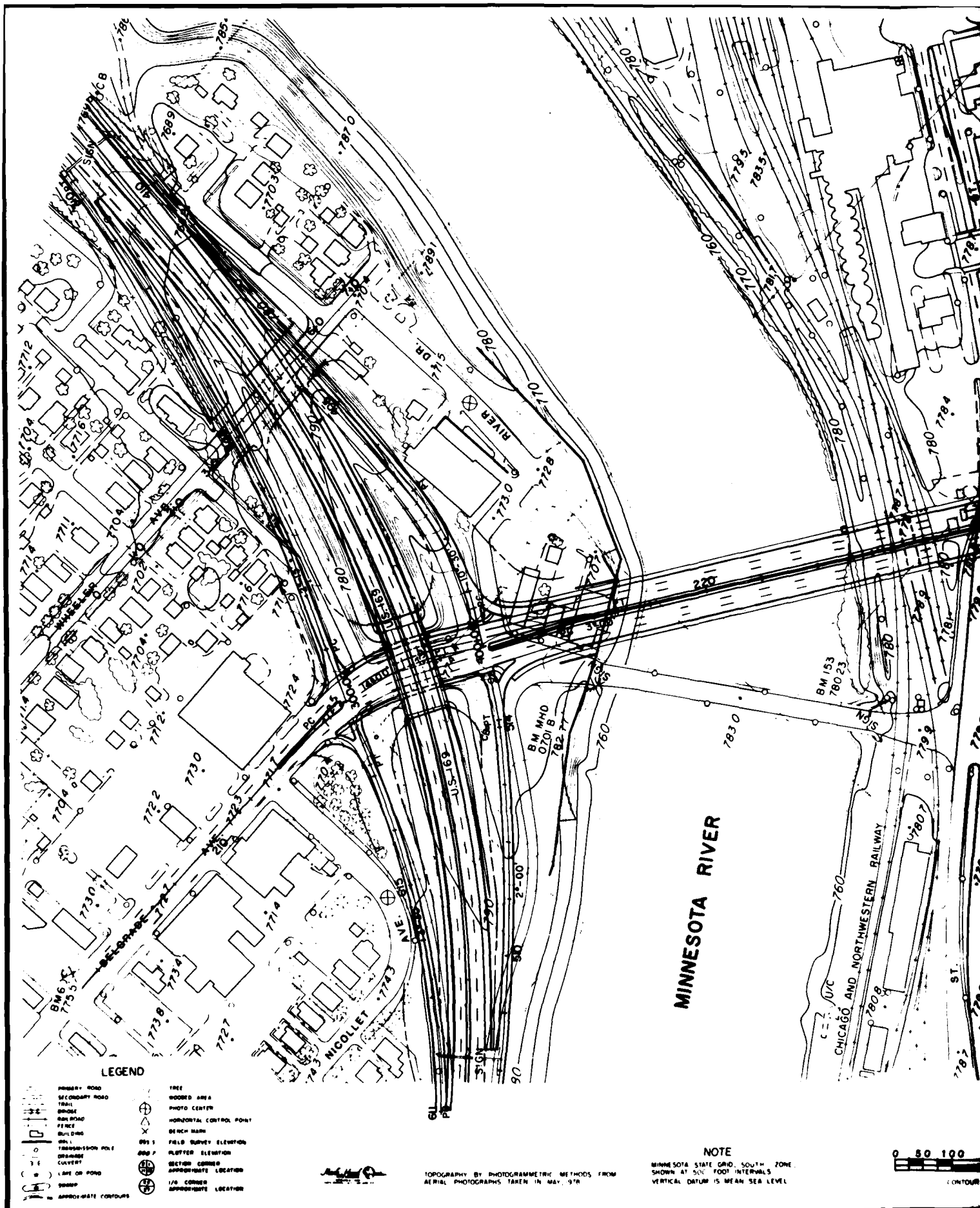
DESIGN MEMORANDUM NO. 8 - PART I (Location Study)
AND
DRAFT SUPPLEMENT II TO THE FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR
BRIDGE RELOCATIONS

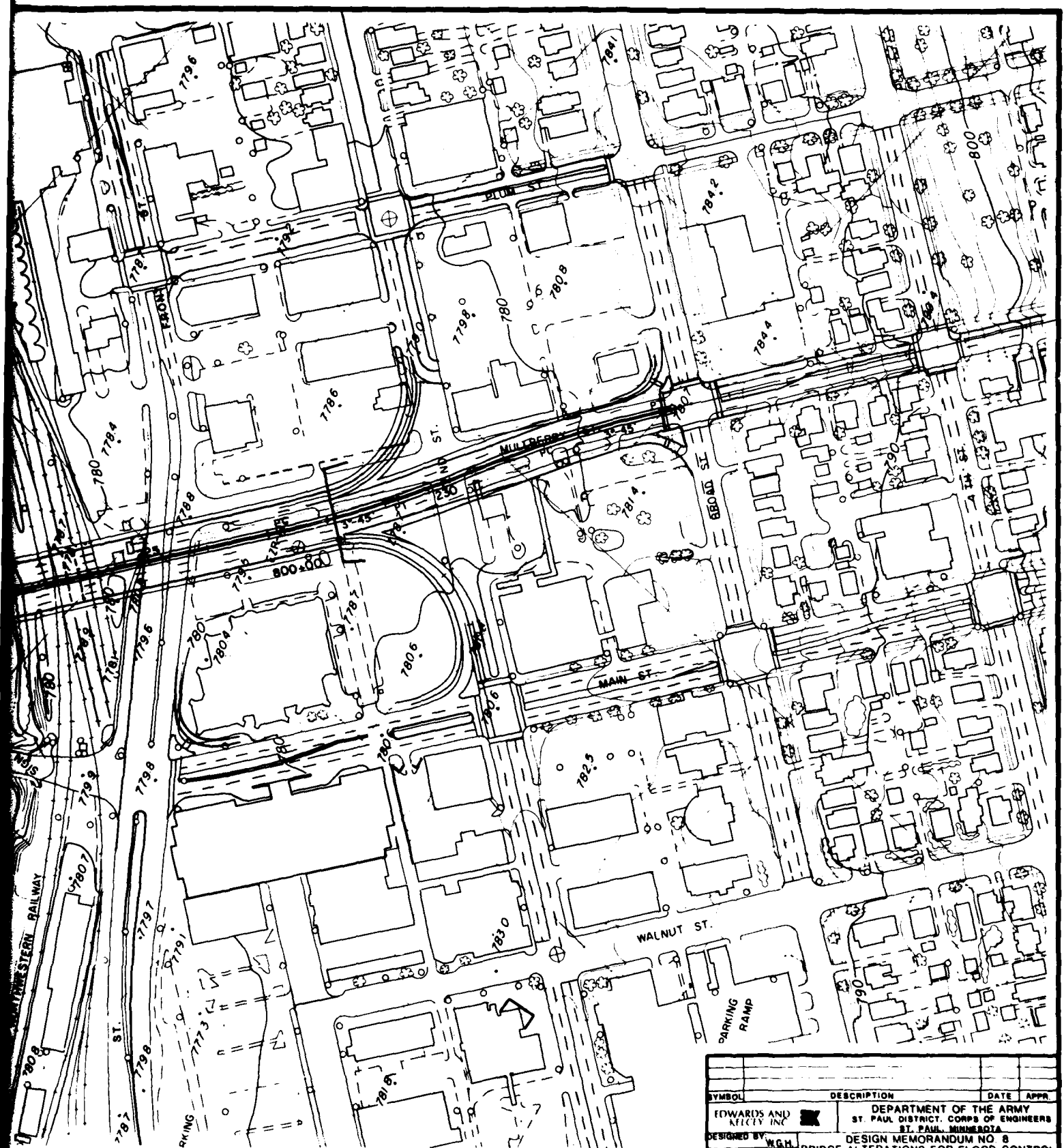
MAIN STREET,
TRUNK HIGHWAY 60 BRIDGE
OVER THE MINNESOTA RIVER BETWEEN
MANKATO AND NORTH MANKATO

APPENDIX A
PLANS, PROFILES, AND TYPICAL CROSS SECTIONS

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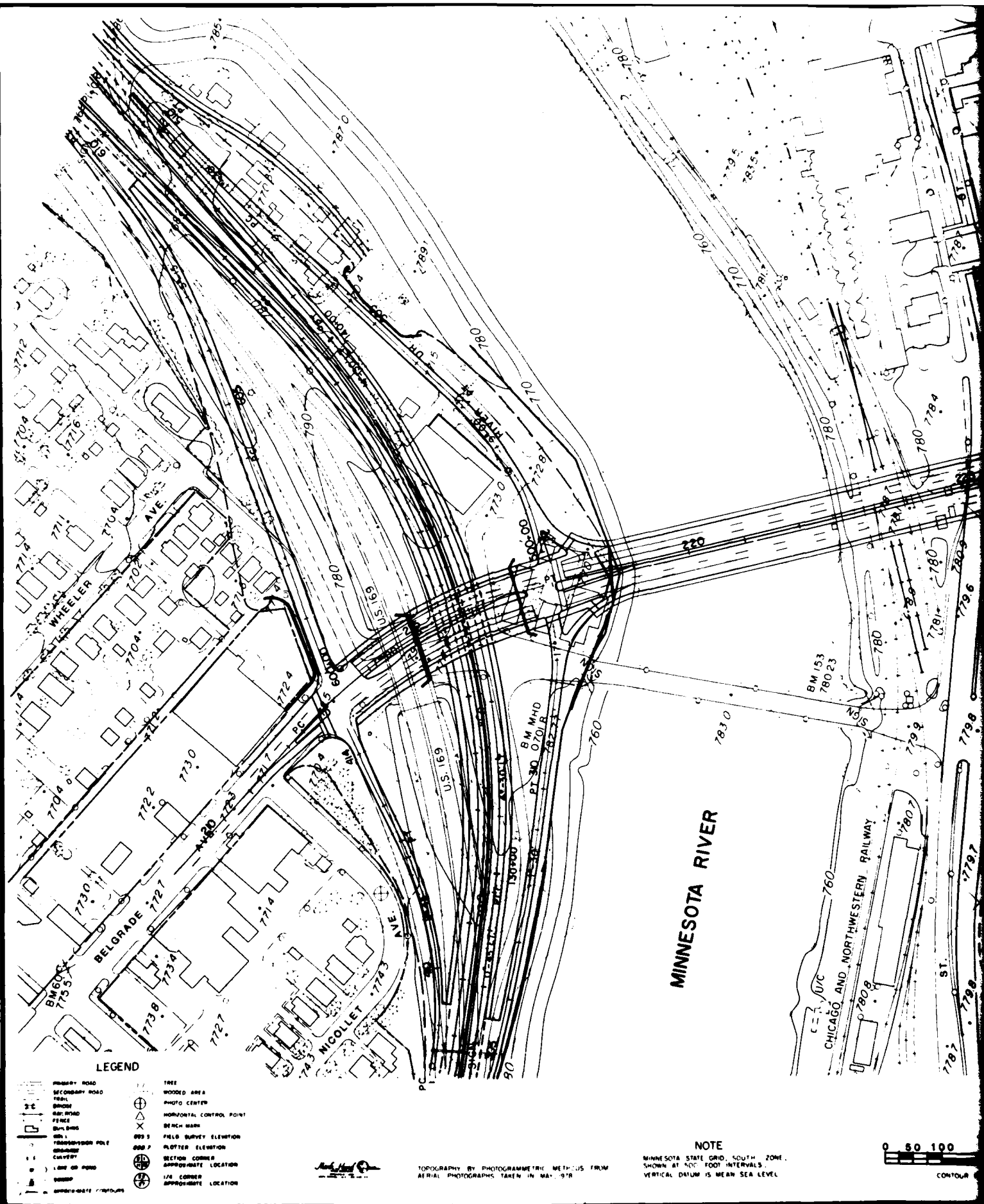
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

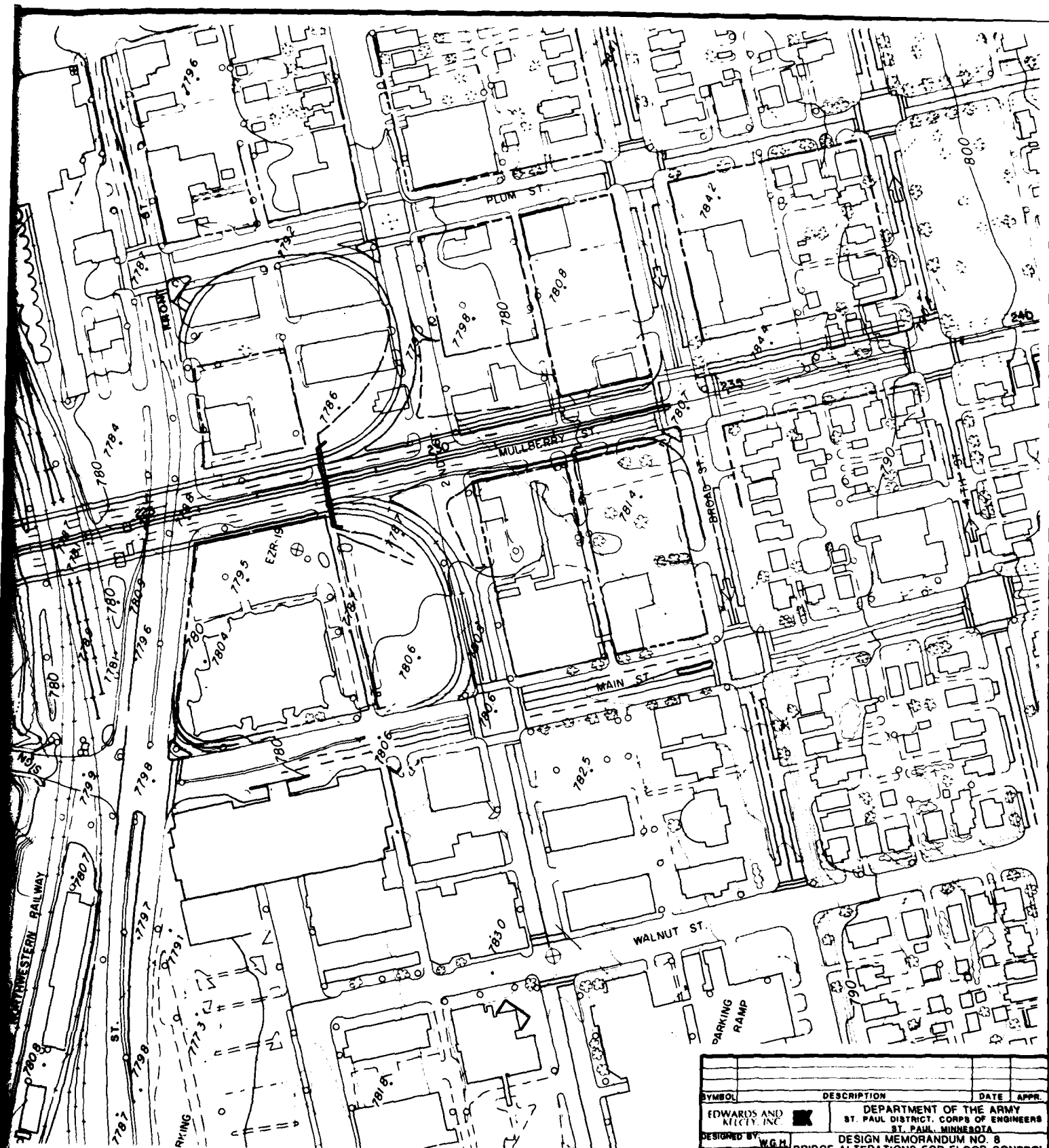
SIGNATURE _____

Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KELCY INC	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: WGH	DESIGN MEMORANDUM NO. 8		
DRAWN BY: JAW	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: WGH	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED: CH. H. H. H.	MANKATO-NORTH MANKATO-LE HILLIER		
	MAIN STREET		
	BELGRADE - MULBERRY ALT 1A		
	DATE		
	NOVEMBER 1980		
	SPEC NO.		
	DRAWING NUMBER		

PLATE A-1



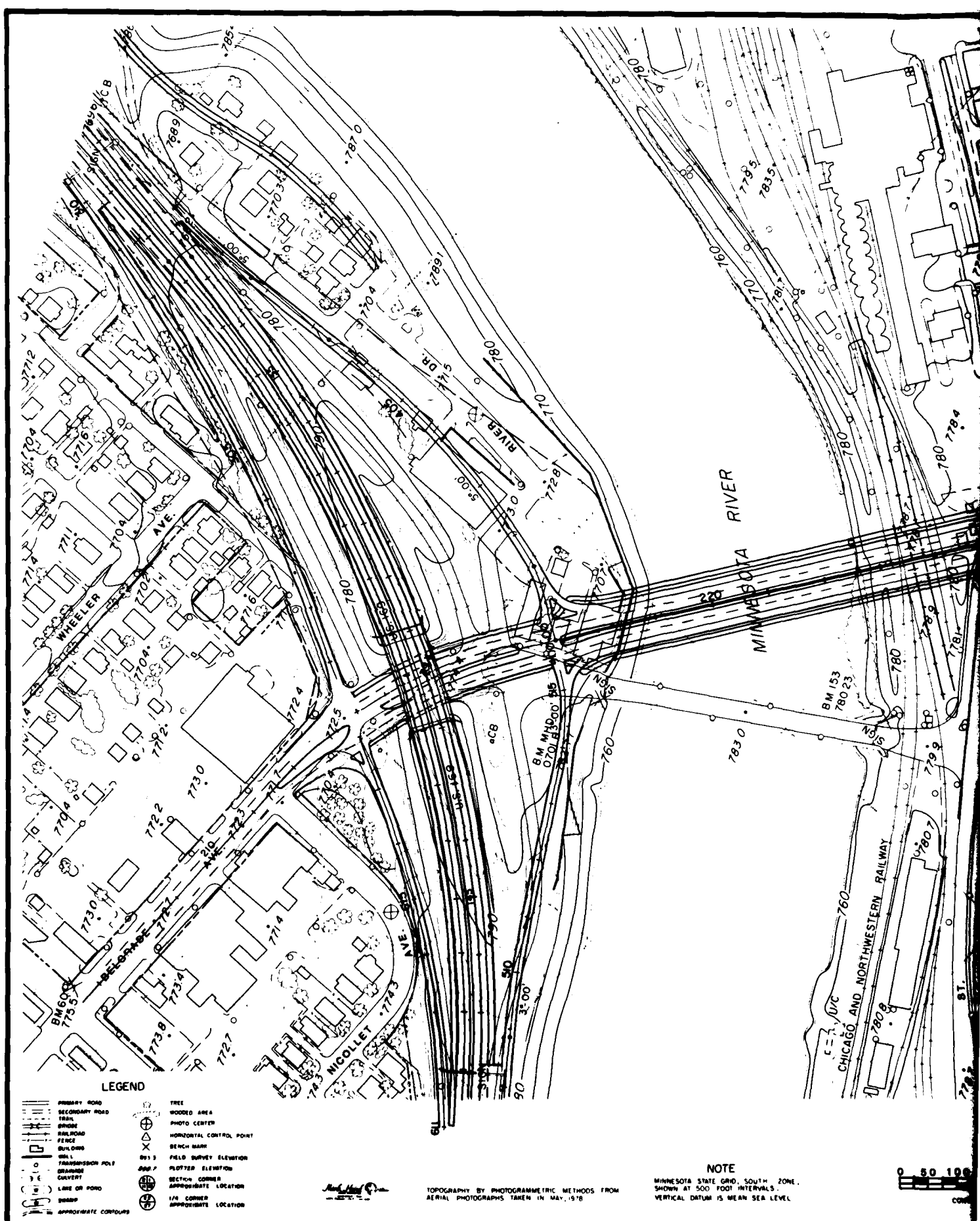


I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELLEY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SLIGHTLY MODIFIED BY: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
CHIEF DESIGN BRANCH	MAIN STREET		
APPROVED BY: [Signature]	BELGRADE - MULBERRY ALT 1C	DATE: NOVEMBER 1980	SPEC. NO. DRAWING NUMBER
PLATE A-2			

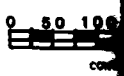


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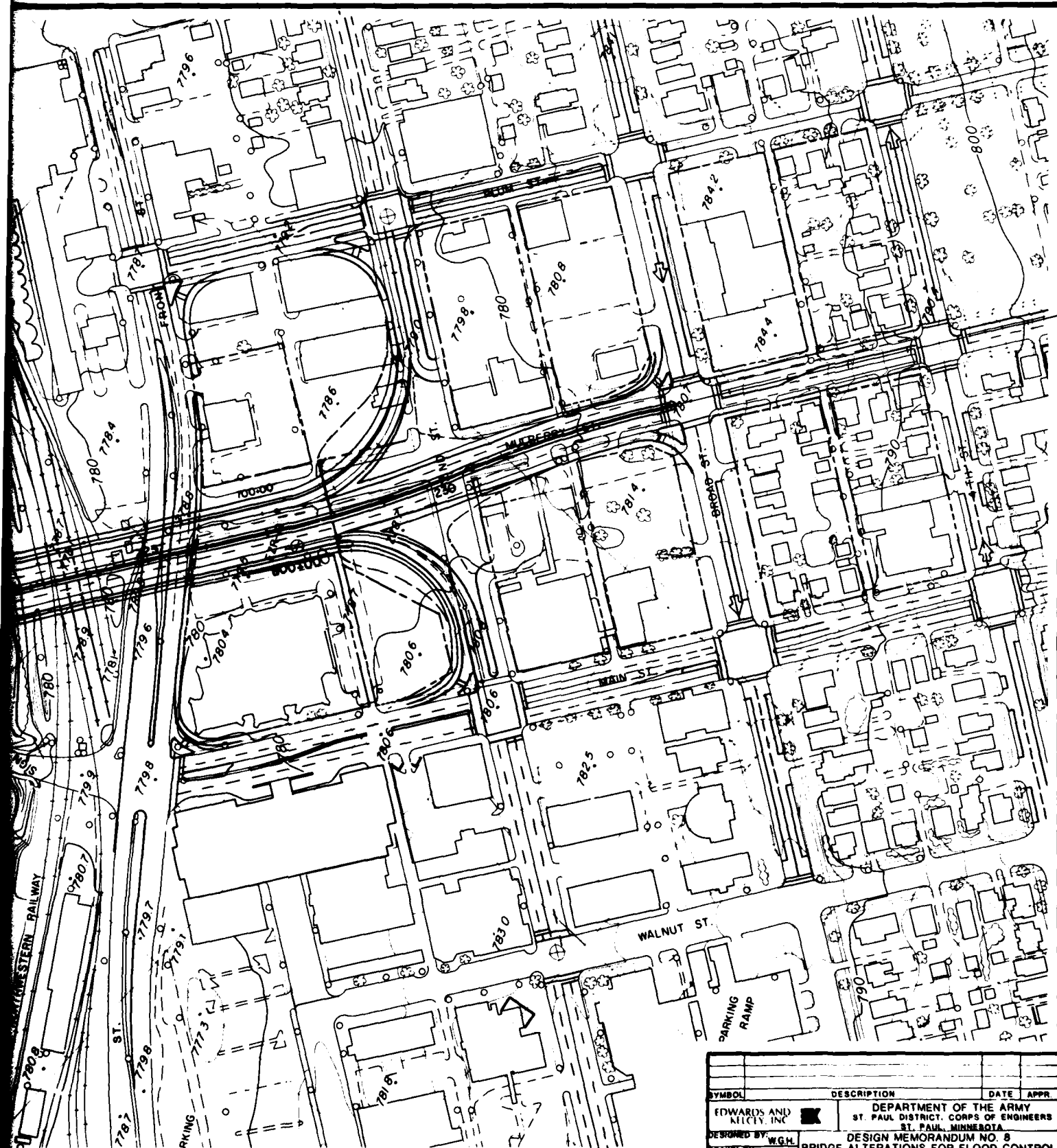
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|---------------------|--------------------------|
| PRIMARY ROAD | TREE |
| SECONDARY ROAD | WOODED AREA |
| TRAIL | PHOTO CENTER |
| BRIDGE | HORIZONTAL CONTROL POINT |
| RAILROAD | BENCH MARK |
| FENCE | FIELD SURVEY ELEVATION |
| BUILDING | PLOTTED ELEVATION |
| WALL | SECTION CORNER |
| TRANSMISSION POLE | APPROXIMATE LOCATION |
| DRAINAGE | |
| CONVEYER | |
| LAKE OR POND | |
| SWAMP | |
| APPROXIMATE CONTOUR | |

NOTE

MINNESOTA STATE GRID, SOUTH ZONE.
 SHOWN AT 500 FOOT INTERVALS.
 VERTICAL DATUM IS MEAN SEA LEVEL



TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
 AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

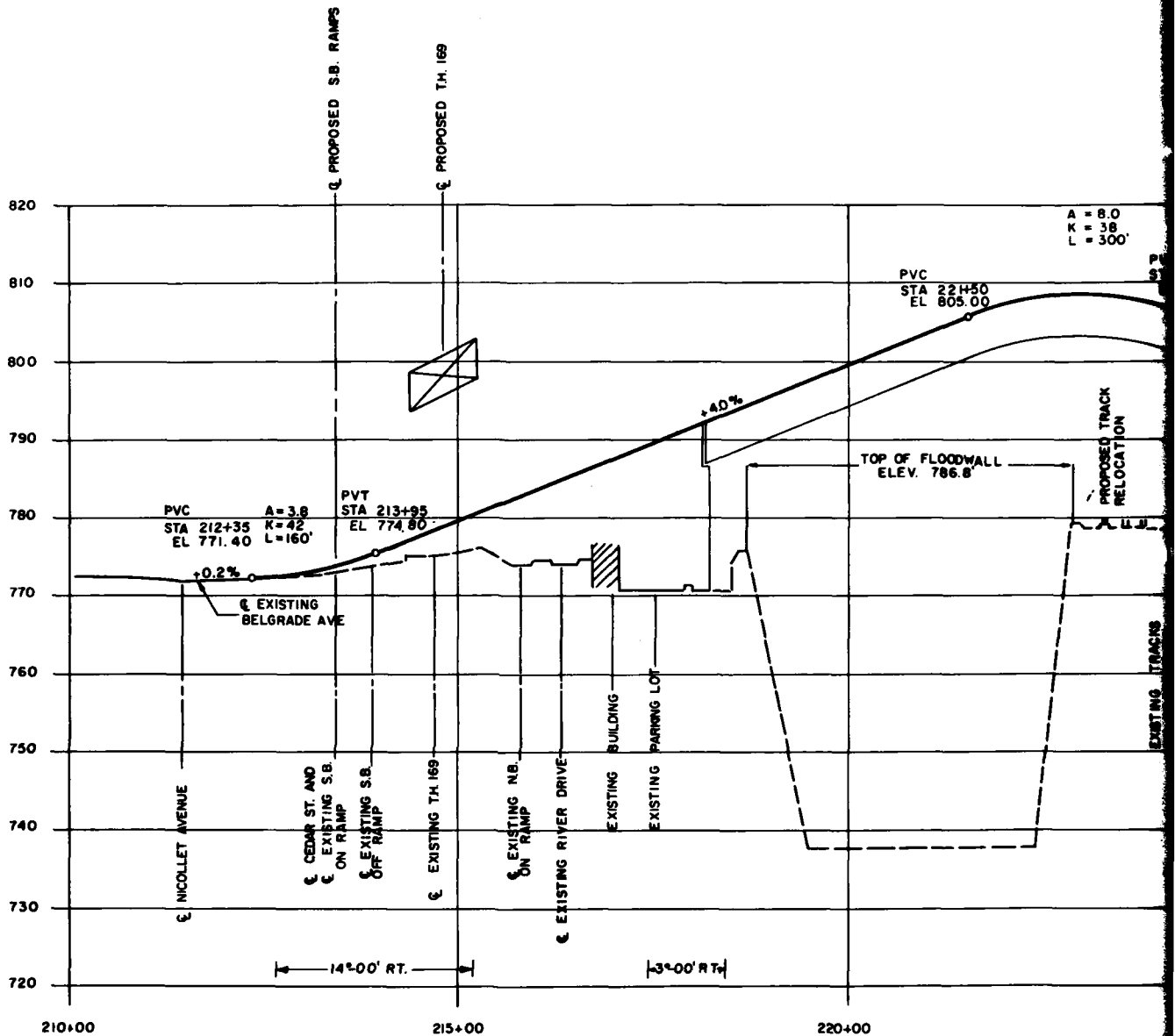
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SYMBOL	DESCRIPTION	DATE	APPR
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DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SUBMITTED BY: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
APPROVED BY: [Signature]	MAIN STREET		
	BELGRADE - MULBERRY ALT 1AA		
	DATE		
	NOVEMBER 1980		
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PLATE A-3



BELGRADE-MULBER

LEGEND

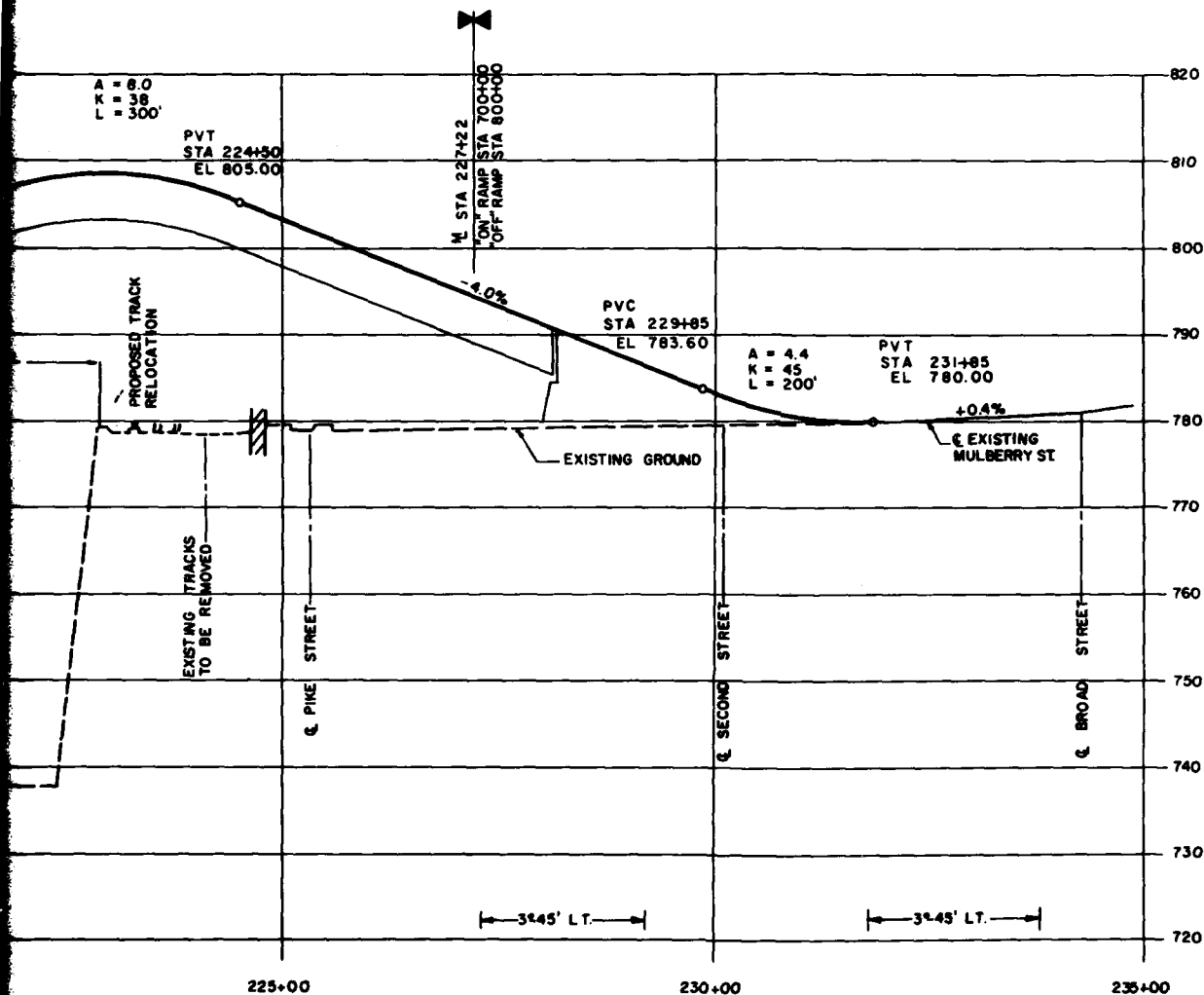
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|--|--|
| <ul style="list-style-type: none"> PRIMARY ROAD SECONDARY ROAD TRAIL DYKE RAILROAD FENCE BUILDING WALL TRANSMISSION POLE SHED LAKE OR POND SWAMP APPROXIMATE CONTOURS | <ul style="list-style-type: none"> TREE WOODED AREA PHOTO CENTER HORIZONTAL CONTROL POINT BENCH MARK FIELD SURVEY ELEVATION PILOT ELEVATION SECTION CORNER APPROXIMATE LOCATION 1/4 CORNER APPROXIMATE LOCATION |
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NOTE

MINNESOTA STATE GRID, SOUTH ZONE.
SHOWN AT 500 FOOT INTERVALS.
VERTICAL CURVE IS MEAN SEA LEVEL



TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978



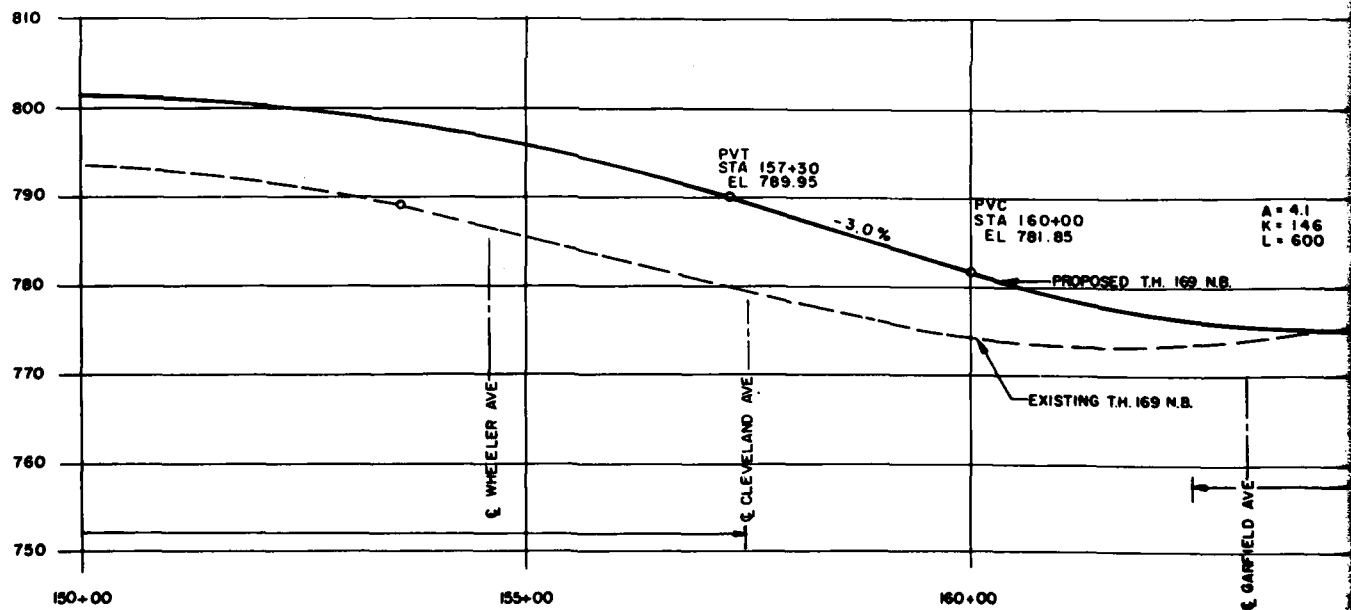
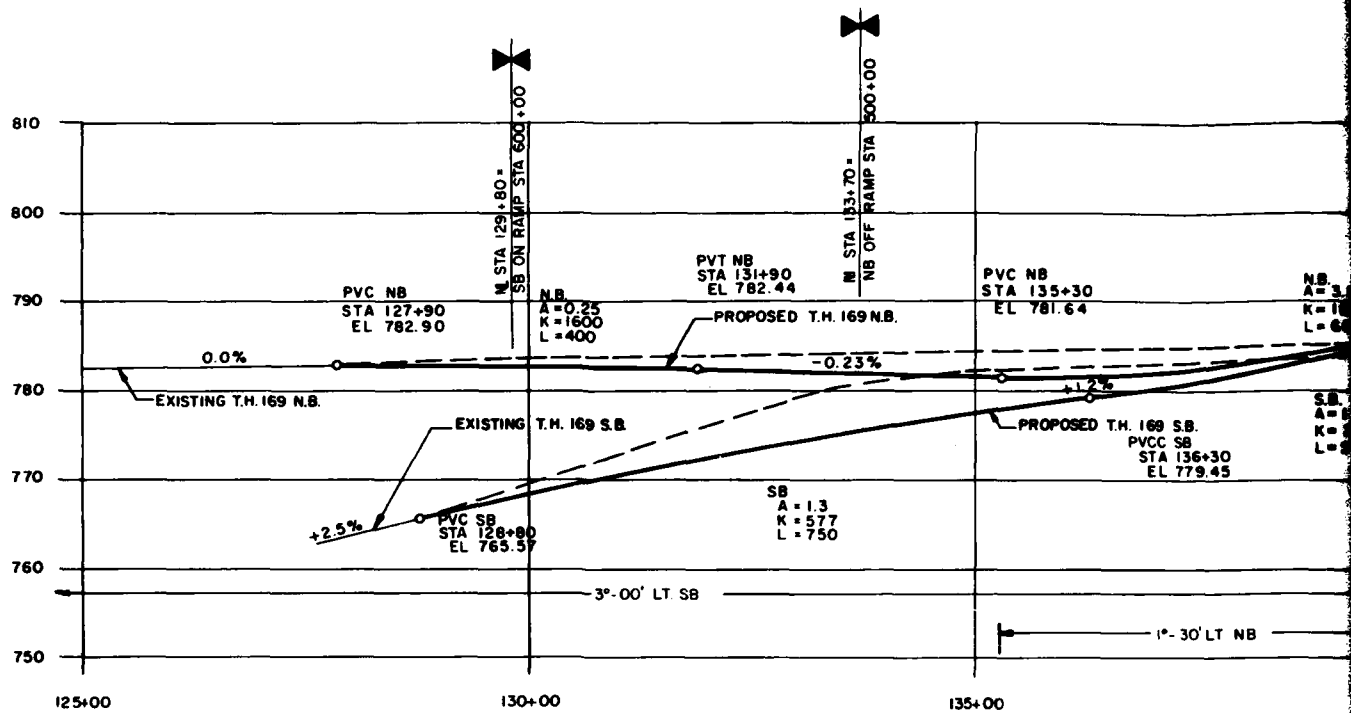
GRADE-MULBERRY CONNECTION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

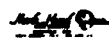
Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCEY, INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SUBMITTED BY: J.A.W.	MANKATO-NORTH MANKATO-LE HILLIER		
APPROVED BY: C.H. KELCEY	MAIN STREET		
	BELGRADE - MULBERRY ALT 1A		
	DATE		
	NOVEMBER 1980		
	PLATE A-4		
	DRAWING NUMBER		



LEGEND

- | | |
|---|---|
| <p>PRIMARY ROAD</p> <p>SECONDARY ROAD</p> <p>TRAIL</p> <p>RAILROAD</p> <p>FENCE</p> <p>BUILDING</p> <p>UTILITY</p> <p>LAND OR POND</p> <p>SWAMP</p> <p>APPROXIMATE CONTOURS</p> | <p>TREE</p> <p>WOODED AREA</p> <p>PHOTO CENTER</p> <p>HORIZONTAL CONTROL POINT</p> <p>BENCH MARK</p> <p>FIELD SURVEY ELEVATION</p> <p>PLOTTED ELEVATION</p> <p>SECTION CORNER</p> <p>APPROXIMATE LOCATION</p> <p>1/4 CORNER</p> <p>APPROXIMATE LOCATION</p> |
|---|---|



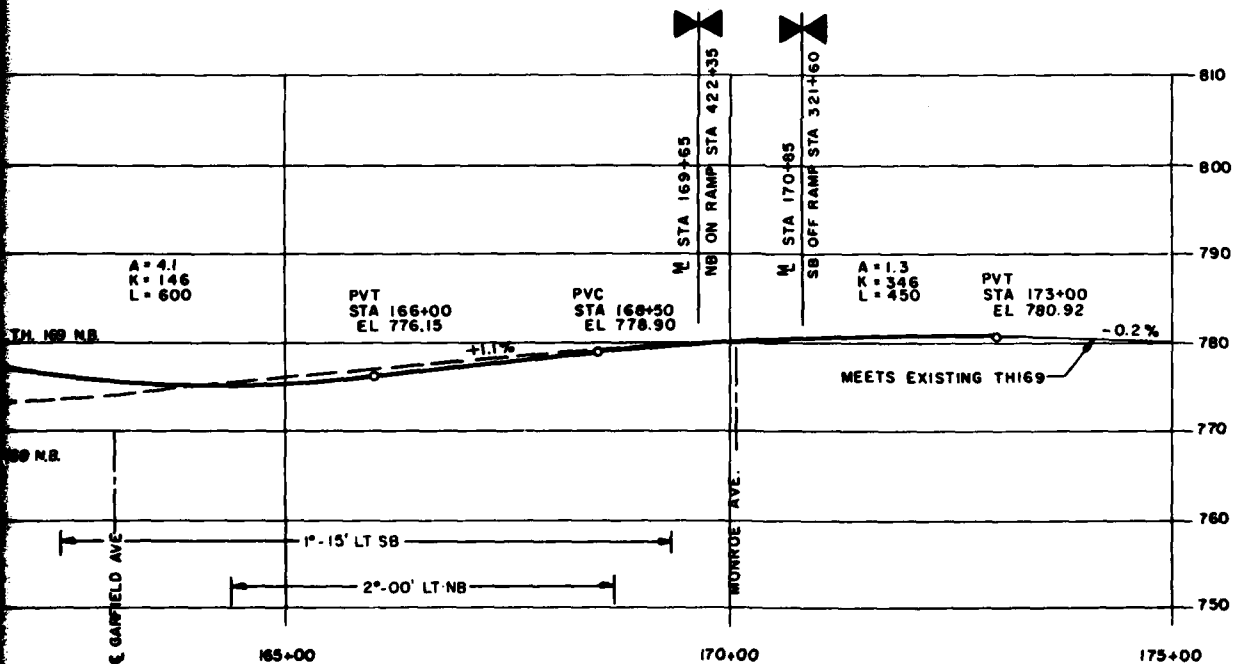
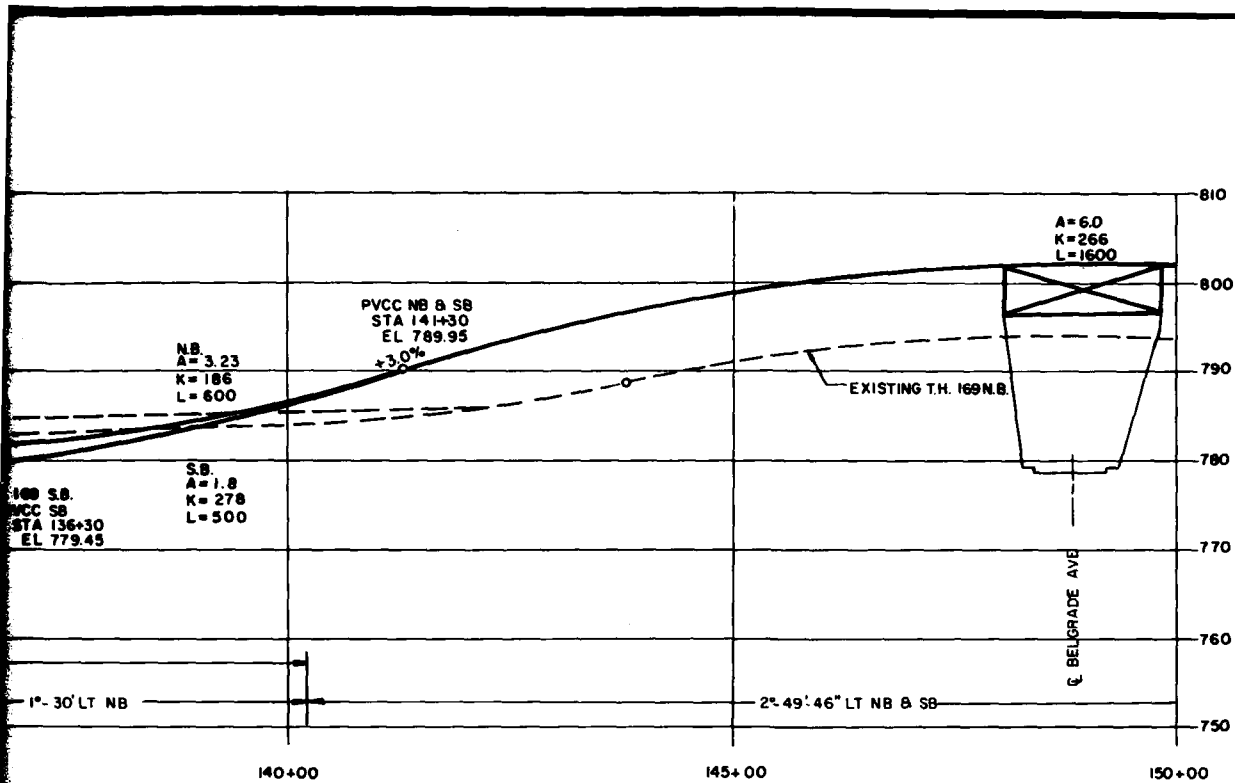
TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

NOTE

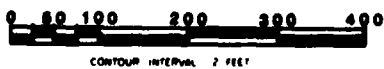
MINNESOTA STATE GRID, SOUTH ZONE,
SHOWN AT 500 FOOT INTERVALS.
VERTICAL DATUM IS MEAN SEA LEVEL



CONTOUR



TH 169

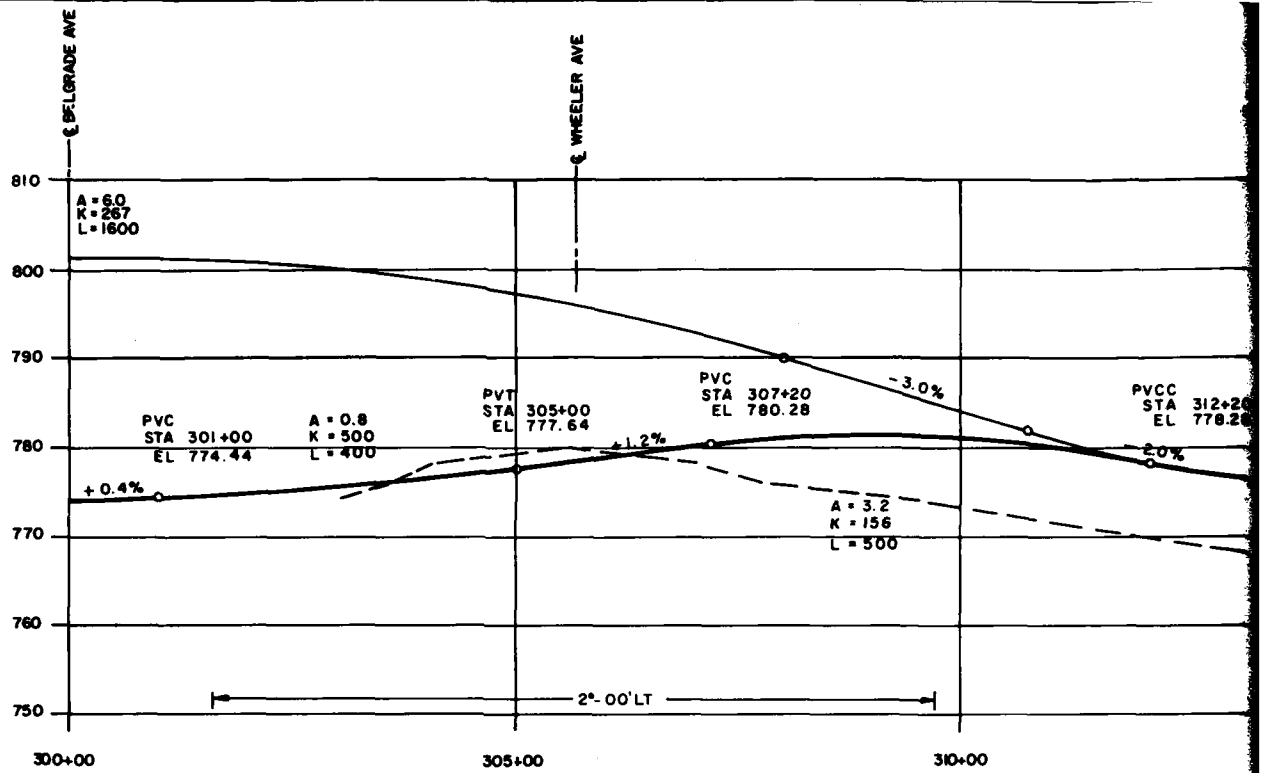


I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

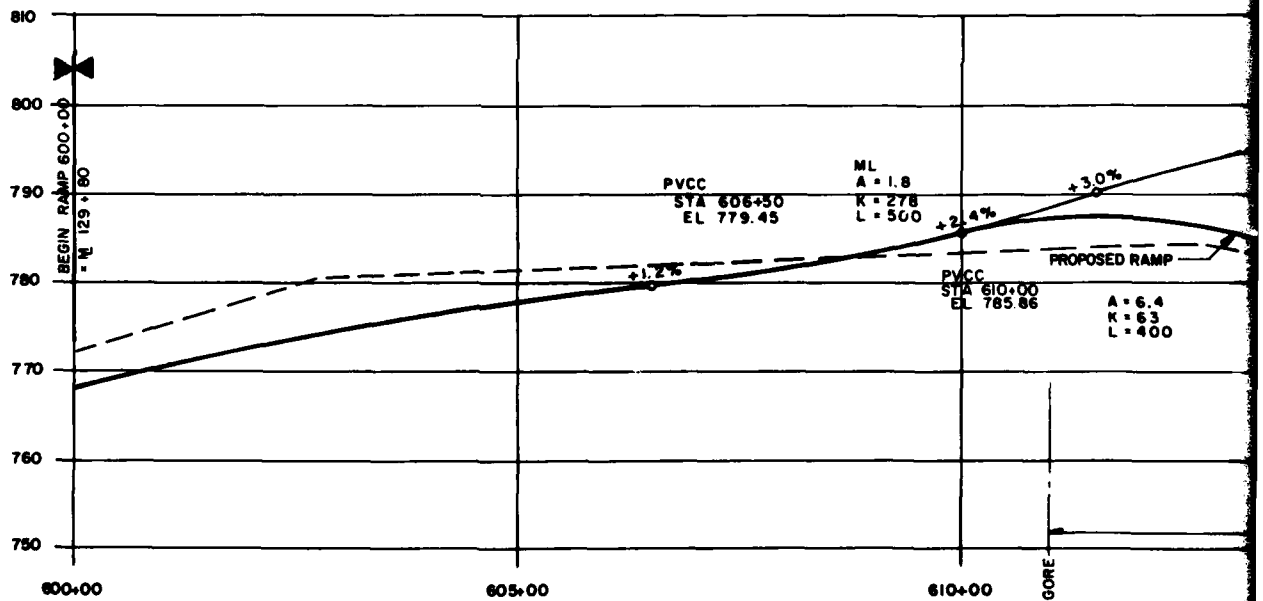
SIGNATURE _____

Date _____ Reg. No. _____

SYMBOL		DESCRIPTION	DATE	APPR
EDWARDS AND KELCEY, INC.		DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8			
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL			
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER			
SUBMITTED BY: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER			
APPROVED BY: [Signature]	MAIN STREET			
	BELGRADE - MULBERRY ALT 1AA			
	TH 169			
	DATE			
	NOVEMBER 1980			
	SPEC. NO.			
	DRAWING NUMBER			
PLATE A-5				



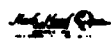
TH 169-BELGRADE S.B. O



BELGRADE-TH 169 S.B.

LEGEND

- | | |
|----------------------|--------------------------|
| PRIMARY ROAD | THREE |
| SECONDARY ROAD | WOODS AREA |
| TRAIL | PHOTO CENTER |
| GRASS | HORIZONTAL CONTROL POINT |
| RAILROAD | BEACH MARK |
| FENCE | FIELD SURVEY ELEVATION |
| GRADING | PLATTED ELEVATION |
| THRESHOLD-ROAD PILE | SECTION CORNER |
| SHEDDING | APPROXIMATE LOCATION |
| CULVERT | 1/4 CORNER |
| LAKE OR POND | APPROXIMATE LOCATION |
| SWAMP | |
| APPROXIMATE CONTOURS | |



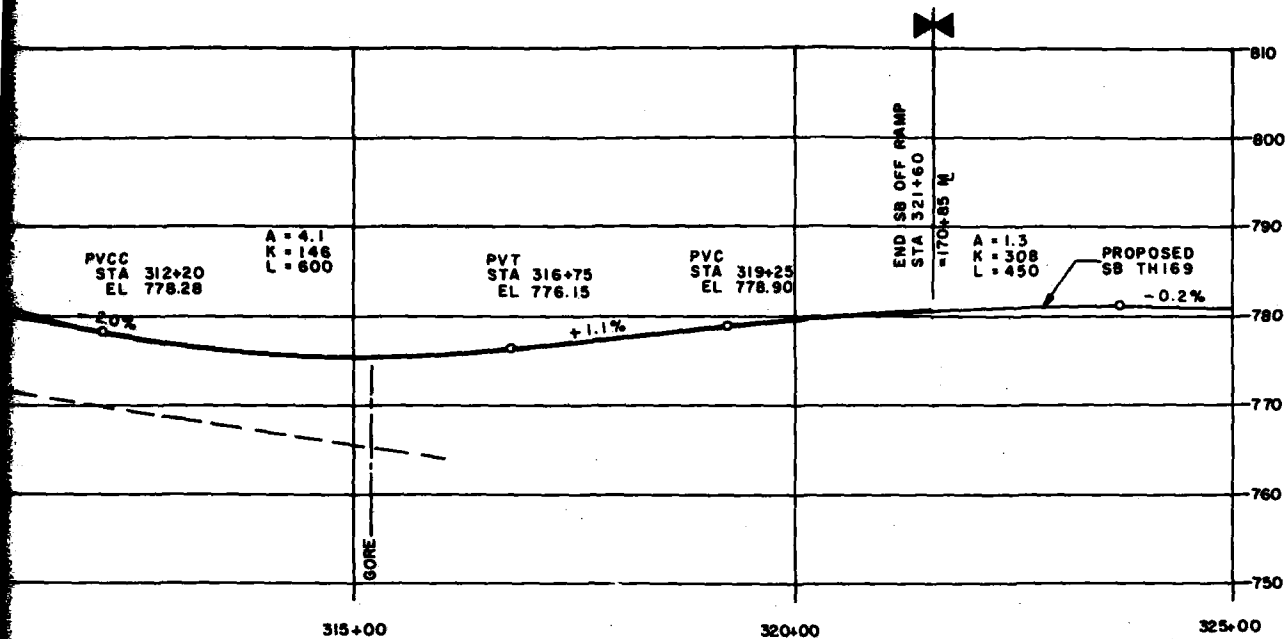
TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

NOTE

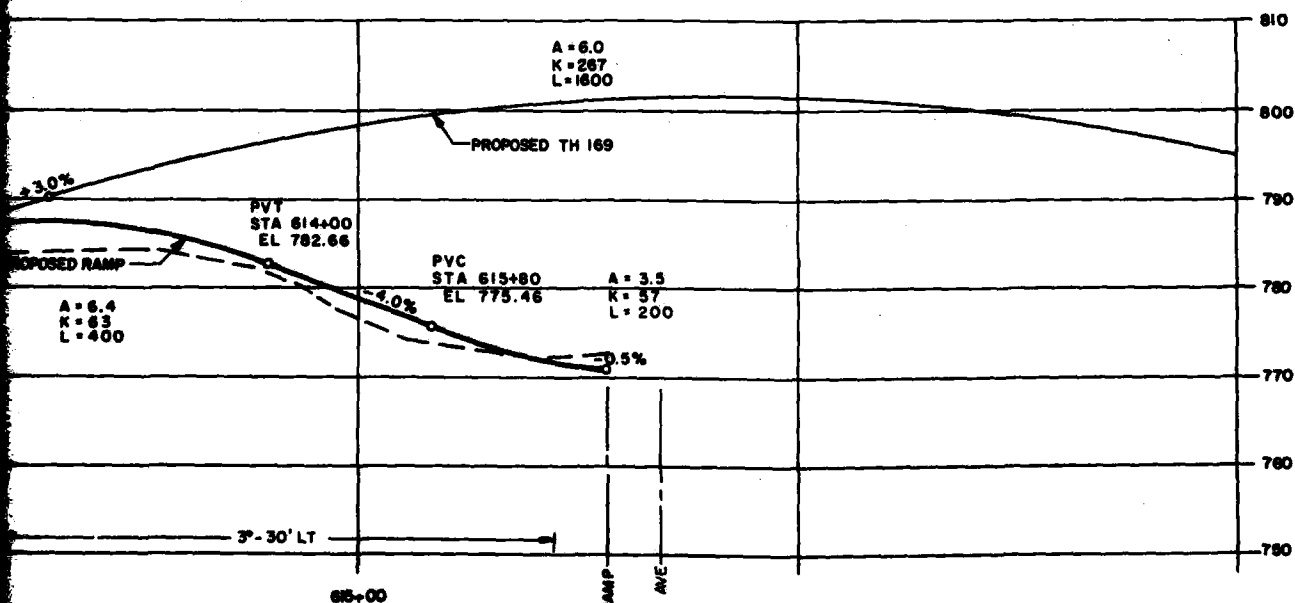
MINNESOTA STATE GRID, SOUTH ZONE. SHOWN AT 500 FOOT INTERVALS. VERTICAL DATUM IS MEAN SEA LEVEL.



CONTOUR



BELGRADE S.B. OFF RAMP



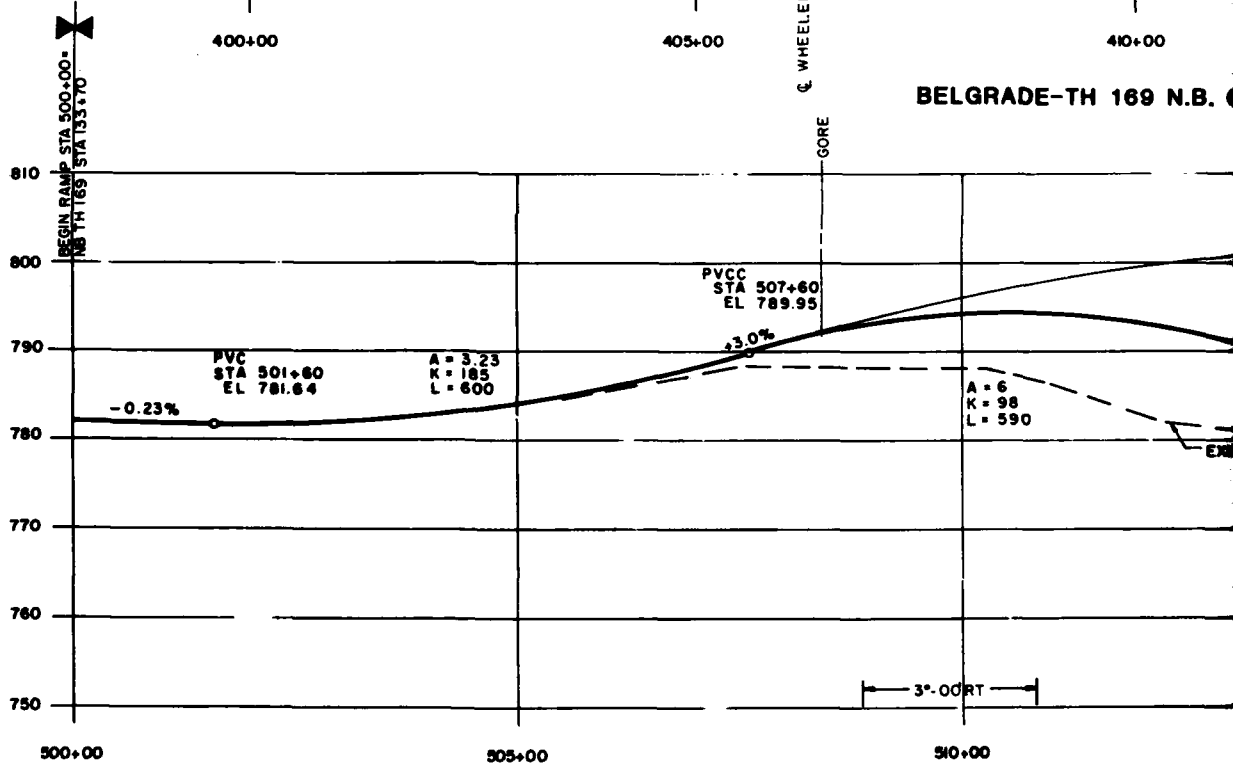
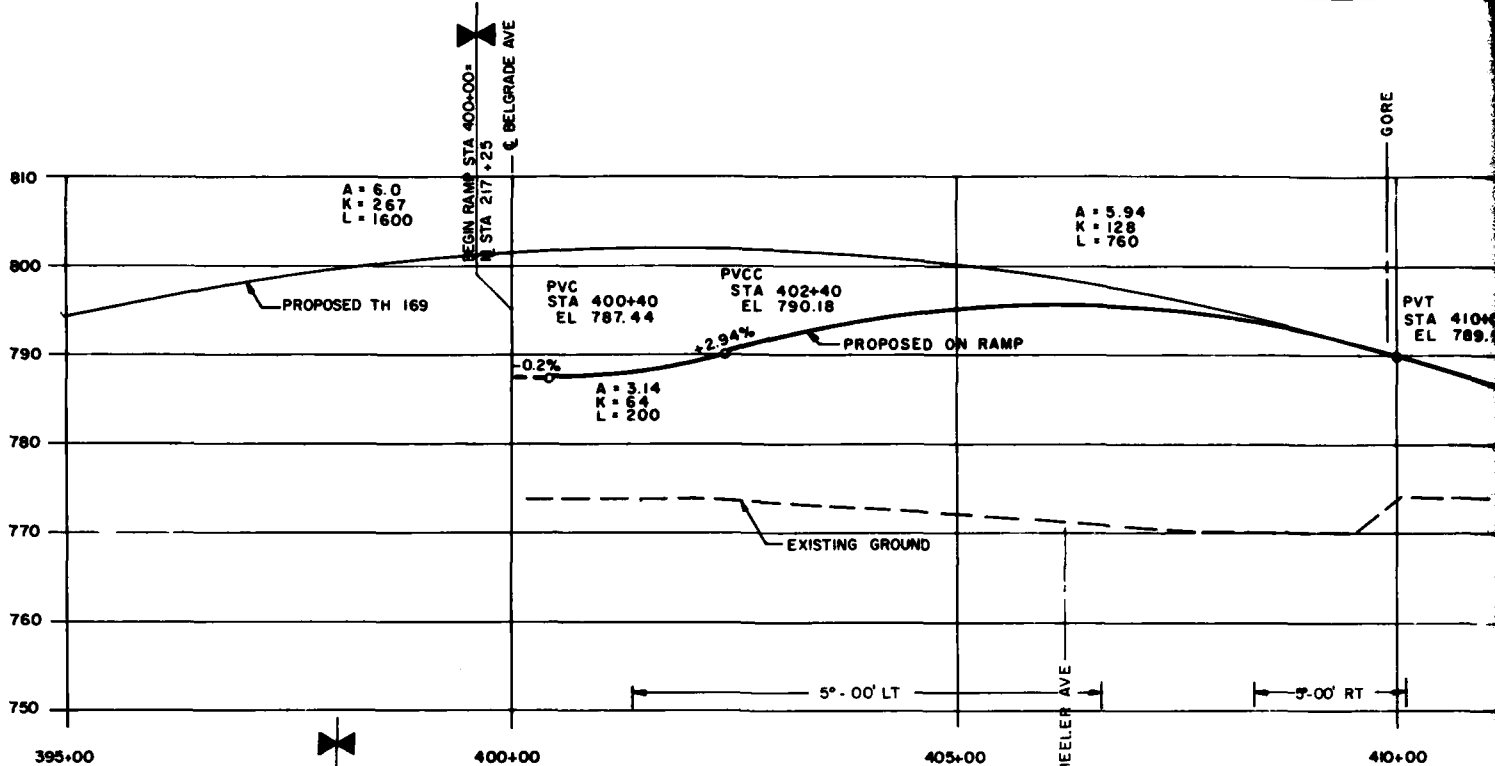
TH 169 S.B. ON RAMP

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

Date _____, Eng. No. _____

SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCEY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.H.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED BY: C.B. Hallmark	MANKATO-NORTH MANKATO-LE MILLER		
	MAIN STREET		
	BELGRADE - MULBERRY ALT. 1A &		
	DATE		
	NOVEMBER 1960		
	SCALE		
	1" = 40'		
	PLATE A-6		



LEGEND

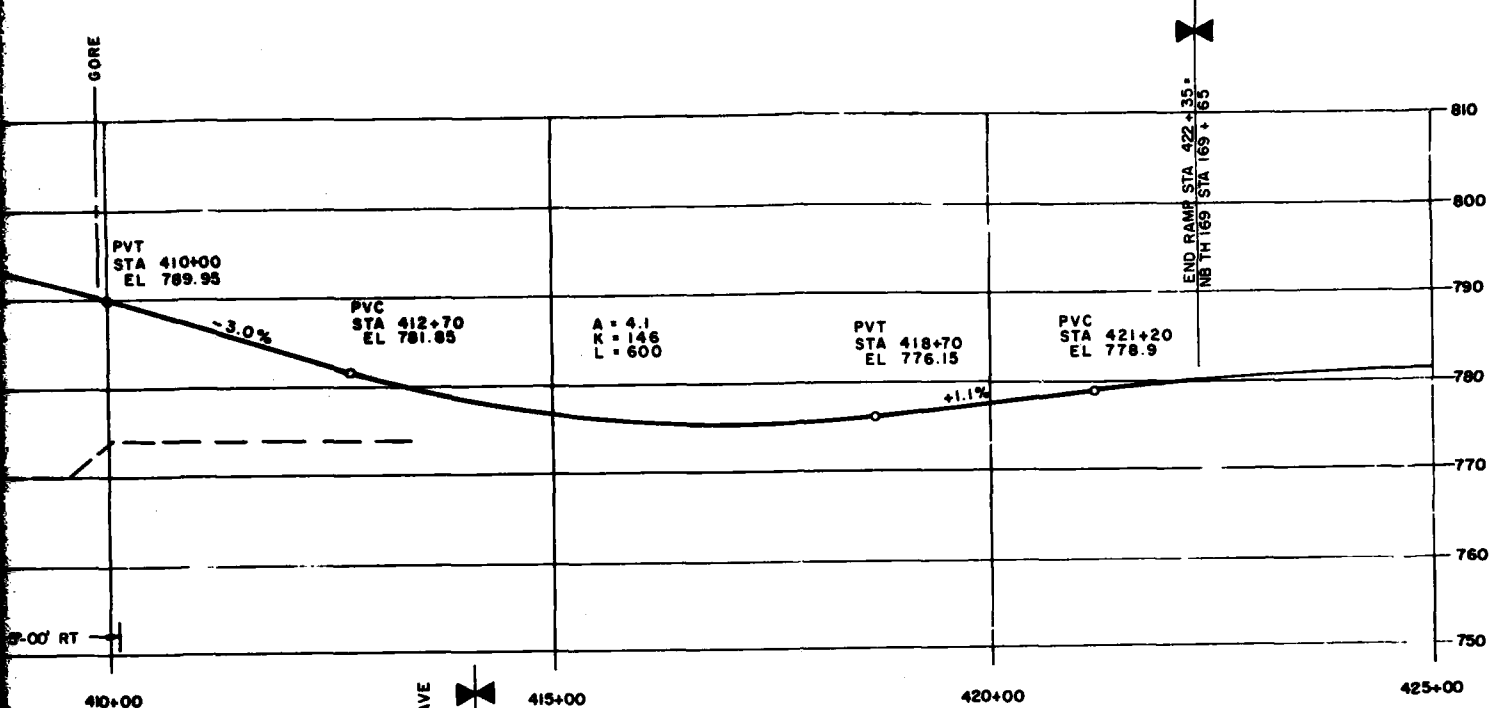
- | | |
|----------------------|--------------------------|
| PRIMARY ROAD | TREE |
| SECONDARY ROAD | WOODED AREA |
| TRAIL | PHOTO CENTER |
| BRIDGE | HORIZONTAL CONTROL POINT |
| RAILROAD | BEACH MARK |
| FENCE | FIELD SURVEY ELEVATION |
| RAILROAD | FLATTER ELEVATION |
| TRANSITION POLE | SECTION CORNER |
| OPPOSITE | APPROXIMATE LOCATION |
| CURVE | APPROXIMATE LOCATION |
| LINE OF ROAD | |
| SURFACE | |
| APPROXIMATE CONTOURS | |

NOTE

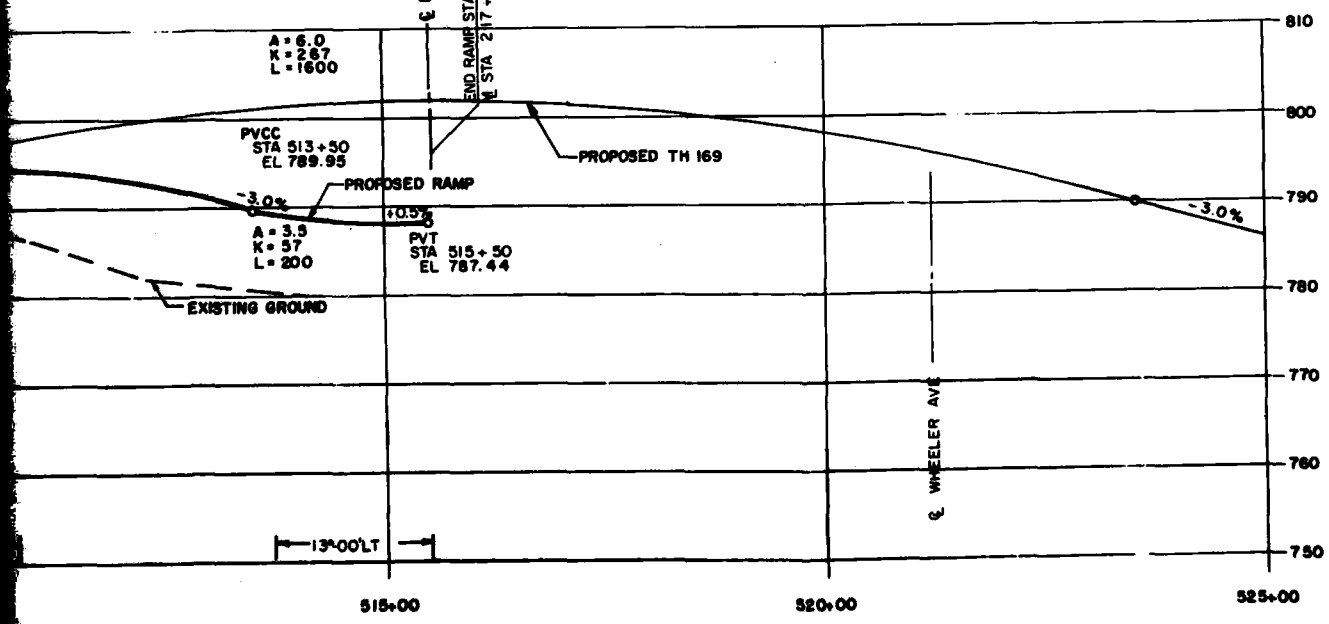
MINNESOTA STATE SOIL SURVEY ZONE SHOWN AT 500 FOOT INTERVALS. VERTICAL DATUM IS MEAN SEA LEVEL.



TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978



E-TH 169 N.B. ON RAMP

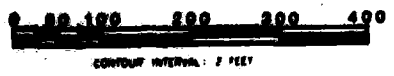


BELGRADE N.B. OFF RAMP

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

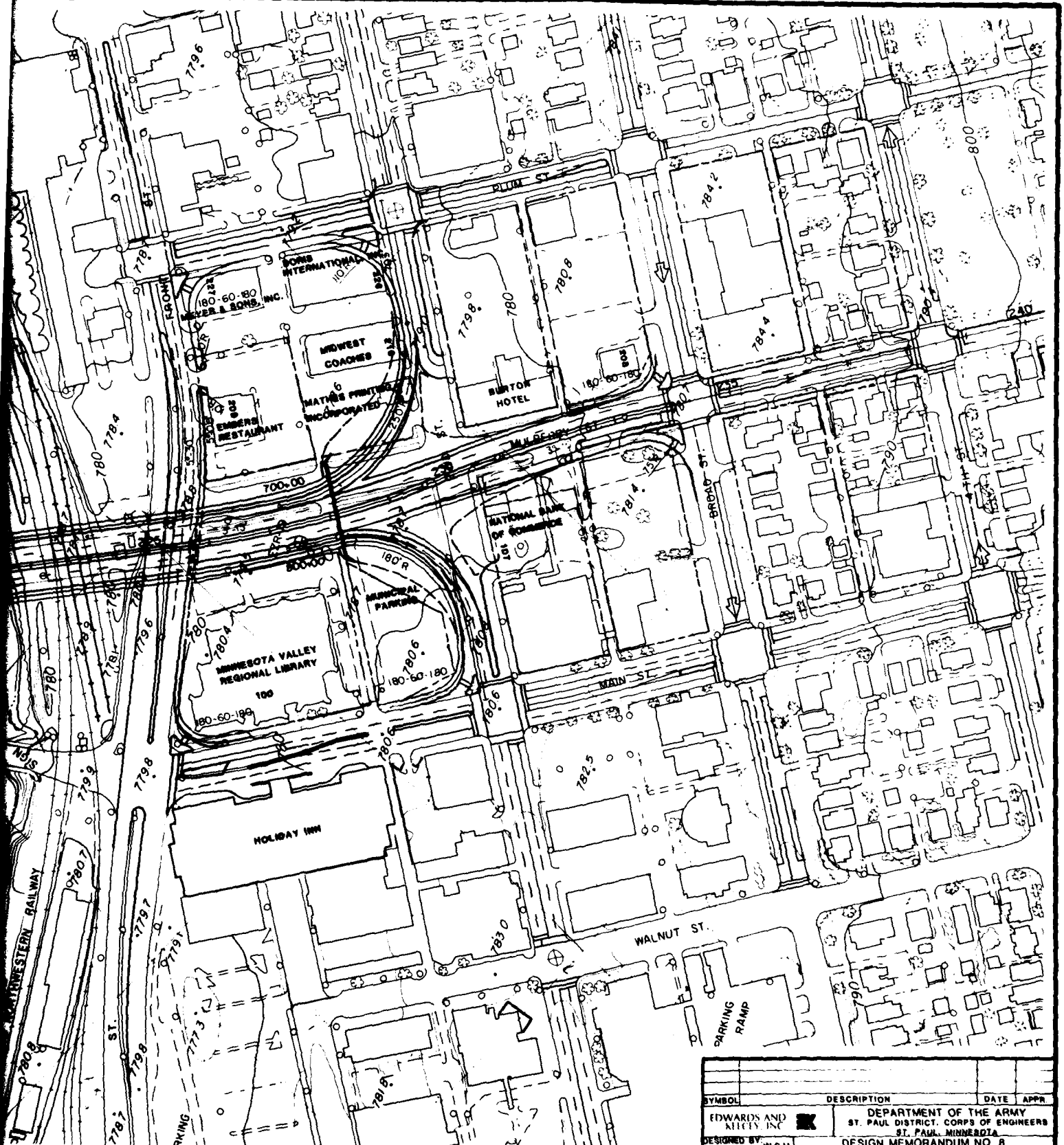
SIGNATURE _____

Date _____ Reg. No. _____



SYMBOL		DESCRIPTION		DATE	APPD
EDWARDS AND KELLEY INC.		DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA			
DESIGNED BY: W.G.H.		DESIGN MEMORANDUM NO. 8			
DRAWN BY: J.A.W.		BRIDGE ALTERATIONS FOR FLOOD CONTROL			
CHECKED BY: W.G.H.		MINNESOTA RIVER AND BLUE EARTH RIVER			
APPROVED: [Signature]		MANKATO-NORTH MANKATO-LE MILLIER			
		MAIN STREET			
		BELGRADE - MULBERRY ALT. 1AA			
		TH 169			
DATE		NOVEMBER 1988			
SHEET NO.		SHEET NO.			
DRAWING NUMBER		DRAWING NUMBER			

PLATE A-7



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

Date _____

Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND MICHY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SUBMITTED BY: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
CHIEF DESIGNER	MAIN ST.		
APPROVED:	BELGRADE-MULBERRY CONNECTION		
C. H. HALL	ALTERNATIVE 1CA		
CHIEF ENGINEER	DATE	NOVEMBER 1980	
	SCALE	AS SHOWN	
	DRAWING NUMBER		

PLATE A-8

AD-A120 868

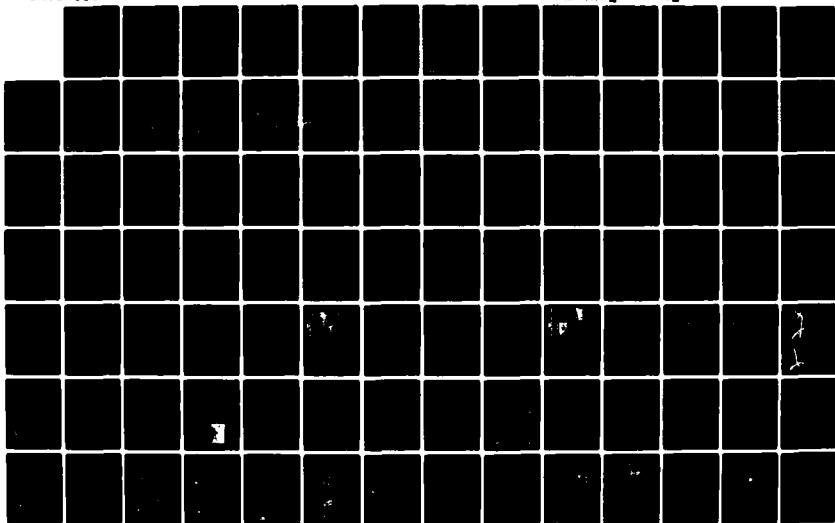
FLOOD CONTROL MINNESOTA RIVER MINNESOTA MANKATO-NORTH
MANKATO-LE HILLIER...(U) CORPS OF ENGINEERS ST PAUL MN
ST PAUL DISTRICT JUN 81

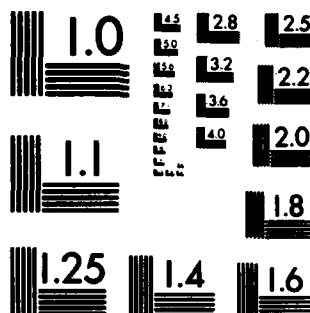
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UNCLASSIFIED

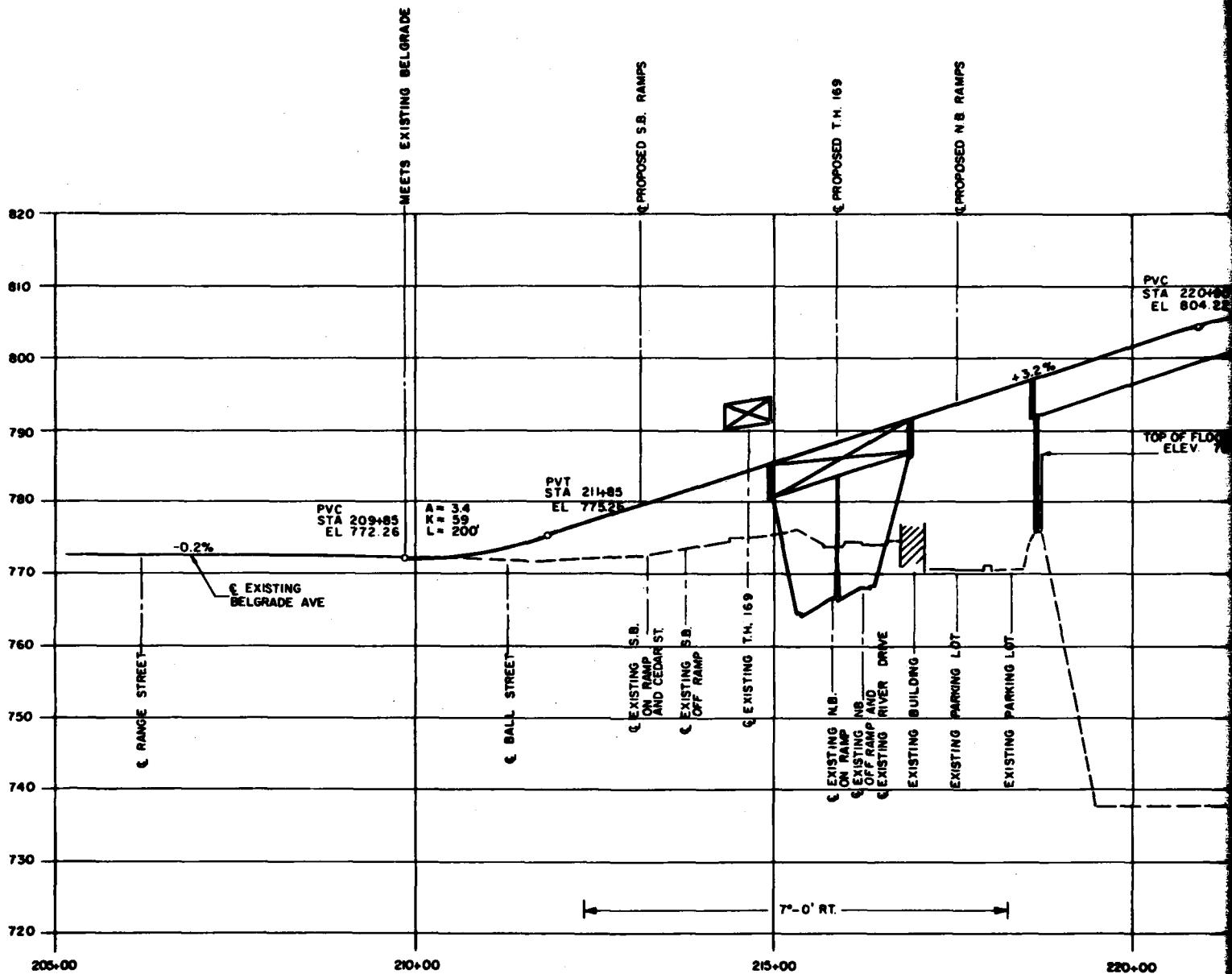
F/G 13/2

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A



BELGRADE-MULBERRY

LEGEND

	PRIMARY ROAD		TREE
	SECONDARY ROAD		WOODED AREA
	T.O.M.		PHOTO CENTER
	BRIDGE		HORIZONTAL CONTROL POINT
	BUILDING		BENCH MARK
	FENCE		FIELD SURVEY ELEVATION
	WALL		PLOTTED ELEVATION
	TRANSMISSION POLE		SECTION CORNER
	GROUNDWATER		APPROACH LOCATION
	LANE OR POND		I/P CORNER
	SWAMP		APPROACH LOCATION
	APPROXIMATE CONTOURS		

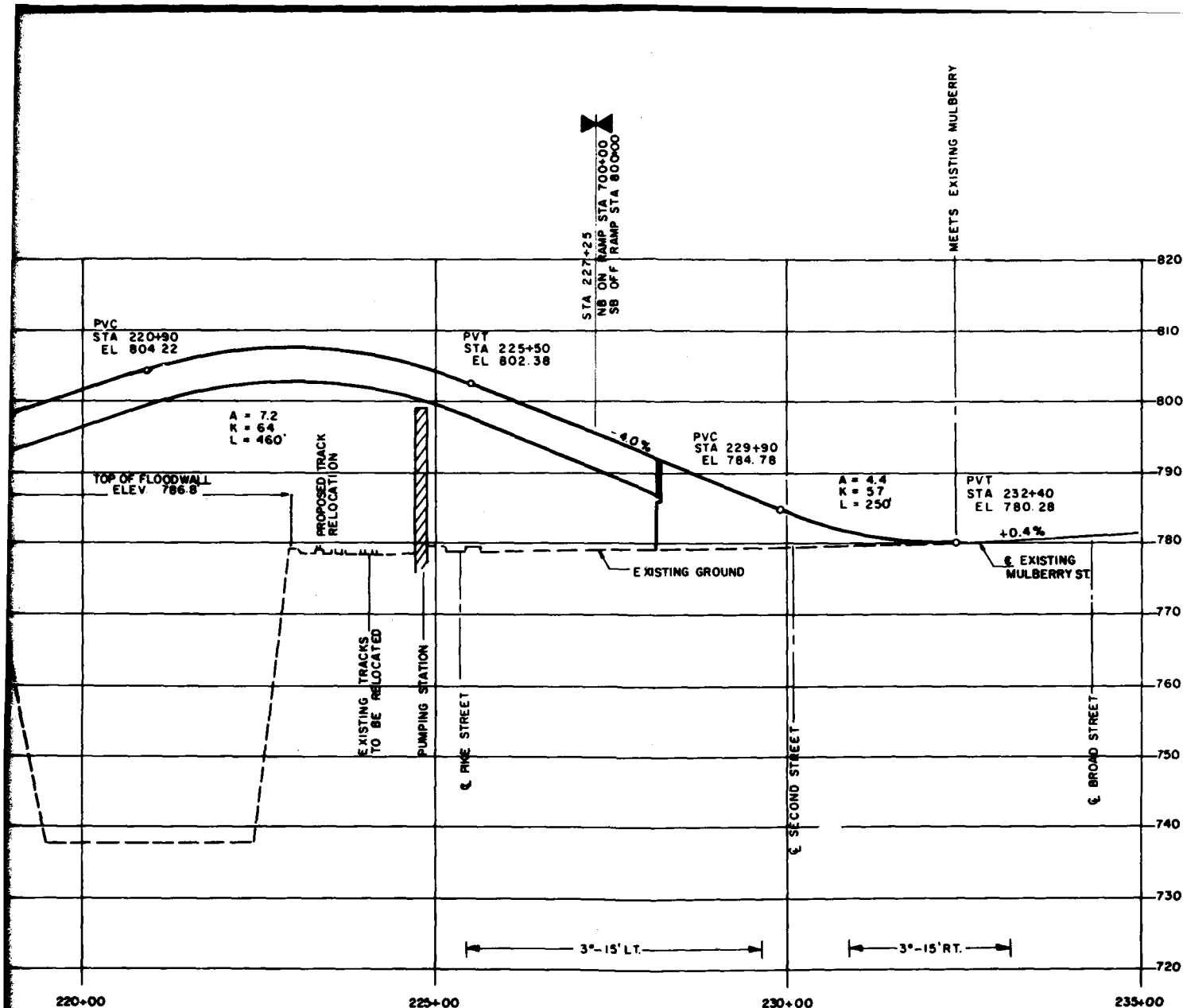
NOTE

MINNESOTA STATE GRID, SOUTH ZONE, SHOWN AT 500 FOOT INTERVALS. VERTICAL DATUM IS MEAN SEA LEVEL.

0 50 100

CONTOUR

TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978



DE-MULBERRY CONNECTION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

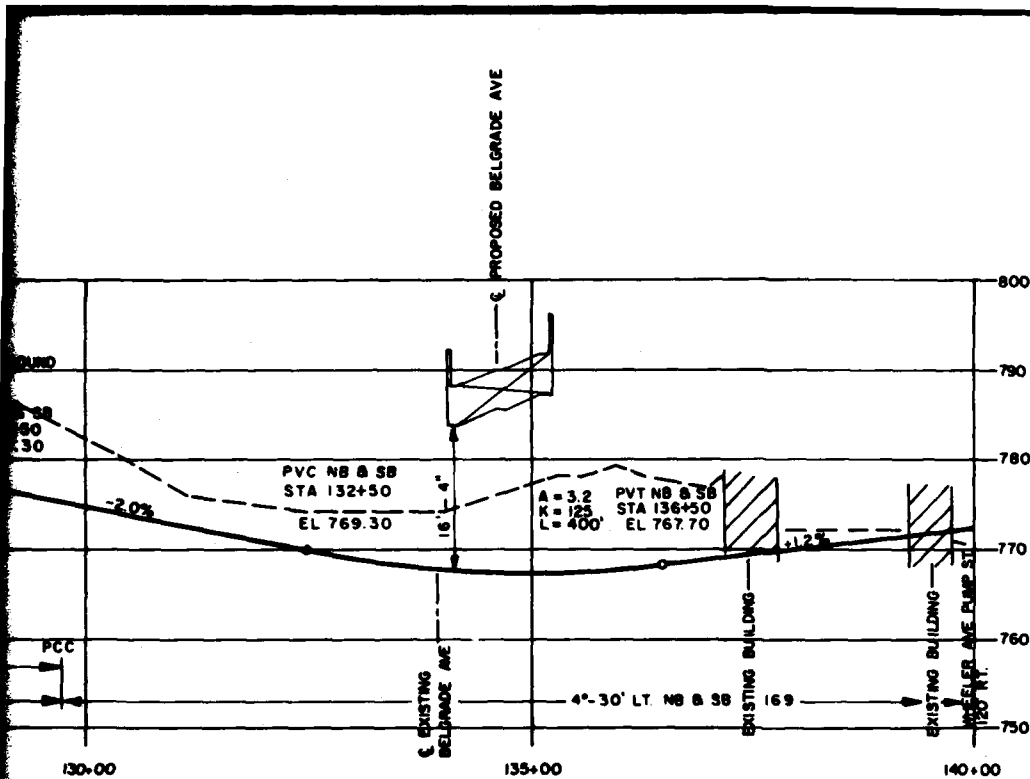
Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCEY, INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
FORWARDED BY: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
APPROVED: [Signature]	MAIN STREET		
	BELGRADE - MULBERRY ALT 1CA		
		DATE	
		NOVEMBER 1980	
		SPEC NO.	
		DRAWING NUMBER	
		SHEET	OF

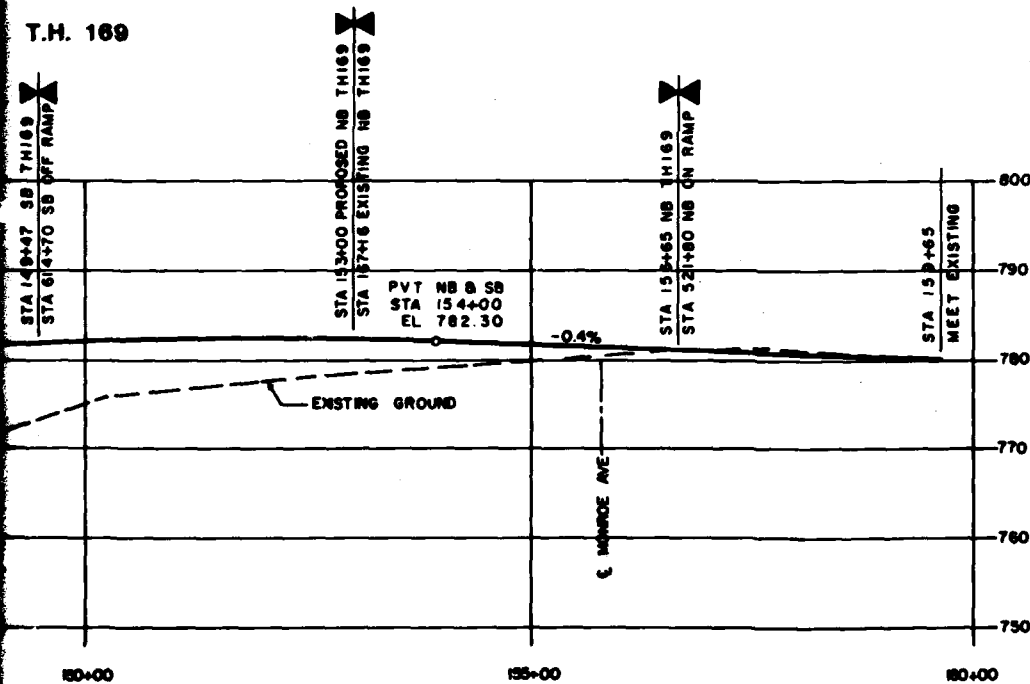
PLATE A-9



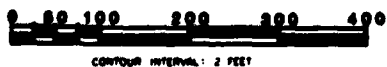
Conclusion: The results of this study suggest that the use of a single, standardized, and validated questionnaire is a feasible and reliable method for assessing the prevalence of mental health problems in a community sample.



T.H. 169



H. 169

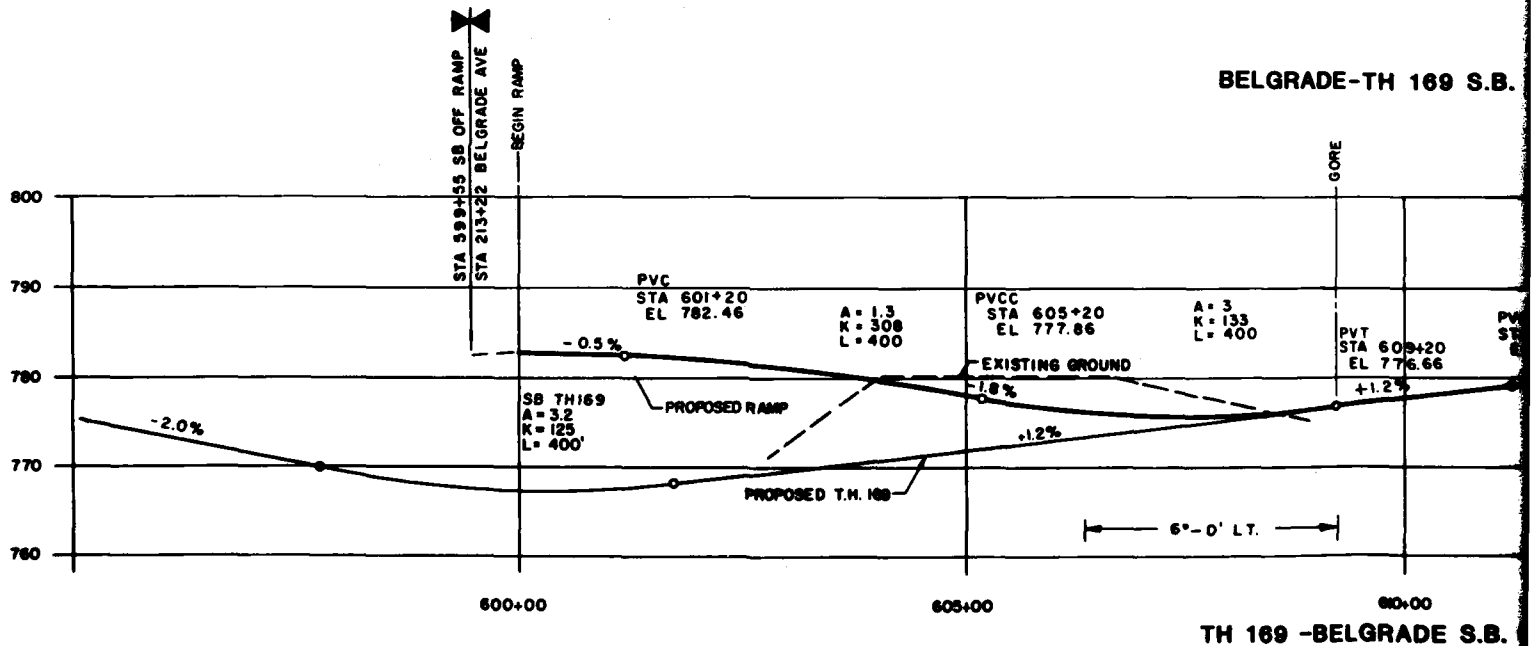
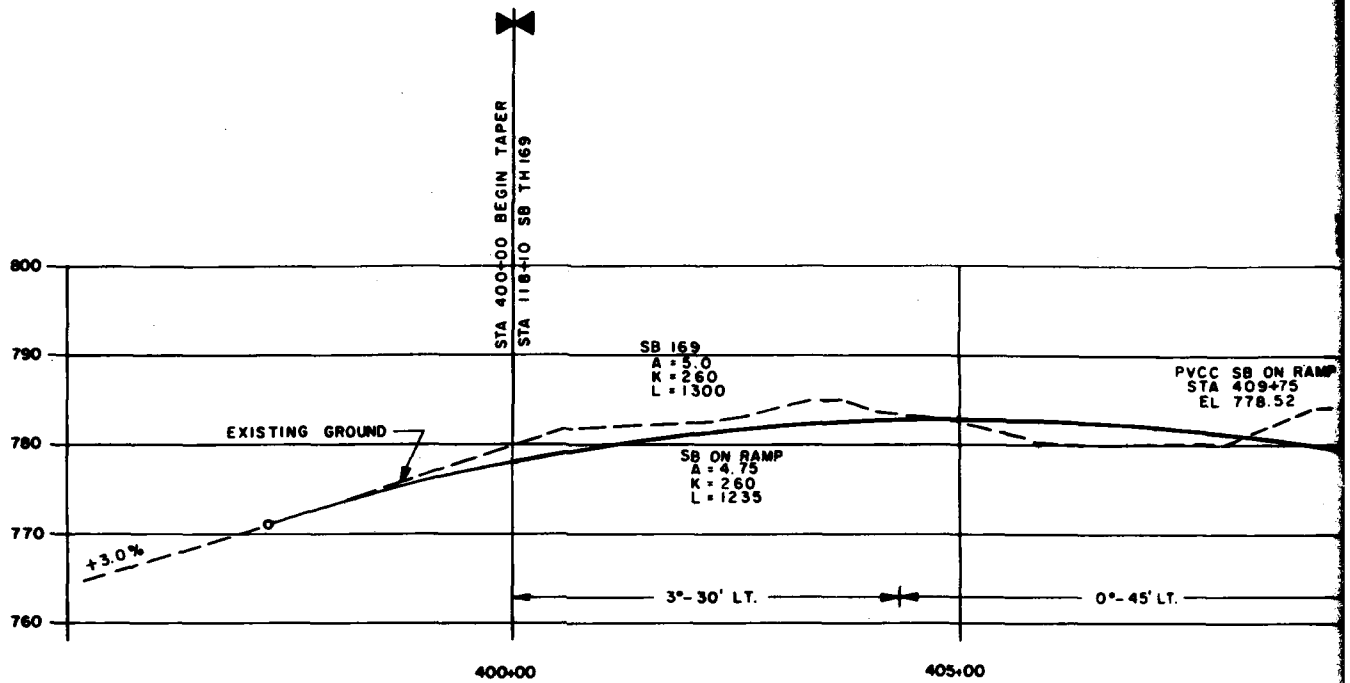


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SIGNATURE _____

Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCEY, INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED: [Signature]	MANKATO-NORTH MANKATO-LE HILLER		
	MAIN STREET		
	BELGRADE - MULBERRY ALT 1CA		
	TH 169		
	DATE: NOVEMBER 1980		
	PLATE A-10		
	DRIVING NUMBER		



LEGEND

	PRIMARY ROAD		TREE
	SECONDARY ROAD		WOODED AREA
	TIE		PHOTO CENTER
	GRASS		HORIZONTAL CONTROL POINT
	FENCE		SIGHT MARK
	BUILDING		SPOT SURVEY ELEVATION
	WELL		SPOT ELEVATION
	TRANSMISSION POLE		SPOT ELEVATION
	GRASS		SPOT ELEVATION
	GRASS		SPOT ELEVATION
	LINE OF ROAD		SPOT ELEVATION
	ROAD		SPOT ELEVATION
	APPROXIMATE CONTOUR		SPOT ELEVATION



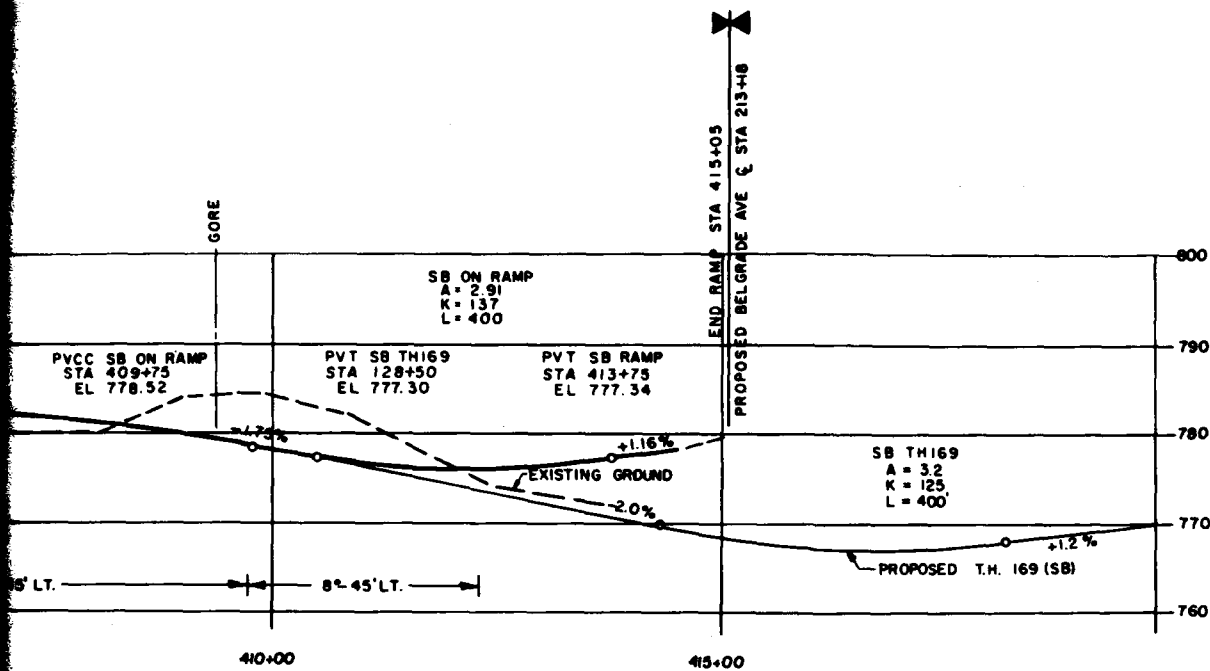
TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1970

NOTE

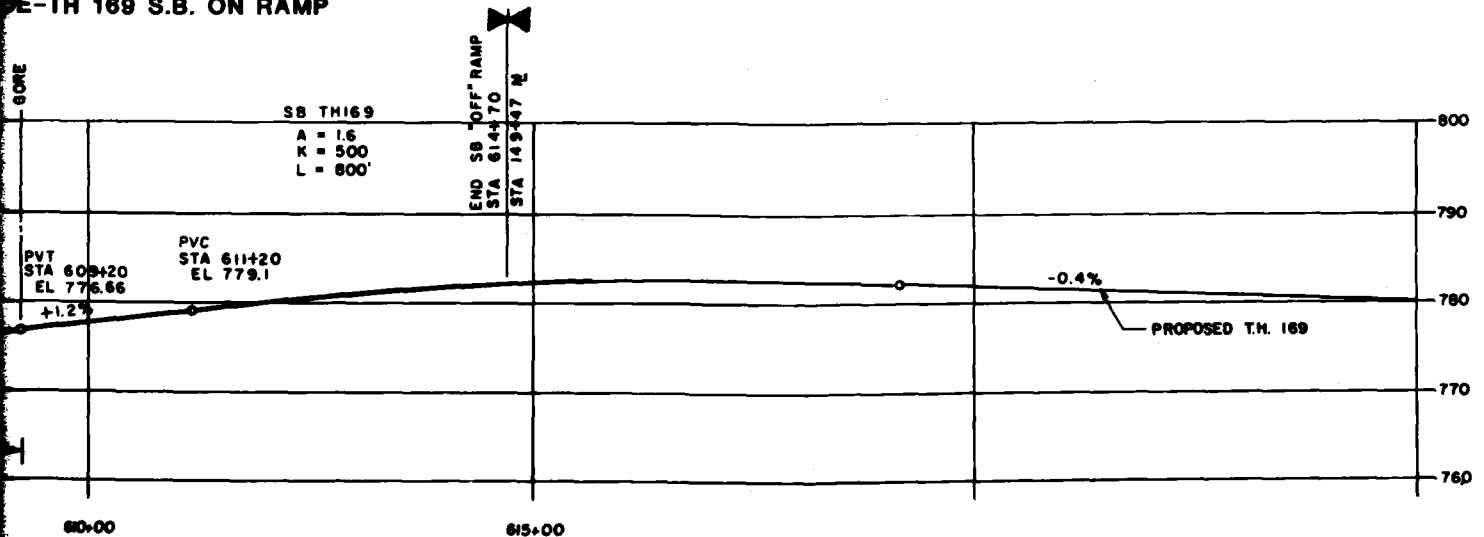
MINNESOTA STATE GRID, SOUTH ZONE.
SHOWN AT 500 FOOT INTERVALS.
VERTICAL DATUM IS MEAN SEA LEVEL.

0 50 100

CONTOUR INTERVAL



E-TH 169 S.B. ON RAMP

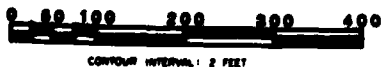


BELGRADE S.B. OFF RAMP

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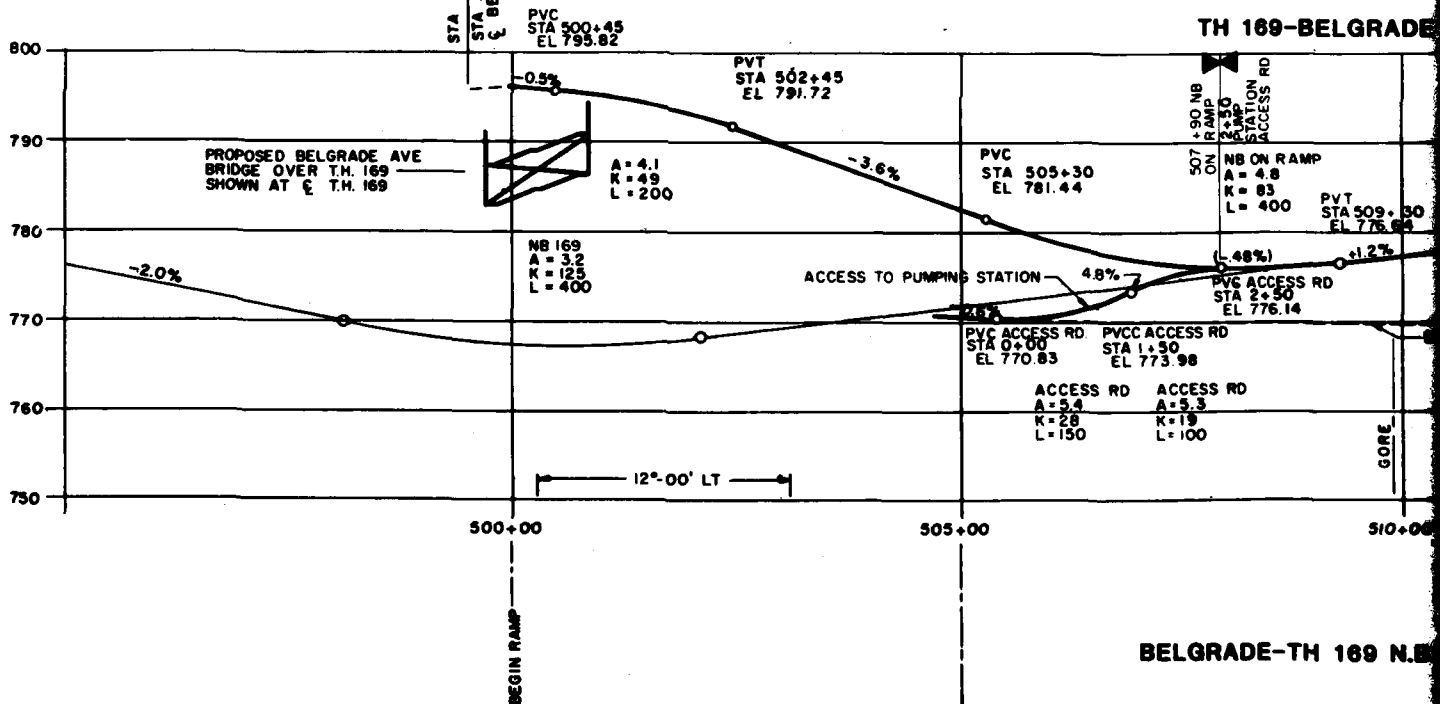
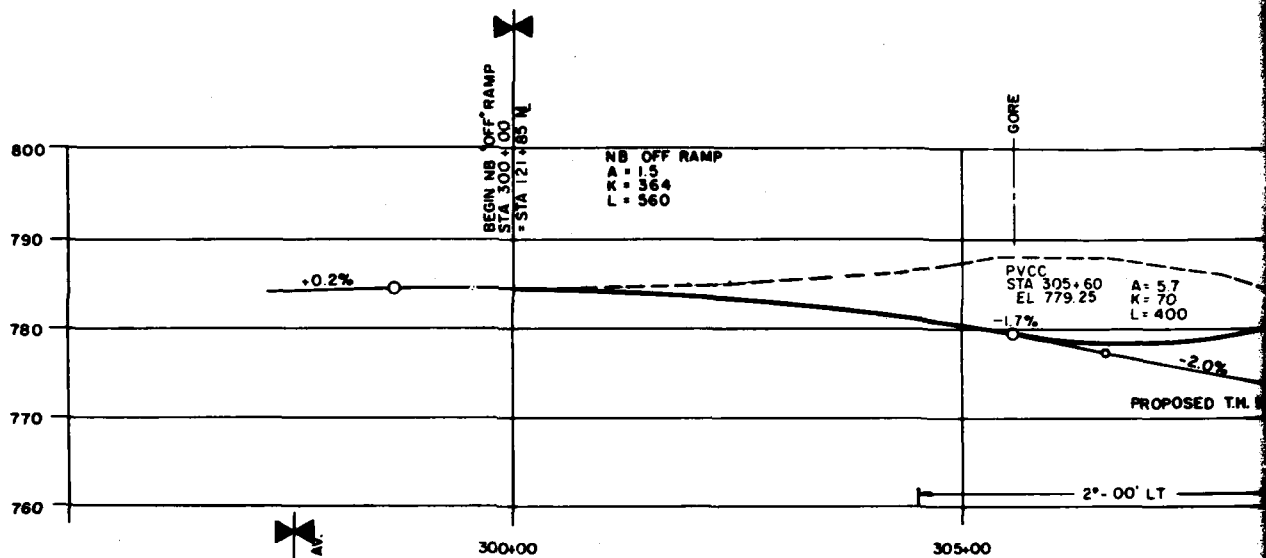
SIGNATURE _____

Date _____ Reg. No. _____



SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KEICER, INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED: [Signature]	MANKATO-NORTH MANKATO-LE HILLER		
	BELGRADE - MILLBERRY ALT 1CA		
	TH 169	DATE:	
		NOVEMBER 1960	
		SPEC. NO.	
		DRAWING NUMBER	

PLATE A-11



LEGEND

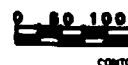
- | | |
|---|---|
| PRIMARY ROAD
SECONDARY ROAD
T.M.
GRAVEL
RAILROAD
FENCE
BUILDING
WELL
TRANSMISSION POLE
SHORELINE
CULVERT
LANE ON ROAD
CAMP
APPROXIMATE CONTOUR | TREE
WOODED AREA
PHOTO CENTER
HORIZONTAL CONTROL POINT
BENCHMARK
FIELD SURVEY STATION
PLOTTED ELEVATION
SECTION CORNER
APPROXIMATE LOCATION
1/4 SECTION APPROXIMATE LOCATION |
|---|---|

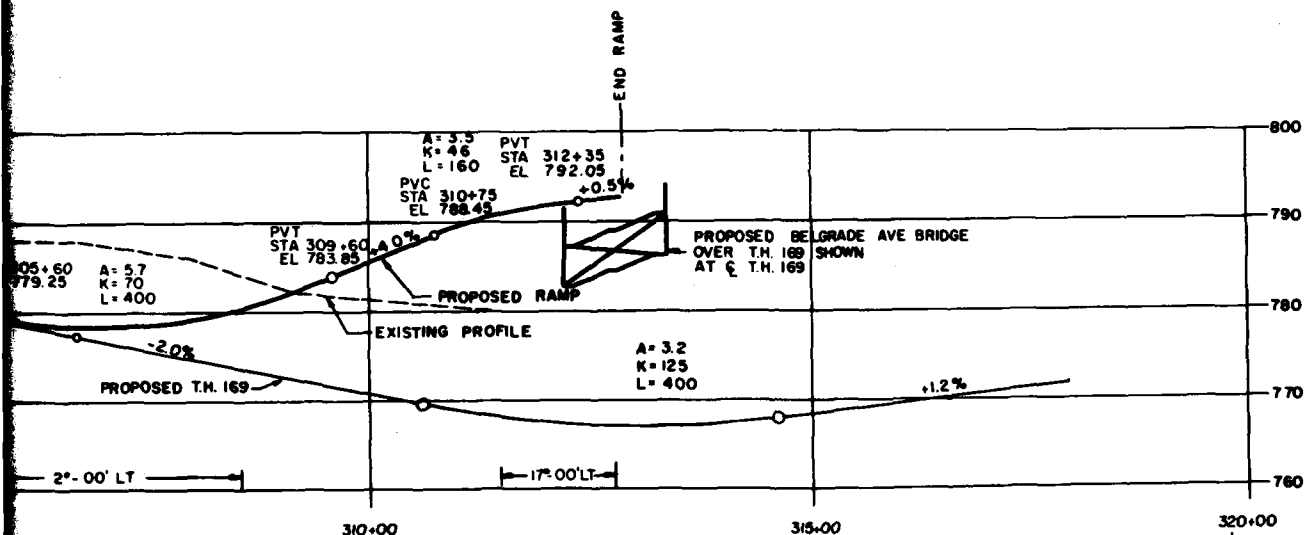


TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
 AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

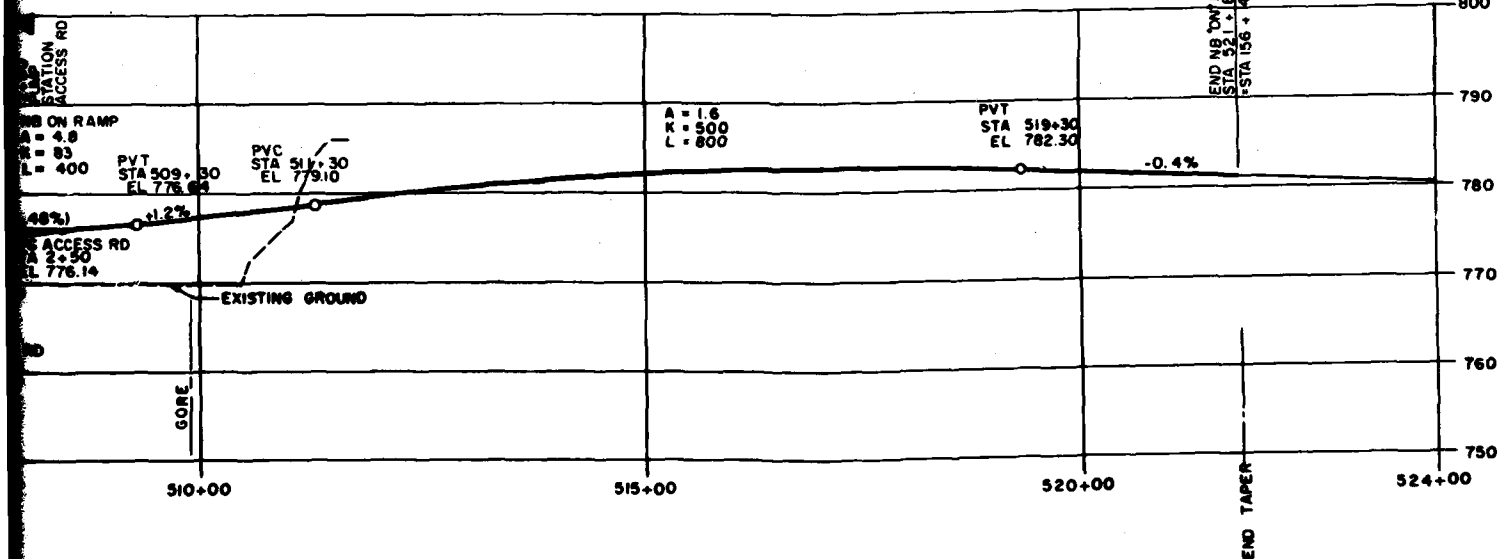
NOTE

MISSISSIPPI STATE GRID, SOUTH ZONE.
 SHOWN AT 500 FOOT INTERVALS.
 VERTICAL DATUM IS MEAN SEA LEVEL.





169-BELGRADE N.B. OFF RAMP



169-BELGRADE N.B. ON RAMP

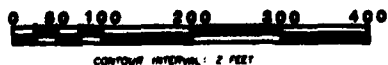
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

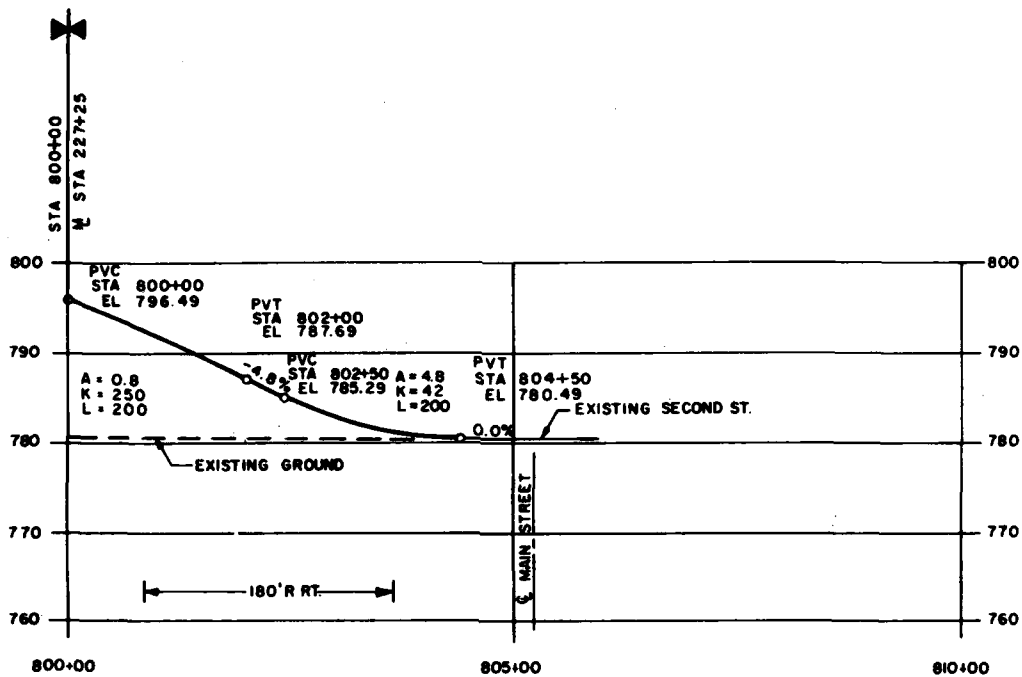
SIGNATURE _____

Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APP.
EDWARDS AND KELCEY, INC.		DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA	
DESIGN MEMORANDUM NO. 8			
BRIDGE ALTERATIONS FOR FLOOD CONTROL MINNESOTA RIVER AND BLUE EARTH RIVER MANKATO-NORTH MANKATO-LE HILLIER MAIN STREET BELGRADE - MULBERRY ALT 1CA TH 169			
DESIGNED BY: W.G.H.		DATE: NOVEMBER 1980	
DRAWN BY: J.A.W.		SPEC. NO.	
CHECKED BY: W.G.H.		DRAWING NUMBER	
APPROVED: [Signature]		SHEET 22	

PLATE A-12





MULBERRY-2ND STREET OFF RAMP

LEGEND

	PRIMARY ROAD		TREE
	SECONDARY ROAD		WOODED AREA
	TIE		POINT CENTER
	DRAIN		HORIZONTAL CENTER POINT
	RAILROAD		DESIGN MARK
	FENCE		FIELD SURVEY ELEVATION
	OUTCROP		PLOTTED ELEVATION
	WELL		SECTION CORNER
	TRANSMISSION POLE		APPROXIMATE LOCATION
	STRUCTURE		1/4 CORNER
	CULVERT		APPROXIMATE LOCATION
	LAKE OR POND		
	CAMP		
	APPROXIMATE CONTOUR		



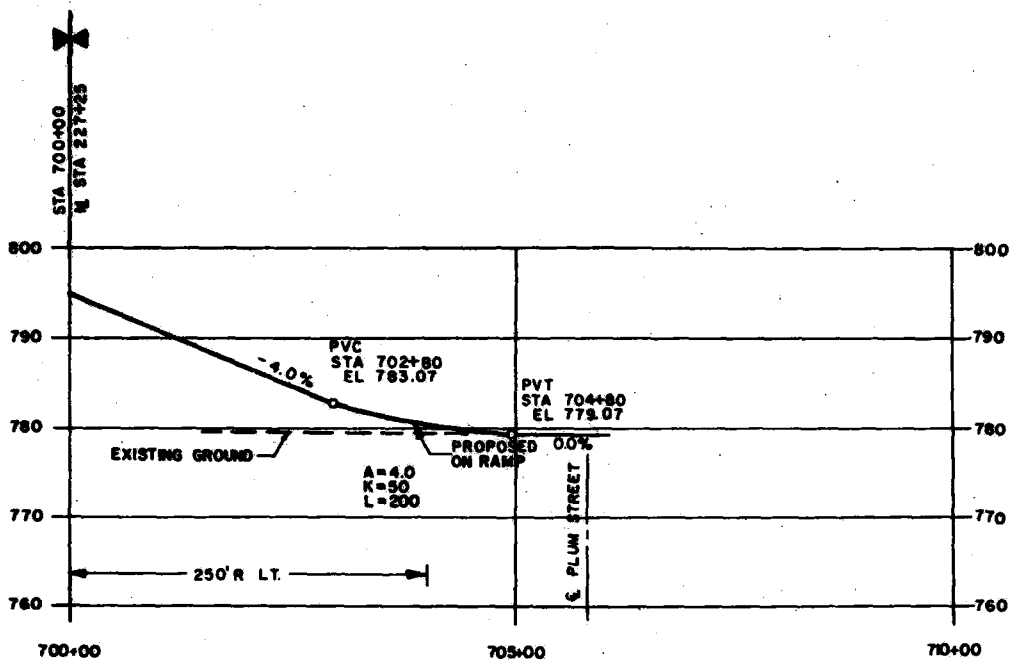
TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

NOTE

MINNESOTA STATE GRID, SOUTH ZONE.
SHOWN AT 500 FOOT INTERVALS.
VERTICAL DATUM IS MEAN SEA LEVEL.

0 50 100

CONTOUR



2ND STREET-MULBERRY ON RAMP

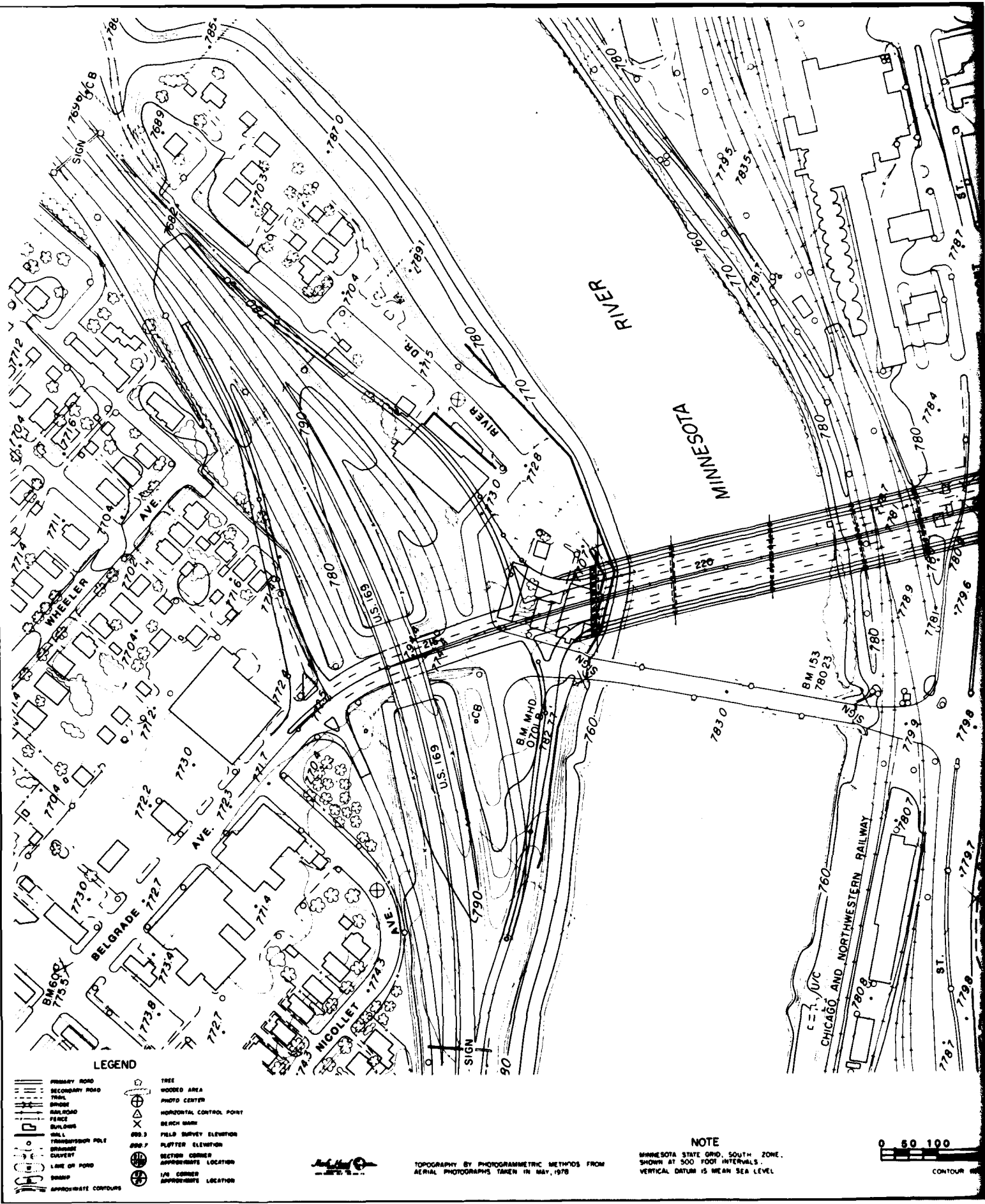
0 100 200 300 400
CONTRACT INTERVAL: 2 FEET

I hereby certify that this plan, specification, or contract was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of Minnesota.

SIGNATURE _____

Date _____

SYMBOL	DESCRIPTION	DATE	APP.
EDWARDS AND KELCEY, INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: E.S.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.B.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: E.S.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
	MANKATO-NORTH MANKATO-LE HILLIER		
	MAIN STREET		
	BELGRADE - MULBERRY ALT 10A		
APPROVED:	DATE:		
C.E. L. A. C.	NOVEMBER 1980		
PLATE A-13			
DRAWING NUMBER			



LEGEND

- | | | | |
|--|----------------------|--|--------------------------|
| | PRIMARY ROAD | | TREE |
| | SECONDARY ROAD | | WOODED AREA |
| | TRAIL | | PHOTO CENTER |
| | BRIDGE | | HORIZONTAL CONTROL POINT |
| | RAILROAD | | BENCH MARK |
| | FENCE | | FIELD SURVEY ELEVATION |
| | BUILDING | | FLATTER ELEVATION |
| | HILL | | SECTION CORNER |
| | TRANSMISSION POLE | | APPROXIMATE LOCATION |
| | DRAINAGE | | 1/4 CORNER |
| | DAMWAY | | APPROXIMATE LOCATION |
| | LINE OF POND | | |
| | SWAMP | | |
| | APPROXIMATE CONTOURS | | |

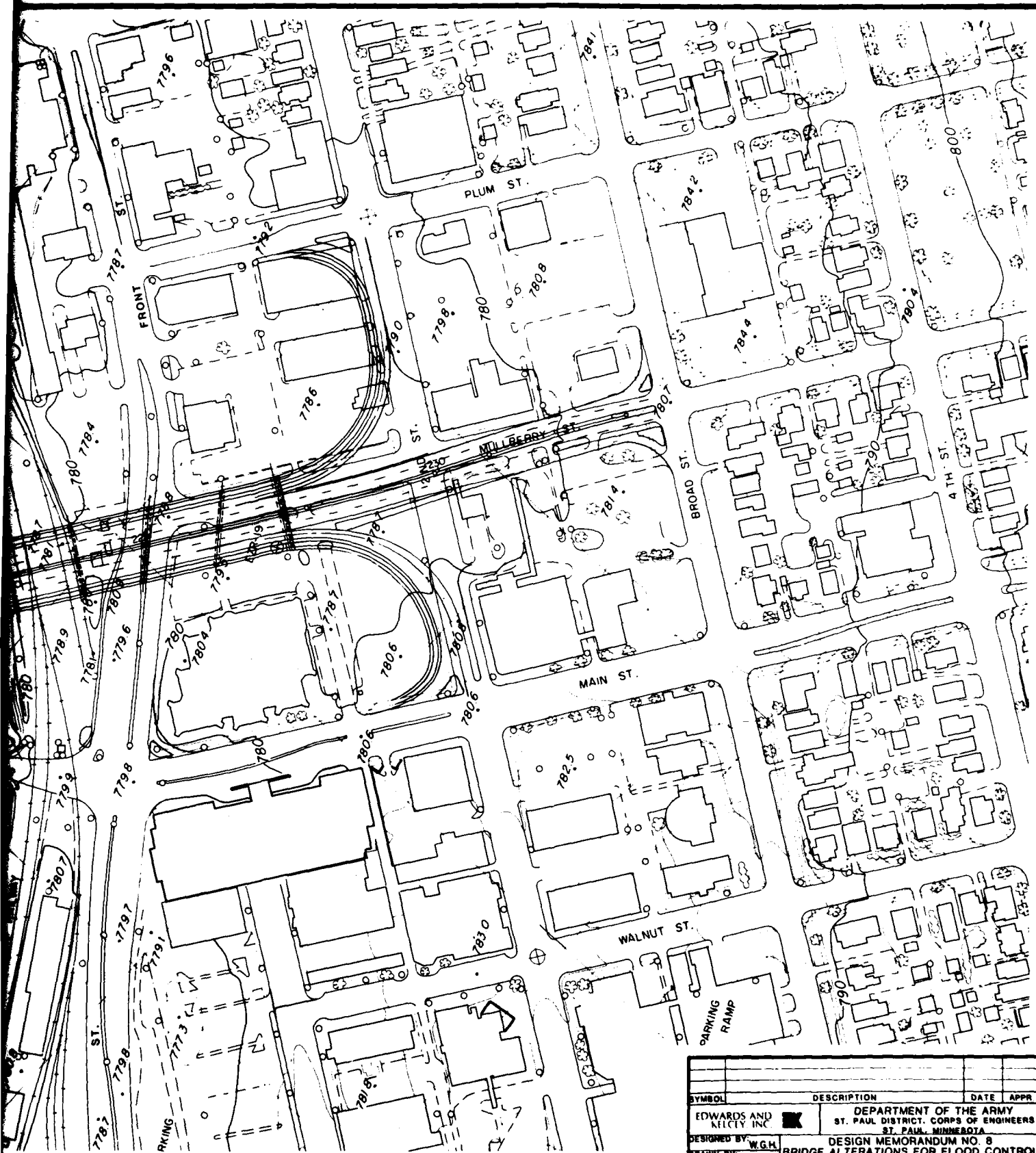
NOTE

MINNESOTA STATE GRID, SOUTH ZONE.
SHOWN AT 500 FOOT INTERVALS.
VERTICAL DATUM IS MEAN SEA LEVEL

0 50 100

CONTOUR

TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

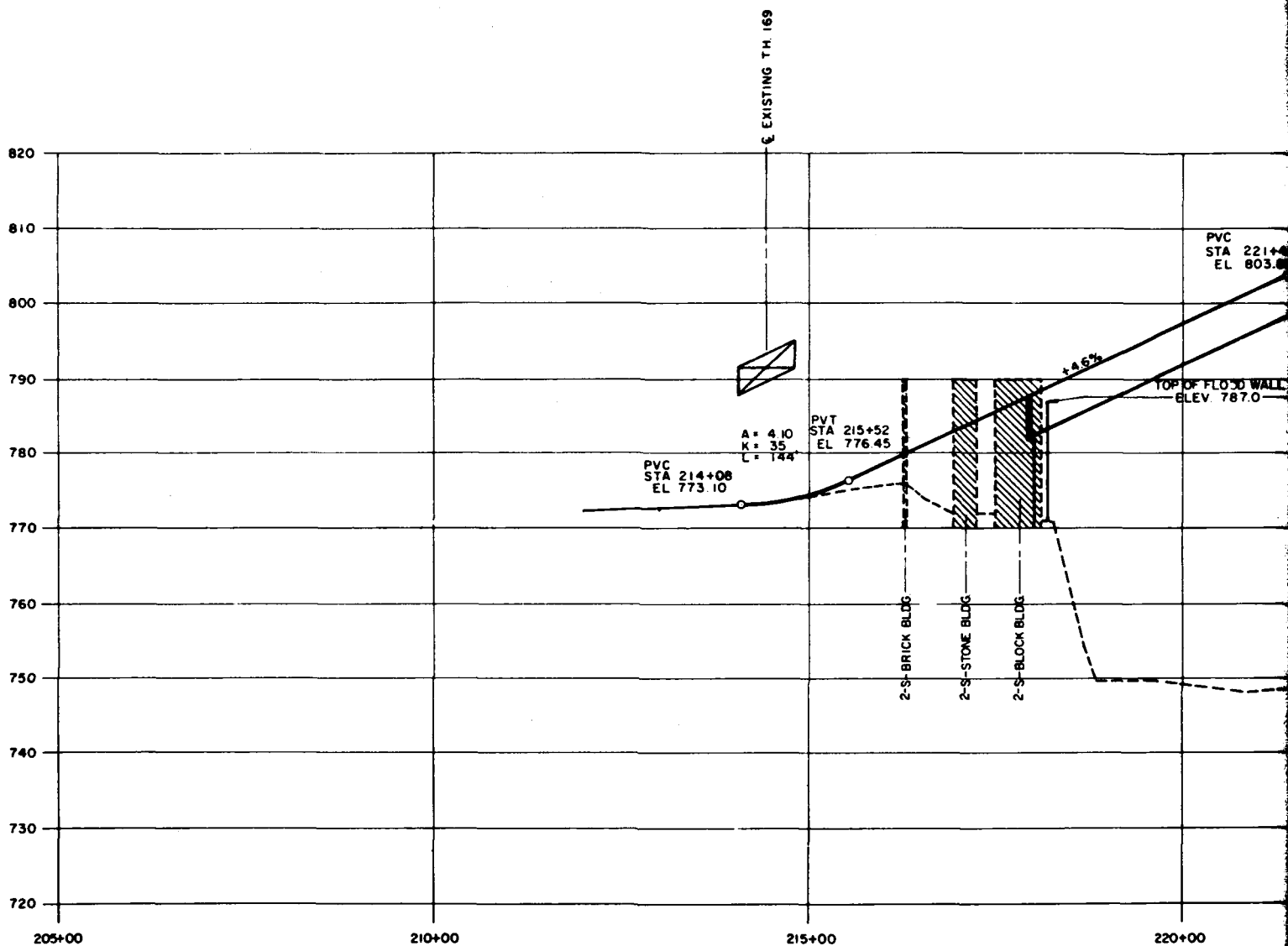
Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KELLEY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SUBMITTED BY: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
APPROVED: [Signature]	MAIN STREET		
	BELGRADE-MULBERRY ALT 10A		
		DATE	
		NOVEMBER 1980	
		SPEC. NO.	
		DRAWING NUMBER	
PLATE A-14			

0 50 100 200 300 400

CONTOUR INTERVAL: 2 FEET

12



BELGRADE-MULBERRY

LEGEND

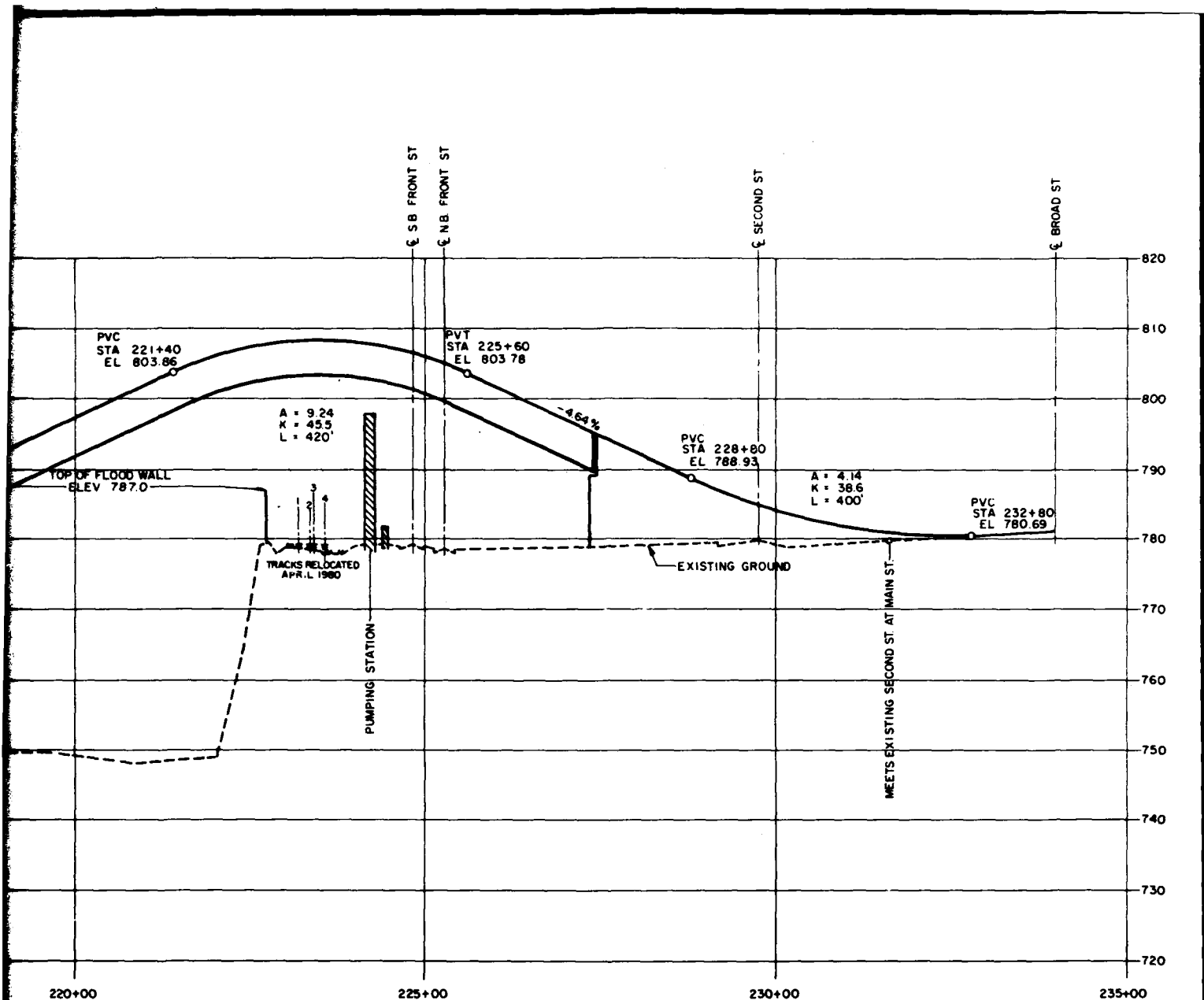
	PRIMARY ROAD		TREE
	SECONDARY ROAD		WOODED AREA
	TIE		PHOTO CENTER
	GRAVEL		HORIZONTAL CONTROL POINT
	RAILROAD		BENCH MARK
	FENCE		FIELD SURVEY ELEVATION
	BULKHEAD		OFFSET ELEVATION
	GULL		SECTION CORNER
	TRANSMISSION POLE		APPROXIMATE LOCATION
	DRAINAGE		
	CONDUIT		
	LINE ON POND		
	SHRUB		
	APPROXIMATE CONTOUR		

NOTE

MINNESOTA STATE GRID, SOUTH ZONE.
SHOWN AT 500 FOOT INTERVALS.
VERTICAL DATUM IS MEAN SEA LEVEL.



CONTOUR



E-MULBERRY CONNECTION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

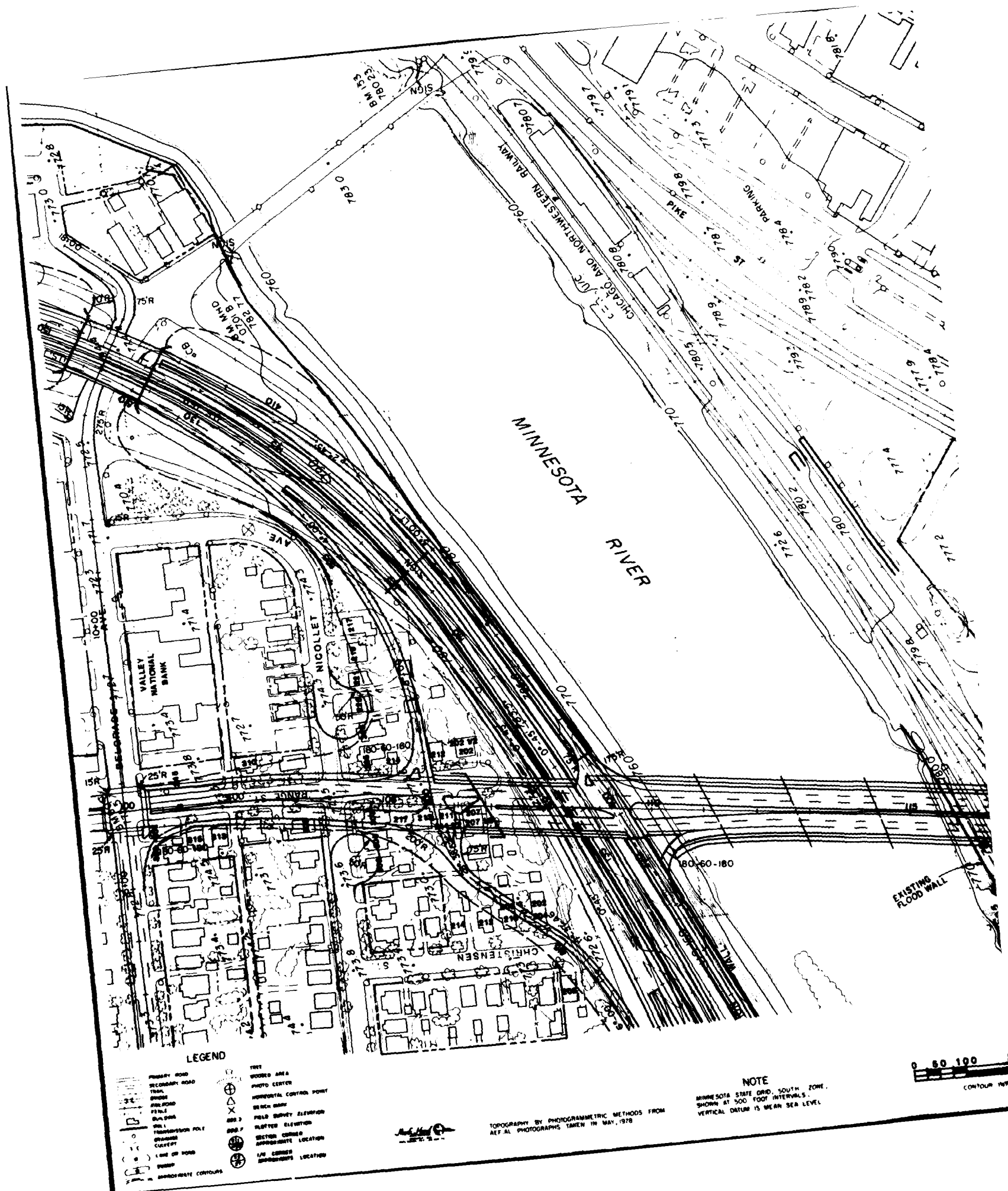
CONTOUR INTERVAL 2 FEET.

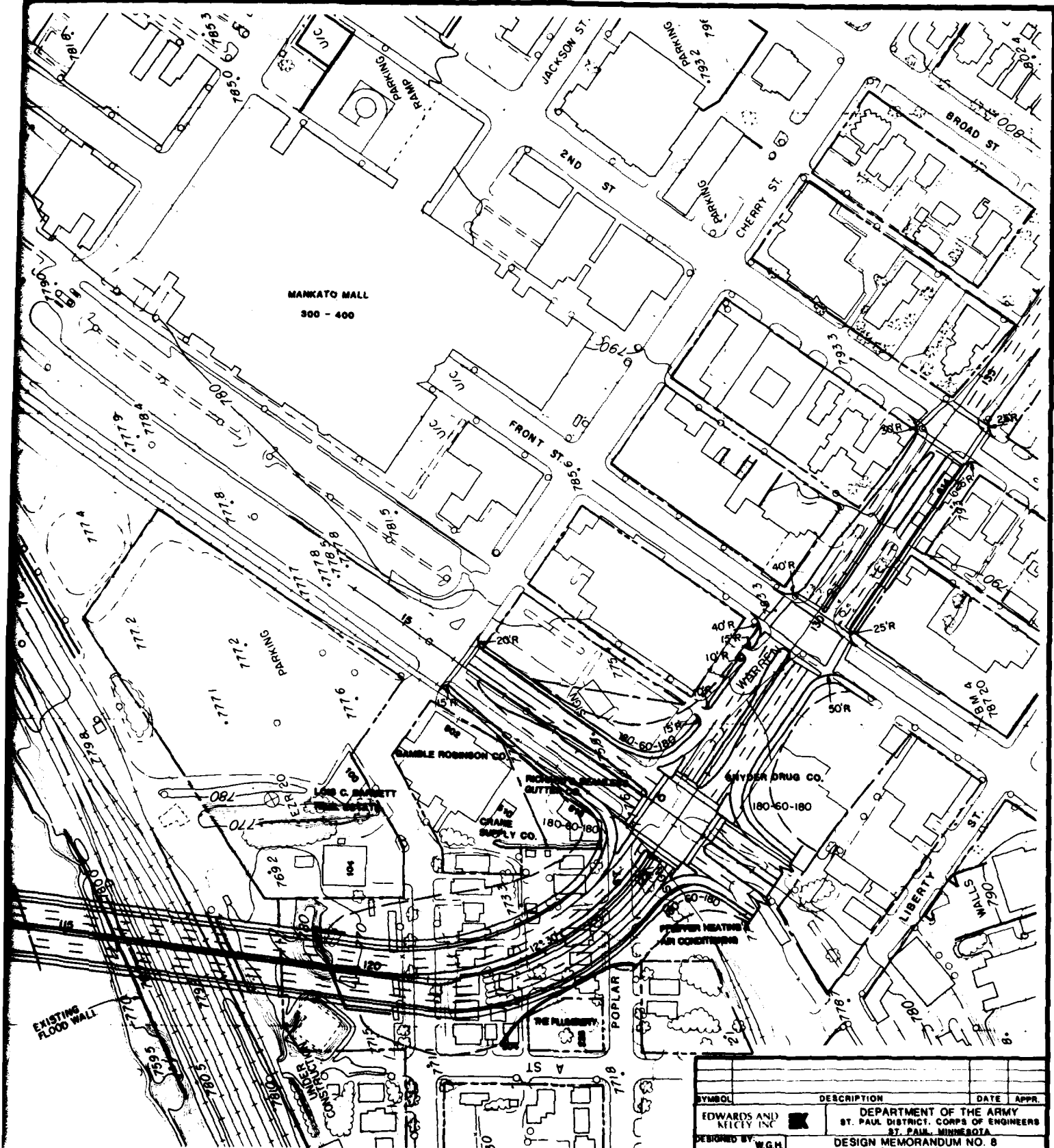
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELLEY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED BY: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
	MAIN STREET		
	BELGRADE-MULBERRY ALT 10A		
	DATE		
	NOVEMBER 1980		
	SPEC. NO.		
	DRAWING NUMBER		
PLATE A-15			

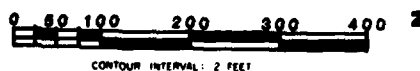




I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

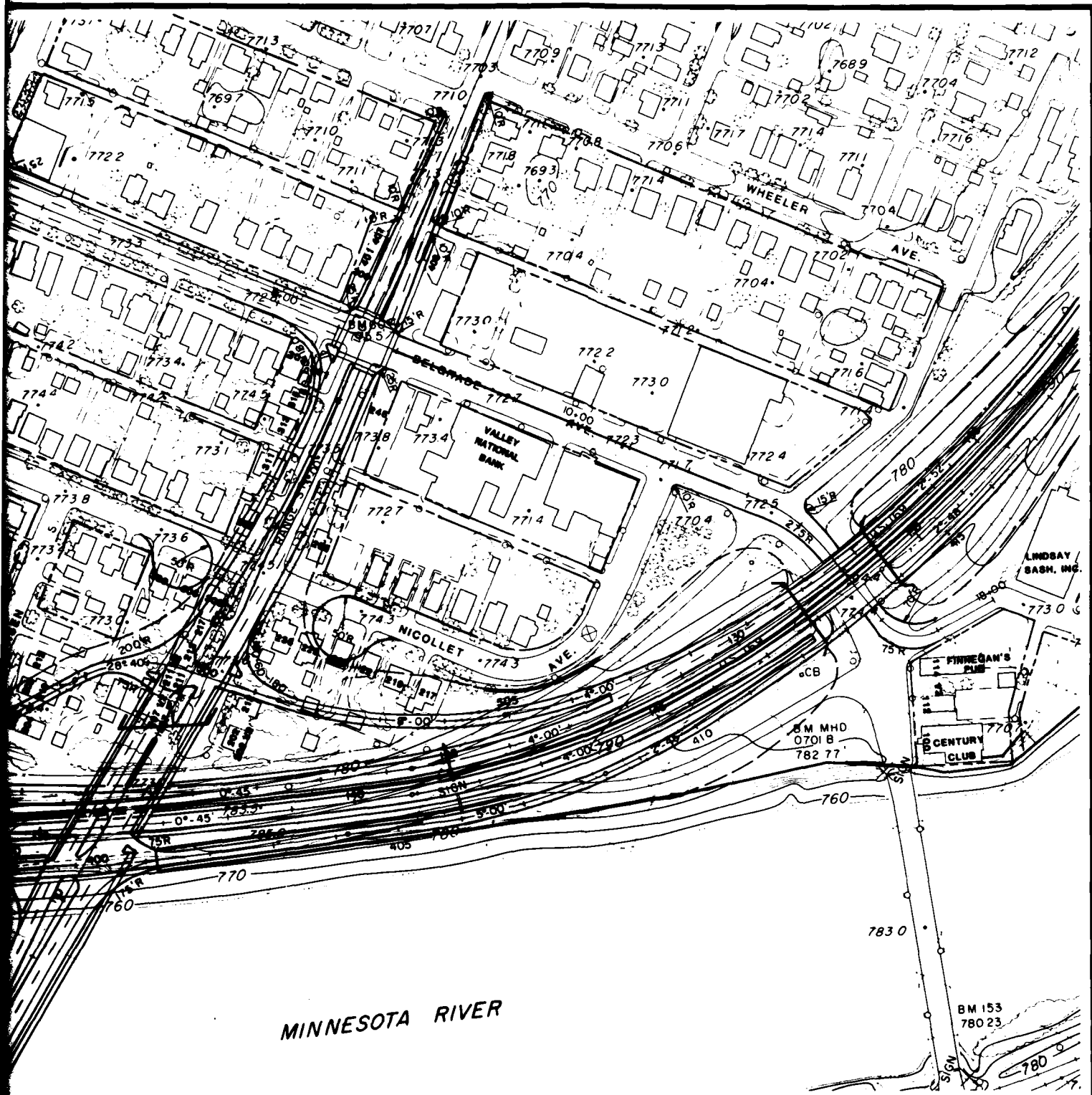
Date _____ Reg. No. _____



SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCY INC	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SUBMITTED BY: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
CHIEF DESIGNER: [Signature]	MAIN STREET		
APPROVED: [Signature]	RANGE - WARREN ALT. 2A		
CHIEF ENGINEER: [Signature]	DATE		
	NOVEMBER 1980		

PLATE A-16

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER



MINNESOTA RIVER

0 50 100 200 300 400

CONTOUR INTERVAL: 2 FEET

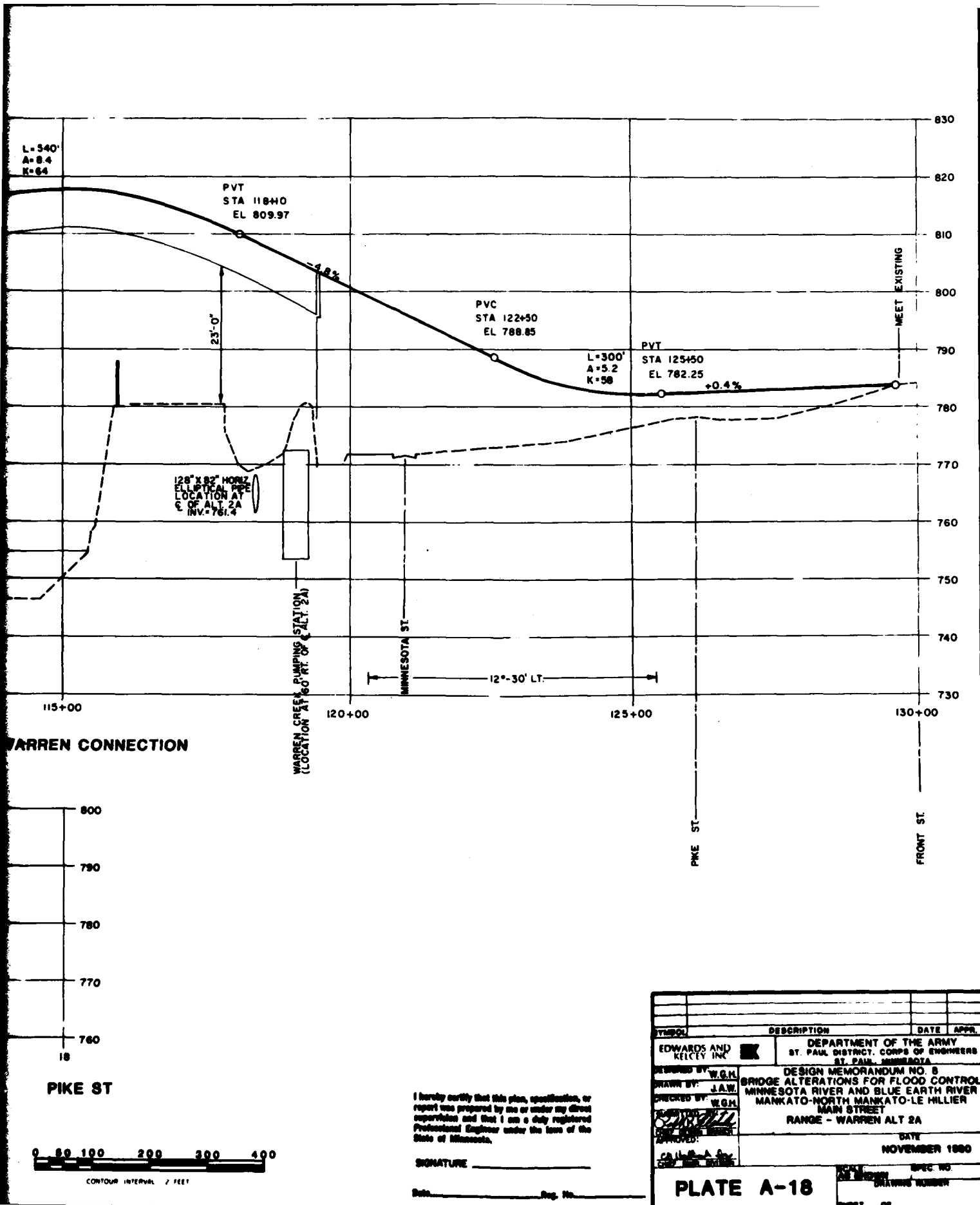
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE

Date _____ Reg. No. _____

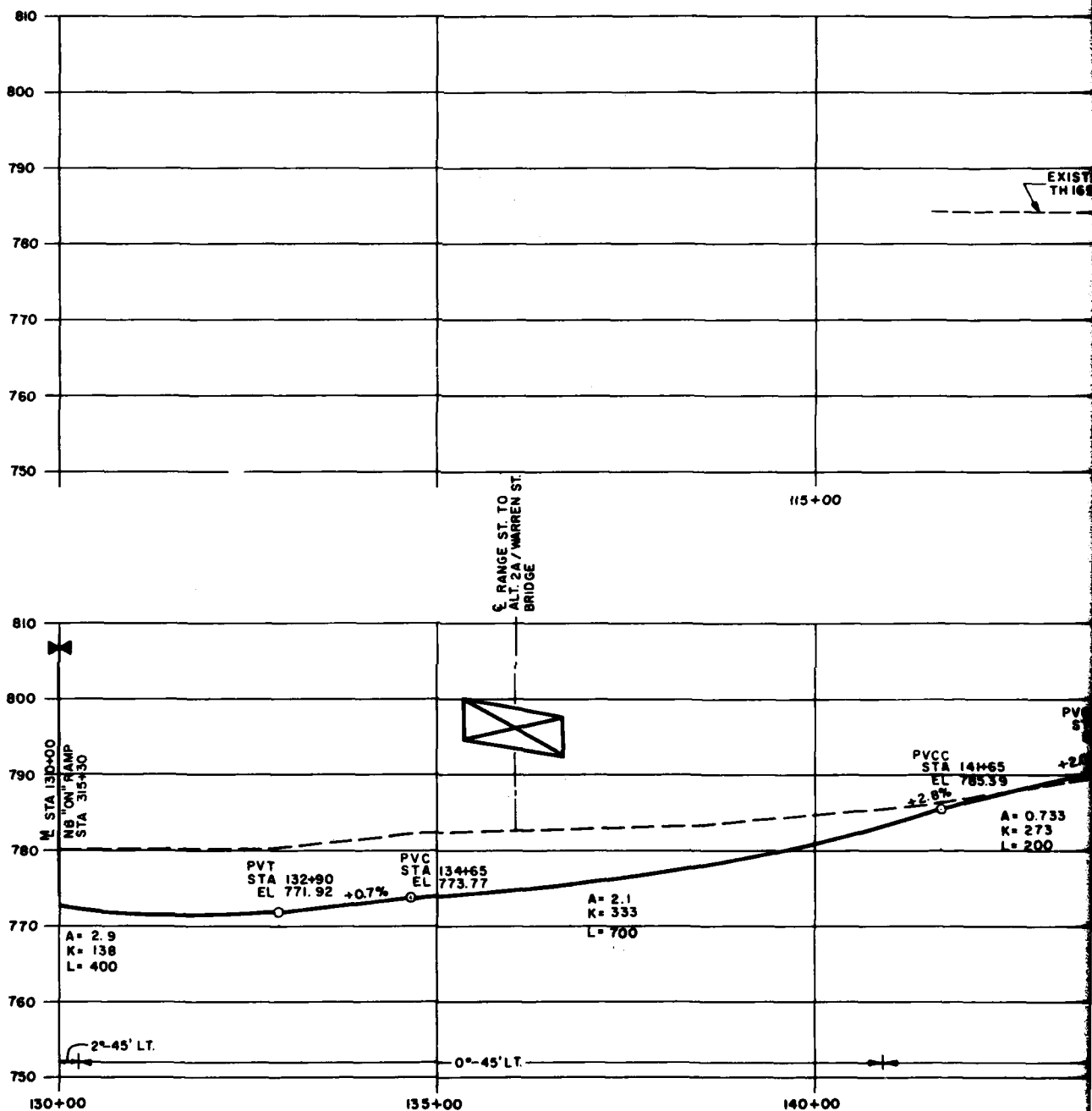
SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SUBMITTED BY: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
APPROVED: [Signature]	MAIN STREET		
	RANGE - WARREN ALT. 2A		
	DATE		
	NOVEMBER 1980		
	SCALE		
	AS SHOWN		
	SPEC. NO.		
	DRAWING NUMBER		
	PAGE 1 OF 1		

PLATE A-17



SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELCEY, INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H. DRAWN BY: J.A.W. CHECKED BY: W.G.H. APPROVED: [Signature] CALLED: A.A.C. CON. FOR: [Signature]	DESIGN MEMORANDUM NO. 8 BRIDGE ALTERATIONS FOR FLOOD CONTROL MINNESOTA RIVER AND BLUE EARTH RIVER MANKATO-NORTH MANKATO-LE HILLIER MAIN STREET RANGE - WARREN ALT 2A	DATE NOVEMBER 1980	SPEC NO. DRAWING NUMBER

PLATE A-18



T.H. 169 NB

LEGEND

- | | |
|--|--|
| <p>PRIMARY ROAD</p> <p>SECONDARY ROAD</p> <p>TRAIL</p> <p>BRIDGE</p> <p>RAILROAD</p> <p>FENCE</p> <p>BUILDING</p> <p>WELL</p> <p>TRANSITION POLE</p> <p>SPURWAY</p> <p>CLVERT</p> <p>LAKE OR POND</p> <p>SHARP</p> <p>APPROXIMATE LOCATION</p> | <p>TREE</p> <p>WOODED AREA</p> <p>PHOTO CENTER</p> <p>HORIZONTAL CONTROL POINT</p> <p>BENCH MARK</p> <p>GPS 1</p> <p>GPS 2</p> <p>SECTION CORNER</p> <p>APPROXIMATE LOCATION</p> <p>1/4 CORNER</p> <p>APPROXIMATE LOCATION</p> |
|--|--|

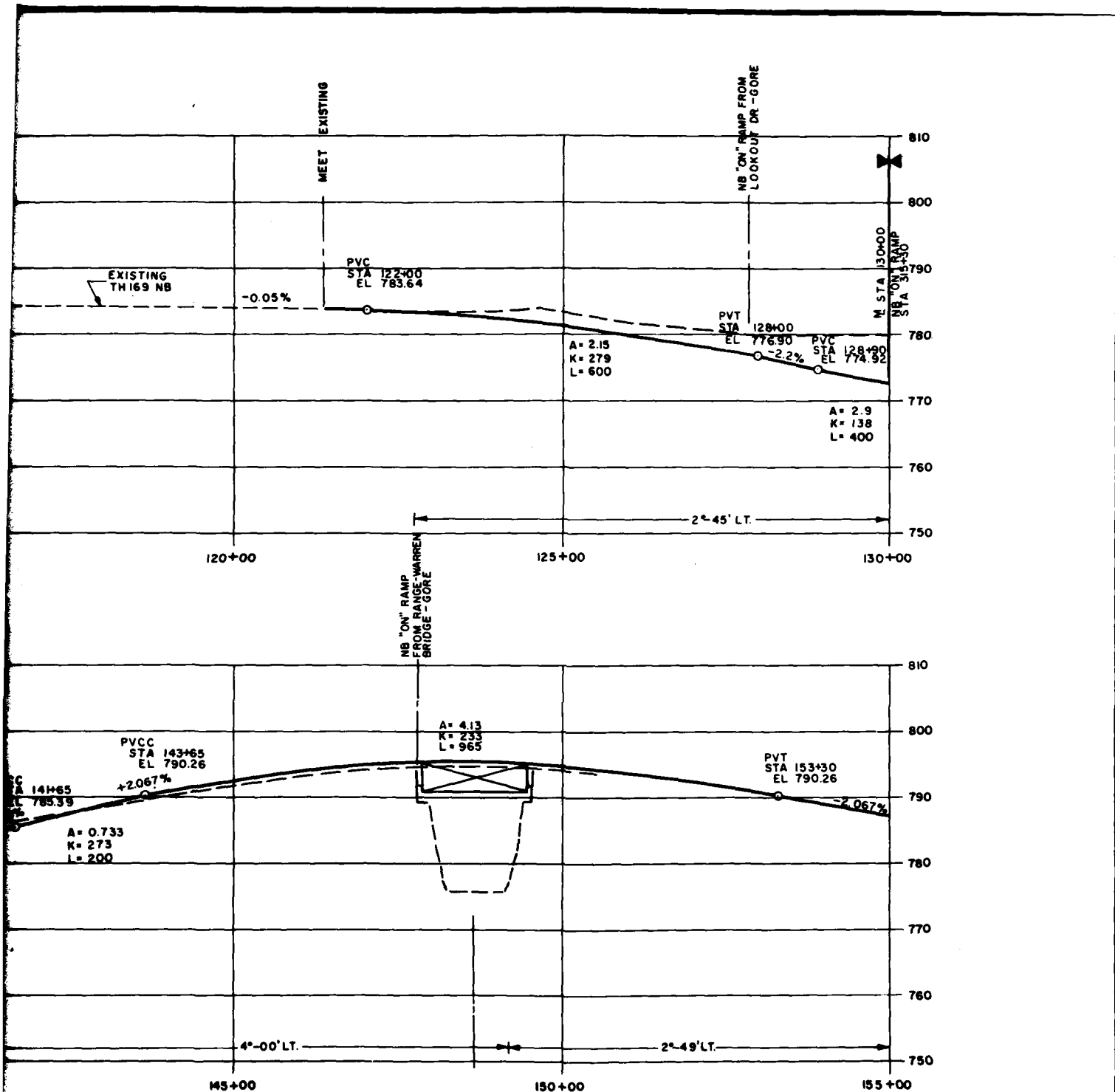
NOTE

MINNESOTA STATE GRID, SOUTH ZONE.
SHOWN AT 500 FOOT INTERVALS.
VERTICAL DATUM IS MEAN SEA LEVEL.

0 50 100

FOOT

TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

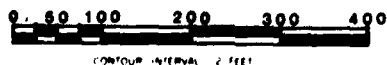


T.H. 169 NB

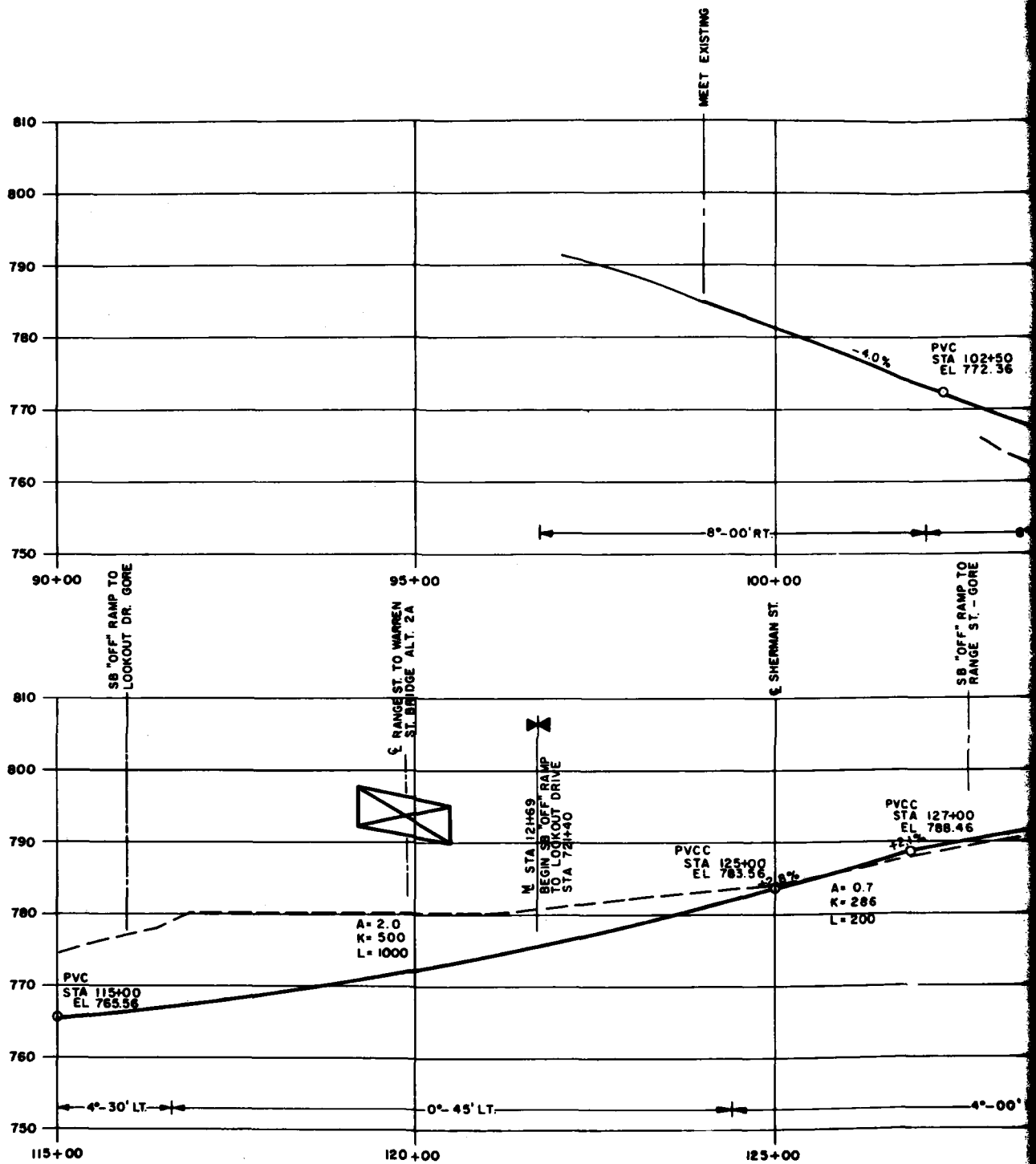
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

Date _____ Reg. No. _____



SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KILBY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SUBMITTED BY: J.A.W.	MANKATO-NORTH MANKATO LE HILLER		
FOR REVIEW: J.A.W.	MAIN STREET		
APPROVED: J.A.W.	TH 169	DATE	
FOR FILE: J.A.W.	ALTERNATIVE 2A	NOVEMBER 1960	
PLATE A-19		SPEC NO.	
		DRAWING NUMBER	



LEGEND

	PRIMARY ROAD		TREE
	SECONDARY ROAD		WOODED AREA
	TRAIL		PHOTO CENTER
	BRIDGES		HORIZONTAL CONTROL POINT
	RAIL ROAD		BENCH MARK
	FENCE		FIELD SURVEY ELEVATION
	DRAINAGE		PLOTTED ELEVATION
	TRANSMISSION POLE		SECTION CORNER
	CULVERT		APPROXIMATE LOCATION
	Lake or Pond		APPROXIMATE LOCATION
	SWAMP		
	APPROXIMATE LOCATION		

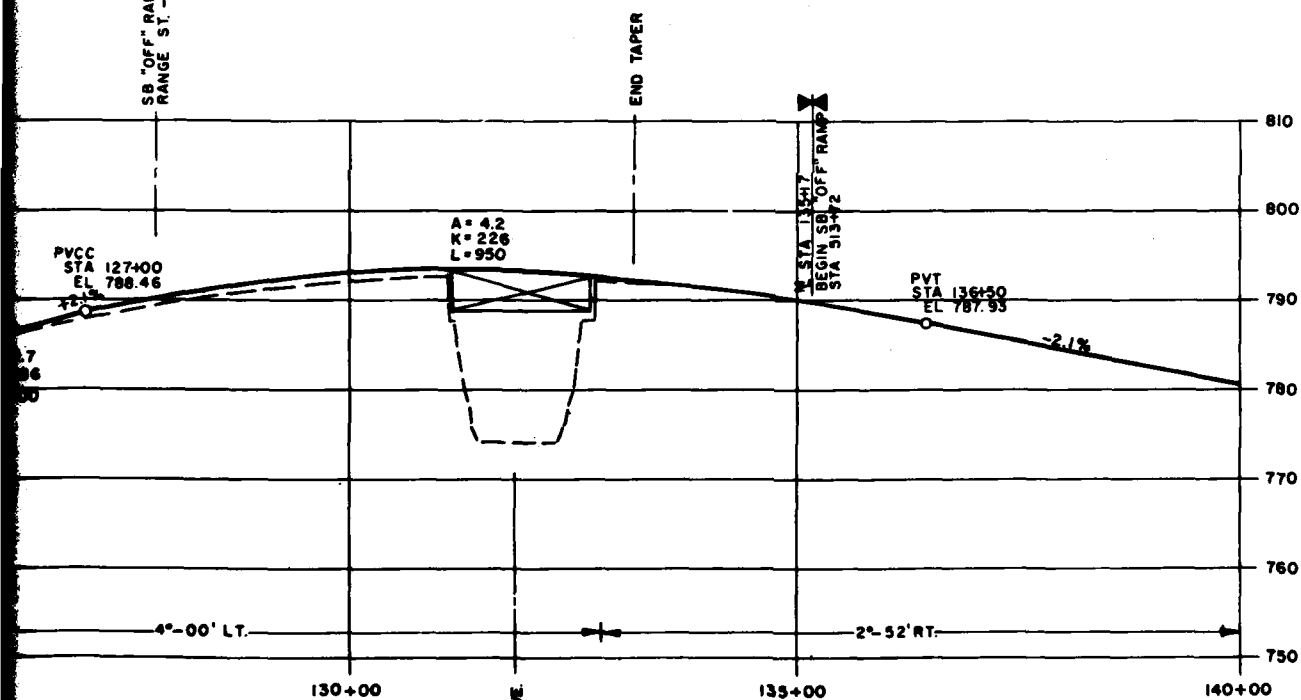
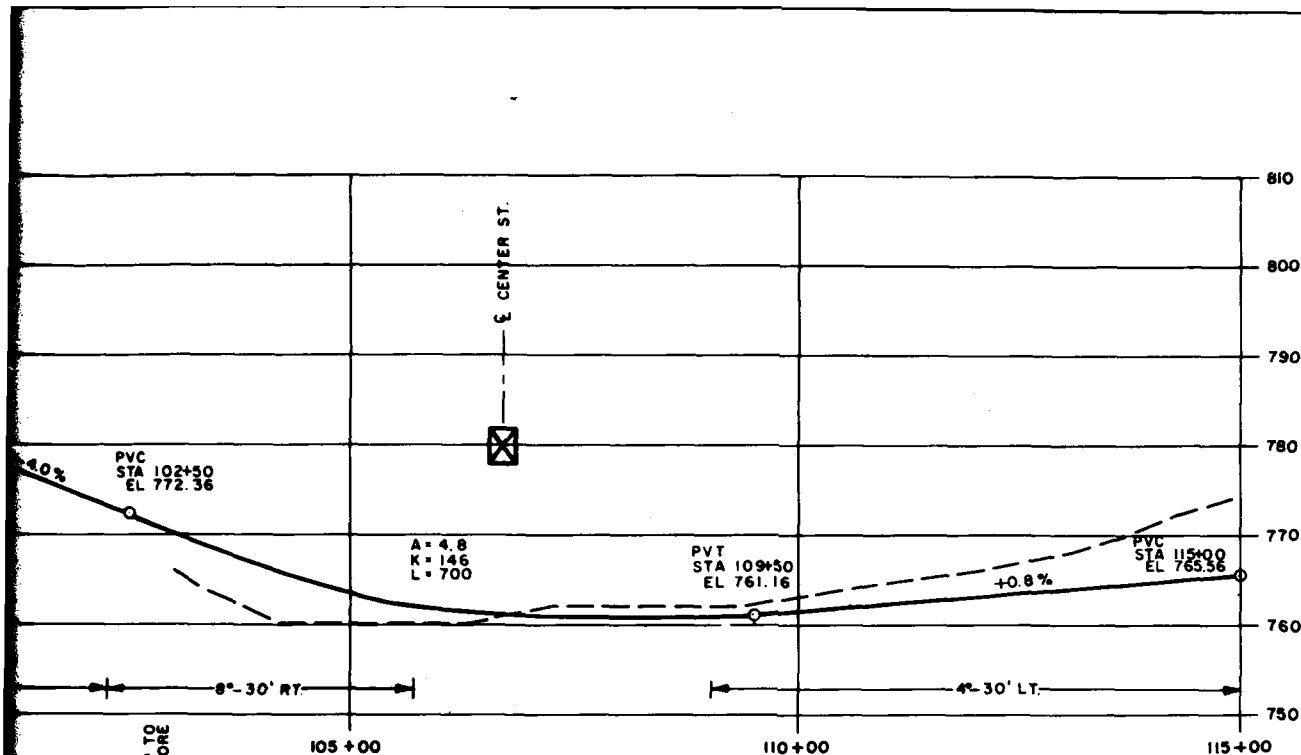


TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

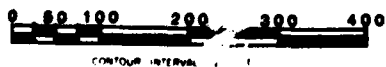
NOTE

MINNESOTA STATE GRID, SOUTH ZONE.
SHOWN AT 500 FOOT INTERVALS
VERTICAL DATUM IS MEAN SEA LEVEL





T.H. 169 S.B.



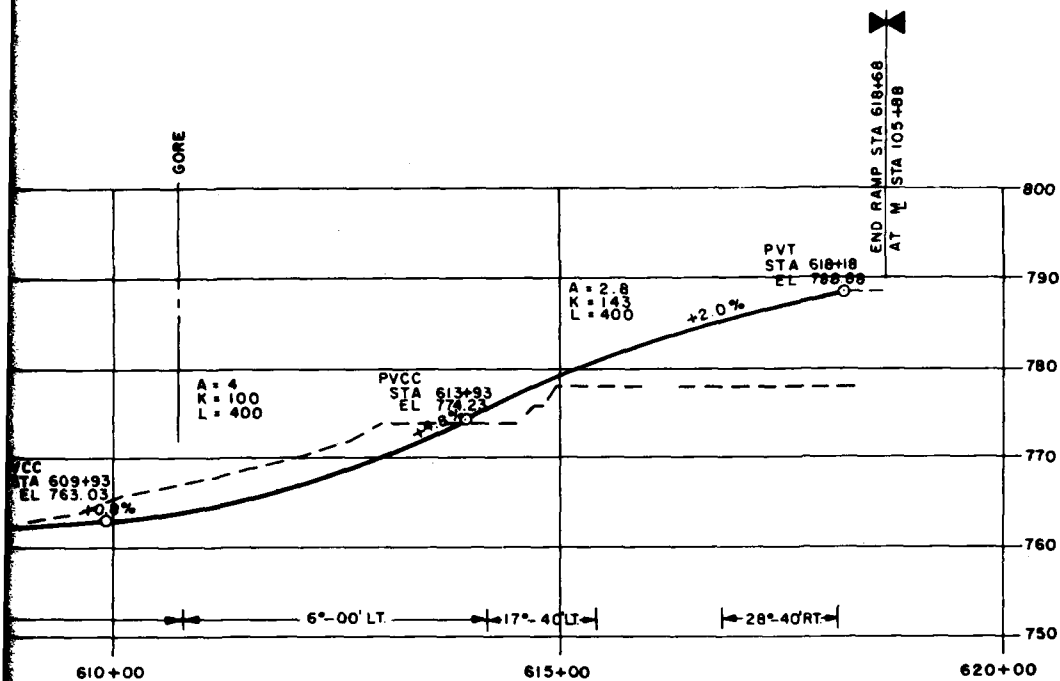
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

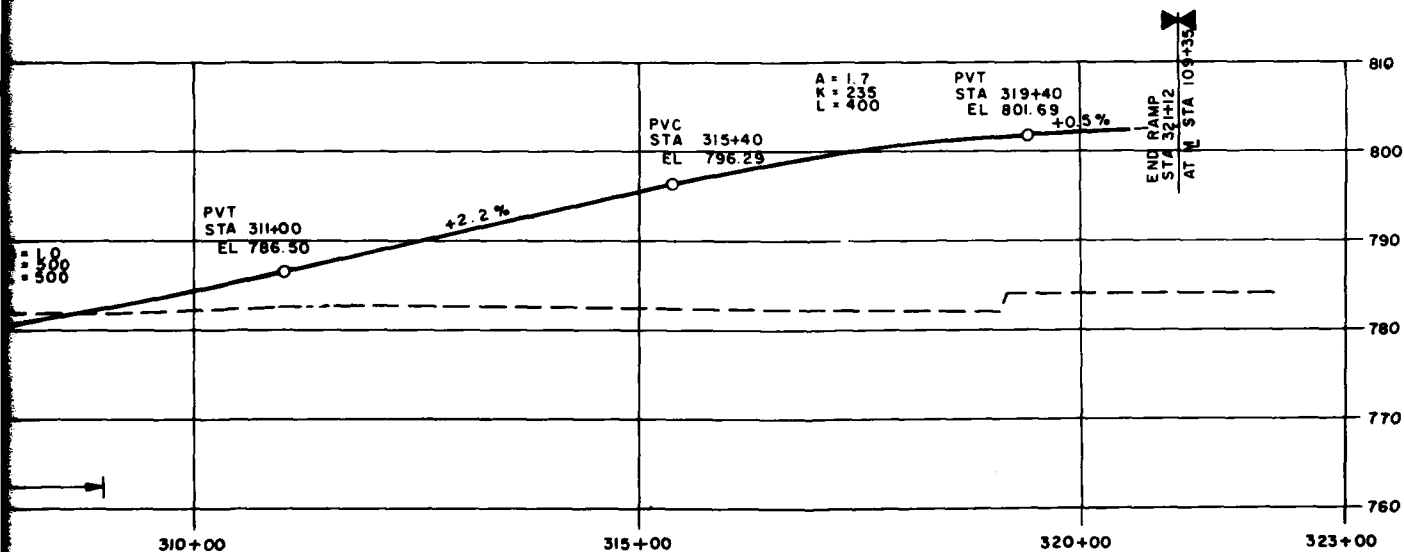
Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KUTY INC	DEPARTMENT OF THE ARMY ST PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED: [Signature]	MANKATO-NORTH MANKATO LE HILLIER		
	MAIN STREET		
	TH 169		
	ALTERNATIVE 2A		
	DATE		
	NOVEMBER 1980		
	SPEC NO		
	DRAWING NUMBER		
PLATE A-20			





LOOKOUT DR. SB ON RAMP



O RANGE ST. NB OFF RAMP

0 50 100 200 300 400
CONTOUR INTERVAL 10 FEET

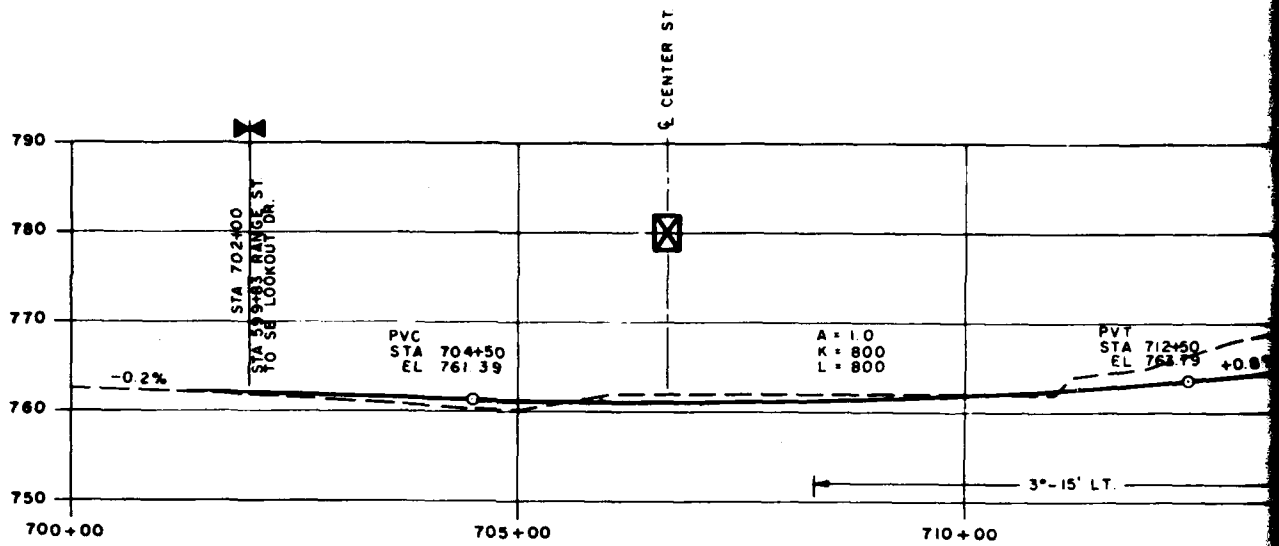
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

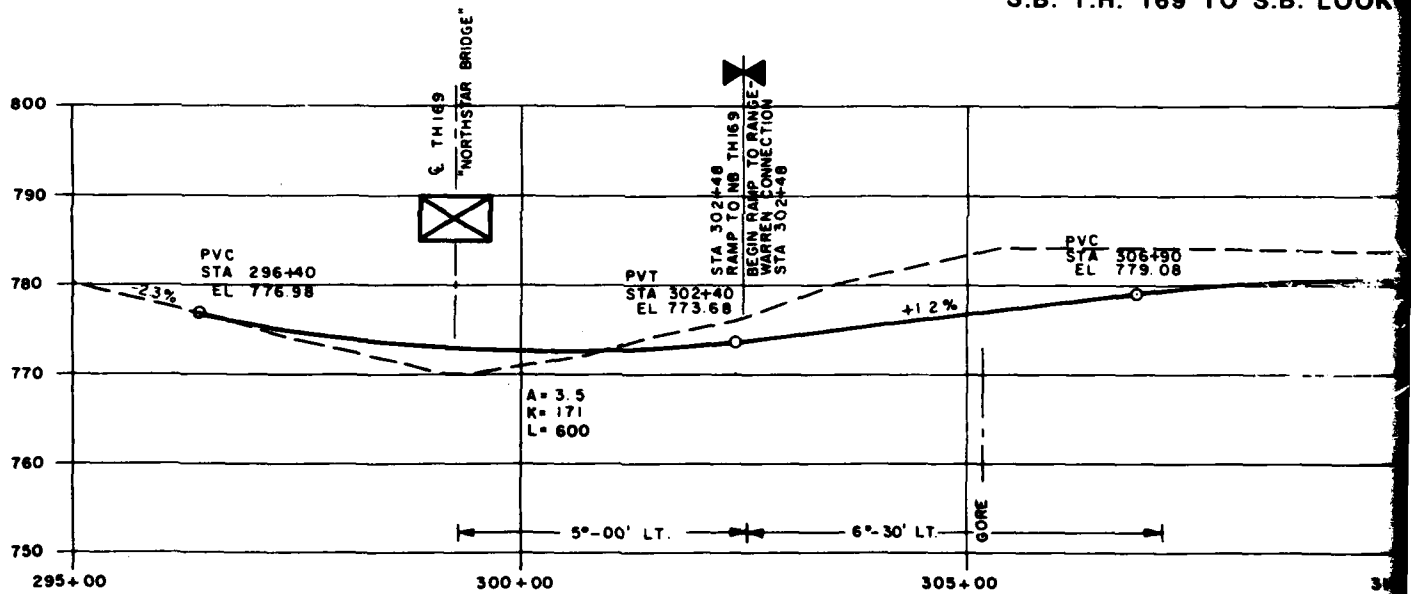
Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KELLY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
CHIEF ENGINEER	MAIN STREET		
	ALTERNATIVE 2A		
	DATE		
	NOVEMBER 1980		
	SCALE		
	AS SHOWN		
	DRAWING NUMBER		
	PAGE 1 OF 1		

PLATE A-21



S.B. T.H. 169 TO S.B. LOOKOUT DR.



N.B. LOOKOUT DR. TO NB T.H. 169

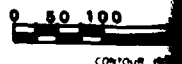
LEGEND

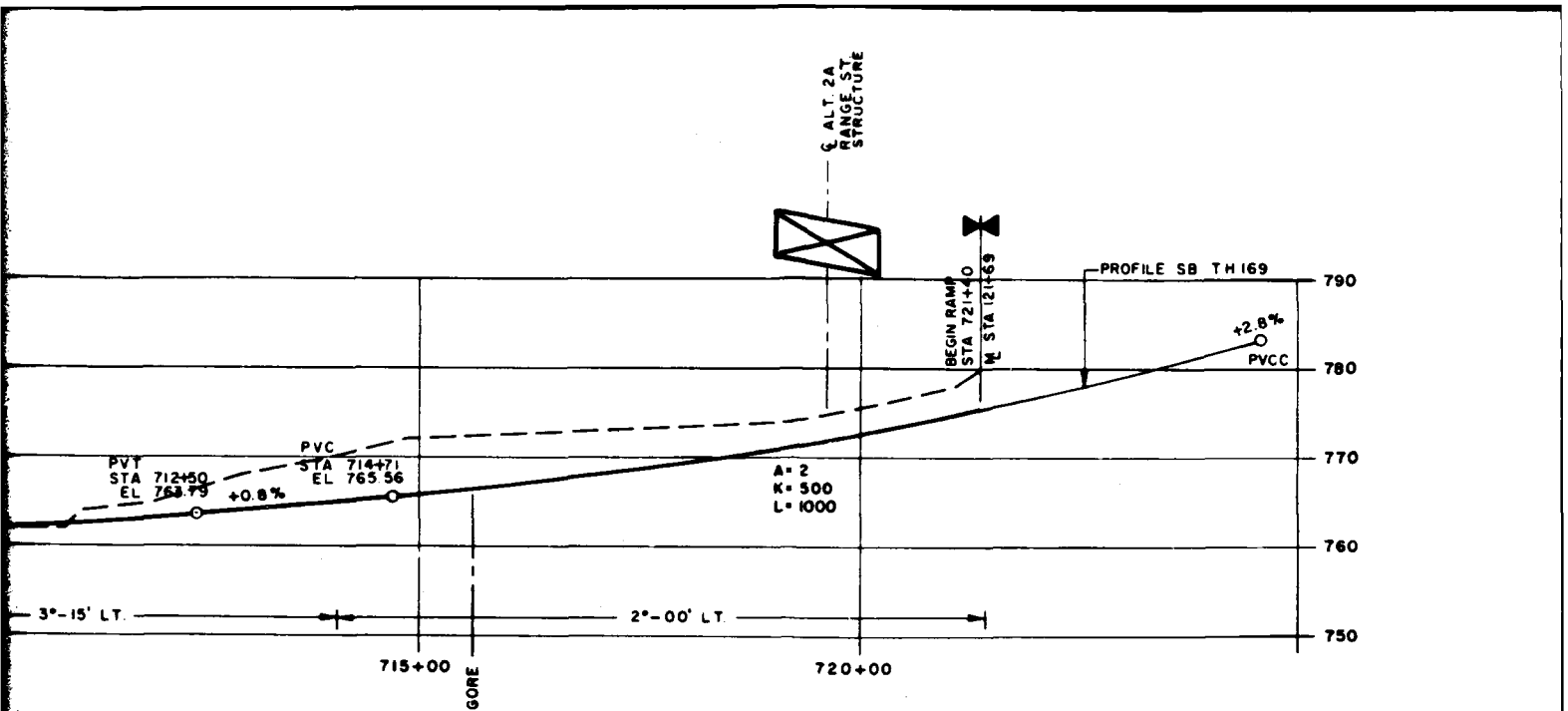
- | | |
|---|---|
| ARTERIAL ROAD
SECONDARY ROAD
T&E
BRIDGE
RAIL ROAD
FENCE
BUILDING
WALL
TRANSMISSION POLE
CULVERT
LINE OF POLE
SWAMP
APPROXIMATE CONTOURS | TREE
WOODED AREA
PHOTO CENTER
HORIZONTAL CONTROL POINT
BENCH MARK
FIELD SURVEY ELEVATION
PLOTTED ELEVATION
SECTION CORNER
APPROXIMATE LOCATION
IN CORNER
APPROXIMATE LOCATION |
|---|---|

TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

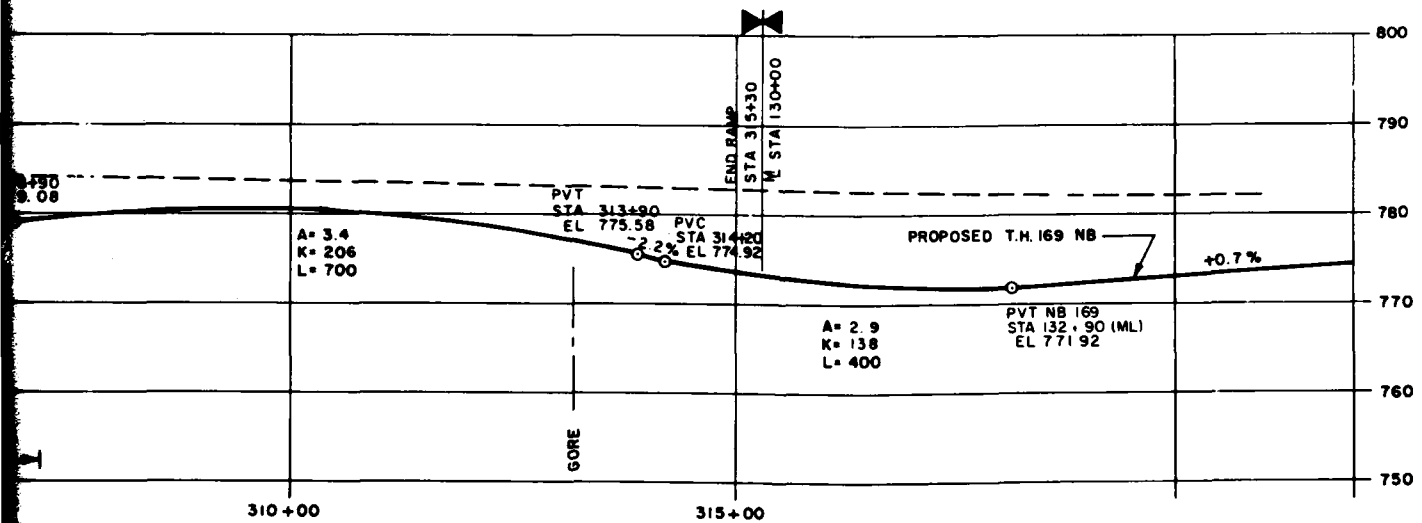
NOTE

MINNESOTA STATE GRID, SOUTH ZONE.
SHOWN AT 500 FOOT INTERVALS.
VERTICAL DATUM IS MEAN SEA LEVEL

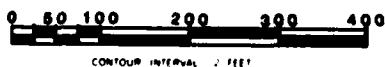




169 TO S.B. LOOKOUT DR.



OUT DR. TO NB T.H. 169

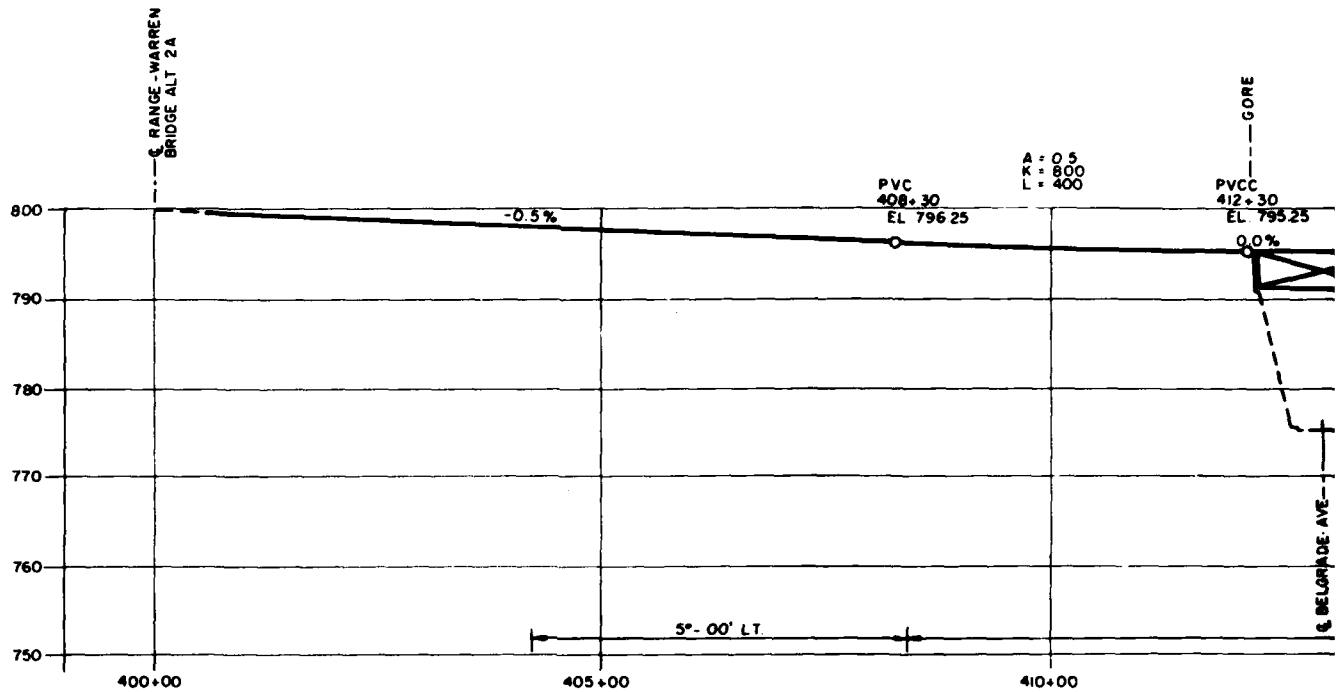


I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

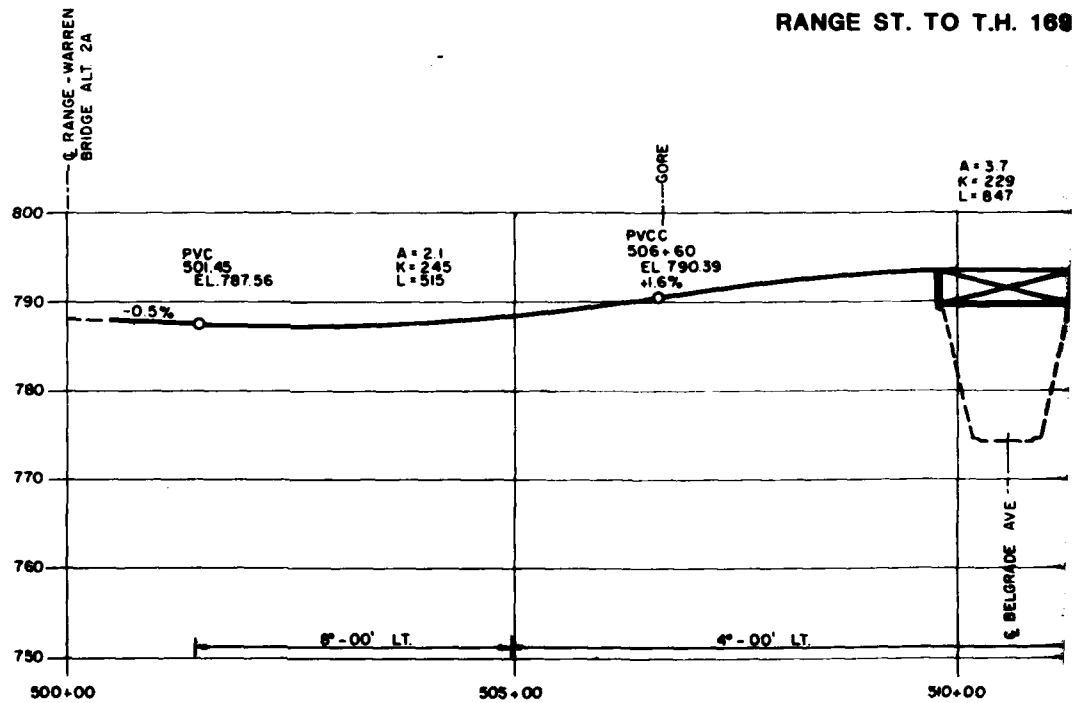
SIGNATURE _____

Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR.
EDWARDS AND KELLY INC.	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED: CHAS. A. E.	MANKATO-NORTH MAIN STREET		
DATE: NOVEMBER 1960	TH 169		
SCALE: AS SHOWN	ALTERNATIVE 2A		
PLATE A-22		SPEC NO.	
		DRAWING NUMBER	
		SHEET OF	



RANGE ST. TO T.H. 169



SB T.H. 169 TO RANGE ST.

LEGEND

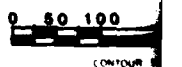
- | | |
|----------------------|--------------------------|
| PRIMARY ROAD | TREE |
| SECONDARY ROAD | WOODED AREA |
| TRAIL | PHOTO CENTER |
| BRIDGE | HORIZONTAL CONTROL POINT |
| RAILROAD | SECTION CORNER |
| FENCE | APPROXIMATE LOCATION |
| BUILDING | 1/4 CORNER |
| WELL | APPROXIMATE LOCATION |
| TRANSMISSION POLE | |
| DRAINAGE CULVERT | |
| LAKE OR POND | |
| SWAMP | |
| APPROXIMATE CONTOURS | |

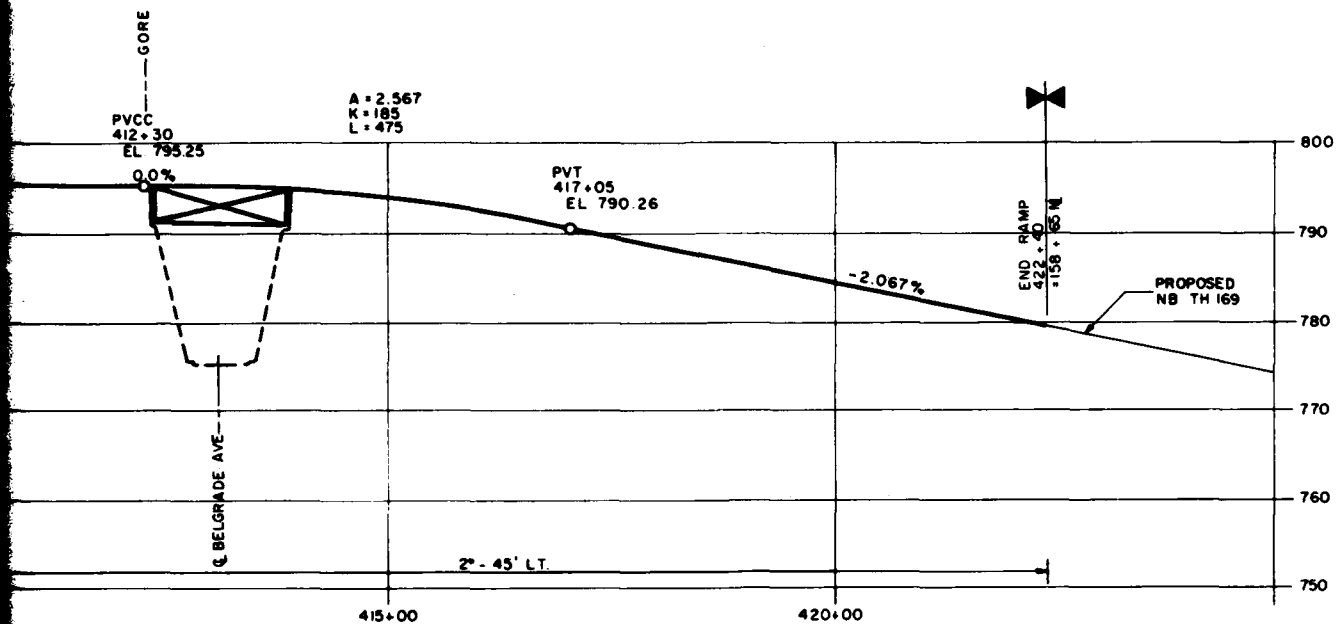


TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

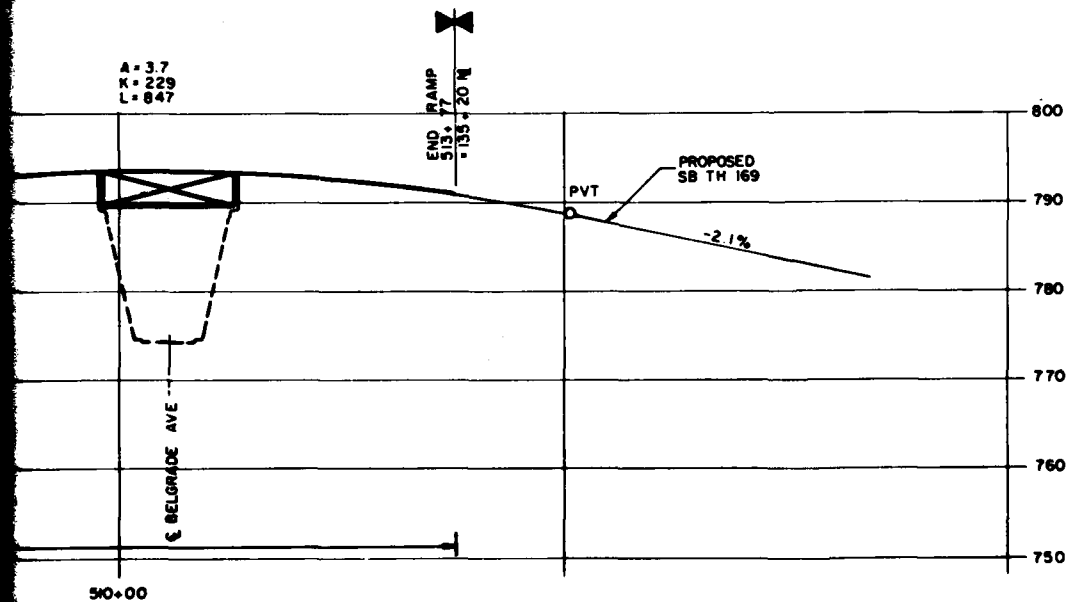
NOTE

MINNESOTA STATE GRID, SOUTH ZONE. SHOWN AT 500 FOOT INTERVALS. VERTICAL DATUM IS MEAN SEA LEVEL.





ST. TO T.H. 169 NB ON RAMP



TO RANGE ST. OFF RAMP

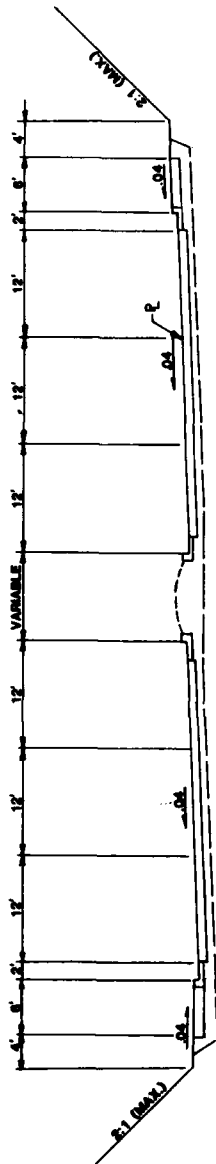


I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

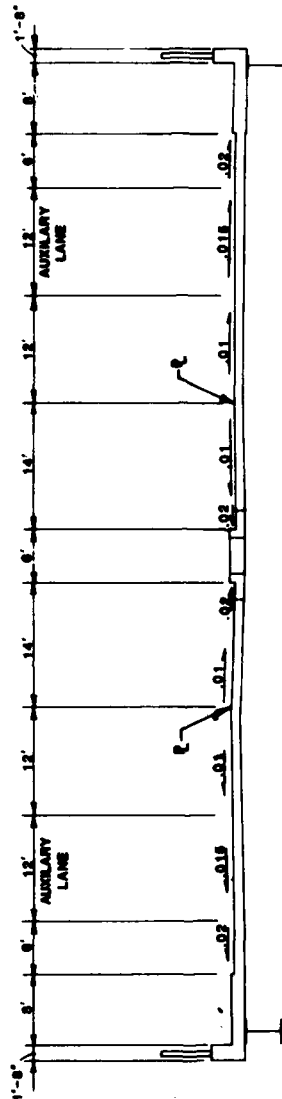
SIGNATURE _____

Date _____ Reg. No. _____

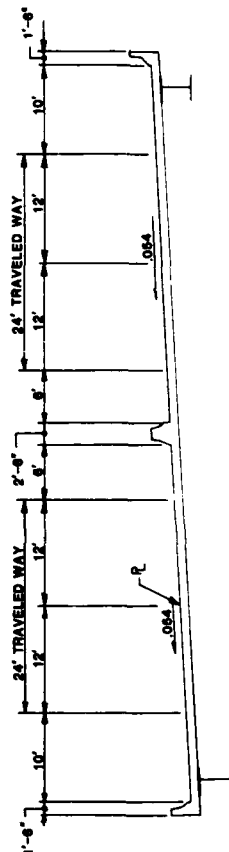
SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KELCY INC	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT, CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.M.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
	ALTERNATIVE 2A		
	DATE		
	NOVEMBER 1980		
	SPEC NO		
	DRAWING NUMBER		
PLATE A-23			



BELGRADE AVE. UNDER T.H. 169 ALTERNATIVE 1AA STA. 214+50



BELGRADE - MULBERRY CONNECTION ALTERNATIVE 1AA STA. 220+00



T.H. 169 OVER BELGRADE AVE

LEGEND

PRIMARY ROAD	FREE
SECONDARY ROAD	WOODED AREA
TRAIL	PHOTO CENTER
BRIDGE	HORIZONTAL CONTROL POINT
RAILROAD	BEACH MARK
FENCE	FIELD SURVEY ELEVATION
BUILDING	FLUTTER ELEVATION
GRILL	SECTION CORNER
TRANSITION POLE	APPROXIMATE LOCATION
OPENING	1/4 CORNER
CULVERT	APPROXIMATE LOCATION
LAKE OR POND	
SWAMP	
APPROXIMATE CONTOURS	



TOPOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

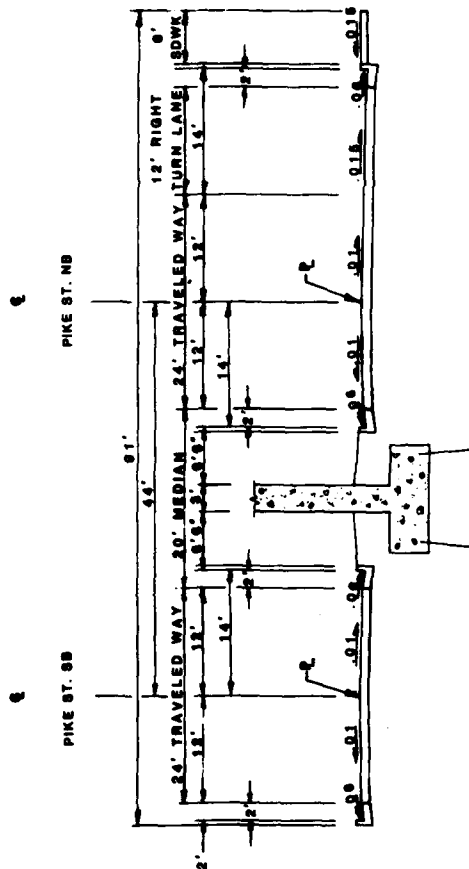
NOTE

MINNESOTA STATE GRID, SOUTH ZONE
SHOWN AT 500 FOOT INTERVALS
VERTICAL DATUM IS MEAN SEA LEVEL

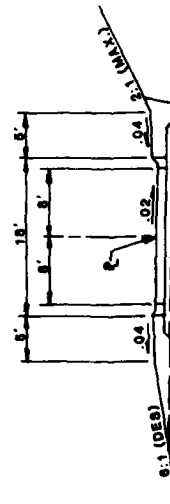
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CONTour

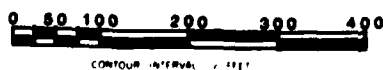
T.H. 169 OVER BELGRADE AVE.
ALTERNATIVE 1AA STA. 140+00



PIKE STREET UNDER MULBERRY ST.
ALTERNATIVE 1AA STA. 10+40



TYPICAL RAMP SECTION
ALTERNATIVE 1AA

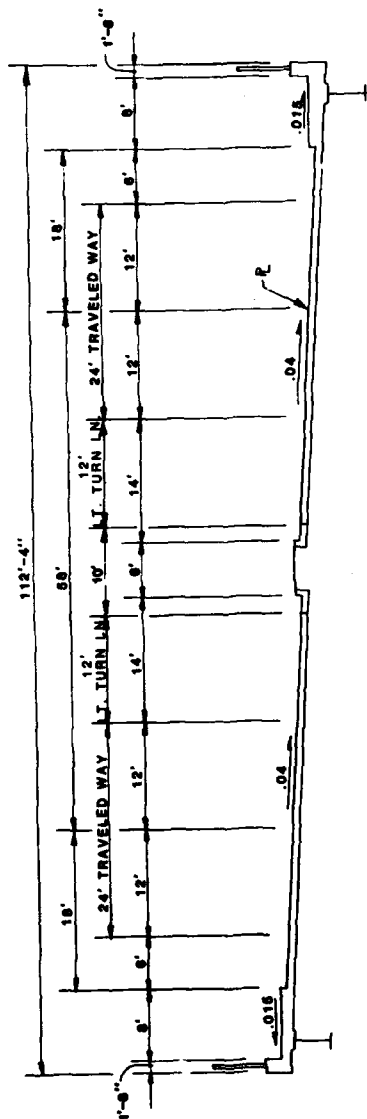


I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

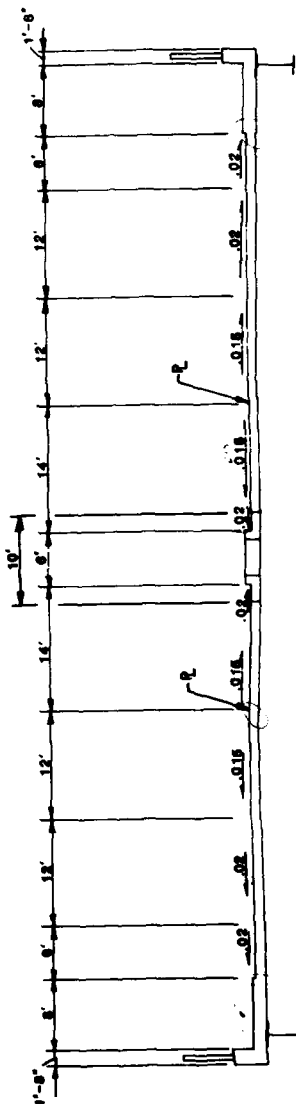
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Date _____ Reg. No. _____

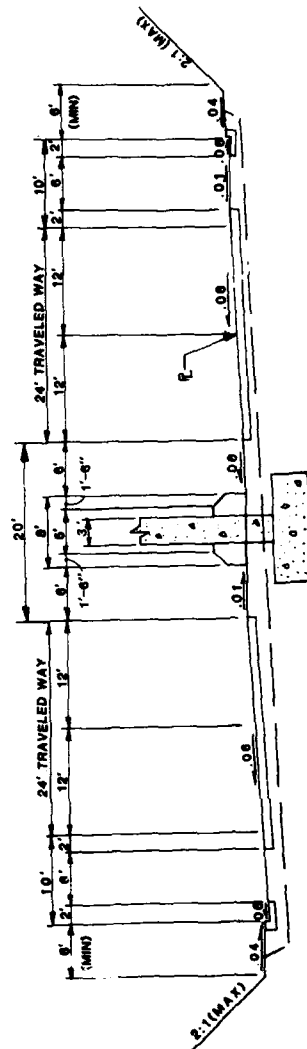
SYMBOL	DESCRIPTION	DATE	APPR
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DESIGNED BY: W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY: J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY: W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
APPROVED: [Signature]	MANKATO-NORTH MANKATO-LE HILLIER		
	MAIN STREET		
	BELGRADE - MULBERRY ALT. 1AA		
	DATE	NOVEMBER 1980	
	SPEC NO		
	DRAWING NUMBER		
PLATE A-24			



BELGRADE AVENUE OVER T.H. 169 ALTERNATIVE 1CA STA. 216 + 00



MAIN STREET RELOCATION ALTERNATIVE 1CA STA. 220+00



LEGEND

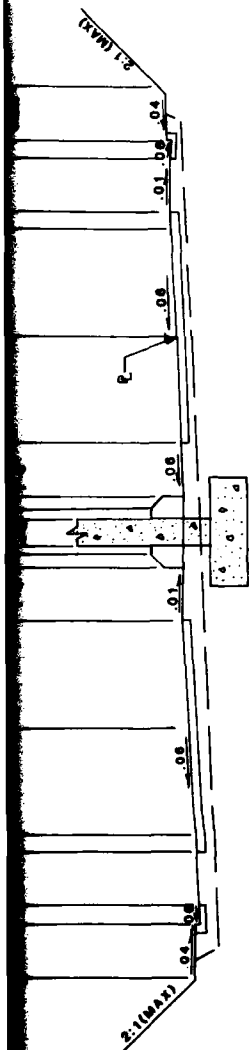
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SECONDARY ROAD	PROPOSED BRIDGE
RAILROAD	PHOTO CENTER
RAILROAD	HORIZONTAL CONTROL POINT
RAILROAD	FIELD DATA
RAILROAD	FIELD SURVEY ELEVATION
RAILROAD	ALIGNED ELEVATION
RAILROAD	SECTION SPREAD
RAILROAD	PROPOSED LOCATION
RAILROAD	PROPOSED LOCATION

PHOTOGRAPHY BY PHOTOGRAMMETRIC METHODS FROM
AERIAL PHOTOGRAPHS TAKEN IN MAY, 1978

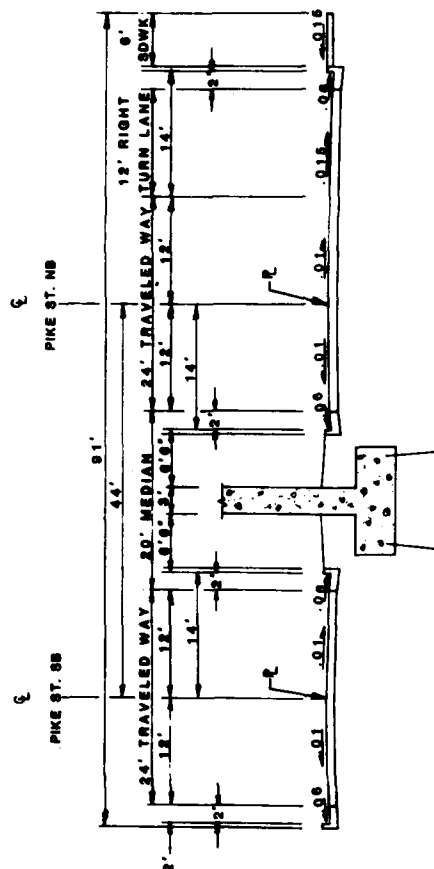
NOTE

MINNESOTA STATE GRID, SOUTH ZONE
SHOWN AT 40' FOOT INTERVALS
VERTICAL DATUM IS MEAN SEA LEVEL

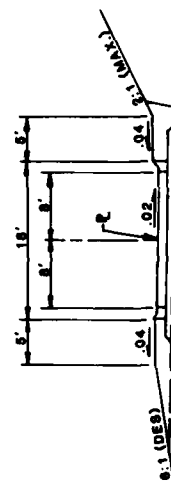
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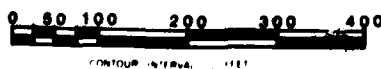
TH 169 UNDER BELGRADE AVENUE
ALTERNATIVE 1CA STA.134+50



PIKE STREET UNDER MULBERRY ST.
ALTERNATIVE 1CA STA. 10+40



TYPICAL RAMP SECTION
ALTERNATIVE 1CA

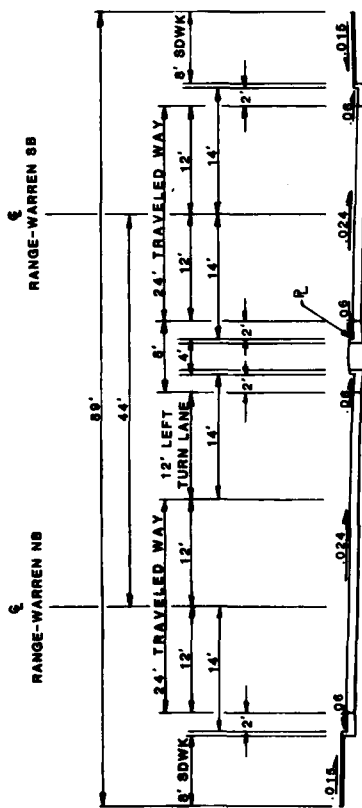


I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

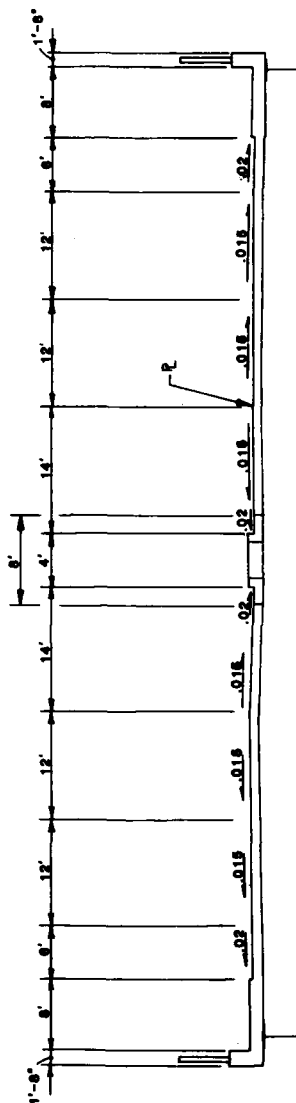
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Date _____ Reg. No. _____

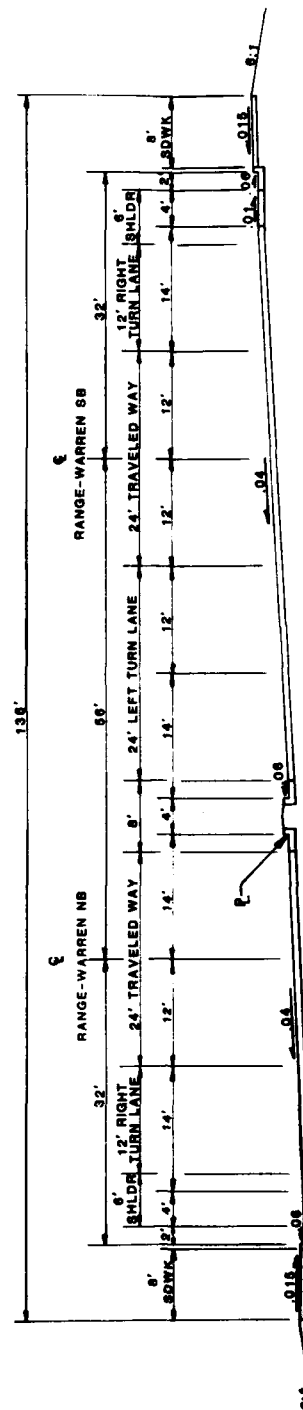
SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KELLY INC	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SUBMITTED	MANKATO NORTH MANKATO LE HILLIER		
APPROVED	MAIN STREET		
	BELGRADE - MULBERRY ALT. 1CA		
	DATE		
	NOVEMBER 1980		
	SCALE		
	AS SHOWN		
	DRAWING NUMBER		
	PLATE A-25		



RANGE-WARREN CONNECTION ALTERNATIVE 2A STA. 101+40



RANGE-WARREN CONNECTION ALTERNATIVE 2A STA. 107+50 & 115+00



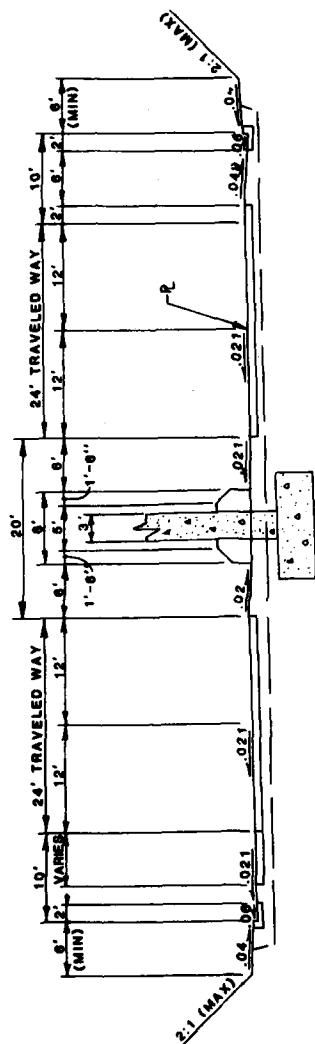
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BRIDGE	1199	BRIDGE
BRIDGE	1200	BRIDGE

NOTE

SHOWN TO STATE OF NEW YORK
STATION 107+50 & 115+00
VERTICAL DATUM IS MEAN SEA LEVEL

0 50 100



**WITH 169 UNDER RANGE-WARREN CONNECTION
ALTERNATIVE 2A STA. 136+00**

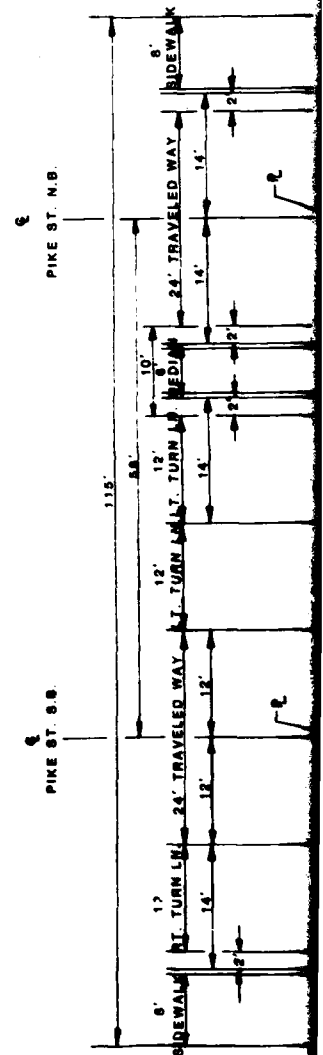
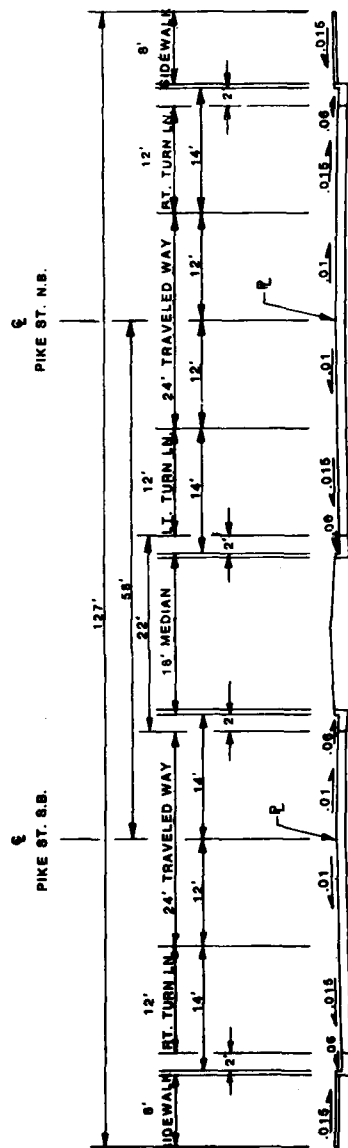
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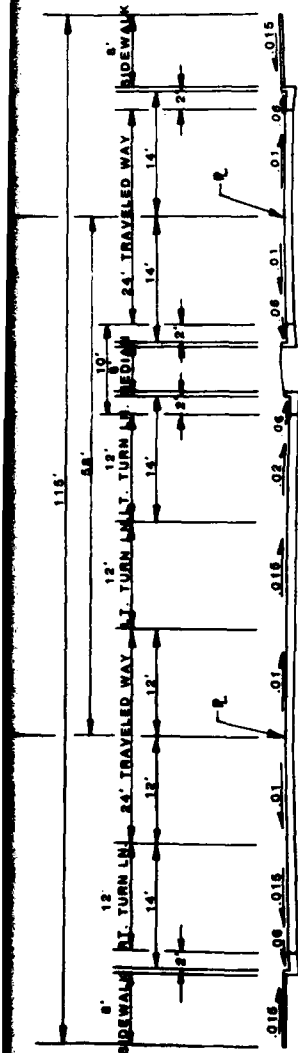
Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPRO
EDWARDS AND ALCOCK INC	DEPARTMENT OF THE ARMY ST PAUL DISTRICT CORPS OF ENGINEERS ST PAUL MINNESOTA		
DESIGNED BY W.G.H.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
DRAWN BY J.A.W.	MINNESOTA RIVER AND BLUE LAKE RIVER		
CHECKED BY W.G.H.	MANKATO NORTH MANKATO LE MILLIER MAIN STREET		
SUBMITTED BY	RANGE-WARREN ALT 2A		
CHIEF DESIGN ENGINEER		DATE	
APPROVED:		NOVEMBER 1980	
CHIEF ENGINEER			

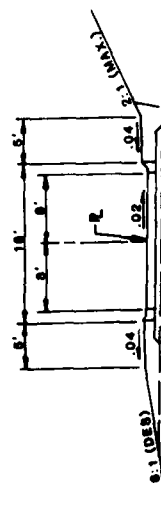
SCALE: AS SHOWN SPEC NO. 1
DRAWING NUMBER 1

PLATE A-26





PIKE STREET STA. 11+50 ALTERNATIVE 2A



TYPICAL RAMP SECTION ALTERNATIVE 2A



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

SIGNATURE _____

Date _____ Reg. No. _____

SYMBOL	DESCRIPTION	DATE	APPR
EDWARDS AND KUTNER	DEPARTMENT OF THE ARMY ST. PAUL DISTRICT CORPS OF ENGINEERS ST. PAUL, MINNESOTA		
DESIGNED BY W.G.H.	DESIGN MEMORANDUM NO. 8		
DRAWN BY J.A.W.	BRIDGE ALTERATIONS FOR FLOOD CONTROL		
CHECKED BY W.G.H.	MINNESOTA RIVER AND BLUE EARTH RIVER		
SUBMITTED BY	MANKATO NORTH MANKATO LE MILLIER		
APPROVED	MAIN STREET		
	RANGE-WARREN ALT. 2A		
	DATE		
	NOVEMBER 1960		
	SCALE		
	AS SHOWN		
	SPEC NO		
	DRAWING NUMBER		
PLATE A-27			

FLOOD CONTROL
MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER

DESIGN MEMORANDUM NO. 8 - PART I (Location Study)

AND

DRAFT SUPPLEMENT II TO THE
FINAL ENVIRONMENTAL IMPACT STATEMENT

FOR

BRIDGE RELOCATIONS

MAIN STREET,
TRUNK HIGHWAY 60 BRIDGE
OVER THE MINNESOTA RIVER BETWEEN
MANKATO AND NORTH MANKATO

APPENDIX B
DETAILED COST ESTIMATES

TABLE OF CONTENTS

<u>Number</u>	<u>Tables</u>	<u>Page</u>
B-1	Detailed Cost Estimate, Alternative 1CA	B-1
B-2	Detailed Cost Estimate, Alternative 2A	B-5

APPENDIX B
DETAILED COST ESTIMATES

Detailed estimates of project construction costs, land and right-of-way costs based on October 1980 levels are given in Tables B-1 and B-2.

TABLE B-1. DETAILED COST ESTIMATE. Alternative 1CA

Item	Unit	Quantity	Unit Cost	Total Estimated Costs
<u>Federal First Costs</u>				
<u>Roadway Items</u>				
Bridge Demolition	Job	Sum		\$331,000.00
<u>Site Preparation</u>				
Clearing	Tree	10	100.00	\$ 1,000.00
Grubbing	Tree	10	80.00	800.00
Building Removal	Job	Sum		46,200.00
Curb and Gutter Removal	LF	2,900	2.25	6,530.00
Concrete Median Removal	SY	100	17.20	1,720.00
Sidewalk Removal	SY	2,270	3.50	7,950.00
Concrete Pavement Removal	SY	24,640	4.00	98,560.00
Bituminous Pavement Removal	SY	2,775	2.50	6,940.00
TOTAL SITE PREPARATION				\$169,700.00
<u>Excavation</u>	CY	69,280	1.70	\$117,700.00
<u>Borrow</u>	CY	57,600	3.75	\$216,000.00
<u>Pavement, Lighting and Signing</u>				
Concrete Pavement	SY	36,500	22.00	\$803,000.00
Bituminous Pavement	SY	18,500	9.25	171,130.00
Paved Shoulder	SY	8,330	9.25	77,050.00
Sidewalk	SY	1,813	23.40	42,420.00
Curb and Gutter				
B612	LF	2,510	6.50	16,320.00
B624	LF	4,170	7.30	30,440.00
Ramp	LF	7,980	6.50	51,870.00
Median Island	SY	1,064	29.00	30,860.00

TABLE B-1. DETAILED COST ESTIMATE. Alternative 1CA (Continued)

Item	Unit	Quantity	Unit Cost	Total Estimated Costs
<u>Federal First Costs (Continued)</u>				
<u>Pavement, Lighting and Signing (Cont'd)</u>				
Traffic Barrier	LF	3,172	\$ 39.00	\$123,710.00
Lighting-Highway				
Highway (2-3 lanes)	Rd-Sta	125	3,000.00	375,000.00
Ramp	Rd-Sta	45	1,875.00	84,380.00
Signals	Job	Sum		176,200.00
Marking-Highway				
Highway (lane)	La-Sta	251	17.50	4,390.00
Ramp	La-Sta	53	17.50	930.00
Signs-Highway				
Road Signs Type C	Rd-Sta	300	26.00	7,800.00
Major Road Signs Type A	Each	20	6,250.00	125,000.00
Overhead Signs	Each	2	31,250.00	62,500.00
TOTAL PAVEMENT, LIGHTING AND SIGNING				\$2,183,000.00
<u>Retaining Walls</u>	SF	19,800	\$ 22.50	\$ 445,500.00
<u>Noise Abatement</u>	SF	0	10.00	0.00
<u>Drainage</u>				
Highway-Catch Basin	Rd-Sta	29	\$ 1,040.00	\$ 30,160.00
15" RCP CL V	Rd-Sta	29	650.00	18,850.00
30" RCP CL V	Rd-Sta	29	3,900.00	113,100.00
Ramp-Catch Basin	Rd-Sta	28	1,040.00	29,120.00
15" RCP CL V	Rd-Sta	28	2,860.00	80,080.00
Street-Catch Basin	Rd-Sta	6	1,040.00	6,240.00
15" RCP CL V	Rd-Sta	6	650.00	3,900.00
18" RCP CL V	Rd-Sta	6	2,860.00	17,150.00
Pump Sta. Adjustment	Job	Sum		65,000.00
TOTAL DRAINAGE				\$ 363,600.00
<u>Sanitary Sewers</u>				
8" VCP Extra Strength	LF	556	\$ 28.60	\$ 15,900.00
15" VCP Extra Strength	LF	542	83.20	45,100.00
Manholes	Each	25	390.00	9,750.00
Adjust Manholes	Each	50	65.00	3,250.00
Adjust Services	Each	50	130.00	6,500.00
TOTAL SANITARY SEWERS				\$ 80,500.00

TABLE B-1. DETAILED COST ESTIMATE. Alternative 1CA (Continued)

Item	Unit	Quantity	Unit Cost	Total Estimated Costs
<u>Federal First Costs (Continued)</u>				
<u>Water Systems</u>				
4" Ductile Iron Pipe	LF	540	\$ 14.30	\$ 7,720.00
6" Ductile Iron Pipe	LF	600	26.00	15,600.00
8" Ductile Iron Pipe	LF	390	29.90	11,660.00
10" Ductile Iron Pipe	LF	124	32.50	4,030.00
TOTAL WATER SYSTEMS				\$ 39,000.00
<u>Maintenance of Way</u>				
Sneet Piling	SY	0	\$ 10.00	\$ 0.00
Bituminous Pavement	SY	20,280	8.90	180,500.00
Borrow	CY	59,200	3.10	183,500.00
Flagman	Job	Sum		87,500.00
Temporary Signing	Job	Sum		25,000.00
Temporary Signal	Job	Sum		62,500.00
TOTAL MAINTENANCE OF WAY				\$ 539,000.00
<u>Miscellaneous Roadway Items</u>				\$ 314,000.00
TOTAL ROADWAY ITEMS				\$4,799,000.00
<u>Bridges</u>				
Roadway Grade Separations	Job	Sum		\$ 955,000.00
Highway River Structures	Job	Sum		5,920,000.00
TOTAL BRIDGES				\$6,875,000.00
TOTAL ROADWAY AND BRIDGES				\$11,674,000.00
<u>Force Accounts</u>				
CNW T. Co. Track Removal	LF	800	\$ 3.90	\$ 3,120.00
CNW T. Co. Track Replacement	LF	1,075	65.00	69,880.00
Railroad Protection During Construction	Job	Sum		52,000.00
Subtotal CNW T. Co.				\$ 125,000.00

TABLE B-1. DETAILED COST ESTIMATE. Alternative 1CA (Continued)

Item	Unit	Quantity	Unit Cost	Total Estimated Costs
<u>Federal First Costs (Continued)</u>				
<u>Force Accounts (Cont'd)</u>				
Northern States Power Co.	Job	Sum		\$ 2,500.00
Minnesota Gas Company	Job	Sum		67,500.00
Mankato Citizens Telephone	Job	Sum		18,000.00
Subtotal Utility Relocation				\$ 88,000.00
TOTAL FORCE ACCOUNTS				\$ 213,000.00
<u>Contingencies</u>				\$ 1,750,000.00
TOTAL CONSTRUCTION COST				\$ 13,637,000.00
<u>Engineering and Design</u>				\$ 1,208,000.00
<u>Supervision of Construction</u>				\$ 940,000.00
<u>Land and Rights-of-Way</u>				
Easement and Fee Title Lands	Job	Sum		\$ 2,749,000.00
Relocation Costs	Job	Sum		300,000.00
Acquisition & Administration (30 Tracts)	Each	30	6,000.	180,000.00
Contingencies				550,000.00
TOTAL LANDS AND RIGHTS-OF-WAY				\$ 3,779,000.00
TOTAL FEDERAL FIRST COSTS				\$19,564,000.00

TABLE B-2. DETAILED COST ESTIMATE. Alternative 2A

Item	Unit	Quantity	Unit Cost	Total Estimated Costs
<u>Federal First Costs</u>				
<u>Roadway Items</u>				
<u>Bridge Demolition</u>	Job	Sum		\$ 331,000.00
<u>Site Preparation</u>				
Clearing	Tree	32	100.00	3,200.00
Grubbing	Tree	32	80.00	2,560.00
Building Removal	Job	Sum		82,500.00
Curb and Gutter Removal	LF	3,300	2.25	7,430.00
Concrete Median Removal	SY	260	17.25	4,490.00
Sidewalk Removal	SY	4,700	3.50	16,450.00
Concrete Pavement Removal	SY	17,992	4.00	71,970.00
Bituminous Pavement Removal	SY	14,000	2.50	35,000.00
TOTAL SITE PREPARATION				\$ 223,600.00
<u>Excavation</u>	CY	87,143	1.70	\$ 148,200.00
<u>Borrow</u>	CY	526,400	3.75	1,974,000.00
<u>Pavement, Lighting, and Signing</u>				
Concrete Pavement	SY	49,555	22.00	1,090,210.00
Bituminous Pavement	SY	10,110	9.25	93,520.00
Paved Shoulder	SY	4,900	9.25	45,330.00
Ramp Shoulder	SY	0	6.50	0.00
Sidewalk	SY	780	23.40	18,250.00
Curb and Gutter				
B612	LF	7,000	6.50	45,500.00
B624	LF	6,500	7.30	47,450.00
Ramp	LF	11,000	6.50	71,500.00
Median (Island)	SY	220	29.00	6,380.00
Traffic Barrier	LF	1,225	39.00	47,780.00
<u>Lighting</u>				
Highway (2-3 Lanes)	Rd-Sta	90	3,000.00	270,000.00
Ramp	Rd-Sta	58	1,875.00	108,750.00
Signals	Job	Sum		375,000.00
<u>Marking</u>				
Highway (Lane)	La-Sta	143	17.50	2,500.00
Ramp	La-Sta	71	17.50	1,240.00
<u>Signs</u>				
Road Signs Type C	Rd-Sta	192	26.00	4,900.00
Major Roadsigns Type A	Each	14	6,250.00	87,500.00
Overhead	Each	4	31,250.00	125,000.00
TOTAL PAVEMENT, LIGHTING AND SIGNING				\$2,440,900.00

TABLE B-2. DETAILED COST ESTIMATE. Alternative 2A (Continued)

Item	Unit	Quantity	Unit Cost	Total Estimated Costs
<u>Federal First Costs (Continued)</u>				
<u>Roadway Items (Cont.)</u>				
<u>Retaining Walls</u>	SF	53,500	\$ 22.50	\$1,203,800.00
<u>Noise Abatement</u>	SF	9,000	10.00	90,000.00
<u>Drainage</u>				
Highway-Catch Basin	Rd-Sta	14	1,040.00	\$ 14,600.00
15" RCP CL V	Rd-Sta	14	650.00	9,100.00
30" RCP CL V	Rd-Sta	14	3,900.00	54,600.00
Ramp-Catch Basin	Rd-Sta	50	1,040.00	52,000.00
15" RCP CL V	Rd-Sta	50	2,860.00	143,000.00
Street-Catch Basin	Rd-Sta	20	1,040.00	20,800.00
15" RCP CL V	Rd-Sta	20	650.00	13,000.00
18" RCP CL V	Rd-Sta	20	2,860.00	57,200.00
Pump Station Adjustment	Job	Sum		0.00
TOTAL DRAINAGE				\$ 364,300.00
<u>Sanitary Sewers</u>				
8" VCP Extra Strength	LF	560	28.60	\$ 16,000.00
15" VCP Extra Strength	LF	543	83.20	45,200.00
Manholes	Each	25	390.00	9,750.00
Adjust Manholes	Each	50	65.00	3,250.00
Adjust Services	Each	50	130.00	6,500.00
TOTAL SANITARY SEWERS				\$ 80,700.00
<u>Water Systems</u>				
4" Ductile Iron Pipe	LF	548	14.30	\$ 7,840.00
6" Ductile Iron Pipe	LF	600	26.00	15,600.00
8" Ductile Iron Pipe	LF	390	29.90	11,660.00
10" Ductile Iron Pipe	LF	120	32.50	3,900.00
TOTAL WATER SYSTEMS				\$ 39,000.00
<u>Maintenance of Way</u>				
Sheet Piling	SF	0	10.00	\$ 0.00
Bituminous Pavement	SY	1,800	8.90	16,020.00
Borrow	CY	50,950	3.10	157,980.00
Flagman	Job	Sum		87,500.00

TABLE B-2. DETAILED COST ESTIMATE. Alternative 2A (Continued)

Item	Unit	Quantity	Unit Cost	Total Estimated Costs
<u>Federal First Costs (Continued)</u>				
<u>Roadway Items (Cont.)</u>				
<u>Maintenance of Way (Cont.)</u>				
Temporary Signing	Job	Sum		\$ 25,000.00
Temporary Signal	Job	Sum		0.00
TOTAL MAINTENANCE OF WAY				\$ 286,500.00
<u>Miscellaneous Roadway Items</u>				<u>503,000.00</u>
TOTAL ROADWAY ITEMS				\$7,685,000.00
<u>Bridges</u>				
Roadway Grade Separations	Job	Sum		\$ 462,000.00
Highway River Structures	Job	Sum		<u>7,250,000.00</u>
TOTAL BRIDGES				\$7,712,000.00
TOTAL ROADWAY AND BRIDGES				<u>\$15,397,000.00</u>
<u>Force Accounts</u>				
CNW T. Co. Track Removal	LF	1170	3.90	\$ 4,600.00
CNW T. Co. Track Replacement	LF	650	65.00	42,300.00
Railroad Protection During Construction	Job	Sum		<u>41,600.00</u>
Subtotal CNW T. Co.				\$ 88,500.00
Northern States Power Co.	Job	Sum		32,500.00
Minnesota Gas Company	Job	Sum		95,000.00
Mankato Citizens Telephone	Job	Sum		<u>15,000.00</u>
Subtotal Utility Relocation				<u>\$ 142,500.00</u>
TOTAL FORCE ACCOUNTS				\$ 231,000.00
<u>Contingencies</u>				<u>\$2,309,000.00</u>
TOTAL CONSTRUCTION COST				<u>\$17,937,000.00</u>

TABLE B-2. DETAILED COST ESTIMATE. Alternative 2A (Continued)

Item	Unit	Quantity	Unit Cost	Total Estimated Costs
<u>Federal First Costs (Continued)</u>				
<u>Engineering and Design</u>				\$ 1,594,000.00
<u>Supervision of Construction</u>				\$ 1,240,000.00
<u>Lands and Rights-of-Way</u>				
Easement and Fee Title Lands	Job	Sum		\$ 2,599,000.00
Relocation Costs	Job	Sum		694,000.00
Acquisition and Administration	Each	56	\$6,000	336,000.00
Contingencies				<u>520,000.00</u>
TOTAL LANDS AND RIGHTS-OF-WAY				<u>\$ 4,149,000.00</u>
TOTAL FEDERAL FIRST COSTS				<u>\$24,920,000.00</u>

FLOOD CONTROL
MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER

DESIGN MEMORANDUM NO. 8 - PART I (Location Study)

AND

DRAFT SUPPLEMENT II TO THE
FINAL ENVIRONMENTAL IMPACT STATEMENT

FOR

BRIDGE RELOCATIONS

MAIN STREET,
TRUNK HIGHWAY 60 BRIDGE
OVER THE MINNESOTA RIVER BETWEEN
MANKATO AND NORTH MANKATO

APPENDIX C
PUBLIC VIEWS AND RESPONSES

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APPENDIX C
PUBLIC VIEWS AND RESPONSES

INTRODUCTION

C.1 The views of the public were actively solicited throughout the study. Individuals, groups, civic organizations, and governmental agencies were brought into the study process through a broadly based public information program.

C.2 Specific elements of the program included:

- a. Information office
- b. Periodic newsletters
- c. News media coverage
- d. Public information meetings
- e. Interviews with citizens directly affected by potential property acquisitions
- f. Presentations to interested civic organizations
- g. Workshops for City Councils, and other city government, Minnesota Department of Transportation (Mn/DOT), and Corps of Engineers (COE) staff.

C.3 The overall public information program covered the entire project, i.e., the three separate bridge locations. This appendix covers in detail the Main Street bridge over the Minnesota River between Mankato and North Mankato, and a general description of the overall public participation process of the entire study.

C.4 Interagency coordination was accomplished through written correspondence and briefings. This procedure established a cooperative working relationship between the several public and private agencies having direct responsibilities in the study area. Copies of correspondence exchanged are included in the communication section below.

PUBLIC INFORMATION PROGRAM

Information Office

C.5 A public information office was maintained at 209 South Second Street, Room 208, Northwestern Office Building, Mankato for a period of 44 weeks from September 1978 through July 1979. It will be opened again during the month in which the public hearing is held.

C.6 This office was staffed with a full time secretary and a part-time information officer. The information officer, in addition to answering questions directed to the office, attended civic meetings and made presentations to various boards and committees; was interviewed by newspapers, radio and TV; provided news releases; and participated in the public information meetings. The log of his meetings and news media contacts is given on Table C-1.

C.7 Current and up-to-date plans were available at the office for public use. The office also distributed the newsletters and maintained a mailing list. It also logged in all project related phone calls and visits, which included 87 telephone calls and 158 office visits. The most frequent inquiries were made by individuals who were directly affected. The log of these inquiries is on file at the Corps of Engineers, St. Paul District Office.

TABLE C-1

LOG OF MEETING AND NEWS MEDIA CONTACTS
BRIDGE RELOCATION INFORMATION CENTER

<u>October 1978</u>		<u>Time</u>
10	Blue Earth County Board Meeting	9:00 a.m.
	Mankato City Council Meeting	7:00 p.m.
	South Bend Township Board Meeting	8:00 p.m.
13	Coffee Break Program KEYC-TV	9:15 a.m.
16	North Mankato City Council Meeting	7:00 p.m.
	Taped conversation with KEEZ-FM radio for next day broadcast (17th)	
19	Discussion with reporter of Mankato Free Press	--
	Calls from Free Press on traffic study	
23	Nicollet County Board Meeting	9:00 a.m.
<u>November</u>		
1	City of Mankato Personnel Meeting	9:00 a.m.
6	South Bend Township Board Meeting	8:00 p.m.
13	Tape recording by KEEZ-FM radio	--
14	Tape recording by KYSM-AM radio	--
15	Public Information Meeting (Regional Library)	--

<u>November (Cont'd)</u>		<u>Time</u>
16	Reporter from Mankato Free Press	--
30	Reporter for KEYC-TV - taped	--
<u>December</u>		
6	Meeting with Mn/DOT (Mankato)	--
18	Meeting with Mn/DOT (St. Paul)	--
<u>January 1979</u>		
2	Interview with KEYC-TV for broadcast later day programs	--
3	Informational Meeting (Roosevelt School)	--
4	Reporter for KYSM-AM radio - taped	--
15	Free Press Reporter	--
19	Mankato Chamber of Commerce Transportation Committee Meeting	--
22	Reporter for KEEZ-FM radio - taped	--
24	Informational meeting (North Mankato Jr. High)	--
29	Consultant Wetmore explaining Main Street alternatives to dinner meeting of combined city councils of Mankato and North Mankato	--
<u>February</u>		
13	Meeting at Corps Office in St. Paul	--
14	Meeting of Mn/DOT (Mankato)	--
16	Chamber of Commerce Transportation Committee Meeting	--
28	Presentation to Exchange Club (Century Club, North Mankato)	12:00 noon

<u>March</u>		<u>Time</u>
16	Chamber of Commerce Transportation Committee Meeting	--
 <u>April</u>		
4	Consultant presentation at Regional Law Enforcement Center (Mankato) attended by staff personnel from Corps, Mn/DOT central and district offices, Cities of Mankato and North Mankato, FHWA, CNW, and Honeymead Company.	--
18	Reporter from KEEZ-FM radio - taped	--
20	Chamber of Commerce Transportation Committee Meeting	--
 <u>May</u>		
6	Radio stations calling about Saturday's meeting with the City Councilors	--
24	KEYC-TV program - On Air Live	9:30 a.m.
25	Chamber of Commerce Transportation Committee Meeting	10-12 a.m.
30	Informational Meeting (Roosevelt School)	--
31	Informational Meeting (West High)	--
 <u>June</u>		
15	Chamber of Commerce Transportation Committee Meeting	10-12 a.m.
18	Kiwanis Club noon meeting	--
 <u>July</u>		
20	Chamber of Commerce Transportation Committee Meeting	10-12 a.m.

Newsletters

C.8 Four project newsletters were mailed to approximately 2,100 individuals, organizations and agencies. Approximately 100 additional copies were distributed and made available at the information office, public libraries, and city halls. The first newsletter was mailed in November 1978, the second in December 1978, and the third in May 1979. The fourth was sent in November 1979. All were mailed or distributed at least one week in advance of the public information meeting dates. Copies of each newsletter are included in the Communications section below.

Media Coverage

C.9 In addition to the 10 radio and TV events in which the information officer participated, extensive coverage was given the project by the Mankato Free Press. The majority of this coverage, however, centered on the controversial Main Street bridge. Copies of these articles are included under Communications below. A list of area-wide news media is given in Table C-2.

Public Information Meetings

C.10 Three public information meetings were held. Approximately 85 persons attended the first meeting, which was held on 15 November 1978, at the Minnesota Valley Regional Library, Mankato. At this meeting, the project goals and objectives were presented along with background information leading up to the project study. The scope of work to be performed was provided regarding the flood protection project requiring major alterations of existing conditions at the bridge sites. The initial concerns and attitudes of those attending were heard and recorded. The dominant concern of this meeting had to do with the location and site of the Main Street Bridge replacement, and the corridor width to be studied at the TH 169/60 site over the Blue Earth River. Concern was expressed about traffic impacts, property acquisitions, severance of Second Street, whether the bridge should be raised, pedestrian traffic, and loss of pedestrian access to each city, cost sharing, and whether a decision had already been made on the location of a new Main Street bridge crossing.

C.11 The second meeting pertaining to the Main Street bridge was held on 24 January 1979 at North Mankato Junior High School. About 80 people attended this meeting at which time all the alternatives that had been developed to date were presented and comments on each of the alternatives were heard and recorded. Concern was expressed regarding changes in street patterns, the effect on the proposed riverfront park in North Mankato, property acquisition and relocation costs, traffic congestion at Pike and Warren Streets, construction costs, construction detours, pedestrian access over the river, property acquisitions and the responsibility for final decisions.

TABLE C-2. NEWS MEDIA

Blue Earth County

MANAKTO FREE PRESS
418 South Second Street
Mankato, MN 56001
(625-4458)

KEEZ-FM RADIO
227 East Main
Mankato, MN 56001
(345-4646)

KTOE RADIO
Highway #14 East - P.O. Box 1420
Mankato, MN 56001
(345-4537)

MSU REPORTER
Box 38 - Student Union
Manakato State University
Mankato, MN 56001
(389-1776)

Nicollet County

KYSM AM-FM RADIO
1807 Lee Boulevard
North Mankato, MN 56001
(345-4673)

KEYC-TV
1570 Lookout Drive
North Mankato, MN 56001
(387-7905)

ST. PETER HERALD
311 South Minnesota Avenue
St. Peter, MN 56082
(931-4520)

KRBI RADIO
1031 Grace Street
St. Peter, MN 56082
(931-3220)

C.12 The third meeting, attended by about 250 people, was held at Mankato West High School, on 31 May 1979. At the time of this meeting the proposed alternatives had been narrowed to two (1CA and 2A). These were presented in detail along with summaries of alternative impacts. The concerns voiced at this meeting involved essentially all of the significant issues identified and evaluated by the staffs of the City Councils, Mn/DOT, Corps of Engineers and the Consultant. Attendies suggested that more information be included in the newsletters and that models be built to aid and assist in visualizing the impacts. Copies of the transcripts of these meetings are on file in the Corps of Engineers, St. Paul District Office and copies of the information handouts for the 15 November 1978 and 24 January 1979 meetings are given under Communications below. Additional copies of the third newsletter were available at the 31 May 979 meeting.

Interviews with Citizens Directly Affected by Potential Property Acquisitions

C.13 In conjunction with the evaluation of social impacts, relocations, and right-of-way costs, the owner or renter of every property affected by a potential property acquisition was contacted either in person or by telephone. This process afforded the opportunity to inform these people about the project and to hear their concerns directly and individually. A few, particularly owners of commercial property, were interviewed several times during the course of the study.

Presentations to Interested Civic Organizations

C.14 The information officer made presentations to the Mankato Chamber of Commerce Transportation Committee, the Exchange Club, and the Kiwanis Club as indicated in the log of his contacts.

Workshops

C.15 Two workshops were held, one on 26 April 1979 and the other on 5 May 1979, both in North Mankato. Representatives of the Mankato and North Mankato City Councils, City staffs, the Minnesota Department of Transportation, and the Corps of Engineers participated. These workshops were programed to encourage the participants to compare and evaluate, issue by issue, the impacts of the two selected Alternatives 1CA and 2A. These had previously been selected as the two most desirable plans. A total of 22 persons attended these meetings.

INTERAGENCY COORDINATION

C.16 The Minnesota Department of Transportation (Mn/DOT), the cities of Mankato and North Mankato, the Minnesota Historical Society and the Chicago and North Western Transportation Company (CNW) were contributors and participants to this study. In conjunction with Mn/DOT's participation, the Federal Highway Administration (FHWA) also participated as observer and advisor on FHWA responsibilities. Coordination with other agencies are described below.

State and Federal Agencies

C.17 All State and Federal agencies having an interest in the project were contacted early in the study by letter with a request to designate a liaison person. Those designated and copies of replies received are included under Communications below.

C.18 On 13 February 1979, the Consultants' study team and the Corps staff presented two briefings to State and Federal agencies on project progress, project setting, environmental concerns, and the Stage 2 alternatives being considered for study. During these briefings, no State or Federal representative expressed any concern beyond those presented by the consultant. Agencies represented at these briefings are listed in Table C-3. In addition to these direct contacts, all agencies were kept informed with the periodic newsletters.

TABLE C-3

ATTENDANCE AT STATE AND FEDERAL AGENCY BRIEFINGS
13 February 1979

Minnesota

Department of Transportation, Highways
Department of Transportation, Railroad Operations
Pollution Control Agency
Department of Agriculture
Water Resources Board
Department of Economic Development
Department of Health

United States

Environmental Protection Agency
Department of Interior, Geological Survey
Department of Interior, Fish and Wildlife Service
Department of Agriculture, Soil Conservation Service
Department of Commerce, Economic Development Administration
Department of Housing and Urban Development

Counties and South Bend Township

C.19 The boards of Blue Earth and Nicollet Counties and South Bend Township (Le Hillier) were kept informed of the study through the periodic newsletter and through presentations to the boards by the project information officer. Because of the sensitive location of the new Blue Earth County Regional Library at Main and North Front Streets in Mankato, the Blue Earth County Board of Commissioners studied the alternatives and passed an early resolution favoring the bridge location connecting Belgrade Avenue and Mulberry Street as recommended in the 1974 Bridge Location Study Report, see paragraph 10.a, Prior Studies and Report, DM-8.

Others

C.20 All of the private utility companies in the area were informed of the project and also participated in providing information on their plant and in estimating the costs of adjustments. The companies contacted were:

Northwestern Bell Telephone Co.
215 E. Hickory
Mankato, MN 56001

Minnegasco
2400 N. Front Street
Mankato, MN 56001

Northern States Power Co.
2nd and Lime Streets
Mankato, MN 56001

Interstate Power Company
Amboy, MN 56010

Mid-Communications, Inc.
221 E. Hickory
Mankato, MN 56001

Minnesota C.A.T.V., Inc.
228 S. Front Street
Mankato, MN 56001

Mankato Citizens Telephone Co.
221 E. Hickory Street
Mankato, MN 56001

COMMENTS AND RESPONSES

C.21 Copies of comments received and responses thereto are given under Communications section below.

COMMUNICATIONS

C.22 Copies of newsletters, correspondence exchanges, news clippings, and a list of State and Federal agencies contacted follows.

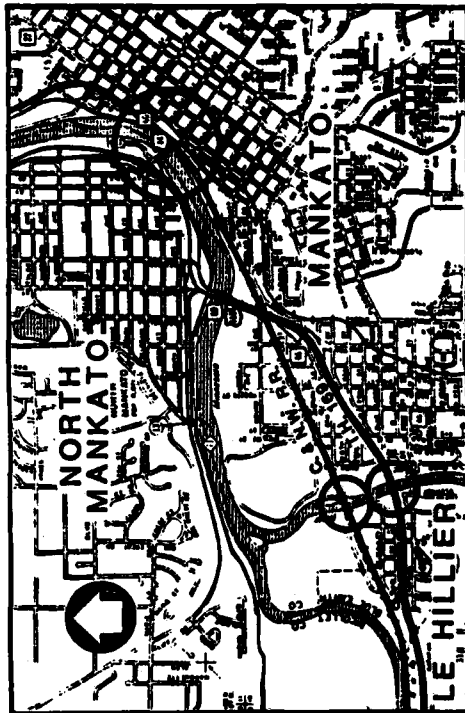
NEWSLETTERS

Bridge Relocation

November, 1978

Newsletter

Number 1, Mankato - N. Mankato - Le Hillier



LOCATION: The circled sections show the three study areas under consideration for the bridge relocation and alteration study.

Bridge Relocation Study Begins

The St. Paul District Corps of Engineers has announced the start of a comprehensive study to determine the best location for a new Main Street Bridge over the Minnesota River; the replacement or raising of the two Trunk Highway 169 Bridges over the

Blue Earth River; and the two Chicago and North Western Transportation Co. Bridges over the Blue Earth River. All bridges must be raised or replaced to provide adequate channel capacity for flood control.

Bridge Relocation Newsletter

REMINDER

To encourage early and continuing community participation, a public meeting has been scheduled for:

- November 15, 1978, 7:30 P.M.
- Minnesota Valley Regional Library.
- Front & Main Streets, Mankato.

Please join us so that your ideas and concerns can be included in the initial planning stages of this project.

Information Office Address:

Bridge Relocation - Information Office
Room 208, Northwestern Office Bldg.
209 South Second Street
Mankato, Minnesota 56001
Or call 507-387-7860

The editorial content of the Community Newsletter is the responsibility of the staff of Edwards and Kelcey, Inc. Consultants. The newsletter is prepared and distributed by the Bridge Relocation Information Office and published under the auspices of the St. Paul District, Corps of Engineers.

BULK RATE
U.S. POSTAGE
PERMIT NO. 478
MANKATO, MN 56001

SCOPE

Edwards and Malvey, Inc. of Minneapolis, assisted by Rieke Carroll Muller Associates, Inc. of Mankato, and Braun Engineering Testing Co., Minneapolis, will examine the engineering, social, economic, and environmental aspects of raising or replacing the structures.

The present Main Street Bridge, built in 1916, is inadequate for two reasons. The present structure cannot handle present peak traffic volumes without considerable congestion. Secondly, the roadway on the bridge is well below the projected Corps' design flood levels. A new bridge will be required.

The T.M. 169 Bridges and the two railroad bridges over the Blue Earth River (also below projected flood levels). This study will determine if it is best to modify or replace these structures.

POTENTIAL IMPACTS

With the proposed bridge alterations the potential exists for impacts of varying degrees to air quality, noise levels, water resources, regional and local development, displacement of people and businesses, wildlife and waterfowl habitat, park and recreational facilities, and traffic patterns. These impacts will be investigated and the extent of the impact will be addressed in an Environmental Impact Statement.

COMMUNITY INVOLVEMENT

The principal aims of the studies are to develop river and railroad crossings that adequately meet the needs of the people they are designed to serve. The Corps of Engineers is planning a comprehensive Community Involvement Program, to go hand-in-hand with its engineering studies.

Bridge Relocation Study Procedure

CONSULTANT STUDY ELEMENTS

- Data Collection
- Identification of alternatives
- Assessment of alternatives in terms of:
 - Planning considerations
 - Traffic service needs
 - Engineering considerations
 - Environmental factors
- Presentation of findings (Preliminary report)
- Draft Environmental Impact Statement
- Review and evaluation of agency and public comments
- Final recommendations (Final Report)
- Final Environmental Impact Statement

COMMUNITY PARTICIPATION

- Continuous public involvement is provided for through:
 - The Information Office
 - A periodic Newsletter
 - Periodic public meetings
 - Group discussions with responsible community groups as requested
- Public Hearing

letter is to obtain as much community reaction and opinion as possible. If you would like to express your ideas concerning the project, or have any questions you want answered, please contact the office.

TRAFFIC STUDIES

Origin-Destination Surveys were conducted at each of the four existing river crossings in the Mankato, North Mankato, and Le Hillier areas, supplemented by traffic counts at intersections in the vicinity of each river crossing. This information will be used to assess the probable impacts on traffic circulation patterns during and after construction. Emphasis will be placed on maintaining safe and convenient access to existing and planned developments while minimizing circulation of traffic through sensitive areas.

The project staff and survey crews wish to express their gratitude for the willing cooperation of the motorist public who responded to the questionnaires that we passed out during these surveys.

OTHER STUDIES

The study objectives are to consider two specific requirements:

- Meet year 2000 traffic needs, and
- Compatibility with Corps of Engineers on-going flood control works.

In conjunction with these requirements, other studies such as roadway surveys, bridge inspections and environmental investigation of the rivers are now in progress.

Highlights of the program will be a series of community meetings, press releases, informational newsletters, and an information office within the project area.

INFORMATION OFFICE

As of October 2, 1978, the St. Paul District, Corps of Engineers, has opened the project Information Office in Room 208, Northwestern Office Building, 209 South Second Street, Mankato.

The office will be open from 8:00 a.m. to 4:00 p.m., five days each week.

The public is cordially invited to visit the office or phone 387-7860 during business hours. The Corps hopes that interested persons will take advantage of the Information Office, to call, write, or stop by, to keep up-to-date on latest project developments.

COMMUNITY NEWSLETTER

This is the first issue of a newsletter to report the progress of the Bridge Relocation Studies. These newsletters will be mailed periodically to residents and businesses in the study areas.

While the mailing list is meant to be as complete as possible, some names may have been missed. If you didn't receive a copy, or know of someone whose name should be added, please call or write the Information Office.

The purpose of the office and news-

BRIDGE RELOCATION
PUBLIC INFORMATION MEETING

November 15, 1978

Regional Library, Mankato

STUDY AREA

This comprehensive study when completed will determine the best location for a new Main Street Bridge over the Minnesota River; the replacement or raising of the two I.H. 160 Bridges over the Blue Earth River, and the replacement or raising of two Chicago and North Western Transportation Co. Bridges over the Blue Earth River. All bridges at these three sites must be raised or replaced to provide adequate channel capacity for flood control.

INFORMATION OFFICE

As of October 2, 1978, the St. Paul District, Corps of Engineers, has opened the project information office in Room 206, Northwestern Office Building, 206 South Second Street, Mankato.

The office will be open from 8:00 a.m. to 4:00 p.m., five days each week.

You are cordially invited to visit the office or phone 387-7860 during business hours. The Corps hopes that interested persons will take advantage of the information office, to call, write, or stop by, to keep up-to-date on latest project developments.

NEWSLETTER

A newsletter will be published and mailed periodically to residents and interested persons. A mailing list has been prepared. While this list is meant to be as complete as possible, some names may have been missed. If you didn't receive a copy, or know of someone who should be on the list, please let us know. Call or write the Information Office.

Written and oral comments are welcomed and we urge you to contact us.

It is the intent and desire of the St. Paul District, Corps of Engineers, to provide the means through which all interested parties may have an opportunity to participate in the process of determining what should be done at the three sites, noted on the map.

The Corps of Engineers has initiated this meeting tonight, as one of the means to present information pertaining to planned transportation needs in and for your community.

Usually, this function is carried on and conducted by the Department of Transportation, but because of the uniqueness of this project, Congress has placed this project under the control of the Corps of Engineers. However, the project will follow guidelines and procedures formulated by the Minnesota Department of Transportation.

We seek your views, and urge you to ask questions on any subject pertaining to this project.

PLANNING AND DEVELOPMENT PROCEDURES

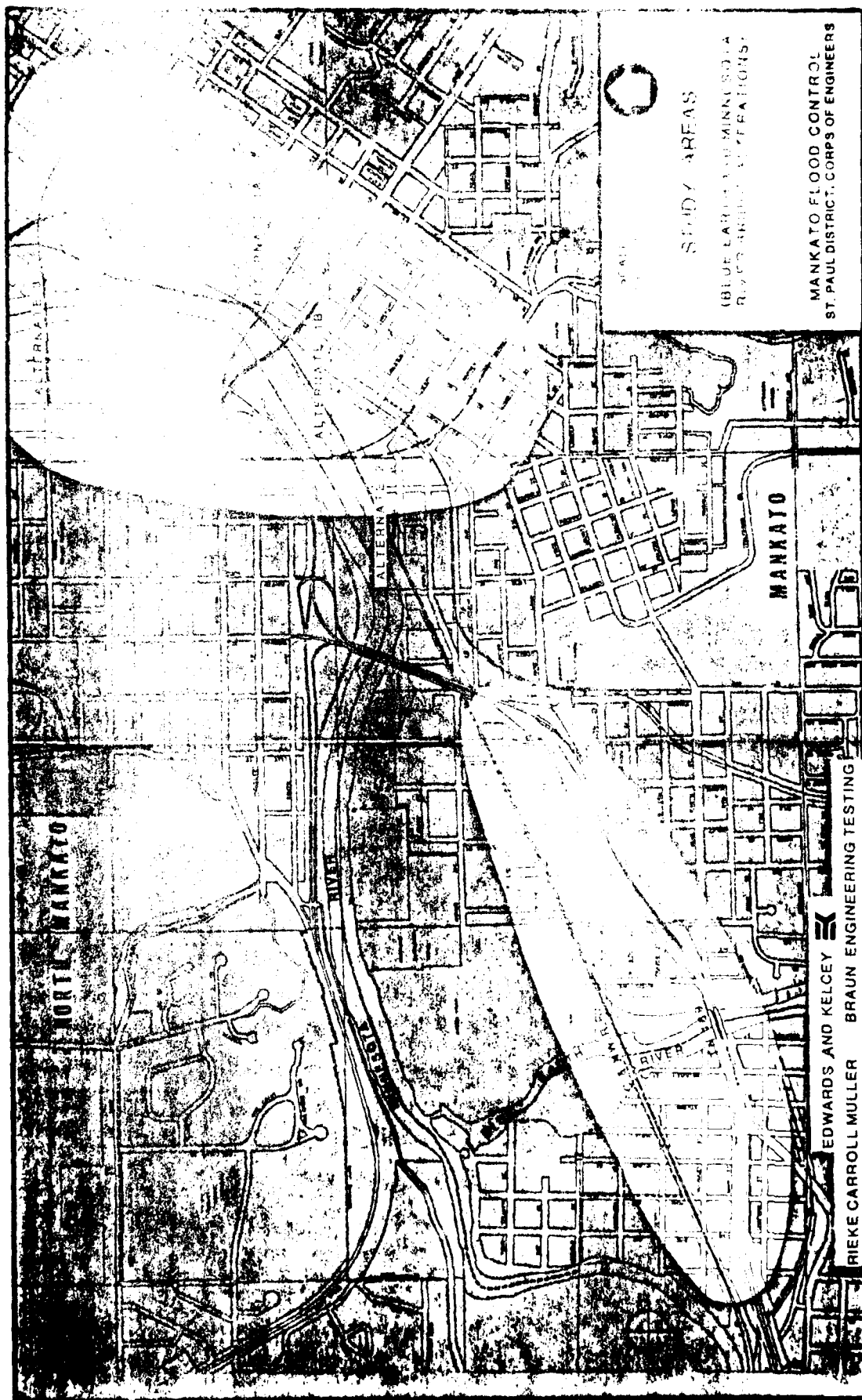
Briefly, any highway planning and development process involves three major phases:

Phase I - Systems Planning
Phase II - Location Planning
Phase III - Project Development

Phase I establishes and analyzes the need for a facility on a regional basis and within a designated area or corridor; Phase II includes the location study, draft environmental impact statements, corridor public hearings and final EIS; Phase III involves preliminary and final design, design public hearings, right-of-way acquisitions and construction. Therefore, tonight's subject falls under the Location Planning Phase.

STUDY OBJECTIVES

The primary purpose of this study will be to provide flood protection. Another objective is to select alternatives that will best meet the transportation needs of the local communities for the year 2000, while considering such items as socio-economic and community impacts, engineering requirements, traffic service and safety, project and road-user costs, the environment, and aesthetics. The proposed solution to be compatible with the Corps of Engineers' on-going flood control works.



Bridge Relocation Newsletter

Mankato - N. Mankato - LeHiller

Number 2

December, 1978

Bridge Relocation Study

bridges to provide the standard project flood protection but without the dam. Plan 2 was ultimately adopted after it was determined by the Corps that a dam was uneconomical to construct.

The firm of Edwards and Kelcey, Mpls., has been retained by the Corps to study the alternatives and prepare the necessary reports and documents for locating and designing the new high bridges.

A meeting was held in November to inform and receive citizen comments on the progress and development of these studies. Additional meetings are planned. Please see the back page for location and time.



The flood of 1951 prompted local citizens to travel to Washington to ask for help with flood control.



During high water, ice and debris caught behind the Main Street Bridge and up the Minnesota River and caused further flooding.

WHAT IT'S ALL ABOUT

After the flood of 1951 a delegation of Mankato and N. Mankato citizens went to Washington to ask for help to protect the Cities from further flooding by the Minn. and Blue Earth Rivers. The Dept. of the Army was directed to study the problem and plan for flood protection.

Two plans were proposed. Plan 1 was a combination of flood walls and levees for an 80 year flood occurrence (comparable to the 1965 flood) and the Blue Earth River dam. These would have provided the standard project flood protection for Mankato, N. Mankato and LeHiller. Plan 2 involved the construction of flood barriers (retaining walls and levees) and the raising of

Bridge Relocation Newsletter

REMINDER

To encourage the continuing community participation, two public meetings have been scheduled for:

January 3, 1979 at 7:30 p.m.
Roosevelt School
W. 6th and Oatonna, Mankato

...

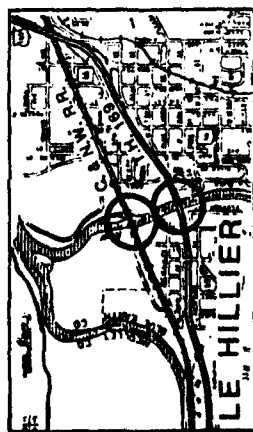
January 24, 1979 at 7:30 p.m.
North Mankato Junior High School
Corner of Range & Garfield, N. Mankato

POSTAGE
PAID
PERMIT NO. 470
MANKATO, MN 56001

The editorial content of the Community Newsletter is the responsibility of the staff of Edwards and Kelcey, Inc. Consultants. The newsletter is prepared and distributed by the Bridge Relocation Information Office and published under the auspices of the St. Paul District, Corps of Engineers.

Information Office Address:

Bridge Relocation - Information Office
Room 208, Northwestern Office Bldg.
209 South Second Street
Mankato, Minnesota 56001
Monday thru Friday from 8:00 a.m. to 5:00 p.m., or call (507) 387-7860



● C. & N.W. RAILROAD BRIDGES OVER BLUE EARTH RIVER

The following alternatives have been selected for study with regard to raising or relocating the bridges and tracks over the Blue Earth River. Alternatives include the Woodland Avenue bridge at the entrance to Sibley Park.

1. Raise both bridges on present alignment.

- 2.A. Raise Mainline north track. Stub end south track for storage, and retain present Woodland Avenue entrance to Sibley Park.

- 2.B. Raise Mainline north track. Stub end south track for storage, and replace Woodland Avenue bridge between Woodland and Carney Avenues.

- 3.A. Raise Mainline north track on new alignment slightly north of existing tracks. Stub end both existing tracks for storage, retain and modify existing Woodland Avenue bridge entrance to Sibley Park.

- 3.B. Raise Mainline north track on new alignment slightly north of existing tracks. Stub end both existing tracks for storage, and replace Woodland Avenue bridge between Woodland and Carney Avenues.

These alternatives will be presented for discussion at the next information meeting on January 3, 1979.

ALTERNATIVES

● T.H. 169 OVER THE BLUE EARTH RIVER

The following alternatives have been selected for study with regard to raising or relocating the bridges and roadway over the Blue Earth River.

- 1.A. Existing Roadway Alignment, with provisions for on and off ramps to Minnesota Road to and from the south.

- 1.B. New Road Alignment slightly south of existing bridges, with provisions for on and off ramps to Minnesota Road to and from the south.

- 2.A. Existing Roadway Alignment, with northbound off-ramp to Sibley St. and a southbound on-ramp from Minnesota Road.

- 2.B. New Roadway Alignment, slightly south of existing bridges, with northbound off-ramp to Sibley St. and a southbound on-ramp from Minnesota Road.

- 3.A. River bridges on existing alignments with modifications to the Park Lane Interchange.

- 3.B. River bridges on new alignments with modifications to the Park Lane Interchange.

These alternatives will be presented for discussion at the next public information meeting on January 3, 1979.

● MAIN STREET BRIDGE ALTERNATIVES

Four alternatives to replace and relocate the present Main Street Bridge will be presented at the January 24th meeting. The alternative locations are:

1. A. Belgrade to Mankato
- 1.P. Belgrade to Mankato
2. Range to Cherry Warren
3. Monroe to Madison

1ST PUBLIC MEETING

The first public information meeting of the Mankato Bridge Relocation Project was held Wednesday, November 15, 1978, at the Minnesota Valley Regional Library, Mankato, MN. Approximately 85 persons were in attendance.

Bob Janniman, of the St. Paul District Corps of Engineers, presented the opening remarks and stated the purpose of the meeting and Corps' involvement in the project.

Marty Romano, of Edwards and Kelcey, Inc., introduced members of the project staff to the audience and narrated a slide presentation giving an overall view of the project area and the scope of the project.

Tom Wetmore, of Edwards and Kelcey, Inc., reported to the audience on the proposed four alternative bridge locations for the new Main Street Bridge and the necessity to raise the twin Highway #165 bridges over the Blue Earth River and the nearby railroad bridges.

Opportunity was given to the audience to ask questions and voice opinions. Some citizens gave their opinions on certain alternatives and discussion followed regarding the fact that all alternatives will be given equal consideration when studies along with the environmental and traffic study data.

HOMEOWNERS & BUSINESSMEN SURVEY

Homeowners and businessmen who would be affected by bridge relocation and construction are being interviewed. It is necessary to gather data to determine which areas for a proposed new bridge will have the most beneficial effect on the surrounding area.

Some of the questions will pertain to business location, parking facilities, condition and value of buildings, ship or rental agreements, type of business, number of employees and payroll earnings. All information will be held confidential.

The survey will continue until all the zones involved have been covered. It should be noted however that being interviewed does not mean that any specific location has been selected.

ENVIRONMENTAL STUDIES

A team of natural environmentalists led by Dr. Henry Quade of the Environmental Studies Institute at Mankato State Univ. has been actively gathering information about potential impacts to the water quality and plant life related to any proposed bridge construction. Water Chemistry and analysis has been supplemented with information from the Munn Pollution Control Agency and the U.S. Geological Survey. The team is analyzing samples to determine the level of existing pollutants that might be disturbed during construction. Also, the team is responsible for determining whether there are any rare or endangered species of wildlife or plant life. Planners and engineers for the project will then use the findings to lessen impact to the river during construction phases.

MANKATO, NORTH MANKATO, LE MILLIER
BRIDGE RELOCATION
PUBLIC INFORMATION MEETING

January 24, 1979

No. Mankato Jr. High School

The Corps of Engineers, in conjunction with the Minnesota Department of Transportation, has initiated the informational meetings to provide you the opportunity to participate in the process of determining the location of the proposed new Main Street Bridge, the T.H. 169 Bridge and the C & N.W. Bridges over the Blue Earth River.

Tonight's meeting is the third of a series of information meetings scheduled during the development of this study. The first meeting was used primarily to introduce and to inform you of the proposed study. At this meeting, the study corridors were defined and the goals and objectives explained: to provide flood protection and to select alternatives that will best meet the transportation needs of the local communities for the year 2000, while considering such items as socio-economic and community impacts, engineering requirements, traffic service and safety, project and road-user costs, the environment, and aesthetics. The proposed solution must be compatible with the Corps of Engineers' on-going flood control works.

ALTERNATIVES

Tonight we will present and discuss alternatives for the Main Street Bridge over the Minnesota River. The alternatives to raise or relocate the T.H. 169 over the Blue Earth River and the C & N.W. Railroad bridges over the Blue Earth River were presented at the second information meeting on Jan. 3rd at Roosevelt School, Mankato.

MAIN STREET BRIDGE OVER MINNESOTA RIVER

Six alternatives to replace and relocate the present Main Street Bridge will be presented at tonight's meeting. The alternative locations are:

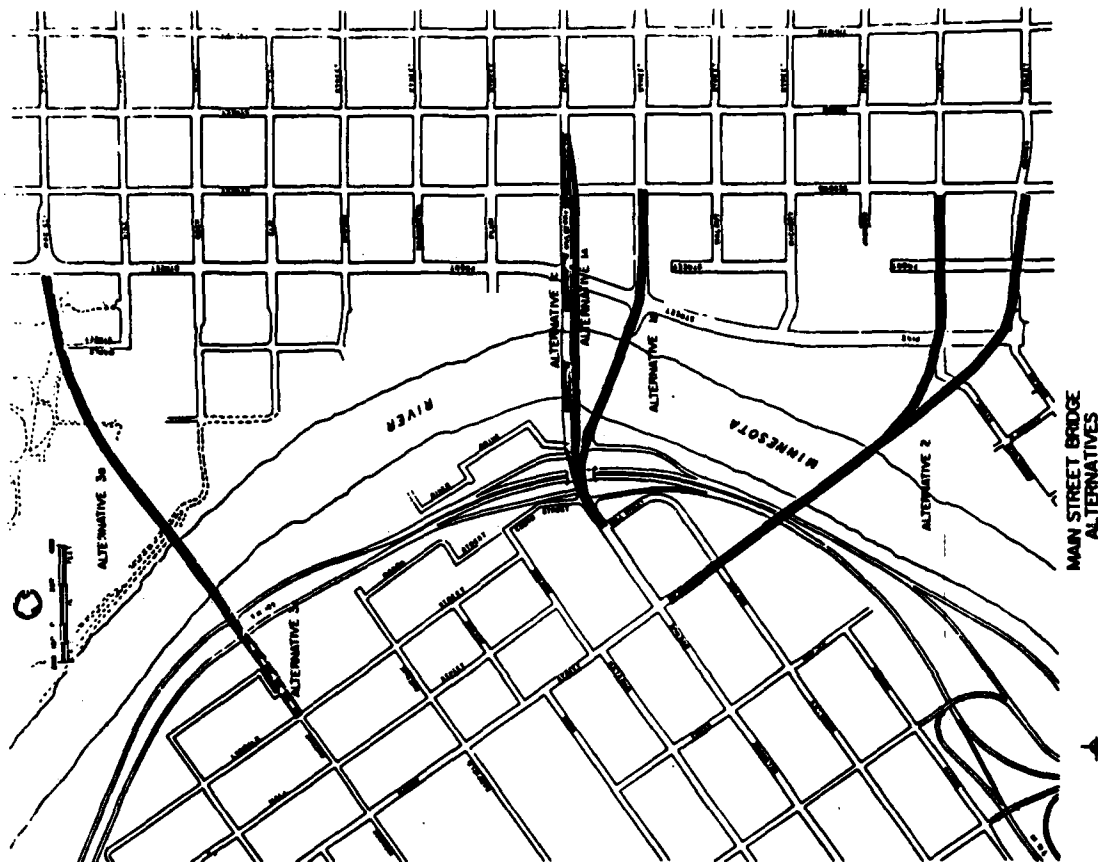
- 1.A. Belgrade Ave. to Mulberry St. with T.H. 169 passing over Belgrade Ave.
- 1.B. Belgrade Ave. to Main St.
- 1.C. Belgrade Ave. to Mulberry St. with Belgrade Ave. passing over T.H. 169.
2. Range St. to Cherry and Warren St. one-way pair.
- 3.A. Monroe Ave. to Madison Ave.
- 3.B. T.H. 169 at Monroe Ave. to Madison Ave. (No connection to Monroe Ave.).

We invite your comments and suggestions to modify these alternatives or identify additional ones for consideration.

INFORMATION OFFICE

To keep up-to-date on the latest project developments, you are cordially invited to visit the information office in Room 208, Northwestern Office Building, 209 South Second Street, Mankato. Office hours are 8:00 a.m. to 5:00 p.m. Monday through Friday, or Telephone 387-7860.

EDWARDS AND KELCEY, INC.



Bridge Relocation

Mankato - N. Mankato - LeHittler

Newsletter
Number 3
May, 1979

Information Meetings Scheduled

REMINDER

To encourage the continuing community participation, two public meetings have been scheduled.

On Wednesday, May 30, 1979 at 7:30 p.m. at Roosevelt School Gymnasium, W. 6th and Owatonna, Mankato, the C&NW Railroad and T.H. 169 bridges over the Blue Earth River will be discussed.

...

On Thursday, May 31, 1979 at 7:30 p.m. at Mankato West High School Cafeteria, the Main Street bridge relocation will be discussed.

Doors will be opened at 4:00 p.m. prior to each meeting to afford an opportunity to view the plans.

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Information Office Address:

Bridge Relocation Information Office
Room 208, Northwestern Office Bldg.
209 South Second Street
Mankato, Minnesota 56001
Monday thru Friday from 8:00 a.m. to 5:00 p.m., or call (507) 935-2800

Public Information meetings will be held on May 30 and 31 to present descriptive data and hear comments on the alternative bridge relocations which have been developed to meet the requirements of the ongoing Flood control project. On Wednesday, May 30, at 7:30 p.m. at the Roosevelt School in West Mankato the T.H. 169 and C&NW R.R. bridges over the Blue Earth River will be discussed. On Thursday, May 31, at 7:30 p.m. in the Mankato West High School Cafeteria, the discussion will deal with the Main St. bridge relocation. To afford more opportunity for studying the plans and asking questions, the doors will be opened at 4:00 p.m. prior to each meeting.

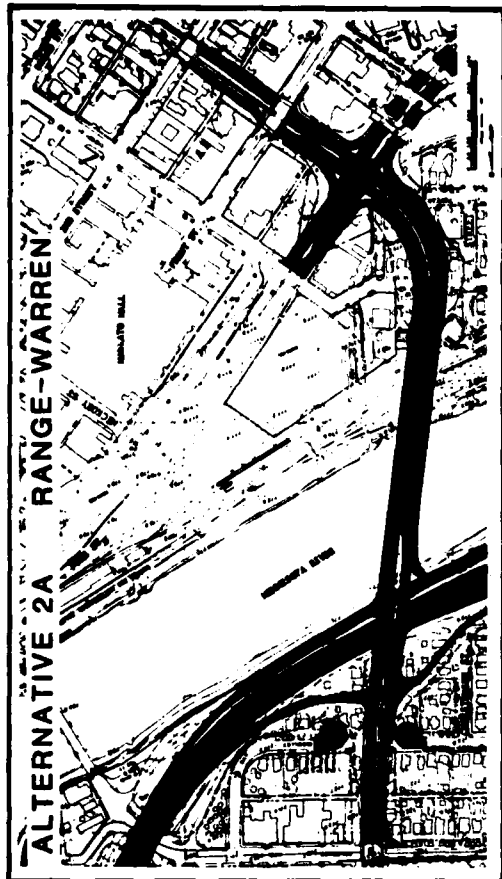
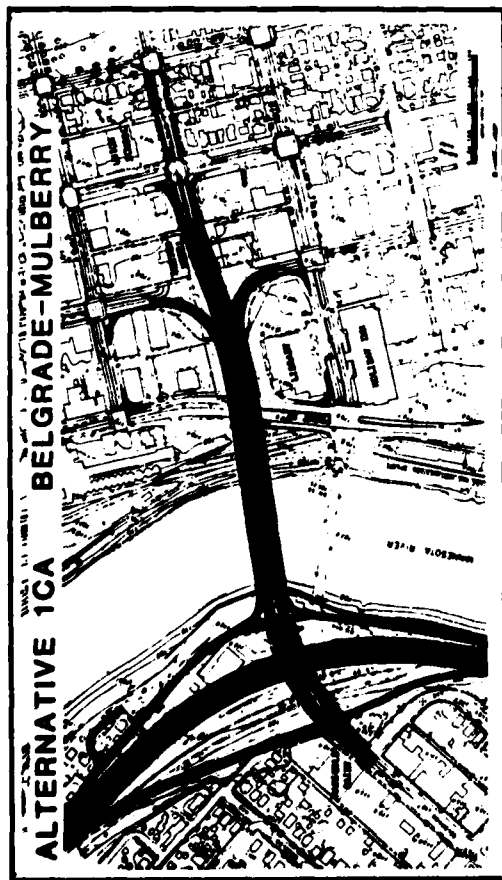
Since presenting the preliminary alternatives in January, data collection has been completed, alternative designs have been refined and impacts have been analyzed. Extensive data has been compiled and analyzed describing costs and social, economic and environmental impacts of each of the alternatives. These data are summarized in the following pages. Additional data of interest to the public will be discussed at the public meetings. To aid in the decision process the public is encouraged to offer its comments on the relative impacts and desirability of the various alternatives, as well as to supply additional factual information it considers important to the selection of the best alternatives.

PROJECT SCHEDULE

Following the information meetings all of the impacts and public comments will be evaluated. The preferred alternatives will be identified and presented for formal public and official comment in the Draft Environmental Impact Statement which is planned to be circulated early this autumn. During the period of this review, about mid autumn, a formal public hearing on the project will be held. Following the public hearing the final Environmental Impact Statement containing the recommended alternatives will be filed. Upon approval of the Final Environmental Impact Statement design studies and hearings will be conducted for the selected alternatives. After approval of the design studies, right of way acquisition and preparation of construction plans will begin. Construction is presently expected to begin in 1983. In brief, the schedule is as follows:

Public Information Mtgs.	May 30 & 31, 1979
File Draft Environmental Impact Statement	September 1979
Public Hearing	November 1979
File Final Environmental Impact Statement (FEIS)	January 1980
FEIS Approval	Spring 1980
Design Studies & Hearings	Spring 1980
Right of Way Acquisition	1981-1982
and Construction Plans	1983
Start Construction	

MAIN STREET BRIDGE RELOCATION



NUMBER OF ALTERNATIVES REDUCED

During the analysis of data and impacts and refinement of designs, certain of the alternatives were judged to be significantly less desirable than others. These have been recommended to be dropped from further consideration. These are:

- o Alternatives 3A and 3B, Monroe-Madison
- o Alternative 2, Range-Cherry-Warren

This has been replaced by Alternative 2A, Range-Warren at this location.

Of the numerous alternatives considered at Location 1, the Belgrade-Mulberry Alternative 1CA currently appears to be the most desirable at this location and is the one being presented for public consideration. Under this alternative Belgrade Ave. would pass over a lowered T.H. 169 in North Mankato. On the Mankato side the alignment would be generally on the southerly side of Mulberry St. thereby avoiding the taking of the Burton Hotel. As a result of these evaluations, only Alternatives 1CA and 2A are currently being recommended for consideration.

SUMMARY COMPARISON OF ALTERNATIVES 1CA AND 2A

ALTERNATIVE 1CA	ALTERNATIVE 2A
COSTS	COSTS
Construction \$11,991,000	Construction \$15,378,000
Right-of-way \$3,056,000	Right-of-way \$3,079,000
TOTAL \$15,047,000	TOTAL \$18,457,000
DISPLACEMENTS	DISPLACEMENTS
Households 22	Households 39
Businesses 7	Businesses 10
Employees 202	Employees 98
TRAFFIC SERVICE AND SAFETY	TRAFFIC SERVICE AND SAFETY
Overall good traffic service and satisfactory quality of design.	Overall good traffic service, but 1.5 million (5%) more miles of travel. Physical constraints dictate lower quality designs with regard to both capacity and safety.
NEIGHBORHOOD IMPACTS	NEIGHBORHOOD IMPACTS
Adverse traffic impacts on Washington Park area.	Adverse traffic and physical impacts on Nicollet Avenue-Range Street area.
BUSINESS DISTRICTS AND REDEVELOPMENT AREAS	BUSINESS DISTRICTS AND REDEVELOPMENT AREAS
Generally positive, but would reduce developable area in Mulberry Street area.	Generally positive. Would reduce developable area but stimulate earlier development of Pike-Poplar Sts. area.

CITY COUNCILORS AND STAFFS ATTEND WORKSHOPS TO STUDY AND EVALUATE MAIN STREET BRIDGE ALTERNATIVES

On Saturday, May 5, 1979, members of the city councils of Mankato and North Mankato attended a workshop session to identify, study and evaluate the relative impacts of the two primary alternatives for the Main Street bridge relocation. Over three hours were spent by the councilors identifying in detail their concerns and analyzing neighborhood by neighborhood and issue by issue the impacts of each of the alternatives.

A week earlier, on April 26th, staff members of both cities along with representatives of the Minnesota Department of Transportation, the Corps of Engineers and the consultants, Edwards and Keiley and Kieke Carroll Muller, spent a full day in a similar effort.

Bridge Relocation **Mankato - N. Mankato - Le Hillier** **Newsletter**

Number 4
November, 1979

Public Hearing Rescheduled

The Federal Council on Environmental Quality recently changed its regulations for the preparation of Environmental Impact Statements. Because of these changes, it became necessary to revise the Environmental Impact Statement being prepared for the bridge relocations for the Mankato-N. Mankato-Le Hillier Flood Control Project. These changes will require extra time for the preparation of the necessary reports. As a result, the project schedule has been changed and the filing of the Draft Environmental Impact Statement and the Public Hearing have been rescheduled to next Spring.

PROJECT SCHEDULE

The impacts of the alternatives and the public comments are being evaluated. Three alternatives are being considered at the Chicago and Northwestern Railroad crossing over the Blue Earth River, two at the I.H. 169/60 crossing over the Blue Earth River and two for the replacement of the Main Street Bridge over the Minnesota River. These were described in the May newsletter and were presented and discussed at the public information meetings May 30 and 31, 1979.

The preferred alternatives will be identified and presented for formal public and official comment in the Draft Environmental Impact Statement, which is planned to be circulated in the early Spring. During the period of this review, about mid Spring 1980, a public hearing on the project will be held. Following the public hearing the Final Environmental Impact Statement containing the recommended alternatives will be filed. Upon approval of the Final Environmental Impact Statement and filing of the Record of Decision, design studies and hearings will be conducted for the selected alternatives. After approval of the design studies, right-of-way acquisition and preparation of construction plans will begin. Construction is presently expected to begin in 1983. In brief, the schedule is as follows:

File Draft Environmental Impact Statement	March 1980
Public Hearing	April 1980
File Final Environmental Impact Statement (FEIS)	June 1980
FEIS Approval & Record of Decision	Fall 1980
Design Studies & Hearings	1980-1981
Right-of-Way Acquisition and Construction Plans	1981-1982
Start Construction	1983

Bridge Relocation
Newsletter

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INFORMATION OFFICE

Because of the delay that has occurred, the project information office has been temporarily closed. However, it will be reopened after the Draft Environmental Impact Statement is filed and will be open during the period surrounding the Public Hearing. An announcement will be made at the time of this reopening. In the interim, questions and comments may be addressed to Rieke Carroll Muller in Mankato; P. O. Box 60, Mankato, MN 56001 or telephone (507)625-4428.

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CORRESPONDENCE

TEJWA/ALP/FC/6 Marked.
 on Rel. info. Proj

St. Paul District, Corps of Engineers
 BRIDGE RELOCATION INFORMATION CENTER

February 12, 1979

Mrs. Frank Phelps
 235 Nicollet Avenue
 North Mankato, MN 56001

Dear Mrs. Phelps:

I have tried to call you by phone several times, but have been unable to reach you.

We appreciate your concern as to the relocation of the Main Street Bridge and how one of the alternatives could possibly affect your house.

First, I wish to assure you that no decision has been made on any of the alternate locations at this time. It could conceivably be near the end of the year before it is known which location will be selected. It is necessary, however, to gather information on each of the alternatives in order to make the proper comparisons for all factors such as numbers of people affected, costs of right-of-way acquisitions, costs of construction and many others.

We do have your comments on file and, these along with others, will be considered during the route selection.

Sincerely,
Odin C. Borge
 Odin C. Borge, PE
 Information Officer

Jrb

STATEMENT CARD

RECEIVED JAN 21 1979

Name: AR. G. Mrs. Frank L. Phelps		Check One
Address: 235 Nicollet Ave.		<input type="checkbox"/> Elected Official
City: Mankato, MN 56001		<input type="checkbox"/> Public Agency Representative
Zip: 56001		<input type="checkbox"/> Group Representative
388-1934		<input checked="" type="checkbox"/> Private Citizen
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Would Like To Speak All "Statement Cards" Submitted With Written Comments Will Be Included In The Record Of The Meeting.		
Statement: My husband and I attended the meeting at North Mankato, Ia. high school. The relocation of the bridge is very interesting but our home is very close. We have lived at this location for over 25 yrs. Our home is full of children and we have planned to retire in this house. Neither of us will receive a pension and still have only what money we can save to live on. It will be impossible for us to start making house payments or to pay rent. My husband is one-time worker for the railroad but had to leave because of a coronary 10 years ago. Therefore his earning capacity has been limited. I feel that someone is going to be inconvenienced by this relocation but at least enough to hope it isn't going to be us.		
Signature: <i>Frank L. Phelps</i> Date: 3/17/79		

Information Officer
 Odin C. Borge

Stamp: 100-100-100

EDWARDS AND KELCEY, INC.
4930 WEST SEVENTY-SEVENTH STREET, MINNEAPOLIS, MINNESOTA 55435
AREA CODE 612 835-6411

June 6, 1979

Mr. Floyd Wenner
115 N. Fourth Street
Mankato, MN 56001

Subject: 79-204, Mankato Flood Control
Bridge Alterations

Dear Mr. Wenner:

Thank you for your interest in the project and your suggested possibility for a solution to the problem. We have studied your diagram and the implied design. We find, however, that it would not be feasible to build such a design because of the very steep grades and sharp turns that would be necessary to physically fit it within the limits you show, i.e. Belgrade Ave. at T.H. 169 and Pike St. anywhere between the C & N.R. R. Depot and Cherry St., would not meet acceptable State and Federal design standards.

Very truly yours,

EDWARDS AND KELCEY, INC.

Thomas E. Netemore

Thomas E. Netemore
Project Manager

te

cc: R. Penniman, Corps of Engineers
Date Shaw, Mn/DOF, Mankato

THE FREE PRESS, MANKATO Friday, June 29, 1979-13

Readers' Points of View

Bridge plan has merit

I was present at the May 31 meeting concerning the new bridge to be built between Mankato and North Mankato. I presented another possibility which could make both cities happier. I presented another plan with no engineering behind it. But it only took the Corps of Engineers consultants one week to send me a letter telling me that they felt my plan could not meet the state and federal standards. I believe it has been stated that it takes considerable time to determine a location's shortcomings. Thus my first thought was that this was an outright insult that they could take so little time to consider my plan.

Then I put the letter aside and let the matter drop. Now, after being informed about the new parking ramp, I feel I now know why the Corps and the consultants wanted me satisfied. The reason is that they didn't want the bridge to become a consideration in the construction of the new parking ramp. My reasoning is that if my plan was to be used, it would be possible to build an off-ramp directly into the second floor of the parking ramp and reserve much of the congestion which will build up on whatever street and Pike Street with the additional number of cars entering and leaving the facility.

I feel that we, the people of Mankato and North Mankato, could, through the use of petitions get my plan reconsidered and also get the parking ramp redesigned to facilitate the use of an off ramp into it from the bridge.

Floyd Wenner
115 N. Fourth St.

WASHINGTON • BOSTON • NEW YORK • P

STATEMENT CARD

5/3/79

Name <i>Floyd Wenner</i>	Check One
Address <i>115 Nth 4th Mankato</i>	<input type="checkbox"/> Elected Official
	<input type="checkbox"/> Public Agency Representative
	<input type="checkbox"/> Group Representative
	<input checked="" type="checkbox"/> Private Citizen
Position, Agency or Group	

Yes ☒ No ☐ Would Like To Speak

All "Statement Cards" Submitted With Written Comments Will Be Included In The Record Of The Meeting.

Statement: *I would like to propose that the parking ramp be designed to be a second floor facility. I would like to see the ramp designed to be a second floor facility. I would like to see the ramp designed to be a second floor facility.*

MN/DOF 19331 (4/77)



Meyer
and sons, inc.

200 N. PIERCE - MINNEAPOLIS, MINN. 55401
TELEPHONE 345-3400

CONTINUOUS CUSTOMER SATISFACTION SINCE 1932

September 8, 1979

District Office
US CORPS OF ENGINEERS
130 E. Kellogg Blvd.
St. Paul, Minnesota

Re MANKATO BRIDGE RELOCATION PROJECT

As one of the businesses that could be affected by the bridge relocation, we are very concerned at the sudden termination of availability of information on this project.

The closing of the local information office, the lack of any mailings or news releases, the great abundance of rumors, and the seeming cancellation of the public information meeting scheduled for September leaves us wondering about the status of the project.

Our future business planning is definitely affected by the future of this bridge.

Specifically we would like to know: a. Is there a new study being made, and if so, what has happened to require a new study?
b. When, and how, are we to be kept informed on the project.

c. What is the current time schedule for informational meetings, recommendations, and decisions?

Tom Hagedorn
V. Pres., Meyer & Sons, Inc.

cc The Honorable Tom Hagedorn.

THE STORE WITH MORE FOR YOU

MEYER & SONS, INC. / 130 E. KELLOGG BLVD. / ST. PAUL, MINN. 55101 / TEL. 345-3400

TOM HAGEDORN
U.S. District Engineer

ARCHITECTURE
PUBLIC WORKS AND
TRANSPORTATION

1210 U.S. Post Office and Custom House
St. Paul, Minnesota 55101
(612) 224-2121

Congress of the United States
House of Representatives
Washington, D.C. 20515

OFFICE ADDRESS
1210 U.S. Post Office and Custom House
St. Paul, Minnesota 55101
Telephone 612-224-2121
FAX 612-224-2122
ADMINISTRATIVE ASSISTANT

September 12, 1979

Colonel Forrest T. Gay
U.S. District Engineer
1210 U.S. Post Office and Custom House
St. Paul, Minnesota 55101

Dear Colonel Gay:

I am writing to express my interest in a letter sent to your district office in St. Paul from Mr. Paul Meyer of Mankato, Minnesota with regard to the relocation of the Mankato Bridge.

Obviously, there has been very little information released in recent weeks concerning the new bridge and I can certainly understand the anxiety this has caused to many people in the area. If at all possible, I would greatly appreciate any information you might furnish me regarding the progress of your study and when some formal announcement is likely to be made.

Thanking you for your time and consideration in this matter, I am

Sincerely yours,

Tom Hagedorn
Tom Hagedorn
Member of Congress

TH:sp

Department of the Army
St. Paul District, Corps of Engineers
1135 U. S. Post Office and Customs House
St. Paul, Min. 55101

1 October 1979

MCSED-D

Honorable Thomas Engedorn
House of Representatives
Washington, D.C. 20515

Dear Mr. Engedorn:

This letter is in response to your 12 September 1979 letter of inquiry concerning the status of the bridge relocation study for the Mankato-North Mankato-La Millier Flood Control Project.

The concerns addressed in Mr. Paul Meyer's letter are certainly appropriate at this time in view of the delay we have experienced in the past few months in proceeding with our study. A copy of our response to Mr. Meyer is inclosed.

Implementation of recent regulation changes in response to the new CEQ guidance on environmental impact statements (EIS) has necessitated making adjustments in our contractual arrangements with the consultant (Edwards and Kelcey) doing the bridge study. We are just concluding our negotiations with the contractor and expect the work to resume the first part of October. The impact of these changes will delay completion of the draft EIS, previously scheduled for September, until March 1980. The public hearing scheduled for November has been rescheduled to April 1980. The information office in Mankato, which was closed in July, will be reopened during the review period of the draft EIS. Announcements will be issued in the newspaper and by newsletter in October explaining the current status of the study and changes in schedule for future events.

I trust this information and a copy of our letter to Mr. Meyer will be adequate for your needs at this time.

Sincerely,

WILLIAM V. BUDGER
Colonel, Corps of Engineers
District Engineer

1 Incl
as

Inquiry from Congressman Thomas Engedorn on Mankato Flood Control Project

Design Branch
Engineering Division
Mr. Pennington/ev/7569

Name for Record

1. On 27 July 1979, I received a telephone inquiry from Congressman Engedorn concerning the status of planning for replacement of the Main Street bridge. Mr. Engedorn stated that he was familiar with the Belgrade-Hulberry and Range-Warren alternatives being considered and wanted to know which plan is favored.

2. He indicated that he was aware of affected interests objecting to the Belgrade-Hulberry plan because the impact of diverting traffic into their neighborhood could be greater than would otherwise be experienced from flooding itself, which does not affect the expected neighborhood. I replied that this concern, as well as other concerns, were equally sensitive issues common to both alternatives and being considered in our evaluation. I stated that the consultant, Edwards and Kelcey, found the Belgrade-Hulberry plan to be the most desirable and that it would most likely be recommended as the preferred alternative in the draft environmental impact statement supplement to be issued about mid-November this year, and that a public hearing would be held in January 1980 before a final decision would be made.

3. Congressman Engedorn then asked if the \$3.5 million difference in cost between the two alternatives included the cost of rights-of-way. I replied that it did. I also added that Minnesota Department of Transportation officials have stated that the Trunk Highway 60 designation that exists on the Main Street bridge could be continued on the Belgrade-Hulberry crossing but not on the Range-Warren crossing, and that the maintenance responsibility would have to be shared by the two cities.

4. Mr. Engedorn concluded by asking if the final decision rested with the Corps. I stated that it did.

ROBERT PENNINGTON
Project Development Section
Design Branch
Engineering Division

C7/
Reading file

DEPARTMENT OF THE ARMY
ST PAUL DISTRICT CORPS OF ENGINEERS
703 U S POST OFFICE & CUSTOM HOUSE
ST PAUL, MINNESOTA 55101

REPLY TO
ATTENTION OF: KCSED-D

28 September 1979

Mr. Paul Meyer
Vice President
Meyer & Sons, Inc.
227 North Front Street
Mankato, Minnesota 56001

KCSED-D
Mr. Paul Meyer

28 September 1979

Based on our evaluation of the impacts and the public comments heard at the informational meetings, a preferred alternative will be identified and presented for formal public and official comment in the draft EIS to be circulated in March 1980. During the draft EIS review period, a public hearing will be held (April 1980). The information office will be reopened during this review period and will remain open for about 1 week following the public hearing. Within a few weeks after the public hearing a decision will be made on the alternate to be recommended for selection. The final EIS will be filed with that recommendation. Upon approval of the final EIS, design studies will begin on the selected alternative. During the design study phase, additional public information meetings will be held to resolve design refinements. One final public hearing on the design will be held after the design study is completed. After approval of the design study, right-of-way acquisition will begin. Construction is currently scheduled to begin in 1983.

If we can be of further assistance, do not hesitate to contact this office.

Sincerely,

WILLIAM U. MADGER
Colonel, Corps of Engineers
District Engineer

Dear Mr. Meyer:

Reference is made to your 8 September 1979 letter requesting information on the status of the bridge relocation study for the Mankato-North Mankato-Le Millier Flood Control Project.

It is of interest to us to learn of your concern regarding the bridge relocation study as it has been some time since any information has been made available on the project. We would like to point out, however, that no new studies have been initiated since the last public information meeting in May except that we did evaluate one alignment suggested by Mr. Floyd Wenner at the May meeting. His proposal was not at all feasible because the steep grades and sharp curves necessary for such a design would not meet State and Federal design standards.

You may recall that a project schedule was provided in the May Newsletter which indicated that a draft environmental impact statement (EIS) would be circulated in September and a public hearing would be held in November. Unfortunately, there have been delays in our study due to recent changes in the regulations governing the preparation of the EIS. Implementation of these changes has required the changing of our contractual arrangements with the consulting firm (Edwards and Kelcey) contracted for the study. Consequently, completion of the draft EIS has been rescheduled for March 1980 and the public hearing will be held in April 1980. A newsletter will be issued in October updating the current status of the study and announcing the revised schedule for future events concerning the bridge relocations.

July 1979

Honorable Rudy Benchwitz
United States Senate
Washington, D.C. 20510

Dear Senator Benchwitz:

This letter is in response to your letter from Mr. and Mrs. Leo Schmidt of Mankato, Minnesota, concerning the Mankato-North Mankato bridge.

As part of the improvements needed to complete the local flood control project at Mankato-North Mankato-Luttrell, Minnesota, existing highway and railroad bridges will have to be raised or relocated to provide adequate clearance for the design flood. In August 1978 the St. Paul District contracted the services of Edwards and Kelcey, Inc., an architect-engineer firm, to conduct a multidisciplinary study to determine the most appropriate means for altering these bridges. As a result of extensive coordination with the Minnesota Department of Transportation and the Federal Highway Administration, it was found appropriate to adopt the Minnesota Department of Transportation's "Action Plan" guidelines for the plan of study.

In an earlier "Bridge Relocation Study," completed in 1974 by Edwards and Kelcey for the cities of Mankato and North Mankato, a plan was recommended for replacing the existing Main Street bridge that would link Belgrade Avenue in North Mankato with Mulberry Street in Mankato. Although that plan was adopted by resolution by the two city councils, it was determined that the bridge alternatives would have to be restudied since public hearings and the preparation of an environmental impact statement were not a part of that study as required by the "Action Plan." Of the numerous alternatives that have been considered for the Main Street bridge in our current study, certain of the alternatives were de-

Honorable Rudy Benchwitz

July 1979

termined to be significantly less desirable and were dropped from further consideration. On the basis of the major factors and criteria used in evaluating the alternatives, the Belgrade-Mulberry crossing from the earlier study and a crossing connecting Warren Street in Mankato with Range Street in North Mankato were judged the most desirable by Edwards and Kelcey. Currently, the findings of our study show that the Belgrade-Mulberry plan will most likely be recommended as a preferred alternative in the draft environmental impact statement.

During our study, substantive information was provided to the public and affected interests via newsletters, public information meetings, and local news media. Controversy has evolved which will make the selection of an acceptable alternative a difficult task. The city of North Mankato officially supports the Belgrade-Mulberry crossing. At present, the city of Mankato has not taken an official position. Minnesota Department of Transportation maintains that the Trunk Highway 60 designation currently existing on the Main Street bridge could continue for the Belgrade-Mulberry crossing, but could not be kept on the Range-Warren crossing. The reason is that the Range-Warren alternative does not meet current traffic movement and safety criteria.

The findings of this study are now being readied for the preparation of a location study report and a draft environmental impact statement to be circulated for review in mid-November 1979. A public hearing is scheduled to follow in mid-January, with a decision on the selection shortly thereafter.

I trust this information will meet your needs at this time.

Sincerely,



April 18, 1974

Mr. Roger Holmquist, President
Old Town Neighborhood, Inc.,
307 E. First Street, Old Town,
Minnesota 55054

Dear Mr. Holmquist:

This week we discussed the relative merits of a bridge crossing the Minnesota River at two points; namely, Mulberry Street or Warren Street. To briefly summarize the conclusions reached by the American State Bank with respect to the individual proposals, we have put the following points which have been decided pertinent to the decision reached.

The advantages of alternate 2A (Warren Street proposal) are as follows:

1. Good access to parking lots and the Mall.
2. Convenient access to North First Street businesses and the Maple East shopping complex.
3. Relocation of a minimum of business establishments.
4. No division of the downtown area from the Old Town area.
5. No heavy traffic in residential areas such as Inwood Street and North Fourth Street.
6. Would promote business activity in the Poplar Street area.
7. Leaves prime commercial land available for development in the Main Street, Mulberry Street area.

The disadvantages to Mulberry Street location are as follows:

1. A visible division of Old Town from the Downtown Mall area.
2. Loss of prime taxable commercial property.
3. Limited access to the library.
4. Heavy traffic thru the residential area of North Fourth Street and North Second Street.
5. Complicated business access to Old Town business area.



Mr. Roger Holmquist, President
Page 2
April 18, 1974

Location of the bridge is a matter of grave concern to us because we will have such close proximity to it if it is located on Mulberry Street. The preservation of the bridge area on First Street is that the pedestrian litter is a serious problem. Any ability to place the bridge in such a position that this litter does not become an "eye sore" is a real advantage.

We will be glad to help to discuss these proposals with you at your convenience and should you have any questions, please feel free to contact us.

Sincerely,

L. R. North
President

LEE/dml

MANKATO PLUMBING & HEATING CO., INC.

Phone 388-3912 P.O. Box 426 Mankato, Minn. 56002

April 17, 1979

TO WHOM IT MAY CONCERN

Re: Bridge Relocation
Mankato - N. Mankato, Minnesota

Gentlemen:

We are located at 530 North Front Street in Old Town. It is our contention, based upon the observation of the present traffic patterns, the best solution to the traffic problem would be to relocate the bridge from Madison Avenue in Mankato to Monroe Avenue in North Mankato. It appears also, this is the most economical proposal. We want to go on record as being in favor of the above proposal. I think the downtown area would also benefit by turning the existing Main Street bridge into a pedestrian walk way.

Sincerely,

Jerome Sheehan
Jerome Sheehan, President

J.S:dd

barnett photo service

Robert Barnett

OWNER

May 31, 1979

Robert O. Barnett
Lois C. Barnett
Owners of property 100 Minnesota St., Mankato, Minn

Lois C. Barnett
Madene Pettengill
Owners of property at 112 Belgrade N. Mankato, Minn 56001

As we can not attend this bridge meeting tonight we wish to take this means to let you know that as property owners directly and indirectly affected by both bridge routes that we strongly urge that the Belgrade Mulberry site be selected.

Two things influence our thinking. Why build another bridge so close to the one we already have at a greater cost both in money and impact on people? If you don't build the bridge on Belgrade what will happen to that area that has already been damaged by a highway taking most of the area? Both the business area and the people who own homes on River St have seen this area become more of a depressed area every year. Most of these people have accepted the idea of moving as government agencies have been telling them for years that they would have to move. The people on Range Street have not had this threat hanging over their head and they are not ready to move.

These considerations would not be important if the Range Street location had merit to it and if it does I fail to see it, even though our business at 100 Minnesota St probably would benefit from it once you get through raising Pike St.

Sincerely,

Lois Barnett
Lois Barnett

100 Minnesota St., Mankato, Minnesota 56001 • (507) 387-4146

U.S. Army Corps of Engineers
Mankato City Council
North Mankato City Council
Senator Dave Durenberger
Senator Rudy Boesch
Congressman Tom Hagedorn

I, the undersigned taxpayer of the State of Minnesota and the United States, do hereby certify that the placing of the Menasha-North Muskego Bridge on Mulberry St. because of the severe impact on the neighborhood, the tax base, and the entire community. I strongly urge the Corps of Engineers to consider other alternatives and sites.

I, the undersigned taxpayer of the State of Minnesota and the United States, do hereby strongly protest the placing of the Mahan-to-North Mahan-to bridge on Walberry St. because of the severe impact on the neighborhood, the tax base, and the entire community. I strongly urge the Corps of Engineers to consider other alternatives and sites.

177 Signatures

ADDRESS

NAME _____

ADDRESS

[illegible]

I, the undersigned taxpayer of the State of Minnesota and the United States, do hereby strongly protest the placing of the Mahanato-Mahato Bridge on Walberry St. because of the severe impact on the neighborhood, the tax base, and the entire community. I strongly urge the Corps of Engineers to consider other alternatives and sites. *W*

NAME	John B. Smith		
ADDRESS	216	WEST RIVER DR	
PHONE	363	7183	

107

NEWS CLIPPINGS

*All Remains / Spills / Warnings / Kill
cc G.L.R. / Linsinger*

*Kenneth / 10/16/78 / 11:15 AM
Hans & Lins*

6—Wednesday, Sept. 20, 1978 THE FREE PRESS, MANKATO

Office to explain bridge changes

Edwards and Kelcey, Inc., a Minneapolis consulting firm, will establish a Mankato office to publicly discuss changes concerning bridges over the Minnesota and Blue Earth rivers in connection with the Mankato-North Mankato-Le Hillier flood control project.

The office will explain the options to local citizens and listen to the citizen's ideas, according to a statement released today by the U.S. Army Corp of Engineers, which is in charge of the flood-control project.

Objectives are to determine the best location for the Main Street Bridge over the Minnesota River, the replacement or raising of the two Highway 169 bridges over the Blue Earth River and two Chicago Northwestern railroad bridges over the Blue Earth River.

The consulting firm will organize public information meetings and hearings. It will also prepare an environmental impact statement, expected to be completed in about a year.

Anyone wishing to receive a newsletter and announcements from the firm concerning the bridges should write Armando J. Romano, P.E., project director, Edwards and Kelcey, Inc., 6800 W. 77th St., Minneapolis, 55425.

28—Thursday, October 12, 1978 THE FREE PRESS, MANKATO

Bridge traffic to be surveyed

Motorists crossing the Main Street, Highway 169 and Highway 14 bridges over the Minnesota River, and the Highway 169 Bridge over the Blue Earth River, will be surveyed beginning next week to determine traffic requirements in connection with the U.S. Army Corps of Engineers' flood control project. Questionnaires will be distributed on the Main Street Bridge beginning Tuesday, Oct. 17.

Drivers will be slowed briefly and handed a postcard questionnaire to determine where they are coming from and going to, and the purpose of their trip across the bridge. The postage paid surveys are to be filled out and returned later, to avoid traffic disruption.

The project information office of the Corps is located in Room 208 of the Northwestern Office Building, 209 S. Second St. The public is invited to visit the office or phone 387-7800 during business hours.

The office said the survey will help determine traffic circulation patterns under various bridge alternatives being considered. Studies will be conducted to determine the best location for the Main Street Bridge, replacement or raising of the twin Highway 169 bridges over the Blue Earth River.



Years of study, planning ahead before new bridge becomes reality

By NEAL ST. ANTHONY

Free Press Staff Writer
Thomson used to be a lot simpler when Olin Berge was designing bridges. The 61-year veteran of the Minnesota Department of Transportation, who retired in 1977, said his crew would determine what was needed in the fall, design it in the winter and build it when the cold broke.

But bridge building has gotten more and more complex. State and federal laws require months and months of impact studies and planning. And in the case of a new Main Street Bridge between North Main and Main streets, it's going to be a long time before any bridge is built.

By the time the design is complete, the earliest we could expect construction to begin is 1985, said Berge, who is now project information officer for one of the engineering consultant firms doing preliminary studies on a new bridge.

Determining the location and design of a new bridge will take at least two years.

That has mystified some observers who recall that Main Street Bridge was designed in 1973. Berge said the study to determine the best site for a bridge was completed in 1973. The study found that the best way that would have connected Selgrade Avenue in North Main with the intersection of Broad and Mulberry streets on the Main Street side, angling north about one block from the span of the current bridge.

But that study (performed by one of the firms which is back in favor of a \$1-million effort that will survey several area bridges to be altered or rebuilt in connection with the U.S. Army Corps of Engineers Flood Control Project.

The research underway is supposed to cover everything from what aquatic creatures will be affected by construction to the travel habits of local commuters. The studies are being underwritten by the Corps. There are four possible sites for a structure to replace the current Main Street Bridge, which was built in 1931.

● Belgrade to Mulberry. The 1973 preference is favored by many because it would divert heavy traffic away from possible bottlenecks at the Regional Library and the new Holiday Inn and give drivers a back longer to slow before merging with downtown traffic. It's the best study recommendation, said Berge. But he said, "But we don't want to give the impression that anything's been decided yet."

● Rebuilding the bridge at its current site which would mean the existing bridge would have to be demolished, severing the main link between the two downtown areas.
See NEW BRIDGE
(Please turn to Page 9)

New bridge

(Continued from Page 2)

spring by obstructing the flow of traffic. The bridge will be built with their submerged supports. Further, the bridges must be heightened because the dikes will prevent flood waters from spilling over the shore. Thus, floodwaters could be pushed upward because of the narrower channel. The study will also consider the most desirable aspect of the whole endeavor last week was the college students swarming over cars on the Main Street Bridge with commander questionnaires. Or possibly, the two fellows in hip waders splashing in the shallows underneath the bridge Friday morning. You were witnessing the vanguard of the assorted studies.

The questionnaires are being handed out to commuters on all the area bridges during certain hours to get information on traffic patterns. The study is essential to determining the use and location of the new bridges.

The survey, which will continue at various sites next week, reportedly has met with muted response. The survey, which will continue at various sites next week, reportedly has met with muted response.

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Public. Some drivers on the Main Street Bridge were sure they were going to be delivered to the collection area. Others discarded the pre-stamped cards. Others have been filling them out on the spot, Berge said. "People are so anxious for a new bridge they'll do anything to compete," Berge is hoping for a 40 percent response.

The two in the water were Dr. Henry Quade, a Minnesota State University biologist, and graduate student Kevin King. They will be studying the impact of the bridge construction on the aquatic life. The study is being conducted by a research team of 10, which is investigating the impact of various bridge proposals on the environment. The results will be presented in an Environmental Impact Statement to be considered by the Minnesota Environmental Quality Council before any construction plans are okayed.

More than 20 government agencies from the Minnesota Historical Society to the U.S. Interior Department likely will be involved in the project before it is over.

The public too will get its say in an information meeting and hearings scheduled to begin in mid-November. A public information office has been opened at 209 South Front St. (267-7800) by Reha-Carroll Mulier Associates, Inc., Mankato, which is the firm responsible for the traffic survey and other data collection. Edwards & Kelly, Inc., Minneapolis, which performed the 1973 study, is responsible for the entire project, including the location analysis and final bridge design.

The flood control project began in 1971 after devastating floods in 1962 and 1966. About \$4 million has been spent so far in completing about 40 percent of the work. The federal government is scheduled to pay 50 percent of the cost, which will include 1/2 mile of dikes in addition to the bridges.

About 20 people turned out Wednesday night to hear from a local engineering firm representing the U.S. Army Corps of Engineers and the city of Belgrade. The firm is planning to build a bridge over the Danube River, connecting the city to the north. The bridge will be at least 1 1/2 years before it is completed.

About 80 people turned out Wednesday night to hear from engineering firm representatives and the U.S. Army Corps of Engineers that it will be if will be at least 1½ years before a final site is chosen for a new Main Street Bridge linking Manhattan and North Manhattan.

A final site is chosen for a new Main Street Bridge linking Manhattan and North Manhattan. Officials dispelled a notion held by several people that the site for a new bridge has already been chosen. A 1973 study recommended a causeway that

Officials dispelled a notion held by several people that the site for a new bridge has already been chosen. A 1973 study recommended a causeway that

In addition, the study considers altering the twin Highway 409 Bridges and railroad bridges to clear the flood walls planned by the Corps along the Blue Earth River south of Mankato.

"This is the first of several informational meetings we'll be holding," said Odla Berce. The bridge project information officer, who was flanked by project supervisor Bob Penman of the Corps and Marty Romano, an official with Edwards & Kelcey Inc., the Minneapolis firm that performed the 1973 study and now is overseeing the new effort.

Several people spoke for and against proposed locations for a new Main Street Bridge.

... "Baron said we will consider very thorough."

Other factors in the site consideration are traffic patterns, environmental impacts and land cost and availability.

A survey of drivers crossing the river was recently completed and is being analyzed to determine traffic flow and usage.

An environmental survey is underway to study how aquatic life will be affected by construction.

Property owners in the paths of the four alternatives will be contacted within a few months to determine land values.

to determine land values. It will be at least two years before final design of a new bridge is complete and probably four to five years before a bridge is actually built, according to the project timetable. Another informational meeting will be scheduled in early December, Berse said.

A public meeting will be held Jan. 3, 7:30 p.m., at Roosevelt Elementary School, Sixth and Ovalonsa streets, to discuss the relocation and reconstruction of the twin-highway 100 bridges over the Blue Earth River near Honeynead, Inc., the U.S. Army Corps of Engineers said.

A public meeting will be held Jan. 3, 7:30 p.m., at Roosevelt Elementary School, Sixth and Ontario streets, to discuss the relocation and reconstruction of the twin-highway 169 bridge over the Blue Earth River near Mankato and North Mankato. It was learned last month. Several locations are being considered as part of a \$1-million study examining traffic patterns, environmental concerns and relocation costs.

The Corps and representatives from two private engineering firms will also discuss the

The proposed sites under consideration are: Belgrade Avenue in North Manakato to Mahanah and Broad streets in Mahanah, Range Street in North Manakato to the Cherry-Warrens intersection in coming months.

Further, the results of a regional traffic study of petrograms of existing bridges across the Mississippi and Blue Earth rivers will be released and incorporated

it will be at least 1½ years before a final site is chosen for a new Main Street Bridge linking location.

Bridge, dike options threaten homes

Some houses in southwest Sibley Park One Mound Ave. are in jeopardy, according to a new resident, said the learned that track additions would increase noise from the Honey Creek Products Co. plant. 20 Minnesota Road. A man said he wanted assurance that his children could safely cross the bridge near Highway 189.

Spokesmen responded that neighborhood concerns would be taken into account during the reconstruction work and that access in and out of area neighborhoods and to Sibley Park should be improved. There will be ample opportunity to review designs and associated costs at a public hearing in April, officials said.

"We will refine the alternatives and answer your points with changes designed to improve the bridge and to protect them up and develop all of the impacts" for the public to re-

view in April along with further consideration of a new Main Street Bridge site.

The following alternatives were proposed to raise and relocate the twin highway 189 bridge near Highway 189:

- Maintain existing roadway alignment, with an on and off-ramp to Minnesota North and Southbound on-ramp from Minnesota Road. A similar proposal would exit over the freeway, emptying into Minnesota on the other side. A similar proposal would move the bridge, and road alignment slightly south of the existing bridge.
- Keep the existing roadway alignment, with a northbound on-ramp from Sibley Park and a southbound on-ramp from Minnesota Road. A similar proposal would use the same on and off-

ramp locations but would shift the road and bridge slightly from its present course.

• A third proposal would leave the existing alignment alone or shift it slightly, but would make major modifications at the Park Lane interchange—substantially expanding the size of the entrance and exit ramps. This proposal would require that the YMCA, an oil station and a drive-in restaurant be removed.

The options on raising the railroad bridge include one which would close the Woodland Ave. entrance to Sibley Park and place a new entrance about one-half block to the northeast. Maps showing all of these alternatives are available at the bridge information office from 8 a.m. to 4 p.m. weekdays, 209 S. Second St., 387-7860.



Board backs Mulberry Street bridge

because it would detract from the regional library and proposed locating a new bridge from Monroe Avenue in North Mankato to Madison Avenue in Mankato because of the cost. It had no objections to connecting Range Street to Cherry and Warren streets, but preferred the Mulberry site.

The current site proposed for the Indian marker, at the north west corner of the library, would be about 150 feet south of the Mulberry bridge. The resolution suggests that the bridge design incorporate park lots with landscaping and signage to the bridge and that the Indian marker be included in these designs.

Accompanying the resolution was a letter from Roger Davis of Riecke Carroll Muller, who wrote that the Corps of Engineers would probably not fund part of the cultural center project, but that the Corps would be

was optimistic about the county's chances. Awarding of the grant is based on a point system and the number of low-income families that would benefit from the proposed project. Fifty points the county will get for recently approving the Region 9 Housing Opportunity Plan will almost assure awarding of the grant, said Darrow.

The application is due Feb. 1. Before then, the county must hold two public hearings, the first of which is scheduled for Jan. 16. Darrow predicted that the decision on the grants would be made by September. If approved, he said the funds would be available shortly thereafter. The form of the allotment has not been decided. The county would be responsible for the relocation of the family. At Darrow, Mankato housing director, however, the board agreed to apply for a single-purpose community development grant. Even though approval of the grants is competitive, Darrow

agreed to apply for \$600,000 in federal funding for the relocation of homes owned by low and moderate income families. The board could have applied for a comprehensive grant from the Department of Housing and Urban Development that would have allowed other kinds of project, such as job training and de-

molition of substandard housing with relocation of the family. At Darrow, Mankato housing director, however, the board agreed to apply for a single-purpose community development grant. Even though approval of the grants is competitive, Darrow

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172/100/101
22 NW 7th

Present site excluded for new bridge

It will be more than a year before a decision is made on where to site a new Main Street Bridge linking Mankato and North Mankato. But one decision already has been made: even though \$1 million worth of land and lot studies are in hand, it won't be at the current location.

The Minneapolis engineering firm coordinating bridge site studies has dropped plans to build anew from Belgrade Avenue in North Mankato to Mankato's Main Street. "We're recommending dropping the current site," said Tom Wetmore, an engineer with Edwards and Kelcey, Inc. "Basically we're proceeding with three plans."

Rebuilding from Belgrade to Main has become a virtual impossibility because of the placement of the two-year-old regional library and the soon-to-be-completed Holiday Inn—both of which front Main Street. A higher to accommodate flood walls and wider to accommodate traffic bridge just won't fit.

THE FREE PRESS

Saturday, Feb. 3, 1979—3

sive construction would be required.

"We couldn't just stop there," Ringhofer said. "You're going to drastically alter our traffic pattern. We'd have to rebuild Center and Range streets as well" to provide access to a Monroe Street ramp.

A bridge at Belgrade is still the best proposition for North Mankato, Ringhofer said, because it conforms to the city's natural traffic pattern.

ALTHOUGH DRAPTSMEN and engineers are squinting over variations on the remaining three proposals, Mankato city officials seriously are eyeing only two proposals. And one of those has been termed "disaster on this side."

Ringhofer said North Mankato has agreed to hold its peace "as a courtesy to Mankato" until engineering, economic and environmental studies are completed this spring.

The bridge would run from Range Street in North Mankato to Pike Street or eastbound Warren Street in Mankato. The effect in North Mankato is the same as on Monroe, Ringhofer said. It would take out residences on South and Nicollet avenues and require traffic rerouting.

"But the real problem is that it would make a poor connection between the bridge and Highway 130—it's too close to the North Street Bridge. You'd go north to Mankato, but you'd have to go back through town to go south," said Ringhofer.

THE PLAN HOLDS more allure on the Mankato side of the river. Public Works Director Paul Baker said if the bridge could tie into Pike Street it would provide ideal routing for northbound and southbound traffic.

However, a couple of hurdles remain. The bridge would have to clear railroad tracks along the river by 21 feet, Baker said. Wetmore said he's talking now with Chicago and Northwestern Transportation Company and the Milwaukee Railroad to about relocating some of the track.

Another problem is that the bridge would skim the Minnesota Poplar Street neighborhood which is being converted to a warehouse district.

It's close—probably within a block or two—of new construction in the city. Mankato's city manager, Phil Stealy, "but we're not sure there would be far enough to the west" of the bridge site.

A FINAL PLAN in the running is basically the same one that both city councils are still on record as supporting from five years ago—a bridge from Belgrade Avenue to Mulberry and Broad streets in Mankato.

The two cities spent about \$40,000 for a site study done by the same firm. But that study was done before the U.S. Army Corps of Engineers got authorization for its massive \$5 million flood control project, which included bridge replacement at the expense of the federal government.

The Corps of Engineers is funding the current studies which include several vehicle and rail bridges.

"We got the short version for \$38,000," Ringhofer said. "And now we're getting the long version for \$1 million."

Opinions sought for bridge site

The Social Psychology Applications class at Mankato State University is surveying opinions on the location of a new Main Street Bridge. Instructor Ken Good has asked interested Mankato-North Mankato residents to list the location of their homes, place of work and the place they most often shop. Secondly, Good asks that they also list a preferred bridge site and drop off the response in one of the boxes located at either Madens store, Penney's in the Mankato Mall, or Jack and Jill in North Mankato by Feb. 10, or send them to Bridge Survey, Box 32, M S U.

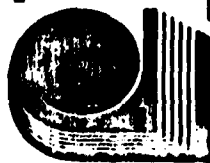
Bridge alternatives subject of meeting

The four alternative sites being considered for a new Main Street Bridge will be reviewed Wednesday at a 7:30 p.m. information meeting at North Mankato Junior High School. Range and Garfield streets. The current site is one location under consideration in conjunction with the U.S. Army Corps of Engineers flood control project.

At earlier meetings, representatives of the Corps and two engineering consultant firms will discuss all sites, including bridge proposals that would run from Range Street in North Mankato to Cherry Avenue, from Belgrade Avenue to Mankato, from Belgrade Avenue to Mulberry Street and from Monroe Avenue to Madison Avenue.

THE FREE PRESS

Tuesday, Jan. 23, 1979—15



THE FREE PRESS

Vol. 92 No. 288 32 pages 4 sections plus supplement
Tuesday March 13, 1979 Mankato-North Mankato, Minn. 56001 20c

By KEN BRADY

Free Press Staff Writer

Rural Mankato should be in for at least moderate flooding this spring and some highways will be under water, according to the Corps of Engineers and the National Weather Service in Minneapolis.

If no more precipitation were to fall between now and the spring thaw, the Minnesota River in Mankato would crest at 22.5 feet according to the weather service. Flood stage for the river is listed at 19 feet.

Assuming that another 1.5 inches of precipitation falls, which would be considered a "normal" amount, the crest would be raised to 24 feet.

The record stage came in 1965 when the river reached 29.1 feet. It reached 27.1 feet in 1980 and 26.2 in 1981, according to Larry LaPoint, field engineer for the Corps in Mankato.

A 24-foot peak would not cause substantial problems in the areas of Mankato and North Mankato, LaPoint said. The new flood protection should be adequate to about 20 feet.

However, a 26-foot crest would require fulltime use of the flood control pumps in town, he said. The problems would be more severe in rural areas.

There will be lots of highways under water," he said, as well as farmland and some farm buildings.

The Corps and some city officials to discuss measures to be taken in the event of flooding. The Corps will meet Wednesday with the highway department to discuss possible highway flooding.

It has also met with officials in the other cities located along

the Minnesota River, LaPoint said. Most cities along the river are expected to surpass flood stage.

The additional problem in Mankato could be caused because of the confluence of the Minnesota and Blue Earth rivers, LaPoint said. If they both peak at the same time, it could mean trouble.

An updated flood forecast from the weather service is expected by Friday. The weather service uses five variables in trying to forecast floods: soil moisture, frost penetration, moisture in the snow, speed of the snow melt and precipitation.

Soil moisture is about normal or even a little below normal in the Mankato area this year, LaPoint said. Rochester, which suffered devastating floods last spring, again suffers from exceptionally high soil moisture.

Frost penetration is light throughout the state. This is because snow fell early in November and acted as a ground insulator before the cold temperatures hit.

Snow moisture levels, or snow pack, are "on the high side," LaPoint said. Snow pack levels are approaching 1980 levels, he said.

If the snow melts quickly, it could create serious problems, LaPoint said. It could be covered by thick ice cover or a rapid melt could lead to bad news, according to the weather service.

The snow and ice will remain on the ground today in Mankato. Precipitation is expected to be at least normal for March, according to the weather service.

"If we get no rain that would be nice," LaPoint said, "no doubt holding his breath and crossing his fingers."

Range-Warren best bridge site

The decision concerning placement of the new Mankato-North Mankato bridge is at hand. If feel is very important that everyone understands the full implication of placing that bridge on Mulberry Street in Mankato.

In North Mankato, it means that the heavy traffic will have to remain on Belgrade Avenue, where it obviously is a detriment to business on that street. In Mankato, it will present an ugly view from our new Holiday Inn; perhaps most important, it would, by virtue of the traffic pattern, isolate our new library building.

The bridge would not come down to the ground until halfway between Broad and Fourth streets on Mulberry. This means that Mankato will have a bypassed area of two and a half blocks. It means that all Old Town has worked for in its plan will have problems due to traffic patterns and cut-offs on Second Street.

The Mulberry Street location is a dead-end road. It would not fit up Fourth Street from the Washington Street Park, so used by the young and elderly alike. Now we have a proposed new highway for senior citizens going up on Fourth and the park. This means much more use of the green area. Union School is used a great deal for activities ranging from recreation to night classes for adults. The bridge will be within feet of that school. A Lutheran church, a Catholic church, and a large school would also be affected by the Mulberry Street location.

A new overpass taking Highway 169 traffic over Belgrade will have to be built if the Mulberry site is chosen. The cost of this will be borne by the taxpayer. It is obvious that the best location, economically, socially, and from a traffic pattern standpoint, is Range Street-Warren. The bridge could come down by Pine Street, hence not disrupt blocks and blocks of Mankato. It would leave Belgrade alone to do interesting things like perhaps put in a little park on the river where the present bridge lands, or redesign the street to be a more attractive bypassing area.

The Range-Warren location and their subcontractor, RCM, could arrive at the decision that the best placement is Mulberry in beyond reason. Those of us concerned with the quality of life in Mankato will not accept this decision. We will fight it to the end and invite other groups dedicated to preservation of neighborhoods to join us.

Marcia Conner
286 Washington Court
Washington Park Neighborhood Association

Free Press
4/13/79

THE FREE PRESS

Vol. 92 No. 261 20 pages 4 sections plus supplement
Friday, Feb. 9, 1979 Mankato-North Mankato, Minn. 56001 20¢



Scene of fatality

Ellen McGuire, 19, 308 Byron St., was struck and killed instantly by a southbound truck on Highway 169 about 4 p.m. Thursday when she slipped or stum-

bled from the North Star Bridge pedestrian walkway. Authorities said it appeared that she was headed for a special-education class at West High School. The driver of the tractor-trailer, owned by Koch Fuels, Inc. of Green Bay, Wis., said he was proceeding in the

right hand lane when the woman suddenly appeared in front of his vehicle and he had no chance to avoid her. Ellen was the daughter of Mr. and Mrs. Fred McGuire of rural La Sauer. Funeral arrangements are pending with Roschen Funeral Home in La Sauer.

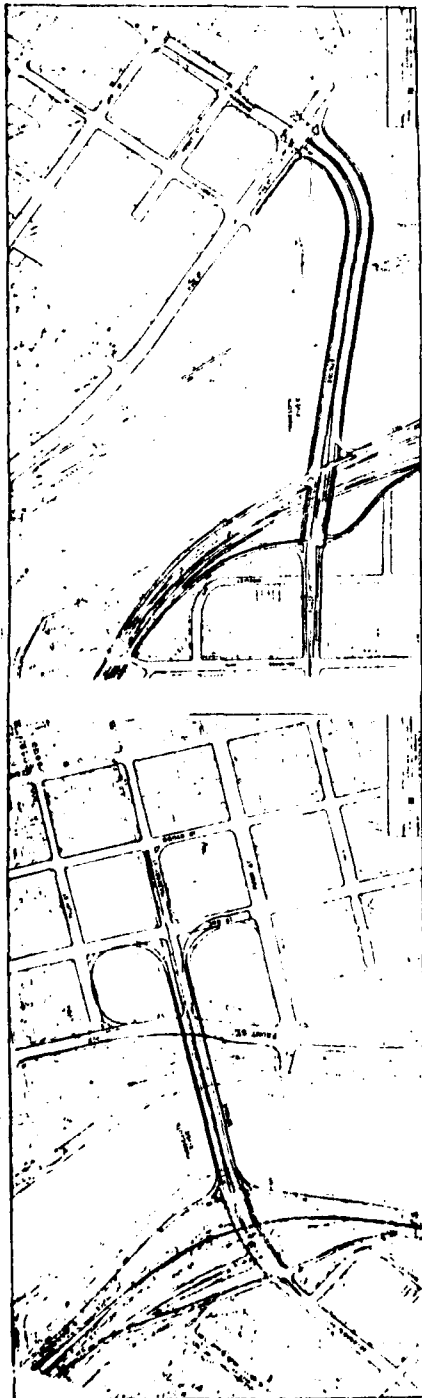
Truck strikes, kills Mankato woman on bridge

Associated Press

Mankato, Minn. — Ellen McGuire, 19, Mankato, was killed Wednesday when a southbound tractor-trailer struck and killed her on a bridge over the Blue Earth River in Mankato, said authorities.

She was the daughter of the Fred McGuire, rural La Sauer. The death raised the state's 1979 road toll to 46, compared with 70 on this date last year.

Mpls. Trib. 2/10/79



Belgrade Ave. to Mulberry St. route

Range St. to Warren St. route

Range to Warren Street bridge current favorite

By NEAL ST. ANTHONY
Free Press Staff Writer

An engineering firm studying replacement for the Main Street Bridge has recommended a preferred route from Belgrade Avenue to Mulberry Street, south of the Minnesota River, to replace the bridge.

But Mankato city staff officials are eyeballing another proposal, a \$14.3 million span which would lift off from Range and Belgrade streets in North Mankato and touch down at Pike and

Warren streets, south of the Belgrade-Mulberry proposal.

City Manager William Bassett and Public Works Director Paul Baker are so keen on the idea that they persuaded the city council Thursday to select the Belgrade-Mulberry route, favoring a Belgrade to Mulberry location.

"We feel there's a lot of merit to it," Bassett said, adding that there would be less dislocation of Mankato businesses and residences under the Range-Warren plan. Furthermore, city engineers favor tying in the bridge

to Pike Street, a major thoroughfare north to downtown or southbound toward a planned extension of Pike to the south-entrances of Mankato.

The World-Mandato Civic Council, however, has records as favoring the Belgrade to Mulberry plan. "It would be a disaster on this side of the river," said City Administrator Bob Ringhofer about the Range-Warren plan. "That project would take 47 homes" in the Range Street and Nicollet Avenue neighborhood. The consultant's report said it would affect

34 families. "And it totally changes our traffic plan." He said drivers coming from Mankato would be unable to gain access to southbound Highway 158 from the bridge.

Ringhofer pointed out that only 10 houses and several businesses would be relocated. The area would have to be relocated under the Belgrade-Mulberry proposal. Many of the property owners are eagerly anticipating federal relocation benefits. If the bridge goes elsewhere, they stay — with no government compensation.

Ultimately the U.S. Army Corps of Engineers will decide where the bridge goes after receiving an Environmental Impact Statement from the engineering firm, Edwards and Kelcey. Mulberry plan has sent staff temporarily back to the drawing board. But we feel on our side, the Belgrade-Mulberry grade, the best answer. We feel it should be over again, and that we'll recommend the right one to our

tation department.

Thomas Wetmore, project manager for Edwards and Kelcey, said Mankato's reservations about the Belgrade-Mulberry plan has sent staff temporarily back to the drawing board. But we feel on our side, the Belgrade-Mulberry grade, the best answer. We feel it should be over again, and that we'll recommend the right one to our

See BRIDGE ROUTE
(Please turn to Page 24)

(Continued from Page 13)

client. Edwards and Kelcey reached its decision after months of studying the land use, environmental, social, economic and transportation impacts of three possible routes with several variations of one. The Madison Avenue to Minnesota Avenue option is virtually dead.

Mankato staff members oppose the Mulberry site in large part because they say it would force condemnation of several businesses, depending upon the start alignment. These include Weaver & Sons, Inc., Midwest Coachery Inc., Doris Inter-national Inc. and the Burton Hotel. It probably also would require seizure of a parcel at Main and Second streets that is thought to be prime commercial

Bridge route

in addition, Pike Street would have to be raised about five feet to properly connect with the bridge. Finally, a Milwaukee Railroad spur line near national taxes at the Mulberry location would inconvenience rail customers several blocks south of the bridge.

Unless an adequate alternative is found, Baker said he has been talking with the railroad that is supposed to move its tracks there would be ample clearance for the causeway across the Chicago and Northwestern tracks along the Minnesota River.

The total tab, including right-of-way costs, would be \$13.5 million for the Mulberry site. A

safest until the public hearings are held. However, it's clear that some council members are dubious about the impact of a bridge touch-down at Mulberry. In addition to heavy traffic and business relocation, Mayor Horvath said it might sever the link from the downtown district. The plan could also affect the area. Finally, the Mulberry project, the council said, would force the city to build around the river. The old bridge was built around the river. The new proposal, he said, would force the city to build around the river.

A spokesman for the new Holaday bridge project said he fears that a Warren Street bridge might hurt their business, because it could be too far south and would discourage the train

passenger, on which the hotel will rely. From doubling back. But Saffert said Thursday that the Mulberry location would probably be even better for him clients to negotiate, because it would require some trucks turn in heavy traffic, and the old bridge was built around the river.

The old Town Square Association will meet Monday morning to discuss the bridge options and its stand at the public hearings.

The way things are shaping up, the bridge question may prompt them to request information on the bridge. It's a village at the bridge, he said, and an individual office, 700 South St. and St. Paul

APR 17/1979
 N. Mankato

Flooding is a threat in state

By GERRY NELSON
 Associated Press Writer

MINNEAPOLIS (AP) — Spring flooding "is almost definitely a threat to Minnesota and Wisconsin this spring," the meteorologist in charge of the National Weather Service said today.

The forecast by John Graff to an annual conference of state and local emergency services officials was largely unchanged from an outlook issued a week ago. Graff said he was sticking with his earlier figure.

Graff said record floods can be expected along the Peconica, Rock and Fox Rivers in southern Wisconsin.

He said "moderate to heavy overflows" are likely in southeastern Minnesota.

Graff warned, however, that flood conditions will depend on the rate of snow melt and whether there are spring rains on top of melting snow.

He said the critical transition period "falls from about mid-March to mid-April but forecasters are able to predict only about seven days in advance."

Graff said one good sign is that there is very little frost in the ground in Minnesota, meaning snow melt can be absorbed.

"The more rain plus working for us," Graff said. He said the ideal situation would be if there are warm days and cool nights, allowing snow to melt and run off at an easy pace.

Graff called the water content in the Minnesota snow cover "quite comparable" to 1969, when flooding occurred.

By contrast, Graff said it is "not at all comparable" to the record flood year of 1966. In that year, the water content in winter snows was only 3 to 5 inches, but a rapid warmup, heavy wet snowstorms and spring rains produced record flooding.

"The elements in the last three to four weeks of warming are the key," Graff said.

Gov. Al Quie also spoke to the conference and issued local official state government will sound in any emergency.

Quie praised both state and local preparedness programs.

"I think we are more ready in 1979 to meet the need than ever before," Quie said.

Graff said flood forecasts are based on normal melting patterns, a normal precipitation of 1.5 inches in the next few weeks, and a normal breakup of river ice.

Graff issued a set of figures showing likely river levels based on the current water content of snow and what it might reach with 1.5 inches of additional precipitation. He said local officials should plan for flooding somewhere within this "range."

Here are a sampling of cities their flood stage in feet, the flood stage based on current snow cover and the flood forecast with 1.5 inches additional precipitation:

Red River
 Wahpeton, N.D. 10 feet; 7.5 feet; 12 feet; Fargo, N.D., 17, 18, 28; Halstad, Minn., 24, 26, 30.5.

Red Lake River
 Crookston, Minn., 15, 12.5, 20.5.

Mississippi River
 Ft. Snelling 10, 10, 11.5; Minneapolis 10, 13, 19.5; Red Wing 14, 14, 17.5; Wabasha 12, 14, 16.4; St. Paul 14, 17, 25; Winona 13, 13.5, 19.5.

Minnesota
 -Mankato 25; 20.5; 28; Chaska, 15, 27, 29.

S. Croix
 Southwest 27, 28.5, 39.5.

Zumbro
 Rochester 12, 14, 15.5.

Red Cedar River
 Austin 15, 15, 18.

N. Mankato still wants Mulberry bridge site

By KEN BRADY
 Free Press Staff Writer

The North Mankato City Council Monday reaffirmed its support for the proposed bridge that would span Belgrade Avenue to a spot near Mulberry and Broad streets.

Although the council took no formal action today, its regular meeting and city staff measured about 30 members still backed the proposal.

Thursday the Mankato City Council backed off from a five-year stance favoring a Belgrade to Mulberry proposal. It decided to take a closer look at a bridge from Range Street at Belgrade Avenue to Pills and Warren streets in Mankato. Most of the citizens at Monday's meeting live in the affected area in

North Mankato near Nicollet Avenue.

North Mankato City Administrator Bob Ringholder said Monday the Range Street bridge would be a "major link" for North Mankato.

He said the bridge would be a "major link" for North Mankato.

Mayer Dave Carlson said he would like to find out why the Mankato council changed its position. "It's beyond my imagination how they can pursue the Range-Warren proposal. If there's something we don't know, we'd sure like to know about it. I'm completely in the dark as to their reasoning," he said.

"I hope we can convince Mankato to reconsider," said councilman Wayne Comstock. When the audience was asked if any-

one preferred the Range-Warren proposal, no one spoke.

Ringholder said the Range Street bridge would be a "major link" for North Mankato.

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A bill introduced in the state Legislature that would allow Mankato and North Mankato to sell revenue bonds for home financing is running into opposition, Ringholder said Monday.

"It doesn't appear to stand too good of a chance," he said. "I prefer betting on that much."

In other action, the council approved a rate increase for Kato Cab. Fares will be increased 25 cents across the board and waiting time to 15 cents a minute, up from 10 cents a minute.

David Worland of Kato Cab said the increases were needed to offset

set gasoline price hikes. He said he expects that further increases would be needed as gasoline continues to increase in price. He estimated that the next request for an increase might come as early as next fall.

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Bridge divides interests in Mankato, North Mankato

Government planners are fond of the saying that a river between two communities divides them rather than divides them. The proposed new bridge over the Minnesota River may be an exception to this rule.

The Mankato City Council has made an unexpected eleventh hour switch from its previous policy of preliminary support for the Belgrade-Mulberry Avenue (North Mankato) and Mulberry Street (Mankato) bridge site to an inferred preference for a Range Street (North Mankato) to Warren Street (Mankato) bridge site.

Some business people in Old Town and some residents of the Washington Park area in Mankato are applying fire to the feet of Mankato councilmen to support the Range-Warren bridge to eliminate what they call a division between the downtown Mankato Mall area and Old Town, and also to keep the park calm.

There is a feeling that a Range-Warren bridge would also bring more traffic to the south end of the downtown business district, which would aid in development of Phase Two of the Mankato Mall and tertiary stores.

Relocating elderly residents

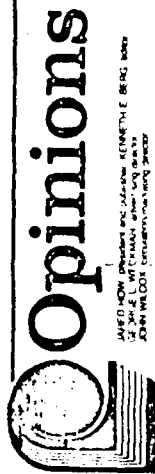
Also nagging at the Mankato council, as well as the consultant firm of Edwards and Kelcey, Inc. of Minneapolis, is the fact that about 50 elderly residents of the Burton Hotel would have to be relocated if the Belgrade-Mulberry site is selected. A bridge at this location would mean the demolition of the hotel. Meyer & Sons, Inc., Midwest Coaters, Inc. and Doris International, Inc.

Mankato interests are concerned that a Belgrade-Mulberry bridge would cut the valley part of Mankato in two and displace amounts of traffic into quiet residential areas. Traffic entering Mankato over the bridge would exit off Second Street if it were heading for the Mankato Mall or Old Town areas, and off Fourth Street if it were headed toward the Mankato hilltop and the National East Shopping Center. The Mankato City Council had apparently been under the impression that the grade of the Belgrade-Mulberry bridge would be higher than now planned, and that traffic would have exited off Second Street and not Fourth Street.

The amount of traffic now using Fourth Street has increased a great deal since the resolution for the Belgrade-Mulberry site was approved by Mankato in 1974. Officials claim it is already difficult for the street to handle traffic headed for Madison Avenue and that there are often long lines of cars backed up at the traffic signal. Traffic off a Belgrade-Mulberry bridge would increase this load and create a tremendous bottleneck. There are two churches and a school in the Fourth Street area, and this could cause problems for them.

Businesses on Range

In an effort to win North Mankato over to its new point of view, Mankato backers of the Range-Warren site say that the other bridge site would put more traffic on Belgrade Avenue in North Mankato than the other could handle. A Range-Warren bridge would encourage more use of the Mankato area. Since most of the houses will eventually give way to businesses anyway, a better traffic flow on the street would help develop this area.



business area in North Mankato. This contention is countered by North Mankato claiming that its real business growth will be in its hilltop area because of the large number of existing and planned housing there.

North Mankato has a number of reasons why a Range-Warren bridge would be, in the words of one city official, a "disaster" to the city. An extremely important factor in siting the bridge is the cost. The Belgrade-Mulberry bridge, including right-of-way, would cost \$13.9 million. The Range-Warren bridge, including right-of-way, would cost \$17.8 million. The U.S. Army Corps of Engineers, which is in charge of the bridge project, has set aside \$13 million for the new bridge out of its \$59.3 million budget for the entire Mankato-North Mankato flood control project. Taxpayers in the two cities would probably have to pick up any costs over this figure, and it could be substantial in the case of the Range-Warren site.

Because of the energy crisis, one of the key factors that might influence the final decision of the Corps is the amount of fuel saving that could be realized by a Belgrade-Mulberry bridge. Based on a survey taken by the consulting firm, the difference in length of distance traveled by vehicles using the bridges would be 1.5 million miles more annually for the Range-Warren site than for the Belgrade-Mulberry site. This translates into an estimated gasoline savings of 75,000 gallons per year for Belgrade-Mulberry.

North Mankato relocations

Under the Range-Warren proposal, 24 families, most of them in North Mankato, would lose their homes and businesses in the relocated site. Only 22 families would have to be moved out of the Belgrade-Mulberry site. Ten River Drive residences would be taken under Belgrade-Mulberry. Along with the River's Pub, the Century Club and part of the Mangold Dairy property.

River Drive residents, disliking their present isolation, are reportedly eager to get the funds to relocate. There are allegations that the present bridge has been made to the benefit of the businesses and that this is a major reason why the North Mankato City Council is so committed to the Belgrade-Mulberry site. The site is a residential business area and residents is about \$1 million greater in Belgrade-Mulberry, but the cost of actual bridge construction is considerably less than the Range-Warren, which accounts for the higher total cost of that bridge.

The siting of a Range-Warren bridge would take out the New Deal Cafe building and Spinners Bar. Nicollet Avenue would be made into a two-way dead end, isolating some homes there. River Drive would be landlocked, and North Mankato would have to spend an additional \$30,000 to build a street to Wheeler to serve the area.

The consultants estimate a tax loss of \$21,000 to both cities if the Belgrade-Mulberry bridge is built with a joint \$20,000 loss under some of the other data and formulae used by Edwards and Kelcey. There could be a possible \$100,000 loss to Mankato under the Belgrade-Mulberry plan, they contend. Some of this revenue could be raised from the business development of a parcel of land between the Minnesota Valley Regional Library and the Embury Restaurant. The city has been reserving this land for right of way for the Belgrade-Mulberry bridge.

Maximum traffic load

Another important consideration against Range-Warren is the fact that, according to studies, the Pike Street intersection would immediately be at the point of handling the maximum amount of traffic it is designed to have. There is no room for traffic growth. Range-Warren would also have a steeper grade than Belgrade-Mulberry, and this would make it difficult for motorists to stop at the signal lights in poor winter driving conditions. There would be a definite hazard for large semi-trucks in this regard, it is argued.

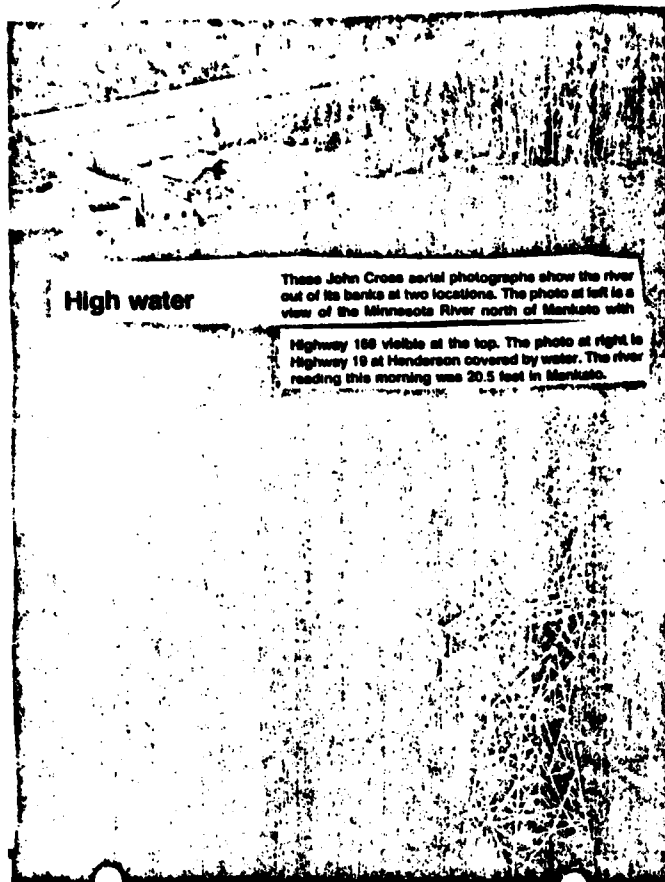
North Mankato Power Co. has already invested some \$1 million in system changes based on the belief that Belgrade-Mulberry would be the bridge site.

Corps makes decision

The final say of where the bridge goes is not up to the Mankato City Council, North Mankato City Council or groups of residents from the two communities. The Corps will make its decision based on a number of factors. The Minnesota Highway Department has an important role, and the consultant's final recommendation will be crucial. The consultant is tentatively on record as favoring the Belgrade-Mulberry site.

Most of the physical facts are now in, and the Corps is about ready to fill in the blanks on the decision sheet reserved for the two city councils and the affected residents.

It is important that residents of both Mankato and North Mankato who have feelings about the bridge decision get organized and attend the public hearings which will be scheduled by the Corps sometime in May. Residents should not just sit at the meeting with furrowed brows, but rather speak out on the issues. The arguments presented by participants at the meeting will be recorded and weighed by the decision makers.



High water

These John Cross aerial photographs show the river out of its banks at two locations. The photo at left is a view of the Minnesota River north of Mankato with

Highway 168 visible at the top. The photo at right is Highway 16 at Henderson covered by water. The river reading this morning was 20.5 feet in Mankato.



AIR (newspaper)
not in (1976)

THE FREE PRESS

Monday, April 30, 1979—18

So, we're heating up to a full-blown controversy over the relocating of the Main Street Bridge. There's sad irony here. Had the replacement been built when it should have—25 years ago—the question today would be academic. Better than that, there'd be no question, since the span would have been in place and Mankato would have planned its downtown renewal around it. The Belgrade-Mulberry site has been contemplated for at least four years without serious objections, until now. In fact, the city manager still can be heard championing the Front/Main site for the new library, assuring everybody that the off-on ramps, etc., would not be visually or physically detrimental. Yes, funneling traffic onto Broad and Second streets would be a challenge, but "that could be engineered out." Several businesses either relocated or built in the area in the interim, fully aware of what might lie ahead. If I were in Old Town, a relocated bridge farther south would be the last priority on the list. I'd want business driven in, not spurred away. A second irony here is that, only a year ago, Mankato officials were jabbing the ribs of North Mankato

officialdom for alleged foot-dragging in procuring North-side rights-of-way for the Belgrade-Mulberry location. Now Mankato summarily shifts gears and wants Brooklyn to move post-haste and prepare an upwind Range-Warren street path. Here's one instance where little brother has every reason to be wary of big brother's whims. I'm in the north bank's court.

Absolutely flabbergasting is the still-intent warm feeling for the existing Main-Belgrade bridge site. North Mankato have fought the "hottle of the tracks" for 50 years, and now a number would like this location preserved. Their desperation, exasperation of another sort, no doubt. Esther and Bill Wick, 618 South Ave., are the latest to speak up. "We don't need a new bridge," they exclaim. "We have three good bridges now. The Main Street Bridge can be made four-lane. We found that out back in the days after the floods and the bridge was reinforced and made safe. The simple solution is to rebuild the Main Street Bridge. Nobody's toes will be stepped on, nobody will get petitions and everybody will be contented. Oh, yes, we

Gapping the bridge

Ken E. Berg

will always have the railroad tracks!" What the Wicks and others either didn't know or forgot is that the present Main Street span MUST go. The reason why the federal government is funding a replacement is because Main Street bridge is a flood control obstruction. To rebuild it means going up as well as out. Uh-oh. A new bridge MUST span the railroad tracks for sanity's sake, at least, the Wicks demonstrated extremely low frustration threshold notwithstanding.

Another controversy, this one of the re-emergent type, is Stolman Road. There were a couple of passes at it in this space last week. And, whereas I was careful not to express preference at this juncture for either a two or four-lane segment from lower James Avenue to Pleasant

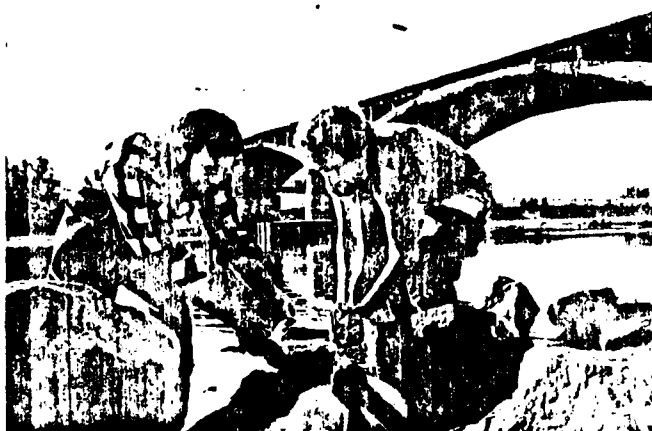
Street, Toy Blethen, 239 Sunset Blvd., is taking no chances on expansionism creeping in. She writes: "As a conservationist (whose home abuts the area, across the valley—ed.), I consider the slough a valuable wetlands and unique in the middle of the city. It is beauty in itself and offers water and feed for the birds and other wildlife in the hillside and Rasmussen's Woods nearby (certainly agree that Stolman Road needs improving. But to try to drain more land and to keep it drained would not only damage the slough, but would prove very expensive, as taxpayers know from the need—) but have always plagued the slough based West High School. A good two-lane road would fit into the residential area and the country through which it runs. I am afraid a four-lane road

would also damage the hills at the south end of Stolman Road. One of Mankato's chief attractions is the number of lovely wooded ravines and one well worth preserving. A good two-lane road would also insure more reasonable traffic speed."

The Ice Palace is controversial, too. But the situation of a privately developed indoor skating arena never quite getting off the ground and then encouraging government to bail it out is hardly unique. The current case in point is Kenosha, Wis. As in Mankato, Kenosha's ice arena was funded by a savings and loan association. It had been leased by the Kenosha Ice Hockey Association (sound familiar?), but the lease is expiring and the facility is on the block. The owners want \$400,000 (Mankato's is \$200,000 or so) for it. The Kenosha County Board is downright interested in procuring it (in contrast to Mankato area governments' shilly-shallying), offering \$275,000. But no sale, so far. The parallel between Kenosha and Mankato is exquisite, to the point that Kenosha, too, has postponed a decision on sanctioning a high school hockey team, depending

on the outcome of negotiations.

A down-home rumcus of another kind, also addressed in this space last week, is underscored with equal frustration by Burton Grimes, Cleveland. The retired superintendent of the St. Peter State Hospital writes plaintively: "Your discussion on fertilizer was of interest to me. I also want looking for a chemical mix that would fertilize as well as control the greatest number of weeds possible, in one application I wanted to get the spreading job done right NOW. I went to a Mankato store. It may have been a good choice, I thought—the place was crowded, and I waited perhaps 15 minutes before I could ask an employee for what I had in mind. He told me he had had 'just what I wanted'—it was a fertilizer, and also would control (kill?) dandelions, broad-leaved weeds, crabgrass (I got the impression he'd also recommend it for the control of hedges). And so I brought it home. And then I read the fine print—'apply after the SECOND mowing, when the grass was moist, but not if it was raining.' etc. I hope you have better luck than I do!"



Testing

Dr. Henry Guade, left, an MSU biologist, and graduate student Kevin King, study a 'sampler' container which has been in the Minnesota River for 42 days. It will indicate insect life that exists there. Guade is also studying the composition of

the water and river bottom to help determine what effect construction of a new bridge will have on the aquatic environment. He heads a team of 16 researchers who are compiling data on the impact bridge construction would have on plant, animal and marine life.

John Cross photo

4/18/79 1/1/79

4-Saturday, April 21, 1979 THE FREE PRESS, MANKATO

18-Wednesday, May 2, 1979 THE FREE PRESS, MANKATO

Keep bridge in same location

People have argued that the Belgrade-Mulberry site for the proposed bridge will hurt the Washington Park neighborhood which is true. But few realize that the Range-Warren site will hurt and maybe ruin a large area of North Mankato in the Nicollet Avenue and Range Street area.

In order to build the bridge and necessary ramps, you will have to remove about 40-50 homes and relocate their residents, most of whom enjoy the quiet neighborhoods in that area. The bridge at Range-Warren will bring all of the traffic going to and from North Mankato hilltop down Nicollet Avenue instead of wider Belgrade. This will make this entirely residential area a noise by-pass for all of the traffic presently using Belgrade Avenue.

Besides ruining Nicollet and Range residentially, the Range-Warren bridge could financially hurt the businesses on Belgrade Avenue that depend on the traffic for customers. It will leave places such as the Century Club off by themselves while people turn off down Range two blocks away.

The effects on either site are going to be negative for some people depending on where their homes or businesses are located. If I had to pick, I think the Mulberry-Belgrade site is overall the better, but why pick? I don't know either or not I missed something in the *Free Press*, but whatever happened to rebuilding the bridge in the same location at Main and Belgrade? This site would present the most minimal negative effects on either of the river cities. It would endanger no residential areas and would continue to help "set up" by the 21-year-old Miss Davis. It certainly seems as if this is the case. If this is true, it is disappointing that a man of Esau's convenience will definitely outweigh the damage that will come out of either of the other two sites.

The people on Mankato's council must realize that the people of North Mankato, a separate city, are also going to use and be affected by this new bridge. There must be a complete realization of how a bridge will affect North Mankato's slowly flourishing downtown in comparison to Mankato's already established one. North Mankato also has some of the nicest residential areas between the two cities and it would be a crime to spoil either these neighborhoods or our downtown, a crime that I'm sure neither the people of our city nor our city council will sit still for.

Brian Eggersdorfer
738 Nicollet Ave.

Bridge would destroy buildings

I am a resident at 115 N. Fourth St. I have just completed the remodeling of an older 127 year old house. If the Mulberry Street bridge is built it will increase the traffic nearby at the corner of Mulberry and Fourth streets. This could affect the value of my property in a very negative manner, which would also affect the amount of revenue it would generate for the city.

In a time of growing, a city must have money. How can this city destroy buildings new and old, just for a bridge, which will generate nothing except more noise, more dirt, more traffic, more street repairs, less use of a new library, and a poor chance to get elderly people to come to the housing development for the elderly (the Immanuel Hospital Project).

My opinion is that we have enough bridges now to replace the traffic in a better location. The new Highway 14 bridge can be exited at Third Avenue on Front Street for easy access to that area, and, when that is completed, to reach the hilltop area. The bridge at the south end of Front Street is readily accessible to North Mankato on from North Mankato to Mankato, get to the Mankato Mall. Both of these routes have low residential buildings on them and could provide a better and less dangerous flow of traffic.

I don't believe that we, the people, in this neighborhood should have to bear the burden of poor planning by the city or Holiday Inn. Nor should we have to pay taxes to support the Corp of Engineers only to have them try to bullheadedly make work for themselves also at our expense.

Floyd Wenner
114 N. Fourth St.

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18-June 1979 THE FREE PRESS, MANKATO

**Public hearings on
bridge may be in late
May or early June**

19—Thursday, May 3, 1979 THE FREE PRESS, WASHINGTON

By NEAL ST. ANTHONY
Free Press Staff Writer

A spokesman for a consulting engineering firm studying sites for a new Main Street Bridge said Wednesday that it will probably be late May or early June before public hearings are held—the last component in a \$2-million study on which the U.S. Army Corps of Engineers will base its decision.

Most of the data regarding social, economic and environmental impacts has been prepared for the final environmental impact statement, which is required by federal law.

There are two alternatives which the firm, Edwards and Keely, Inc., has recommended. The first is to build a new plant on the site of the old one, on the corner of Broadway Avenue in North Manhattan to Mulberry Street in Manhattan; and the second is to build a new plant on the site of the old one, on the corner of Broadway Avenue in North Manhattan to West Street in North Manhattan to West Street in Manhattan. Edwards and Keely, on the basis of information collected so far, prefer the second alternative. However, the firm has not made a formal

Sustained to some extent is advised by the Minnesota River. The North Manitoba City Council is on record favoring the Pol-

Grade to Mulberry span. The Manito City Council recently retreated from a five-year-old stance for Belgrade to Mulberry to consider the other option which city engineering staff favors at present.

The Belgrade proposal carries a price tag of \$15 million and the Range proposal would cost \$18.4 million, according to Edwards and Kelcey.

There would be substantial displacement of businesses and homes under both proposals. Neighborhood petition drives are on in both communities by people who oppose the bridge sitting in their neighborhood. The Range Street proposal would take more structures in North Mankato and the Mulberry Street proposal would have more impact on residential property in Mankato.

Saturday morning the two city councils will complete a tour of the North Manitoba Municipal Building designed to show the advantages and disadvantages of both sites.

More information and sketches of the proposed bridges are available at the bridges relocation office; 200 E. Second St., Muskegon, Michigan 49772.

Readers' Points of View

Fourth can't bear more traffic

I am very opposed to the Mulberry Street location for the shopping. Without a doubt the bus route would have to be changed. Fourth Street is unsafe.

Washington Park is the only downtown park in Mantato. Since there is no longer a grade school at the Union School some

There are many older people in this vicinity and there will be many more elderly when many more elderly are projected at the old Immanuel hospital is completed. Many of these people are without cars and are dependent on others for transportation. The playground equipment of the playground equipment has been moved to the park. Think how unsafe it will be for children playing in the park, to say nothing of their danger in crossing the street.

these people are without cars and rely on the city bus for transportation when doing their

Mulberry bridge nuisance

Mulberry.

Street would be a nuisance for all the people in Mankato. I do want the bridge out of

Bassett: no easy tradeoff in siting of new bridge

By ROBERT L. GIROUARD
Free Press Executive Editor
Mankato City Manager Bill Bassett had three loud and clear messages for members of the Lincoln Park Citizens' Association concerned about the possibility of the new Mankato-North Mankato bridge's coming across the Minnesota River and touching down at Warren Street.

His messages Wednesday night in the council chambers of city hall were:

—Every complex decision affecting public policy is essentially a choice in behalf of a lesser evil, because any project of magnitude is bound to adversely affect someone's interests.

—The fate of a Range-Warren bridge siting —the current choice of the City of Mankato — is inextricably bound to what happens to Stoltzman Road at least as far as the Lincoln Park area neighborhood is involved.

—And "Where were you people to speak up when the southern beltway was successfully opposed? We wouldn't be having all of these problems, now, if we had a southern beltway."

After some spirited exchanges and inquiries, David Naimie, 216 Fulton St., president of the Lincoln Park Citizens' Association, said the association would next week choose to endorse or not endorse the Range-Warren bridge proposal.

City Engineer Ken Saffert went over the three bridge-siting possibilities — Belgrade-Mulberry, Highway 189-Madison Ave., and Range-Warren, explaining with the use of diagrams the costs, in dollars and in household or business relocations, of each possibility, and the benefits or drawbacks of each possibility. 189-Madison Ave. being shown to be the least satisfactory, and the most "redundant," in that it would be too close to the access now available by way of Third Ave. to Highway 14.

However, the citizens' group was more concerned about the immediate traffic impact on its own neighborhood, and it was clear that even among the 30 members of the association who showed up for the informational hearing with Bassett and Saffert, sentiments were divided on the subject of Stoltzman Road. Some want it to remain as is, i.e., un-upgraded, with, perhaps, a buffer zone of cul-de-sacs around their neighborhood and in West Mankato to discourage through bridge traffic, and others wanting to see Stoltzman upgraded, whether to two surfaced lanes or four, to shunt eventual Pike Street-to-James Ave. traffic away from their neighborhood.

Bassett and Saffert both argued that once the Front Street and Pike Street extension proj-



Ron Olsson, 719 S. Broad, raises a question at an informational meeting between city officials and the Lincoln Park Citizens' Association—a meeting held to discuss alternatives for the siting of the new Mankato-North Mankato bridge. Bill Altnow photo

ects are effected, the Front Pike-Stoltzman-James alternative would become more attractive, an inner-belt route of driver-preference, and would necessarily alleviate commuter traffic on Pleasant and Clark streets, through the heart of the Lincoln Park neighborhood.

But Stoltzman Road once more became an issue in the ensuing debate, leading Bassett to finally say "What you're really arguing is that the Warren Street project, coupled with Stoltzman Road completion, is bothersome, so go with Mulberry OK, let's talk about that instead, but then there's less reason for this particular neighborhood to voice concerns, because Mulberry would have little or no effect on the Lincoln Park area."

Some disagreed, pointing out that Pleasant and Clark would still get heavy use, all else considered. "So let's go back to Stoltzman Road, then," Bassett said, admonishing that there was "no clear issue of tradeoff" in the whole situation.

Accidents at the intersection of Pleasant with Byron Street

were raised, but Bassett said a city survey in response to persistent vocal complaints about that intersection showed that in a recent two-year period for which police statistics were complete, there had been only one collision at that intersection.

"Now some of you are asking for Stoltzman Road to be completed because of too much traffic on Pleasant, and elsewhere, but where were you last year, when some of your own group spoke out against Stoltzman, saying that traffic flow didn't warrant its completion? If Stoltzman Road is completed, what are you going to have? If Stoltzman Road is built with all the other problems, which bridge site is preferable?"

A few voices in the audience chimed in together, somberly: "We don't know," or "That's what we're here to try and find out."

"Well," Bassett concluded, "opponents squashed the southern beltline, ... that's what's happening with Stoltzman Road — people like you and me aren't being heard."

May 1979

Carlson denies conflict in owning building in path of bridge plan

North Mankato Mayor Dave Carlson has denied any conflict of interest growing out of his ownership in a building which could be in the path of a bridge. His position was supported by the city attorney.

Carlson holds one-third ownership of the Stewart Building, 51 Park Lane, which houses the New Deal Cafe, several apartments, and Richard's Barber Stylist. The building would be demolished and the owners compensated by the federal government if the U.S. Army Corps of Engineers elects to build a bridge from Range Street in North Mankato to Warren Street in Mankato, to replace the Main Street bridge.

Carlson, as does the rest of the city council, is on record as supporting the other bridge site, Bridge Avenue, in North Mankato, to connect North Mankato to Mankato. That position would not affect the Stewart Building.

City Attorney Norbert Smith said Carlson told him of his interest in the building about two months ago. Smith said he determined that there was no conflict of interest. "Heaven, no," he said. "Especially when the point is being taken care against any economic gain for him."

Carlson said he made his interest known during a radio in-

terview several weeks ago. "I've tried not to make it a secret," he said. He said he did not buy the building in anticipation of its being razed. The owners, Woodcutters, Inc., took possession of the building in January.

Carlson said he also felt that there was a problem because of his state support for the Bridge Avenue-Mulberry Station. "I don't want to be anybody that creates that controversy. It's just simply a bad design. I don't like it." He said he had assumed for years that Be-

Bridge hearings next week

Public hearings on relocation of Mankato area bridges in conjunction with the flood control project on the Minnesota and Blue Earth rivers have been scheduled for the night of May 28 and 31, the U.S. Army Corps of Engineers has announced.

The public hearings on proposed sites for the Cahoon Railroad Bridge and Highway 189 twin-bridge over the Blue Earth River at 7:30 p.m. Wednesday, Roosevelt School Gymnasium, W. Sixth and Owens streets, Mankato.

On Thursday at 7:30 p.m. at the Mankato West High School

Gymnasium, 51 Park Lane, the Main Street Bridge relocation will be discussed.

Doors will be opened at 4 p.m. prior to each meeting to permit the public to review alternative plans for each bridge.

Information gathered from the hearings will be included in an environmental impact statement, which the Corps will base its decision on bridge locations.

More information is available from the bridge information office, Room 208, Northwestern Office Building, 209 S. Second St., 387-7880.

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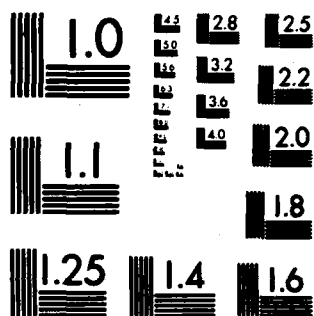
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Comparing

Continued from Page 10

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There would be increased traffic in the Broad and Fourth streets' neighborhood in Manhattan and along Rutgers-Midway. The consultants predict that the bridge would "help concentrate commuters in higher density areas in the city center, which would increase the economic value of the land. But that doesn't sit well with Washington Park neighbors who fear the break-up of their neighborhood."

City staff is also concerned about a substantial tax loss between land near Second and Main, which the city wants to develop. And they fret over the possibility of "servicing" the debtors, though the bridge would actually arch over downtown. Nevertheless, there is grumbling in Old Town about being "cut off."

On the other hand, the consultants estimate five acres—77

—SUNDAY, JULY 2, 1973 THE FREE PRESS, MANKATO

Readers' Points of View

Let's vote on the bridge

We are very much opposed to the Main Street-Mulberry bridge. In fact, I think it does not need another bridge at all. Perhaps it's time to call a halt to all this spending if taxes are to be reduced. Let the people bring it to a vote and give their opinions on what is needed most and have a voice in the tearing down of buildings and homes for a few to fill their pockets financially by disposing of property through urban renewal or whatever you want to call it. We're sick of a few making big decisions and cramming it down our throats.

Mr. and Mrs. Don Ziegler
420 E. Rock St.

ant predicted. But it may "have an adverse effect on property values of businesses on Front from Cherry to Warren" streets.

In North Mankato, the consultant said Range-Warren would result in business losses at Range Street and Belgrade Avenue. Further, it "could have a negative effect on business activity and viability" of the rest of the downtown. "Narrowing of traffic will also negatively affect the generally auto-oriented businesses on Belgrade."

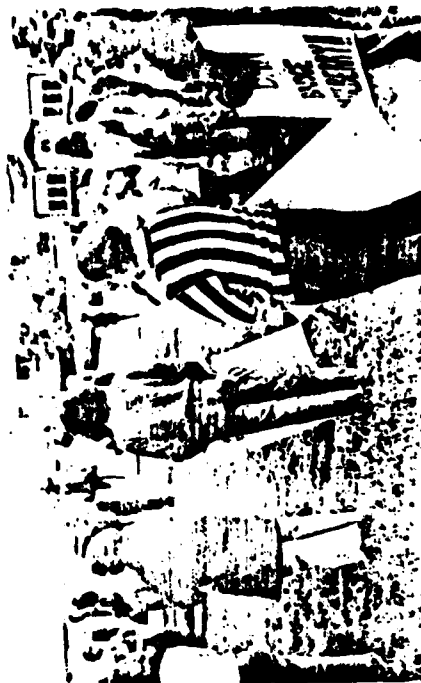
These articles were prepared by staff writer Neal St. Anthony from information provided by Edwards and Kelcey, Richards-Muller Associates, Inc., the U.S. Army Corps of Engineers and Mashado and North Mashado city officials.

MANITO

view

Mrs. Don Ziegler
420 E. Rock St.

1



A group of about 60 Washington Park area residents warmed up for the bridge meeting.



during a rally against the Mulberry to Belgrade site Thursday night.

Free Press 6/1/79

Few voice favor, many opposition to bridge choices

By JON HOLTEN

The applause and occasional grumbling displayed the affluence of the people that attended an informational meeting Thursday night on the two choices for the replacement of the Main Street Bridge.

The crowd of about 250 that gathered at the Main Street West High School in the Madison West project office split on the choice between the Belgrade Bridge to Mulberry and Range to Warren alternatives.

Few of the people actually argued in favor of one proposal or the other, although many made it known which one they opposed. And they clapped vigorously for arguments against the alternative they fear will be most detrimental to their interests.

But before the public was granted to say, representatives of the U.S. Army Corps of Engineers and Edwards and Kelcey, Inc., consultant to the Corps on the \$40 million Main Street Bridge replacement project, gave what was an informal explanation of the alternatives.

The project officials asked for technical questions of the two proposals. A few came. The crowd, eager for answers, how they would personally be affected, began launching questions about how the project would be taken by businesses and what the construction and what

Warren Range unless a system for discouraging traffic trying to avoid a Pike and Front streets bottleneck from driving through their neighborhood can be devised.

(Continued from Page 1)

North Dakota Mayor Dave Carlson contended the "clear-cut choice" based on cost, safety and displacement is the Belgrade-Mulberry bridge. He noted that, regardless of the choice, North Mankato will lose more jobs than Mankato because of displaced businesses. He added that Range-Warren, with the displacement of 27 North Mankato homes, will "obviously have more effect" than Belgrade-Mulberry because no Washington Park homes will be displaced with that proposal.

During his comments, a few members of the sign-toting Washington Park group called out several comments, including "Are you running for reelection?" "JB S." and "Do you question live on a highway?" (A question later revealed that Mulberry would be widened to the city limits on each side.) When Carlson concluded, though he received the loudest ovation of the evening, Mankato Mayor Herb Mocol took the podium and after pleading with the audience not to make the bridge issue a "tag of war" between the two cities, he explained the city council abandoned the Belgrade-Mulberry site for a neutral position because the designs have changed from those presented in 1974 made its initial endorsement. He added that he thought the addition of 4,000 cars a day would be detrimental to the Washington Park area.

"You'll strangle us to death after we've begun taking a breath of life by shutting us off from the rest of the city," said a representative of Old Town mer-

Bridge choices

chants, in contributing to the Belgrade-Mulberry opposition. The Washington Park Association presented at and Belgrade-Mulberry petition, while North Mankato residents came up with one of their own—this one with more than 1,000 signatures against Range-Warren.

Following a series of questions by one man, Lloyd Nelson of the Minnesota Department of Transportation said that Range-Warren will have to be maintained by the cities, and that access to Highway 189 would be inferior to what it is now.

"There is no future for the Range-Warren bridge because the day you put it into use, it's saturated," said Nelson. Because it won't be able to accommodate much growth, he said, it would not meet highway standards, and therefore would not qualify for maintenance aid. The cities would have to assume the approximately \$37,000 annual maintenance costs, he said.

MDOT normally builds for 20 years in the future. But a Range-Warren bridge would experience back-up problems, "and maybe beyond" that may compare with those at the current Main Street bridge.

He also noted that the design does not provide access to traffic from Mankato onto Highway 189 South or 189 traffic from the south onto the bridge. They would instead have to go through North Mankato to reach their destinations.

Because of these factors and a number of safety concerns, Nelson said he opposes the Range-Warren bridge on a "technical

basis."

Floyd Winter, 118 N. Fourth St., offered a rough plan for a bridge alternative of his own, which would span approximately from the current take-off point in North Mankato to a point south of the Holiday Inn parking ramp. "Because it's longer, it may be more expensive," he said. "But we could make up for it with the tax revenue that would not be lost."

Don Sandry, 255 N. Fourth St., already has trouble sleeping at night because of the Madison Avenue traffic two blocks from his home. He was concerned about the noise and parking problems the Mulberry-Belgrade bridge might bring his way.

He was told the noise would noticeably increase and that because he is so close to the intersection with Madison, a right turn lane will claim the parking in front of his home.

Washington Park residents were told the noise level in their neighborhood would nearly double, and that parking near the intersections of Broad and Second with Mulberry and Main would be diminished.

With the kind of estimates few people left behind, perhaps the only slightly surprising conclusion was an energy-conscious gentleman who was told yet a new bridge will have six-to-eight-foot-wide sidewalks on either side, and maybe even a foot-wide bicycle lanes traveling in either direction.

The bridge (cont.)

Ken E. Berg



been, too, from the leftists as Carlson concluded.

THE STAFF was set here for an inter-city dialogue of persons unmarked in recent years. Mayor Mocol, however, de- fended the pyrotechnics before they could scatter further.

And Mocol, who in the distant past was cast, or cast himself, in the role as a heavy in some municipal affairs, accom- plished the amicable peace- maker's role about as well as could have been expected.

Meaning, the potential was pre- sent for him to be eminently absent out of the needle, had he re- plied in heated, distant kind.

But Mocol, to his credit, didn't.

And he was also wise.

One fine morning and Mo- col, and the Manhatto council would have been dead. Had he presented the greatest too much, he would not be unlike the fol- lowing: a bomb of his own making, planted in the neighbor- hood, under a letter-to-the-editor complaining about the van- dalism and noise on the black.

Manhatto, of course, is on the defensive at this juncture of the bridge dispute. It had switched allegiance from a plan that at least had been tacitly approved on both sides of the river if the

North Manhatto Mayor Dave Carlson's voice echoed with de- cision and righteous indignation. Dressed in a business suit and reading from a prepared text, he dramatically reiterated his city's objection to relocating the Main Street bridge at any place other than the its pre- sent, "clear-cut" location. Bel- grade Avenue-Mulberry Street path.

Carlson criticized the latter- day alternative—Range Street- Mulberry Street—which had caused the Manhatto City Council and Mayor Herb Mocol to shift sup- port from the original.

Carlson was answered imme- diately by numerous applause from the "North Manhatto side" of the West High School gymna- sium, a neutral-as-possible site called by the Corps of Engi- neers to hear this rising controversy.

That's precisely how the same 200 interested citizens happened to see themselves, either by chance or in the natural quiet or allies and sympathy. The Northside were on the ap- peal, the Southside were the equally Mulberry Street. The merely curious? Just their justice—from the Manhatto.

There was a softening of

a candidate or cause, please, no defections.

Mayor Carlson obviously ac- complished this mission. I think Mocol did, too—as well as estab- lishing an air of calm that per- mitted the hearing to be ulti- mately concluded without a real hint of bloodshed.

Mocol PLAYED to the gal- leries only once, and he got away with it.

"We really don't need a new bridge," he scoffed near the close of his untroubled re- marks. And let's tear down the old and just build a footbridge instead. There should have thought that one over, even though—for the only time during the evening—if provoked clapping and cheer- ings from both sides of the part- san aisles.

The old must go; the flood con- trol people have ordained it. Commuters must have a new one; the central business distr- icts of both cities would die with- out it.

Mocol knows that. Well, there's a little ham in all of us.

NORTH MANHATO'S exor- cist position is not that Belgrade-Mulberry was the original site, with little opposition from ei- ther side. After all, that's what an ongoing study of alternatives is for—new insights or innova- tions based on more recently ac- quired, valid, information.

North Manhatto is also not best served by challenging Mul- berry Street interests (and theirs are genuine concerns we all can identify with) who say traffic counts in this area are ap- preciably higher than four years ago, that won't be less- ened by the Highway 14 bypass that will route through-traffic out of the downtown. There are better arguments than those.

North Manhatto's most power- ful resource is not Manhatto's abundant pecuniary position, but the road tracks along Pike Street that run through the heart of the city.

We don't have anything re- sembling that unanimity now. I don't believe the old canal where it darned well places. I do believe, however, that the Corps will build wherever it is functionally provident and—equally significant—wherever the Corps meets the least un- fled resists.

All these points and counter- points are, of course, useful. But mine is as salient, even as it is more valid, than the one that says there's a little ham in all of us.

NORTH MANHATO is using North Manhatto has condensed against the Range-Pike proposi- tion down to the river's very edge.

Home-owners and business- men alike in Brooklyn simply don't want it.

The Manhatto side is hardly in disarray. But it is fragmented—pro and con, citizenry and busi- nesses. If memory serves, for the first time two normally al- ways-supportive neighborhoods are in conflict positions.

A test-dug-in, east-unat- ioned, large and urban coalition forced the Corps of Engineers to bend its neck to the Twin Lakes heart of the city.

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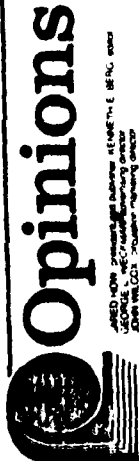
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14-7-1979, June 5, 1979 THE FREE PRESS, MANKATO

Scale models of bridge areas needed

It is obvious from the informational meeting concerning the placement of the Main Street Bridge that a great deal of confusion remains about the two alternatives.

On a project of this nature, it is very difficult for people to visualize just what the bridges would look like and where they would go.



The new bridge is a project of millions of dollars magnitude. It should not be undertaken without clear scale models of exactly how the affected sections of Mankato and North Mankato will appear under the two proposals. Residents of the two cities should be given the opportunity to examine the models. Perhaps they could be displayed at the Minnesota Valley Regional Library.

It shouldn't be too difficult for the consulting firm of Edwards and Kelly, Inc. to have the models constructed considering the huge fee it is receiving for its services. It is somewhat that all concerned residents should demand.

new bridge concept needed

I left the bridge public hearing meeting Thursday after 10:30 p.m. and after my questions were answered, only to be reminded that the reason for a new bridge is for flood control. I also was informed it is not a federal regulation or requirement to build new bridges or new highways with a clover-leaf pattern.

Many of us feel that we have not received a complete and thorough study from the consultants and the U.S. Corps of Engineers, and that our taxpayers' money for their studies has been wasted. The reason for the new bridge is for flood control, Mulberry St., Second St., North Front St., North Broad St. to Madison and North Fourth St. to Madison, was not flooded by the river and we certainly thank God, but why should we have to take a Mulberry Bridge then? To disrupt this section of Mankato is unbelievable. Being a native Mankatoan, I know where the flood waters go. That studies have been done in the areas where Mankato was flooded? Make a simple bridge there.

It is unjust and morally wrong to disrupt many of the people's homes and businesses in North Mankato and Mankato in order to build a new bridge. For the politics and the promises. Send the engineers and their consultants back to the planning stage, with a fresh start to build a new simple bridge and present these findings to the people of Mankato and North Mankato at their next meeting.

Dolores Wiertel
221 Washington Court

THE FREE PRESS, MANKATO Friday, June 29, 1979-13

Readers' Points of View

Bridge plan has merit

I was present at the May 31 meeting concerning the new bridge to be built between Mankato and North Mankato. I presented another possibility which could make both the bridge and the surrounding area more functional. I built on the Corps of Engineers consultants' one-week visit to send me a letter telling me that they felt my plan could not meet the state and federal standards. I believe it has been stated that it takes considerable time to determine a location's shortcomings. Thus my first thought was that this was an outright insult that they could take so little time to consider this plan.

Then I put the letter aside and let the matter drop. Now, after being informed about the new parking ramp, I feel I now know why the Corps and the consultants wanted me satisfied. The reason is that they didn't want the bridge to become a consideration in the construction of the new parking ramp. My reasoning is that if my plan was to be used, it would be possible to build an off-ramp directly into the second floor of the parking ramp and remove much of the congestion which will build up on whatever street and Pike Street with the additional number of cars entering and leaving this facility.

I feel that we, the people of Mankato and North Mankato, could through the use of petitions get my plan reconsidered and also get the parking ramp redesigned to facilitate the use of an off-ramp into it from the bridge.

Floyd Wenner
115 N. Fourth St.

Yes, Katos, we need bridge

By Neal St. Anthony
Free Press Staff Writer
There always has been a first choice for those who fear a simmering community rift over the matter, potential neighborhood disruption and the expense of siting a new Main Street Bridge.

The no-build option.
After all, the current 1931-vintage structure is no steel and cement dream. But you can make it scuss (albeit slowly during rush hours, if you can still afford to drive) without too much fear of landing in the drink.

The existing 2.5 miles of flood



THE
FREE PRESS

Friday, July 13, 1979-15

wall simply could be plugged at the bridge in the event of high water on the Minnesota threatening the Mankato area.

"There's a couple of holes in the design," said Captain Bob Campbell of the U.S. Army Corps of Engineers field office in North Mankato. "What would

be done would be to either sand-bag" or fill the gap in the dike caused by the bridge on both sides of the river with clay "if time permitted. Once you get water that high, you're not talking about a large hydrostatic pressure."

Simple, huh? Don't build the

bridge and shave \$15 million to \$18.5 million from the now-projected \$75.9 million cost of the entire flood control project (a flood wall, 4.7 miles of earthen levee and bridges over the Minnesota and Blue Earth rivers). Tell the U.S. Treasury Department to apply the money toward the federal budget deficit and the community gets an award for inflation fighting.

In the event of a bridge closing, commuters would be asked to pass over the river at High-

See BRIDGE
(Please turn to Page 17)

Bridge

(Continued from Page 16)
way 14, or another crossing.
Not so fast, Campbell and the other engineers say.

"What happens though," he said, "if you leave the bridge in place the statistical protection that the flood wall provides drops from protection against the flood that happens every 300 years to one that would occur every 100 years. The bridge deck is lower than our levee."

In effect, the engineers say the bridge itself would have a damming effect on the water, because it's lower than the flood wall, and because of the huge supports that stand in the water. They snag trees and other debris that rush down the river during a high-flow period. That clogs the channel and forces water pressure up and, possibly, over the banks.

"That structure would create such a dam that a flood of that magnitude could wash out that bridge," asserted Tom Wetmore, an engineer with Edwards and Kelcey, Inc., one of the firms participating in a \$1 million bridge relocation project for several area bridges.

"The existing floodworks wouldn't be adequate with that bridge acting as a dam. It's just not tenable with the kind of flood protection they want to provide."

A new bridge would be designed to avoid the problem, the experts say.

Bob Penniman, St. Paul-based Corps project manager for the Mankato effort, said the Corps aims at providing "standard project flood protection," which means enough concrete is poured and bridges replaced to protect a community against the so-called 300 year flood. "It's the worst that could realistically occur," he said.

(There's one other category—

"The maximum probable flood—that's where you'd need Noah's Ark.")

Has there ever been consideration of not replacing the bridges (at Main Street and the twin-Highway 169 bridges over the Blue Earth River)?

Penniman said there has been. The Corps does a cost/benefit analysis. Extrapolating over a 100-year period, analysts estimate the damage that a severe flood would cause to the community. "You spread that against the up-front cost" of building the bridge, Penniman said.

Several years ago, when the dike project was approved, the benefit-to-cost ratio was estimated at 1.7/1. Since that time the total cost of the project has jumped by about 35 percent—\$20 million—to \$75.9 million. Penniman said the benefit now is about 1.4/1.

The Corps' policy in assessing the efficacy of a project, Penniman concluded, is, in terms of investment, anytime you can achieve a 1-to-1 ratio or better, "Build it."

Two bridge sites are in the running to replace the Main Street Bridge—with a decision due probably within a year. They are a Belgrade Avenue in North Mankato to Mulberry Street in Mankato span and a bridge from Range Street in North Mankato to Warren Street in Mankato.

While the engineers study the hard data and logistics of each, sentiment is generally split among neighborhoods that would be affected. Mankato officials and neighborhood groups are making the case for the Warren Street touchdown, while that proposal is taboo in North Mankato because of anticipated neighborhood and traffic pattern disruptions.



Bill Altnow photo

Raging river

August rainfall in far greater amounts than normal has caused rivers, when they have stayed within their banks, to move with ex-

traordinary speed and intensity. The Blue Earth River, usually quite placid on Sept. 1, is now an extremely powerful force, as seen from the top of the Rapids Dam.

Distri THE FREE PRESS ns waste

Saturday, Sept. 1, 1979-3

THE FREE PRESS, MANKATO Monday, Oct. 29, 1979-17



Bridge relocation project

That barge that up on the Minnesota River near the Main Street bridge isn't Mankato's answer to the old barges. It's part of the Army Corps of Engineers' bridge relocation project. According to Larry LaPoint, Corps field engineer, the crew is drilling test holes

for the bridge site, taking soil samples and assessing the bedrock. LaPoint said the men also will be testing the river bottom at the Fargo-Moorhead alternative site, and on the Blue Earth River near Sidney Park and Honeywood over the next month.

John Green photo

Corps action freezes Mankato flood project

By JOHN M. THAVIS
Free Press Staff Writer
A 30-day moratorium on all new construction contracts undertaken by the U.S. Army Corps of Engineers is putting a temporary halt to Mankato's flood control project.
The Corps' chief of the Engineering Department ordered

the freeze this week after taking a good look at budget prospects for the coming year. The action affects projects nationwide.

The moratorium means the Corps is refusing to advertise for any new construction projects, is refusing to open bids on already-advertised projects, and is refusing to award con-

tracts where bids have already been received.

The action does not affect projects already under contract.

In Mankato, the freeze initially affects only a small piece of the flood control program along Pleasant Street. The Corps had advertised for bids on

the project, it canceled the advertisements this week.

The reason for the moratorium, said Robert Penniman, Corps project manager for the overall Mankato flood control project, is "a shortage of funds for doing all the work."

Penniman explained today that an unusually fast construc-

tion pace this winter used more funds than expected.

To make up for the shortage, he said, a supplemental appropriations bill went to this year's Congress. But with the current congressional budget-cutting mood, he added, "it's doubtful that the appropriation will be approved."

Impact statement on local bridge plans again delayed

By JOHN M. THAVIS
Free Press Staff Writer
A draft environmental impact statement (EIS) on proposals for three new bridges in Mankato has once again been delayed, and a spokesman for the U.S. Army Corps of Engineers in St. Paul now says it will be "late May or early June" before the document is published.

The impact statement is the next step in the long process of determining bridge sites. Public hearings on the recommended sites will be held a month after the first version of

the impact statement is released.

ONE OF the Corps' recommendations will be a new crossing location for the Main Street Bridge.

Residents on both sides of the Minnesota River have been debating the merits of the two options for the crossings—Belgrade Avenue to Mulberry Street or Range Street to Warren Street—for several years.

A year ago, the Corps was planning to have the draft EIS ready by September of 1979. The date was moved back to Janu-

ary, then to March, of 1980. The latest three-month delay, according to the Corps, is a result of new guidelines imposed on the preparation of such reports.

"They've changed the way an EIS is written," said David Miller, a sociologist for the Corps of Engineers and district coordinator for the impact statement.

THE NEW guidelines, adopted at the end of last year, mean the EIS will come out as

See IMPACT
(Please turn to Page 2)

Impact

(Continued from Page 1)
three supplements to an original study done in 1975 for a Mankato flood control project.

The three separate documents, Miller said, will treat each bridge individually and make it easier for citizens to respond to the statement.

"We've also had renegotiations of contracts with the architectural and engineering firms involved," Miller said, "and that has caused part of the delay." The firms are studying noise, traffic, land use and bridge design, as well as social, economic and biological effects of the proposed sites.

Miller reported that the contractors were now turning in their reports on the preferred locations. That information will

be studied by the Corps before the Planning Report—which will include the draft EIS—is published.

The bridge relocations (including the Highway 160 twin-bridge and an adjacent railroad bridge over the Blue Earth River) are part of the Corps' \$60 million flood control project for the Mankato area.

BARING ANOTHER postponement, Miller gave this timetable for the bridge projects.

● June 1980—The Corps will issue a planning report, and it will include a draft environmental impact statement on locations for the three bridges. Preferred bridge alternatives will be included in the report, which will be made available for public examination.

● July 1980—A public hearing, or hearings—will be held in Mankato on the recommendations for crossing sites. The testimony from the hearings will be included in a final EIS.

Various other state agencies will also begin a 60-day review of the draft statement to make sure that all impacts, ranging from environmental to economic, have been adequately studied.

● September 1980—A final environmental impact statement will be filed.

● Fall 1980—The document is scheduled to be approved, and the Corps will be making its decision on locations. Design studies for and hearings on the selected sites will be held during the fall and winter.

● 1981 to 1983—After approval of the design studies, right-of-way acquisition and preparation of construction plans, the construction will begin. The actual construction is tentatively scheduled for 1983.

Belgrade-Mulberry bridge urged

By JOHN M. THAVIS
Free Press Staff Writer
Belgrade Avenue to Mulberry Street is the preferred location for a Main Street Bridge replacement in a consultants' report to the U.S. Army Corps of Engineers.

The recommendation is "tentative," says the report, but it refers to the "clear superiority" of the Mulberry crossing over a Range Street to Warren Street proposal.

The report is part of the working papers to be used by the Corps to draft an environmental impact statement (EIS) for new

bridge locations. That EIS may or may not reflect the preliminary site judgments of the consultant firms, Edwards and Kelcey Inc. of Minneapolis and Blake-Carroll-Miller Associates Inc. of Mankato.

In recommending the Belgrade-Mulberry crossing over the Range to Warren alternative, the report cites cost, traffic, displacement and neighborhood impact factors.

A BELGRADE-MULBERRY bridge, the report says, would cost less, displace fewer houses and businesses, accommodate more traffic in a safer manner,

keep traditional Mankato-North Mankato pedestrian links, minimize visual and noise impact in North Mankato, and would benefit the downtown Mankato commercial business district.

At the same time, the report says, it would adversely affect the Washington Park neighborhood and decrease development potential in the immediate Mulberry Street landing area.

Mankato city officials withheld comment today on the consultants' recommendation, saying they would wait until the Corps has issued its draft EIS. "It's premature to say

whether we'll accept their recommendation (on the Main Street bridge replacement) for the draft EIS," David Miller, Corps district coordinator, said today. "And if we do, the site could still be changed during the hearing process." Public hearings on the alternative sites are scheduled after release of the draft EIS, probably in July.

On most points of comparison, the report finds the Mulberry crossing superior to the Range-Warren alternative in addition to the major impact categories, the report also studies the effects on noise, air qual-

ity, water resources, parks and historic sites.

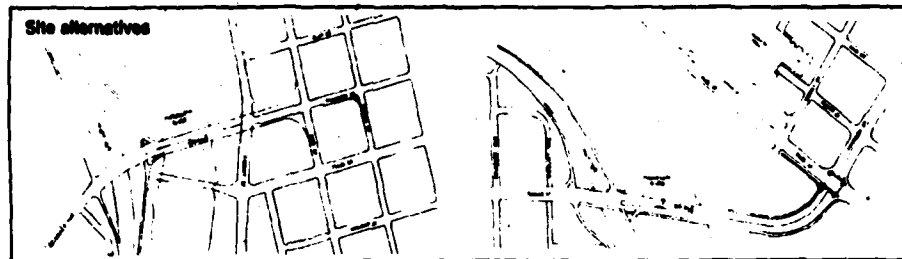
Specifically, the report makes these comparisons:

• **Displacements.** The Range-Warren crossing would displace 60 houses and 10 businesses, mostly in North Mankato. The Belgrade-Mulberry crossing would displace only 19 houses and seven businesses.

• **Traffic service and safety.** The Mulberry location, the report says, would provide good overall access and convenience, while meeting safety and capacity standards. The Range-Warren link, on the other hand, would result in more overall travel, along with reduced safety and capacity.

The report was especially critical of the Range-Warren bridge design. It would be too steep, it says, with too tight a curve. Combined with that, dual left-turn lanes on the Mankato side would make the bridge "particularly hazardous in inclement weather."

Because traffic would exceed design capacity, the report concludes, the Range-Warren bridge could be "very



See BRIDGE
(Please turn to Page 2)

Bridge

(Continued from Page 1)

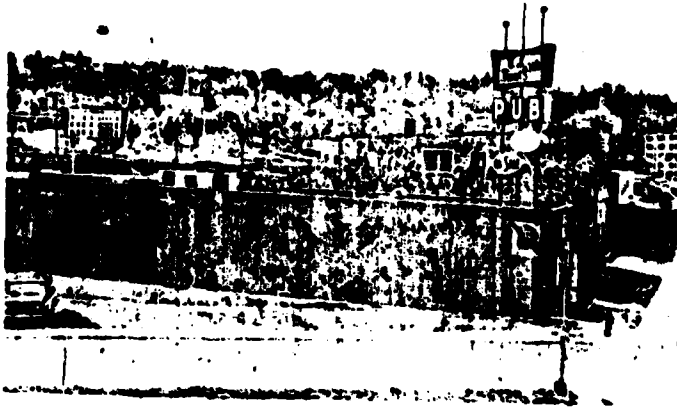
hazardous." While the Belgrade-Mulberry crossing would preserve traffic links between North Mankato and the Old Town-Library area, the report says that North Second Street's traditional function as an access route to Mankato's central business district would end. The bridge would arch over Front Street, but it would cover North Second Street, and disrupt pedestrian access from the Burton Hotel area to downtown.

Some Washington Park residents had feared that a Mulberry crossing would pour traffic into their neighborhood. A traffic study shows that, indeed, an initial traffic increase of 30 percent could be expected on North Fourth Street and Broad Street.

• **Neighborhood impacts.** In the Nicollet Avenue neighborhood in North Mankato, the biggest impact of the Range-Warren alternative would be loss of homes, combined with more noise, heavy traffic and just plain ugliness.

The Warren crossing might also increase traffic in the Lincoln Park neighborhood.

The Mulberry crossing would hit the Washington Park neighborhood hardest, with lower property values the probable result. In the report's language, "accelerated land-use conversions would adversely affect neighborhood cohesion and short-term property values." The potential for high noise lev-



This view from North Mankato shows the approach to a Belgrade Avenue-to-Mulberry Street bridge would take. Mulberry Street, in the left-center of the photograph, would be the landing

area of the bridge alternative recommended by a consultants' report to the U.S. Army Corps of Engineers. The buildings in the foreground would be torn down.

els might require truck prohibitions on certain streets.

In addition, the report says, the Mulberry landing area would visually detract from the Burton Hotel block.

• **Redevelopment.** The Range-Warren bridge has one big disadvantage here. While it would bring an immediate development stimulus to the Pike-Pepper streets area, it would also take out three existing businesses and one-and-a-half acres of redevelopment land. That

land was originally cleared in the Poplar-Minnesota Street project—mostly at federal expense—and was groomed for light industrial use.

A Range-Warren link, by skirting Belgrade Avenue, would also create uncertainty for the North Mankato downtown business district, the report says.

On the other side of town, the report estimates that the Mulberry Street area has a development potential of \$4.9 million. With a Belgrade-Mulberry

bridge, that potential would be reduced to about \$3 million. Some of the affected land is owned by the City of Mankato.

Whatever redevelopment takes place in the Mulberry Street neighborhood, it will probably require special design measures to lessen the visual impact of the new bridge. That would be especially true for the Old Town side of the bridge.

Both bridges, the report concludes, would have an overall good effect on the Mankato cen-

tral business district.

• **Cost.** A Belgrade-Mulberry bridge would cost more than \$15 million to build. That's about \$4 million less than a Range-Warren bridge. Maintenance for a Mulberry crossing would also be less.

THE RANGE-WARREN proposal was a relative latecomer to the bridge debate. Until 1979, both Mankato and North Mankato had supported the idea of a Mulberry crossing.

Then Mankato planners took a closer look at redevelopment issues in the Mulberry Street area, as well as business displacements. Washington Park residents also opposed the Mulberry plan, and some businesses worried that Old Town might be covered from South Front Street. By last spring, some city officials were recommending the Range-Warren alternative.

Planners on the other side of the river have called the Range-Warren proposal a potential "disaster" for North Mankato.

The Main Street Bridge replacement evaluation is one of three preliminary reports prepared for the Corps. Sites for two other bridges were also recommended. One will be part of Highway 160 and 56 over the Blue Earth River between Mankato and LeCenter; another will be a smaller railroad bridge over the Blue Earth River.

The Corps is financing the bridge projects out of its flood control budget for Minnesota.

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Bridge delay worthwhile

The prospect of still another delay in the construction of a replacement for the Main Street bridge between Mankato and North Mankato can be frustrating — some might view it as just another version of government delay.

Usually such delays also mean project costs will increase, boosted by ongoing inflation. At a time when government penny pinching is truly being encouraged, the delay seems wasteful.

But it appears that this time the delay has specifically been brought about by the new miserly attitude of government. Looking for ways to cut costs, the Army Corps of Engineers thinks by bending or ignoring a few regulations it won't have to tear up Highway 162 if it chooses the Mulberry Belgrade plan, thus saving considerably on the total project cost. Mulberry Belgrade is already estimated to be \$4 million cheaper than the Warren Range proposal. If the Corps is looking at further savings on the Mulberry Belgrade plan, it would indicate that the cheapest plan in terms of government expenditure will have the highest priority when the final site selection is made. But the Corps needs more time to investigate the cost saver.

In the past, when the United States' economy

was unchallenged in the world, the flow of dollars from Washington seemed unstoppable. The common view was that these dollars were "free" dollars. It didn't make any difference how much the government spent, the economic machine continued amassing wealth for all but a few Americans.

Today, however, that same uncontrolled governmental spending is increasingly being viewed as the cause of the nation's economic decline. Federal dollars are no longer thought to be free. The philosophy that costs need to be cut wherever possible, even if only \$1 million can be saved, is a small sum in a \$90 billion budget, is gaining popularity in government circles.

If the Corps thinks it can make substantial savings in construction costs by delaying the project several more months to investigate an economy measure, then it should be applauded for doing so. After all, it is some dollars earned by all of us tax payers. It might seem that the savings on one particular project has some particular community would be negligible as to an individual taxpayer, but it is just that philosophy which has created the mushrooming federal budget. The Corps should be congratulated for trying to save wherever possible.

APR 15/1980 / BPS
11/11

THE
FREE PRESS
Thursday, Sept. 11, 1980—13

Main Street bridge work planned

Repairs of the Main Street railroad crossing are scheduled to begin in two weeks.

The repairs, originally scheduled to begin this week, were delayed because of a derailment near Madelia, according to Jerry Miller of the Minnesota Department of Transportation.

The Chicago and North Western Transportation Co. shipped track that was to be used at the Main Street crossing to Madelia instead.

Signs will be posted prior to the start of the repairs, which will require rerouting of traffic.

The Chicago and North Western is responsible for the cost of the repairs. Miller said the railroad intends to reduce the crossing to one track.

THE
FREE PRESS
Tuesday, Sept. 30, 1980—15

Main Street bridge to close for two weeks

The Main Street bridge will be closed for about two weeks beginning Monday, so the three railroad tracks on the Mankato side can be repaired and the ground resurfaced. Sidewalks on the bridge will remain open for pedestrians.

Traffic entering Mankato from North Mankato will

have to use either the North Star bridge to Park Lane or the Minnesota River bridge on Trunk Highway 14.

The Chicago and North Western Transportation Co. will be raising the railroad lines and putting in new blacktopping, according to Harold Dougherty, roadmaster for the company.

Officials explain twin-bridge plan for Highway 169

By HARVEY MEYER

Free Press Staff Writer

About 100 persons packed the Roosevelt Elementary School Wednesday night to hear officials explain how the Highway 169 twin bridge will conform to an area flood control project.

The public hearing was the first in a series scheduled for the three proposed new bridges located in the project area. Specifically, the hearing was held to explain the twin bridge plan for the Blue River, Earth River, and Howard Road. The project is owned by the Minnesota Department of Transportation and will be built by the state.

The project will be built in three phases. The first phase will be the construction of the Blue River bridge. The second phase will be the construction of the Earth River bridge. The third phase will be the construction of the Howard Road bridge. The project is expected to be completed by 1985.

The project is a major improvement to the Highway 169 corridor. It will provide a safer and more reliable route for traffic. The project is also a key component of the state's flood control program.

The project is a major investment in the state's infrastructure. It will create jobs and stimulate the economy. The project is also a key component of the state's transportation plan.

about \$100 million, than the

terminal bridge.

THE PREPARED design also would displace one bus and 12 houses. Three of the houses are on the Lehigh Road, two along Minnesota Road and seven along West 24th Street. The property tax base in the area has been estimated at \$1.4 million.

Some 300 to 400 Street East residents at the hearing called for a study of the area. They also called for a more detailed study of the area. They want to know more about the project and its impact on the area.

If the project is approved, it will be a major improvement to the Highway 169 corridor. It will provide a safer and more reliable route for traffic. The project is also a key component of the state's flood control program.

See BRIDGE 4

Bridge

Continued from Page 1

ment will be included in the final design. The project is expected to be completed by 1985.

Under the Corps plan, a new bridge would be built at the Lehigh River. The bridge would be a twin bridge, with two spans. The bridge would be built on a new foundation. The project is expected to be completed by 1985.

According to the Corps, the design of the twin bridge will be a major improvement to the Highway 169 corridor. It will provide a safer and more reliable route for traffic. The project is also a key component of the state's flood control program.

Bridge delay still worthwhile

Now that the steel bridge plan has been selected, it is hoped the Army Corps of Engineers can act on it. The Corps is expected to issue a decision on the project by the end of the year. The project is expected to be completed by 1985.

The delay to invest in the project is still worthwhile, according to the Corps. The project is expected to be completed by 1985. The project is also a key component of the state's flood control program.

The Corps is expected to issue a decision on the project by the end of the year. The project is expected to be completed by 1985. The project is also a key component of the state's flood control program.

MnDOT designates 10-ton roads

Five major roads in the state are designated as 10-ton roads. The roads are: Highway 169, Highway 168, Highway 167, Highway 166, and Highway 165. The roads are expected to be completed by 1985.

The project is a major improvement to the Highway 169 corridor. It will provide a safer and more reliable route for traffic. The project is also a key component of the state's flood control program.

The project is a major investment in the state's infrastructure. It will create jobs and stimulate the economy. The project is also a key component of the state's transportation plan.

The project is a major improvement to the Highway 169 corridor. It will provide a safer and more reliable route for traffic. The project is also a key component of the state's flood control program.

Free Press April - 8 - 1981

No dud flood

Ken E. Berg
Press Press Editor



The Minnesota River, since 1881, has never exceeded 39 feet in flood stage. The 1907 flood, however, was the year that the St. Louis and North Park Zoo was wiped out and LeHillier and West Mankato were destroyed. The 1907 flood was the worst flood in the history of the Minnesota River. North Mankato was evacuated, as in 1881, but this time the move was precautionary, as water was kept out of the community proper, thanks to reinforcements to earthen dikes thrown up after the flood came in 1881. West Mankato got it again in 1909 when the water reached 27 feet. It remained near that level for 10 days, and the water was so high that it was necessary to build levees around North Mankato and adding steel struts to the boom-bowed dikes around West Mankato. But, except for the westside, things held

Not to be forgotten, too, are the lesser flood threats that dominated the early decade between the 1880s and the 1950s. Thus, in response to seminars and North Dakota's escalating, legitimate pleas, Congress and the Corps of Engineers entered the valley in earnest in the 1970s. The network of concrete flood walls, sculptured earthen dikes and pumping stations silt in the process of completion on both sides of the river are the result of the Twin Kats' long — not always successful, but always heroic — battle with the vagaries of the Minnesota and Blue Earth rivers. For newcomers who arrived during the largely snowless winter, it must be difficult to view the now *flooded Minnesota* (4.5 feet this morning) and understand that those ominous flood walls were put there for a reason. This brief recounting also should point out that it was not an arbitrary decision to insure our protection to a depth of 33 feet — remember 1881, when it reached the record 31 feet.

Hardly a man is now alive who remembers that infamous day

Identify a man in row alive who remembers that infamous day and a year (Not a bad option; maybe somebody will get around to writing a version of the line in a poem). The infamous day was just about now, in April. The infamous year was precisely 100 years hence now, in 1881. The biggest, although not necessarily the worst, flood in Minnesota's recorded history swept the Minnesota River far over its banks on both sides. Water covered the length of Front Street south of the hill and spread as far east as the then first station on Second Street (present site of D'Amico's). The rowboat, not the customary horse and buggy, was the mode of transportation throughout the central business district. Even when the waters retreated to their normal channel, the residue of mud and debris on the dirt streets made horse traffic impossible for several more days.

There was no river forecasting in 1961, just as there was no flood forecasting in 1960. The winter of 1961 was an exceptionally high water year on the Mississippi River. The winter's heavy snow that preceded the present-day flood was the cause of the high water. The winter's heavy snow that preceded the present-day flood was the cause of the high water. The winter's heavy snow that preceded the present-day flood was the cause of the high water.

The costliest and most disruptive flood in Manitoba occurred nearly 70 years later, in April 1951. As in 1881, there had been extremely heavy snow, almost double the annual average and much of it late in the season. Similarly, the two rivers chose to shed their ice caps in unison, causing further pressure to the spring runoff in 1951, the Minnesota River at the bridge reached a crest of nearly 20 ft over 1950, and the Red River peaked at 20 ft. Downstream, 20 to 40 feet, or five feet under 1881. That's why, in 1951, downtown Manitoba was spared. However, North Manitoba, West Manitoba and LeBoucher—largely populated in 1881 but highly developed and industrialized 70 years later—were inundated and forcibly evacuated. The loss to a young city of 100,000 as well as the loss of 100,000 in the United States, as the same wave was affected. In 1951, the destruction amounted to millions of dollars and some 400 persons were made homeless or otherwise experienced loss and inconvenience.

...the book "that a lot of us, and our forebears, helped write

Speaking of remembering, Bob Wright, the greatest Mankato State English prof, provides a mellow postscript to a column page earlier this week I had said that a lot of young people don't remember; when Daylight Saving Time was not a six-month way of life in Minnesota, Wright touches on the subject of memories in the latest issue of *The Correspondent*. It is an occasional newsletter from "Pan Letter," he calls it that he publishes as a labor of love. O'Brien and Patricia Hampf this week, I have begun to feel ya there, as they write of the 1960s as if those years were not just yet over, as they seem to me. To them, and to my son who shares their birthday year, 1948, the '50s are where memory starts. These youngsters, the '60s generation, look back upon the '50s and write about childhood fears I have trouble remembering — of 'the bomb' and of 'communism'. My childhood fears were all focused against a different monster, something called 'The Depression.' Please God, help the Depression get over! I would pray by each night. For my wife the fear was of kidnapping, brought on by the Mankato case. Childhood fears seem to affect our lives permanently. The Depression is still with me — a part of me.

Memories of the third biennial reunion of the "Depression bds." at the Kato 30-40 Club, won't be a part of your nucleus yet, we're already registered or about you sign up by Sunday. Chairman Del (Ben) Hoffman, Richard Homme, Phoebe, Arts. reports that all survivors are doing well. The 1920s and 40s have made reservations. A delegation of 100 is going by air at 12:30. The dates are May 25-27. The place, Southgate Hotel, New York. Twenty-three rooms will be held through April 12 for late registrants; simply call the hotel. At least four teachers will be present - C.J. Arnold, Phil Iwente, Karl Asberg and Curtis Johnson. And, oh yes, Homme says I'm supposed to tell the "dumb couple." Lefty Hoffman, man who'd better be there, too.

STATE AND FEDERAL AGENCY CONTACTS

STATE AND FEDERAL AGENCY CONTACTS

Letter and project map sent to the following:

United States

Department of the Army, Corps of Engineers
Department of the Interior, Fish and Wildlife Service
Department of the Interior, Bureau of Sport Fisheries and Wildlife
Department of the Interior, National Park Service
Department of the Interior, Heritage Conservation and Recreation
Service
Department of the Interior, Geological Survey, Water Resources
Department of Commerce, Economic Development Administration
Department of Agriculture, Soil Conservation Service
Department of Transportation, Federal Highway Administration
Department of Transportation, Federal Railroad Administration
Department of Housing and Urban Development
Environmental Protection Agency
Water Resources Council, Upper Mississippi River Basin Commission
Advisory Council on Historic Preservation
Department of Transportation, Urban Mass Transit Administration
Department of Transportation, Coast Guard

Minnesota

Department of Transportation
Department of Natural Resources
Department of Agriculture
Department of Economic Development
Department of Public Safety
Department of Public Service
Department of Health
Historical Society
Pollution Control Agency
Water Resources Board
State Planning Agency
Environmental Quality Board
Energy Agency

RECEIVED

OCT 12 1978

EDWARDS & KELCEY

To: Thomas E. Metcalf, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency Minnesota Department of Health
Name of Person to Contact Paul B. Johnson
Position or Title Senior Engineer
Address 717 Delaware Street S.E.
City-State Minneapolis, Minnesota Zip Code 55440
Telephone Number 296-5331

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OCT 10 1978

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Address 717 Delaware Street S.E.
City-State Minneapolis, Minnesota Zip Code 55440
Telephone Number 296-5331

Paul B. Johnson
Signed

Thomas E. Metcalf
Signed

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SEP 27 1978
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Name of Organization/Agency Department of Agriculture/Division Planning
Name of Person to Contact Shirley Rutherford
Position or Title Management Analyst
Address 560 State Office Building
City-State St. Paul, MN Zip Code 55155
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Joseph E. Egan
Signed

Shirley Rutherford
Signed

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OCT 4 1978

EDWARDS & KELCEY

To: Thomas E. Wetmore, P.E.
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Minneapolis, MN 55435

Name of Organization/Agency Minnesota Pollution Control Agency
Name of Person to Contact Clifford Anderson
Position or Title Water Quality Coordinator
Address 1935 West County Road B2
City-State Roseville, Minn. Zip Code 55113
Telephone Number 612-296-7215

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SEP 25 1978

EDWARDS & KELCEY

To: Thomas E. Wetmore, P.E.
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Name of Organization/Agency Minnesota Water Resources Board
Name of Person to Contact Erling M. Weiberg
Position or Title Executive Secretary
Address 555 Wabasha Street Room 206
City-State St. Paul, Minnesota 55102
Telephone Number 292-2200

Handled by
4/55
4/8

Erling M. Weiberg
Signed

Clifford Anderson
Signed

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OCT 10 1978

EDWARDS & KELCEY

To: Thomas E. Metcalf, P.E.
Project Manager
Edwards and Kelcey, Inc.
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Name of Organization/Agency Minnesota Department of Transportation
Name of Person to Contact Dale H. Shaw
Position or Title Project Manager
Address 501 South Victory Drive
City-State Minneapolis, Minnesota Zip Code 55401
Telephone Number (607) 389-6351

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OCT 4 1978

EDWARDS & KELCEY

To: Thomas E. Metcalf, P.E.
Project Manager
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4930 W. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency Department of Natural Resources
Name of Person to Contact Hedia Riecke
Position or Title Federal Programs Coordinator/Senior Hydrologist
Address Division of Water, 244 Lafayette Road, St. Paul, MN
City-State St. Paul, Minn. Zip Code 55107
Telephone Number 296.4803

Lloyd G. Vidler
Signed

November 1978
by

Signed

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

RECEIVED
SEP 26 1978
EDWARDS & KELCEY

Name of Organization/Agency Economic Development Administration
Name of Person to Contact Stanley J. Rechaver
Position or Title Economic Development Representative
Address Room 104, Federal Building, 316 K. Robert Street
City-State St. Paul, Minnesota Zip Code 55101
Telephone Number (612) 725-7124

Note: Currently neither Blue Earth County nor Nicollet County are designated redevelopment areas under the Public Works and Economic Development Act of 1965, As Amended. Therefore, public works projects in these areas are not eligible for financial assistance through the Economic Development Administration.

Stanley J. Rechaver
Signed
Sept. 25, 1978.

Stanley J. Rechaver
4

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

RECEIVED
SEP 25 1978
EDWARDS & KELCEY

Name of Organization/Agency Urban Mass Transportation Administration
Name of Person to Contact Thomas A. Podraza
Position or Title General Engineer
Address 300 South Wacker Drive
City-State Chicago, Illinois Zip Code 60606
Telephone Number 312/353-2883

Thomas A. Podraza
Signed

Thomas A. Podraza
9/25
4

Advisory Council on
Historic Preservation
1522 K Street, N.W.
Washington, D. C. 20005

October 16, 1978

RECEIVED

OCT 20 1978

Mr. Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, Minnesota 55435

Dear Mr. Wetmore:

Thank you for your letter of September 15, 1978, concerning bridge alterations for flood control along the Blue Earth River, which may affect properties included in, or that may be eligible for inclusion in, the National Register of Historic Places. The information you requested is attached.

We appreciate your cooperation in furnishing us with this material. We will contact the Corps of Engineers regarding its responsibility to consider the impacts this project may have on historic properties, pursuant to Section 106 of the National Historic Preservation Act of 1966.

Sincerely yours,

Myra T. Harrison

Myra T. Harrison
Assistant Director
Office of Review
and Compliance

Enclosure

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency Advisory Council on Historic Preservation
Name of Person to Contact Joseph P. Hough
Position or Title urban planner
Address 1522 K Street, NW
City-State Washington, D.C. 20005 Zip Code 20005
Telephone Number 202-254-3967

Joseph P. Hough
Signed

The Council is an independent unit of the Executive Branch of the Federal Government charged by the Act of October 15, 1966 to advise the President and Congress in the field of Historic Preservation.

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency U.S. DEPT. OF HOUSING AND URBAN DEVELOPMENT
Name of Person to Contact William Middleton
Position or Title ENVIRONMENTAL CLEARANCE OFFICER
Address 1400 FRANCE AVE, SO.
City-State MPG, MN. Zip Code 55435
Telephone Number 725-4724

-4652
-4653
-4654

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency U.S. DEPT. OF HOUSING AND URBAN DEVELOPMENT
Name of Person to Contact William Middleton
Position or Title ENVIRONMENTAL CLEARANCE OFFICER
Address 1400 FRANCE AVE, SO.
City-State MPG, MN. Zip Code 55435
Telephone Number 725-4724

Model

William F. Middleton
Signed

William F. Middleton
Signed

Mr. Little 10/2/4



DEPARTMENT OF TRANSPORTATION

UNITED STATES COAST GUARD
District
1430 Olive Street
St. Louis, MO 63103

RECEIVED

OCT 5 1978

STANLEY & KELCEY

Mr. Thomas E. Wetmore, P.E.
Project Manager
Stanley & Kelcey, Inc.
4930 N. 77th Street
Minneapolis, MN 55435

Re: Proposed replacement and alteration of Highway 169 Bridges across
Mississippi and Blue Earth Rivers; Replacement of Chicago &
Northwestern Transportation Bridges across Blue Earth River

Dear Mr. Wetmore:

Please refer to your letter of 12 September 1978 concerning preparation
of design memorandum number 8 for referenced project.

Blue Earth River in Blue Earth County Minnesota is not considered to be a
navigable waterway of the United States for bridge administration
purpose.

Minnesota River is considered to be a navigable waterway of the United
States from its mouth to Big Stone Lake (Mile 319.5), but has been placed
in the "advisory approval" category from Mile 29.6 to Big Stone Lake (Mile
319.5). Upstream extensions of and tributaries to waterways in the
advisory approval category are considered to be in the same category.

The advisory approval category, as set forth in Title 33, Code of Federal
Regulations, Section 115.70, gives the Commandants advance approval to
the location and plans of bridges to be constructed across navigable
waterways or waterways navigable in law but not actually navigated other
than by logs, log rafts, runboats, canoes and small motorboats. In such
cases, the clearance provided for high water stages will be considered
adequate to meet the reasonable needs of navigation.

The term "high water" means the maximum high water of record or the
highest known stage where precise records are not available and include
both freshwater and saltwater flooding.

A Coast Guard Bridge Permit will not be required for the proposed work.

We trust that you will include in your plans measures to prevent all
optics during construction.

Section 404 of the Federal Water Pollution Control Act Amendments of 1972
authorizes the Secretary of the Army, acting under the Chief of
Engineers, to issue permits for the discharge of dredged or fill material
into the navigable waterways of the United States. It is suggested that
you contact the District Engineer, U.S. Army Engineer District, St. Paul,
for a determination as to whether such permit is needed for the bridge
that you propose.

Sincerely,

ST. W. THOROUGHMAN

Chief, Bridge Branch

By direction of the District Commander

Copy to:
Chief St. Paul

To: Thomas E. Wetmore, P.E.
Project Manager
Stanley & Kelcey, Inc.
4930 N. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency Commander, Second Coast Guard District (cbr)

Name of Person to Contact Mr. Stanley THOROUGHMAN

Position or Title Chief Bridge Branch

Address 1430 Olive Street

City-State ST. LOUIS, MO. Zip Code 63103

Telephone Number 314-425-4607



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Commanding Officer
U. S. Coast Guard
Marine Safety Office
P. O. Box 3428
St. Paul, MN 55165

16590

14 September 1978

Mr. Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

Dear Mr. Wetmore:

This is to acknowledge your letter of 12 September 1978 concerning a contract with the St. Paul District Corps of Engineers for the preparation of Design Memorandum No. 8, Bridge Alterations for Flood Control.

I am the Commanding Officer of the U.S. Coast Guard Marine Safety Office and can act as liaison between your firm and my district office's Bridge Branch. Mr. Stanley Thoroughman, Chief of the Bridge Branch, and his staff can provide you with a list of the required reports, etc. His staff will also be reviewing any actions concerning alterations, deletions or additions to river crossing structures. A copy of your letter and enclosure has been forwarded to the Bridge Branch.

Enclosed find the completed enclosure to your letter for Mr. Thoroughman and myself. If I may be of any further assistance, feel free to contact me.

Sincerely,

L. E. Katcharian
L. E. KATCHARIAN
Commander, U.S. Coast Guard
Commanding Officer
Minneapolis/St. Paul, MN

Encl: (1) Address Sheets

Copy to: CCMD2(ohr) (less encl)

Mr. L. E. Wetmore 9/3/78 (2)

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency U.S. COAST GUARD

Name of Person to Contact Leon L. KATCHARIAN

Position or Title CDR, USCG, COMMANDING OFFICER

Address P.O. BOX 3428

City-State ST. PAUL, MN Zip Code 55165

Telephone Number 612-725-7452

L. E. Katcharian
L. E. KATCHARIAN
Signed

7/10/1978 / E.L. 79 209, F.M.A.
JRE

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OCT 5 1978
EDWARDS & KELCEY

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency Federal Highway Administration
Name of Person to Contact Dennis Luhrs
Position or Title Area Engineer
Address Suite 490, Metro Square Bldg. 7th & Robert St.
City-State St. Paul, MN Zip Code 55101
Telephone Number 725-5956

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency Upper Mississippi River Basin Commission
Name of Person to Contact Jeffrey P. Featherstone
Position or Title Associate Program Manager
Address Room 510 Federal Bldg. Fort Snelling Twin Cities, MN 55111
City-State _____ Zip Code _____
Telephone Number 725-4690

Signed Frederick A. Behrens
Frederick A. Behrens
District "A" Engineer
Federal Highway Administration

Signed Jeffrey P. Featherstone
Jeffrey P. Featherstone

Nov 6 1978



U.S. DEPARTMENT OF THE INTERIOR

United States Department of the Interior

HERITAGE CONSERVATION AND RECREATION SERVICE

LAKE CENTRAL REGION
ANN ARBOR, MICHIGAN 48107

RECEIVED
OCT 18 1978
EDWARDS & KELCEY

cc: Roger Davis

October 16, 1978

Mr. Thomas E. Wetmore, P. E.
Edwards and Kelcey, Inc.
4930 West Seventy-seventh Street
Minneapolis, Minnesota 55435

Dear Mr. Wetmore:

This is in response to your request for early coordination and comment concerning the proposed project to raise a railroad bridge over the Blue Earth River and highway bridges over the Blue Earth and Minnesota Rivers in the Mankato area.

Based on the information provided and our general knowledge of the area, it appears that the project would not have significant adverse impacts on environmental resources within our area of jurisdiction and expertise. We suggest that the potential impact the project may have on cultural resources be determined by contacting the State Historic Preservation Officer (see attached list).

This comment is provided as technical assistance and does not satisfy our obligation under the National Environmental Policy Act with respect to any negative declaration or environmental impact statement which may be prepared.

Sincerely yours

David H. Shook
David H. Shook
Assistant Regional Director

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency U.S. Geological Survey
Name of Person to Contact George H. Carlson
Position or Title Supervising Hydrologist
Address Rm. 702 Nat. Office Bldg
City-State St Paul, Minn. Zip Code 55101
Telephone Number 725-7841

Signed

Mr. Shook

RECEIVED
OCT 10 1978
EDWARDS & KELCEY

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435



United States Department of the Interior

NATIONAL PARK SERVICE
NINETEENTH REGION
1709 JACKSON STREET
OMAHA, NEBRASKA 68102

RECEIVED
SEP 25 1978
EDWARDS & KELCEY

Name of Organization/Agency Edwards and Kelcey, Inc.
Name of Person to Contact Thomas E. Wetmore
Position or Title Project Manager
Address 4930 W. 77th Street
Minneapolis, MN 55435
City-State Minneapolis, MN Zip Code 55435
Telephone Number 612/725-7161

Mr. Thomas E. Wetmore
Edwards and Kelcey, Inc.
4930 West Seventy-Seventh Street
Minneapolis, Minnesota 55435

Dear Mr. Wetmore:

The National Park Service has no concern or responsibility related to the bridge work in the Mantato, Minnesota, flood control project.

Sincerely yours,

James L. Ryan
James L. Ryan
Acting Regional Director

Richard C. Gier
Signed *for R.F. Gier*



DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT CORPS OF ENGINEERS
1128 U. S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101

RECEIVED
SEP 23 1978

EDWARDS & KELCEY

ONLY TO
ATTENTION #:
MCSGO-CCH

21 September 1978

Amarlo J. Romano
Project Director
Edwards and Kelcey Inc.
4930 W. 77th St.
Minneapolis, MN 55435

Dear Mr. Romano,

I would like to place our office on your mailing list for receipt of newsletters and announcements concerning the bridge relocation project in Mankato. Being a construction office, we sometimes lose touch with the planning and design aspects of the project, and have recently received numerous inquiries about the bridges. Looking forward to your local office opening and our association with your Representative here.

Sincerely yours,

Robert D. Campbell
Robert D. Campbell
Captain, Corps of Engineers
Mankato Office Engineer
503 Range Street
Mankato, Minnesota 56001

To: Thomas E. Wetmore, P.E.
Project Manager
Edwards and Kelcey, Inc.
4930 W. 77th Street
Minneapolis, MN 55435

Name of Organization/Agency U. S. Environmental Protection Agency - Western District Office

Name of Person to Contact Clarence C. Oster

Position or Title Director

Address 7401 Lyndale Avenue South

City-State Richfield, MN Zip Code 55423

Telephone Number 861-4467

Signed

APPENDIX D

GLOSSARY OF TERMS

1. Standard Project Flood (SPF): The highest water surface resulting from the most severe possible flood that can reasonably occur under the most severe hydrological and climatic conditions.
2. Design Memorandum No. 8 - Part I (Location Study) and Draft Supplement II to the Final Environmental Impact Statement consists of three volumes: One volume for the TH 169/60 over the Blue Earth River, one for the Chicago and North Western Transportation Company (CNW) bridge over the Blue Earth River, and one for the TH 60 (Main Street) bridge over the Minnesota River.
3. Freeboard: The difference in elevation between the highest water surface and top of flood barrier; or in the case of a bridge -- the lowest member of the bridge should clear the design flood stage (usually by three feet) or the highest water surface, for the passage of ice and debris.
4. dba: A unit for measuring the volume of a sound. Sound is measured in units of decibels (db) or more commonly in units of dbA. The "A" weighted scale, found to compare well with human reaction to sound and noise annoyances. An L_{10} represents the noise measurement that is exceeded 10% of the time; L_{50} -- 50% of the time.
5. Standard Metropolitan Statistical Area (SMSA): A U.S. Census statistical area comprised of a county containing a city of 50,000 or more, plus any contiguous socially and economically related counties. The concept of an SMSA is to present census-related statistical data.
6. Pasquall-Gifford Stability Classification (SC): A measure of the hydrostatic equilibrium of the atmosphere. Stability can be classified into groups denoted by letters of the alphabet. Class D refers to neutral conditions, A-C to unstable, and E-F to stable. Pollutant dispersion is increasingly greater as the stability decreases (i.e., from F toward A).

FLOOD CONTROL
MINNESOTA RIVER, MINNESOTA
MANKATO-NORTH MANKATO-LE HILLIER

DESIGN MEMORANDUM NO. 8 - PART I (Location Study)

AND

DRAFT SUPPLEMENT II TO THE
FINAL ENVIRONMENTAL IMPACT STATEMENT

FOR

BRIDGE RELOCATIONS

MAIN STREET,
TRUNK HIGHWAY 60 BRIDGE
OVER THE MINNESOTA RIVER BETWEEN
MANKATO AND NORTH MANKATO

APPENDIX E

Mn/DOT AND FHWA LETTERS (ALTERNATIVE 1DA)

TABLE OF CONTENTS

Minnesota Department of Transportation
Correspondence, November 6, 1980

Federal Highway Administration
Correspondence, December 12, 1980



MINNESOTA DEPARTMENT OF TRANSPORTATION

TRANSPORTATION BUILDING

ST. PAUL, MN 55155

Office of Commissioner
November 6, 1980

612-296-3000

Colonel William Badger, District Engineer
St. Paul District, Corps of Engineers
1135 U. S. Post Office & Custom House
St. Paul, Minnesota 55101

In reply refer to: 317
Mankato-North Mankato Flood Control Project
Replacing the Main Street (T. H. 60) Bridge
over the Minnesota River between Mankato
and North Mankato. Review of Alternates 1CA and 1DA
S. P. 0701-08 & 5212-05

Dear Colonel Badger:

At a meeting of Corps of Engineers, Edwards & Kelcey, Federal Highway Administration (FHWA) and Minnesota Department of Transportation (Mn/DOT) personnel, alternate 1DA, replacement of the Main Street (T.H. 60) bridge over the Minnesota River, was reviewed. At the meeting, both FHWA and Mn/DOT personnel expressed concern about the steep grades and turning movements on steep grades for alternate 1DA (4.60% for 1DA vs. 3.20% for alternate 1CA at the intersection of northbound T.H. 169 ramps and 4.64% for 1DA vs. 4.00% for 1CA on approach to Mulberry Street and Second Street) and the design year level of service provided by alternate 1DA at the intersection of Belgrade Avenue and T.H. 169 southbound ramps (level "D" for 1DA and level "C" for 1CA). The Corps of Engineers asked us to define our policy on steep grades and level of service and address ER 1180-1-1 (Corps of Engineers), which states in part, that "the State should be required to show, at the very least, that the higher design criteria have been or are being maintained on comparable roads."

We have reviewed our primary design guidelines, which are the Mn/DOT design manuals and the American Association of State Highway and Transportation Officials, formerly American Association of State Highway Officials, publications "A Policy on Design of Urban Highways and Arterial Streets", 1973, and "A Policy of Geometric Design of Highways and Streets" review draft #2, December 1979. We feel that 4.60% and 4.64% grades of alternate 1DA are excessive and do not meet the design guidelines for urban design with a large number of turning movements. The 3.20% and 4.00% grades of alternate 1CA are steep, but we find them to be acceptable for this location.

The Mn/DOT road design manual guidelines for vertical alignment, "maximum grades" is as follows:

1. Maximum grade controls for various design speeds for two-lane main highways are shown in Table A 5-291.221. Secondary highways may be about 2 percent steeper. The desired maximum for freeways and expressways is 3 percent.

AN EQUAL OPPORTUNITY EMPLOYER



APPENDIX E, P. E-1

November 6, 1980
Col. William Badger
page 2

2. Use of maximum grades is not considered to be standard practice. They may be used only in extreme cases and must be fully justified in writing to the Road Design Engineer.

A copy of Table A-5-291.221 is attached as exhibit "A".

"A Policy on Geometric Design of Highways and Streets", review draft #2, December 1979, copyright 1979, by the American Association of State Highway and Transportation Officials, indicates that every attempt should be made to design and build as flat of grade as possible. Several excerpts from draft #2 are attached as exhibit "B" to this letter.

The Mn/DOT and AASHTO manuals provide the guidelines for the design engineer. They will give the engineer the necessary flexibility to provide the best possible design using the parameters of each given situation. The need for good engineering judgement in the design of a roadway is indicated by (a) the foreward to the Mn/DOT Road Design Manual which states:

The manual is not designed as, nor does it establish, a legal standard. It is published solely for the information and guidance of Highway Department employees, and is not intended to be used as a substitute for engineering judgement.

and (b) the preface to "A Policy on Design of Urban Highways and Arterial Streets", AASHO, 1973, which states:

Design policies such as this present working control and design values that have been judged to be proper for national application. In some cases they necessarily are presented as "minimum" values; in other instances, higher "desirable" values also are given. It is to be emphasized that "good" design will not necessarily result from direct use of the policy values. To form a segment of highway that will be truly efficient and safe in operation, be well fitted to the terrain and other site controls and be acceptably amendable to the community environment it must be a carefully tailor-made design for the unique set of conditions along that segment. Also it must be a consistent part of a considerable length of highway, without noticeable variation. Such designs are not always attained by putting together certain sets of "book" values pronounced to be suitable. While all designs should satisfy the minimum values, they should be made to values as high as commensurate with conditions. Values at or near the minimums should be used in design only where the use of higher values will result in excessive

cost or otherwise unacceptable conditions. In determination of all geometric features, including right-of-way, a generous factor of safety should be employed and unquestioned adequacy should be the criterion. Highways being provided today must be planned and designed for future, not the present, traffic volumes and operating norms. Under urban conditions, the ability to fully predict future traffic volumes has been at best uncomfortable, which further suggests use of good factors above minimum. With a design approach that broadly reflects these features, non-routine but thoughtful application of the contents of this Policy will result in high quality transportation and community service for many years ahead.

The Minnesota Department of Transportation has attempted to provide the best level of service and the flattest grades in the Mankato area. There are two highway crossings of the Minnesota River in Mankato, in addition to the Main Street bridge. We also have reviewed the vertical alignment of forty bridges in the Mankato area.

T.H. 169 and 60 cross the Minnesota River and railroad tracks southwesterly (upstream) of the Main Street bridge. The bridge has a 1.35 percent grade. The southerly approach has a flatter 0.10 percent grade and the northerly approach has a 0.05 percent downgrade for the northbound through traffic and a short section of 5.0% upgrade for the through southbound traffic. The vertical alignment is controlled by the clearance over the railroad tracks, the river, and the roadway interchanges at both ends of the bridge.

T.H. 14 crosses the Minnesota River northerly (downstream) of the Main Street Bridge. The bridge has a 1.61 percent grade. The westerly approach is controlled by a 4.14 percent grade as it traverses down the high bluff, then a 1.03 percent grade at the intersection of T.H. 169 just west of the bridge. The 1.61 percent grade of the easterly approach is controlled by the clearance over the railroad and an eight foot deep cut through the rock outcropping.

The forty bridges that are on the trunk highway system, carrying either highway or local traffic and are within fifteen miles of Mankato were checked for vertical alignment (See exhibit D for location of bridges). Of the forty bridges, only one bridge had a grade steeper than 4 percent. That one bridge is located on T.H. 99 at the southwest edge of St. Peter and carries highway traffic over the railroad. The bridge was built in 1948 and vertical alignment was controlled by the steep hill (Minnesota River valley bluff) and the railroad tracks. When designed, T.H. 99 entered St. Peter without a stop condition. Since then, T.H. 169 has been re-routed and an at-grade interchange was placed at the base of the hill. T.H. 99 is a low volume, local user road.

November 6, 1980
Col. William Badger
Page 4

The design level of service used by Mn/DOT is described in the book "A Policy on Design Urban Highways and Arterial Streets", 1973, American Association of State Highway Officials, on page 27. The guide for selection of design levels of service indicates a level of service of "C" for all urban and suburban areas, except signalized intersections on principal arterials which should be level "B". See attached exhibit "C", table A-5. The design level of service is based on the 20 year projected traffic analysis. Edwards and Kelcey, Inc. report dated July 3, 1980, indicates that alternate 1DA would operate at a "C" level of service until 1995 and at "D" from then until 2006 at which time it would fall into the "E" level, while alternate 1CA provides a level of service "C" until 2006 and level "D" until 2016. Mn/DOT finds alternate 1DA unacceptable since it does not meet our guidelines for level of service in the year of 2000.

Weather conditions in the Mankato area are such that bridges and interchanges become very slippery due to frost, rain, sleet, ice, and snow from October to April. Although Mn/DOT maintenance forces can control these slippery conditions most of the time with de-icing chemicals, the people of Minnesota and the State Legislators have been very critical of the amount of chemicals used by Mn/DOT on roads and bridges. Every effort is being made to reduce the amount of chemicals used.

Based on design guidelines, past engineering design practices, sound engineering judgement, and a detailed analysis as presented in the preceeding paragraphs, Mn/DOT finds the alternate 1DA design concept unacceptable and we recommend the design and construction of the alternate 1CA design concept. We consider the construction of Alternate 1CA to be a sound investment of federal funds that will return dividends to the taxpayers in future years.

This design has been reviewed with the Federal Highway Administration and they concur with our recommendations. A copy of this letter is being forwarded to them for their formal review and comment.

Sincerely,



Richard P. Braun
Commissioner

cc:
William Lake, Federal Highway Administration

5-291.220 VERTICAL ALINEMENT**5-291.221 GRADES****A. General**

A grade line is a reference line used to establish elevations in the construction of roadways. It is controlled mainly by topography, type of highway, sight distance, soils conditions, drainage, aesthetics and requirements of the affected communities.

The relation of grades and their lengths to design speed is an important consideration in the design of highways. The effect of grades on truck speeds is much more pronounced than that on speeds for passenger cars. Charts showing the deceleration and acceleration of trucks on grades are shown in Fig. B & C 5-291.273. These charts serve as a valuable design guide in evaluating the effect of trucks on traffic operations for a given set of profile conditions. For instance, a truck beginning a 6 percent grade at 30 mph will be traveling about 8 mph at the end of a 1000 foot long climb.

B. Maximum Grades

1. Maximum grade controls for various design speeds for two-lane main highways are shown in Table A 5-291.221. Secondary highways may be about 2 percent steeper. The desired maximum for freeways and expressways is 3 percent.

2. Use of maximum grades is not considered to be standard practice. They may be used only in extreme cases and must be fully justified in writing to the Road Design Engineer.

C. Minimum Grades

Flat grades on pavement without curbs are not objectionable, since the transverse slope on the pavement crown has minimum downgrade of 1% and the shoulder slopes from -1% to -6%. On curbed pavements the minimum cross slope is usually 0.5 percent; however, in urban areas minimum cross slopes as flat as 0.25% may have to be used to meet existing features. Wherever possible, grades should be sufficiently steep to prevent ponding of water along the gutters.

MAXIMUM GRADES

Type of Topography	Design Speed, mph							
	30	40	50	60	65	70	75	80
Flat	6%	5%	4%	3%	3%	3%	3%	3%
Rolling	7%	6%	5%	4%	4%	4%	4%	4%
Mountainous	9%	8%	7%	6%	6%	5%		

Table A 5-291.221**D. Critical Lengths of Grade**

1. The above term is used to indicate the maximum length of ascending grade upon which a truck can operate without an unreasonable reduction in speed. If this length is exceeded a truck climbing lane should be considered. See 5-291.273.

2. Critical lengths of grade for use in design may be obtained from Fig. A 5-291.221. For ordinary design purposes the 15 mph-speed-reduction curve should be used.

3. If descending grades are sufficient to cause trucks to gear down, their low speeds on a road may be hazardous and a truck lane should be considered.

4. Examples

a. Determine the critical length of grade having a level approach grade to a 4 percent grade using Fig. A 5-291.221. Direct reading on the 15-mph line where it intersects the 4-percent horizontal line shows the critical length to be 1100 feet.

b. The critical length of a +5% grade approached by a 700 foot length of a +2% grade is 625 feet. The chart shows that 700 feet of a +2% grade results in a speed reduction of about 3 mph. The chart further shows that the remaining allowable speed reduction, 15 mph less 3 or 12 mph, will be made on 625 feet of 5% grade.

c. Where an upgrade is approached by a downgrade, trucks often increase speed in order to make the climb on the upgrade at a higher speed. A speed increase of 5 mph can be considered for moderate downgrades to 10 mph for steeper downgrades. On this basis, the permissible truck speed reduction becomes 20 or 25 mph. For example, where there is a moderate length of 4 percent downgrade in advance of a 6-percent upgrade, a permissible speed reduction of 20 mph can be assumed. For this case the critical length of the 6-percent grade is about 800 feet.

EXHIBIT "A"**APPENDIX E, P. E-5**

EXHIBIT "B"

Excerpts from

"A Policy on Geometric Design of Highways and Streets"

draft #2

December 1979

Copy right 1979 by the American Association
of State Highway and Transportation Officials

From chapter III - Elements of Design. Part referring to vehicle-operating characteristics on grades. "Passenger Cars.....Studies show that operation of a 3-percent upgrade, compared with that on the level, has only a slight effect on passenger car free speeds under uncongested conditions. On steeper grades the speeds decrease progressively with an increase in the ascending grade. On downgrades, passenger car speeds generally are slightly higher than on level sections but local conditions govern."

"Trucks. The effect of grades on truck speeds is much more pronounced than on speeds of passenger cars. Average speed of trucks on level sections of highway approximates the average speed of passenger cars. Trucks show an increase in speed on downgrades up to about 5 percent and a decrease in speed on upgrades of about 7 percent or more, as compared to operation on the level. On upgrades the maximum speed that can be maintained by a truck is dependent primarily upon the length and steepness of the grade and the weight/horsepower ratio, which is the gross vehicle weight divided by the engine horsepower. Other variables that affect the average speed over the entire length of grade are the entering speed, wind resistance, and skill of the operator. The latter two cause only minor variations in the average speed."

"....The truck is able to accelerate to a speed of 25 mph (40 km/h) or more only on grades of 3.5 percent or less. These total data serve as a valuable guide for design in appraising the effect of trucks on traffic operation for a given set of profile conditions."

"Site conditions generally established alignment and grade limitations on intersecting roads. It is often possible to modify the alignment and grades, however, and thereby improve traffic conditions and reduce hazards, particularly on rural highways."

"The gradients of intersecting highways should be as flat as practical on those sections that are to be used for storage space for stopped vehicles, sometimes referred to as storage platforms. Most vehicles with either manual or automatic shifts must have the brakes applied to stand still while the motors are running unless they are stopped on a gradient flatter than 1 percent."

"The calculated stopping and accelerating distances for passenger cars on grades of 3 percent differ little from the distances at the level. Grades steeper than 3 percent require correction of the several design factors to produce conditions equivalent to those on level highways. Most vehicle operators are unable to judge the increase or decrease in stopping or accelerating distance that is necessary because of steep grades. Their normal deductions and reactions thus may be in error at a critical time. Accordingly, grades in excess of 3 percent should be avoided on intersecting highways. Where conditions make such design unduly expensive, grades should not exceed about 6 percent, with a corresponding adjustment in design factors."

From Chapter VII - Arterial Roads, and Streets. Discussion on grades, "The grades selected for an urban arterial may have a significant effect on its operational characteristics. Steep grades affect truck speeds and overall capacity. On arterials having large numbers of trucks and operating near capacity, grades flatter than those in rural sections should be considered to avoid undesirable reductions in speeds. Steep grades also result in operational problems at intersections, particularly during adverse weather conditions. For these reasons it is desirable to provide the flattest grades possible, while providing minimum gradients as required to insure adequate longitudinal drainage in curb sections."

From Chapter IX - At-Grade Intersections. Excerpts from appt on alignment and profiles.

"Intersections are points of conflict between vehicles, pedestrians, and facilities and hence are potentially hazardous. The alignment and grade of the intersecting roads, therefore, should permit drivers to discern and perform readily the maneuvers necessary to pass through the intersection safely and with a minimum of interference between vehicles. To these ends the alignment should be as straight and the gradients as low as practical. The sight distance should be equal to or greater than the minimum values for specific intersection conditions, as derived and discussed later. If it is not, drivers having difficulty in discerning the actions of other vehicles, in reading and discerning the message of traffic control devices, and in controlling their vehicles."

Excerpt from part on Effect of Vertical Profiles

"The differences in stopping distances on various grades at intersections are the same as those given in chapter III in the section "Effect of Grade on Stopping Sight Distance --Wet Conditions." The differences indicate that grades up to 3 percent have little effect on stopping sight distances, and grades up to 6 percent may be ignored if great precision is not desired. Grades on an intersection leg should be limited to 3 percent unless the sight distances are considerably in excess of the minimums for stopping on a level grade, in which case the grades should not be greater than 6 percent.

From Chapter X - Grade Separations and Interchanges. Excerpt from Over versus Under

"A detailed study should be made at each proposed highway grade separation to determine whether the main road should be carried over or under the structure. Often the choice is dictated by features such as topography or highway classification. It may be necessary to make several nearly complete preliminary layout plans before a decision regarding the most desirable general plan can be reached. Some statements of over-versus-under preference follow, but such general guides should be subordinated to detailed studies of the separation as a whole.

At any one site the governing conditions as to which road should be carried over usually fall into one of three general groups: (1) The influence of topography predominates, and the design must be closely fitted to it, (2) the topography does not favor any one arrangement, and (3) the alignment and gradeline controls of one highway are sufficiently important to subordinate those of the other and, possibly, to adopt an arrangement contrary to one that fits the site topography.

As a rule, a design that best fits the existing topography is the most pleasing and economical to construct and maintain, and this factor becomes the first consideration in design. The chief exception to this is the case where a major road is sufficiently predominant in design to overweigh topographic and crossroad controls. Where topography does not govern, as is common in the case of flat topography, it may be necessary to study secondary factors, and the following additional points of general consideration need to be examined:

1. For the most part designers are governed by the need for economy, which is obtained by designs fitting existing topography, not only along the intersecting highways but for the whole of the area to be used in ramps and slopes. Thus, it is necessary to consider alternates in the interchange area as a whole to decide the over-versus-under question.
2. There is certain traffic warning advantage on an undercrossing highway. As a driver approaches, the structure looms ahead, makes obvious the upper level crossroad, and gives advance warning of likely interchange connections. In level topography where the overpass highway is built up to cross over a highway at normal ground level, there also is similar warning advantage. Where an undercrossing highway dips beneath a crossroad at horizon level, this advantage is minimized.
3. Through traffic is given esthetic preference by a layout in which the more important road is the overpass. A wide overlook is possible from the structure and its approaches, giving drivers a minimum feeling of restriction.
4. Where turning traffic is significant, the ramp profiles are best fitted when the major road is at the lower level. The ramp grades then assist turning vehicles to decelerate as they leave the major highway and to accelerate as they approach it, rather than the reverse. In addition, on diamond-type interchanges the ramp terminal is visible to drivers as they leave the major highway.
5. In rolling topography or in rugged terrain, major road overcrossings may be attainable only by a forced alignment and rolling gradeline. Where there otherwise is no pronounced advantage to the selection of either an underpass or an overpass, the type that provides the better sight distance on the major road (desirably safe passing distance if the road is two-lane) should be preferred.

6. An overpass offers the best possibility for stage construction, both on the highway and the structure, with minimum impairment of the original investment. The initial development of only part of the ultimate width is a complete structure and roadway in itself. By lateral extension of both or construction of a separate structure and roadway for a divided highway, the ultimate development is reached without loss of the initial facility.
7. Troublesome drainage problems may be reduced by carrying the major highway over without altering the grade of the crossroad. In some cases the drainage problem alone may be sufficient reason for choosing to carry the major highway over rather than under the crossroad.
8. Where topography control is secondary, the cost of bridges and approaches may determine whether the major roadway underpasses or overpasses the minor facility. A cost analysis that takes into account the bridge type, span length, roadway cross section, angle of skew, soil conditions, and cost of approaches will determine which of the two intersecting roadways should be placed on structure.
9. An underpass may be more advantageous where the major road can be built close to the existing ground, with continuous gradient, and with no pronounced grade changes. Where the widths of the roads are greatly different, the quality of earthwork makes this arrangement more economical. Because the minor road usually is built to lower standards than the major road, grades on it may be steeper and sight distances shorter, with resultant economy in grading volume and pavement area on the shorter length of road to be rebuilt above the general level of the surrounding country.
10. Frequently, the choice of an underpass at a particular location is determined not by conditions at that location but by the design of the highway as a whole. Grade separations near urban areas constructed as parts of a depressed expressway, or as one raised above the general level of adjoining streets, are good examples of cases where decisions regarding individual grade separations are subordinated to the general development.
11. Where a new highway crosses an existing route carrying a large volume of traffic, an overcrossing by the new highway causes less disturbance to the existing route and a detour is usually not required.
12. The overcrossing structure has no limitation as to vertical clearance, which is an advantage in the case of oversized loads requiring special permits.
13. Desirably, the roadway carrying the highest traffic volume should have the fewest number of bridges for better rideability and fewer conflicts when repair and reconstruction are necessary.

Excerpt from Approaches to the Structure-Alinement, Profile, and Cross Section.

"The general controls for horizontal and vertical alinement and their combination as stated in chapter III, should be adhered to closely. In particular, any relatively sharp horizontal or vertical curves should be avoided. Horizontal curvature that begins at or near a pronounced crest or sag should be avoided. The gradients on intersecting roads at an interchange should be kept to a minimum and in no case should they exceed the maximums established for open-highway conditions. Gradients that may slow down commercial vehicles or that may be difficult to negotiate when icy should be avoided. Reduction of vehicle speeds by long upgrades encourage passing, which is hazardous in the vicinity of ramp terminals. Slow-moving through vehicles also encourage abrupt cutting in by vehicles leaving and entering the highway."

highway being less than ideal include lanes and shoulders of substandard width, steep grades, low design speed, substandard intersections, substandard ramp terminals and short weaving sections.

Traffic Factors

Traffic factors that should be taken into consideration in relating traffic volume to operating conditions are commercial vehicles and fluctuations in traffic volume (Peak Hour Factor). Allowance should be made for these variables in accordance with the *Highway Capacity Manual*.

Levels of Service

(p. 306)

The *Highway Capacity Manual* expresses operating conditions in terms of the following levels of service: A—free flow, with low volumes and high speeds, B—stable flow, but speeds beginning to be restricted by traffic conditions, C—in stable flow zone but most drivers restricted in freedom to select their own speed, D—approaches unstable flow; drivers have little freedom to maneuver, E—flow is unstable, may be short stoppages, F—forced flow at low speeds, usually queues from a downstream restriction.

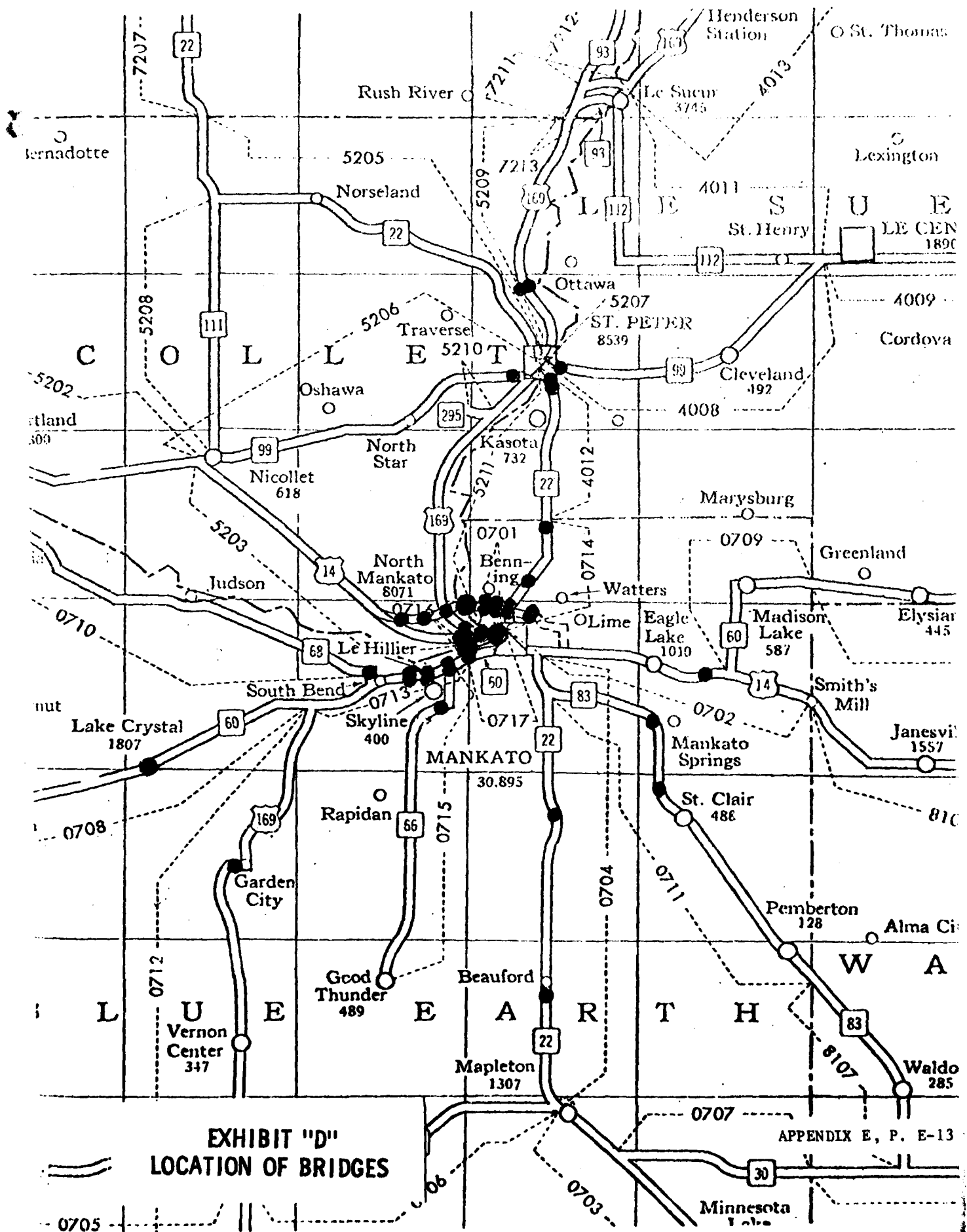
Limiting values for these levels of service are expressed in terms of operating speeds and volume-to-capacity ratios (V/C), or in the case of intersections at grade, in terms of load factors. The relationship between highway type and locations, and the level of service appropriate for design is summarized in table A-5. The highest feasible level of service should be sought. In heavily developed sections of metropolitan areas, conditions may force the use of level of service D for freeways.

Table A-5
GUIDE FOR SELECTION OF
DESIGN LEVELS OF SERVICE

Ref. table G-5, p. 303

Highway Type	Type of area and appropriate level of service	
	Urban and Suburban	Rural
Freeway		
Through Lanes	C	B
Ramp Terminals	C	B
Weaving on main lanes	C	B
Weaving on C-D roads	C	B
Other Arterials		
Main Roadways	C	B
Weaving Sections	C	B
Signalized Intersections		
Principal arterials	B	A
Other Arterials	C	B
Local Roads & Streets	C	C

EXHIBIT "C"





**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 5**

Suite 490, Metro Square Building
St. Paul, Minnesota 55101

December 12, 1980

IN REPLY REFER TO:

Mr. William W. Badger
Colonel, Corps of Engineers
District Engineer
Department of the Army
St. Paul District
Corps of Engineers
1135 U.S. Post Office &
Custom House
St. Paul, Minnesota 55101

Dear Mr. Badger:

We have reviewed your November 18, 1980 letter and the attached November 6, 1980 letter from Commissioner Braun regarding bridge grades and we offer the following comments and background information on Federal Highway Administration (FHWA) policy.

The standards, specifications, policies, guides and references that are acceptable to FHWA in the geometric and structural design and traffic control features of highways are outlined in the Federal-Aid Highway Program Manual (FHPM) 6-2-1-1. The policies and guidelines published by the American Association of State Highway and Transportation Officials (AASHTO) and by the Minnesota Department of Transportation (MN/DOT) together with our FHPM provide the primary policies and guidelines that we use in reviewing the design of a project. These policies and guidelines generally list both desirable and minimum standards. We have traditionally encouraged the use of desirable standards and rarely do we grant any exceptions to the minimum standards. It is stated in FHPM 6-2-1-1 that any determination to approve a project design that does not conform to the minimum criteria can be made only after due consideration is given to all project conditions including the maximum service and safety benefits for the dollar invested.

Your letter specifically asked for our views on the reduced dollars and improved traffic considerations attributed to alternate 1DA when compared to alternate 1CA. Since neither your letter or the attached letter from Commissioner Braun addressed alternative costs it is difficult to be specific in regard to cost. However, the excerpt from "A Policy on Design of Urban Highways and Arterial Streets", AASHTO, 1973 given on page 2 of Commissioner Braun's letter and the above mentioned section of FHPM 6-2-1-1 adequately addresses FHWA's philosophy on project alternative costs. Although it appears the initial cost of alternate 1CA may be more than alternate 1DA, we concur with MN/DOT that alternate 1CA

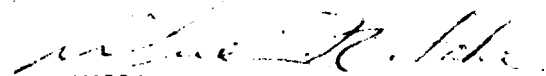
- More -

would provide for both a safer facility and a facility that would serve the needs of the travelling public for a longer period of time.

The second part of your question implies that alternate 1DA is better from a traffic standpoint than alternate 1CA. This is not true. As indicated in Commissioner Braun's letter, alternate 1CA provides for the AASHTO recommended level of service for the design year of this project while alternate 1DA would not. This alone makes alternate 1DA an undesirable choice.

In summary, we find that the MN/DOT, through information presented in Commissioner Braun's November 6, 1980 letter has adequately presented justification in support of building alternate 1CA and we would approve this request under our normal Federal-aid highway funding authority.

Sincerely yours,



William R. Lake
Division Administrator