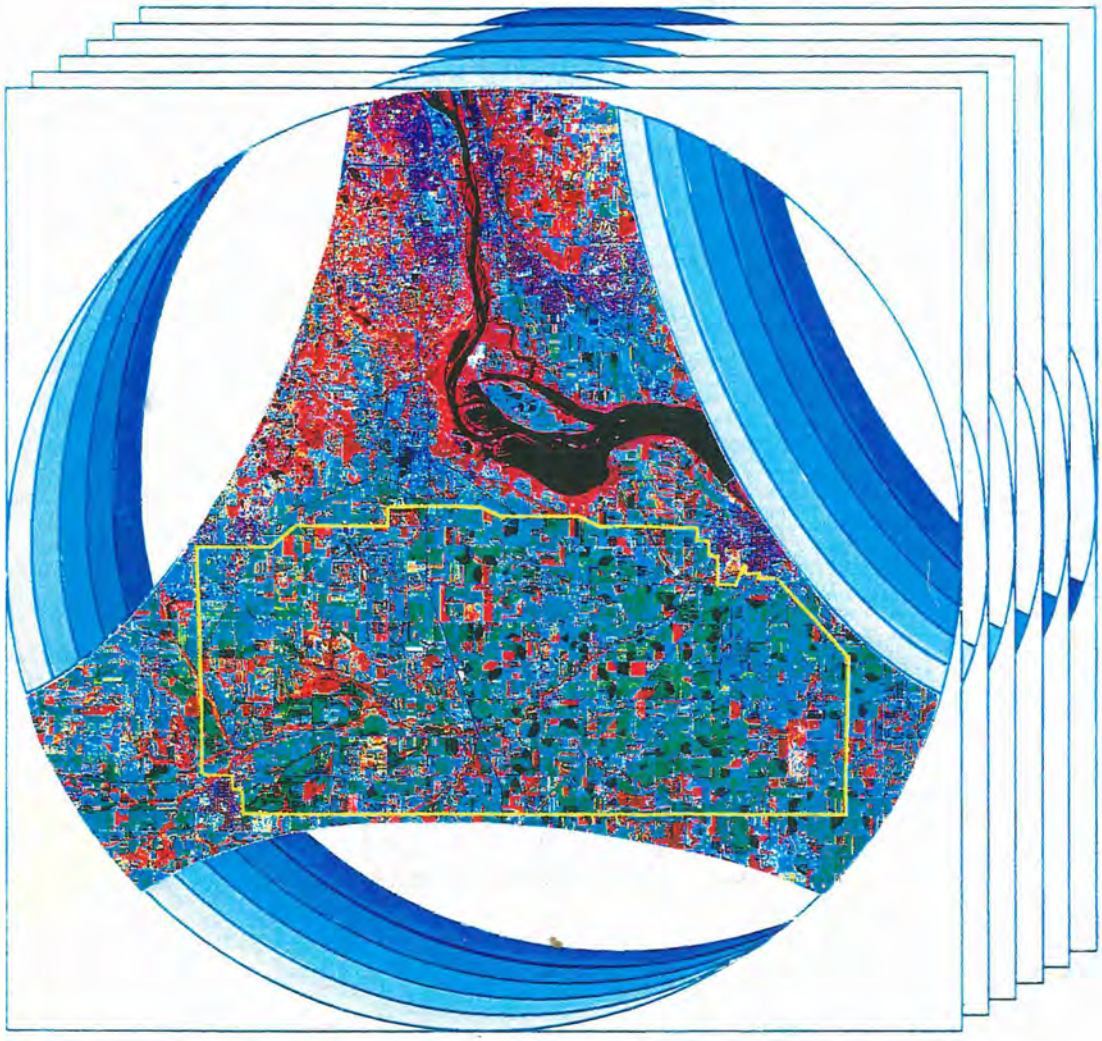
Dual Track Airport Planning Process



New Airport Comprehensive Plan

Scoping Environmental Assessment Worksheet and Draft Scoping Decision Document

Metropolitan Airports Commission

Dual Track Airport Planning Process

New Airport Comprehensive Plan

Scoping Environmental Assessment Worksheet

April 1994

Prepared for:

Metropolitan Airports Commission

Prepared by:

HNTB

HOWARD NEEDLES TAMMEN & BERGENDOFF
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and associated firms

Acknowledgements:

Cover includes Landsat-5 images of the Study Area in the visible and infrared bands. Prepared by Remote Sensing Laboratory, Department of Forest Resources, College of Natural Resources, University of Minnesota in cooperation with the Metropolitan Council of the Twin Cities Metropolitan Area. Landsat imagery reproduced by permission of Earth Observation Satellite Company, Lanham, Maryland, U.S.A.

SCOPING ENVIRONMENTAL ASSESSMENT WORKSHEET

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INTRODUCTION

The Dual Track Airport Planning Process was mandated by the 1989 Minnesota Legislature, and is designed to preserve the future development options of a major airport in the Twin Cities Metropolitan Area. One track is to provide the needed capacity and facilities at the Minneapolis-St. Paul International Airport (MSP). The other track is to provide the needed capacity and facilities at a new (replacement) airport in the Dakota Search Area designated by the Metropolitan Council. The dual track process will determine and compare the costs, benefits and impacts (social, economic and environmental) for each airport alternative and the "no action" alternative. The dual track planning and environmental processes are described in the "First Phase Scoping Report"[1] and summarized in Figure 1 (Appendix A).

Site 3 was selected by the Metropolitan Airports Commission (MAC) as the site in the Dakota Search Area for the development of a New Airport Comprehensive Plan. This Environmental Assessment Worksheet (EAW) serves as the "scoping" for the Alternative Environmental Document (AED) of the New Airport Comprehensive Plan. "Scoping" is the decision-making process that determines what alternatives, impacts, issues and mitigative measures will be addressed in the AED and in what level of detail. The AED is similar to an Environmental Impact Statement (EIS) except that only alternative plans in Site 3 will be considered at this stage of the dual track process. Other reasonable alternatives to accomplish the long-term air transportation needs of the region and the no-action alternative will be evaluated in the EIS later in the dual track process.

Accompanying the Scoping EAW is a Draft Scoping Decision Document (SDD). This is a draft version of the SDD which will be adopted by the Metropolitan Airports Commission (MAC) after the scoping comment period -- and is the official "blueprint" as to what will be studied in the AED.

The EAW presents the new airport comprehensive plan alternatives and the social, economic and natural environments that would be affected. Many of the impacts are not known at this time, but will be determined in the AED.

The Draft SDD focuses on the comprehensive plan alternatives, impacts and issues that are proposed to be addressed in the AED. It is a preliminary version of what the MAC is proposing to study in the AED in order to solicit comment from the general public and affected agencies. Following the comment period, the MAC will respond to comments, make appropriate changes, and adopt the final SDD.

The format for the Scoping EAW is the Minnesota Environmental Quality Board's Environmental Assessment Worksheet. All figures (graphics) are in Appendix A.

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[1]First Phase Scoping Report, Metropolitan Airports Commission, April 1992

LIST OF PREPARERS

The following consulting firms and agency prepared the documents.

HNTB	Lead Consultant
Archaeological Research Services	Archaeological Resources
David Braslau Associates, Inc.	Air Quality
HDR Engineering, Inc.	Surface Water and Groundwater Quality
Hess, Roise and Company	Historical Resources
Lynne Bly & Associates, Inc.	Water Resources Planning and Solid/Hazardous Waste
Metropolitan Council	Land Use Planning, Socioeconomic, Traffic and Surface Transportation
Peterson Environmental Consulting, Inc.	Wetlands, Biotic Communities, Bird Strike Issues
Goodwin Communications Group	Editing and Newsletters

NOTE TO REVIEWERS

Comments must be submitted to MAC, the Responsible Governmental Unit (RGU), by May 25, 1994. Comments should address the accuracy and completeness of the information and the alternatives, impacts and issues to be investigated in the AED (as proposed in the Draft Scoping Decision Document).

1. **Project Title** New Airport Comprehensive Plan Study

2. **Proposer** Metropolitan Airports Commission

3. **RGU** Metropolitan Airports Commission
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4. **Reason for EAW Preparation** Scoping for Alternative Environmental Document (AED)

5. **Project Location**

The New Airport will be located within Site 3 of the Dakota Search Area.
County Dakota City Near Vermillion and Hastings

Township Vermillion, Marshan

Figure 2 shows the general location of Site 3 within the Search Area.

6. **Description**

The New Airport Comprehensive Plan consists of the runways, terminal area, internal roadways and support facilities necessary to accommodate the future air transportation needs of the region. The conceptual layout of the airport comprehensive plan is shown in Figure 3. The conceptual layout has four runways in the northwest to southeast direction and two runways in the northeast and southwest direction. Construction activity to prepare the site will alter the physical features of the affected landscape. Operation of the airport will produce wastes requiring on-site treatment.

Alternatives

The consideration of alternatives was performed in two parts -- the evaluation of feasible airport layout concepts -- and modifications to the selected airport layout concept.

A study of airport layout concepts was performed in 1991 for the purposes of search area designation and site selection. The analysis and results are documented in, *New Air Carrier Airport Conceptual Design, Phase 1: Conceptual Design Study* (1991), which is available at the MAC offices.

Four layout concepts were evaluated (see Figure 4). The first concept, known as "P-2", features four parallel runways divided into pairs by the terminal area. The second concept, known as "T-1", is similar to P-2 except that two crosswind runways are added perpendicular to the main parallel runways to improve wind coverage. The last two concepts, "L-1" and "L-2," feature five runways in an L-shaped layout. L-1 locates the terminal area equidistant from and between the primary and secondary runways. L-2 locates the terminal area between the primary runways to better integrate terminal area operations with these runways. There were not enough differences between the two "L" alternatives; consequently, only L-2 was analyzed because it featured better taxiing characteristics than L-1.

The three remaining alternatives (P-2, L-2, and T-1) were then evaluated using three major criteria:

- Operational efficiency (including runway delays, runway crossings, taxi distance, flight path distance, flight path conflicts, and wind and weather);
- Land impact; and
- Construction cost.

The evaluation of the concepts is summarized in Table 1.

TABLE 1

EVALUATION OF AIRPORT LAYOUT CONCEPTS

Criterion	Concept P-2	Concept T-2	Concept L
1.Operational Efficiency			
Ground Operations			
- Runway Delays	1.0 min./op.	0.9 min.op.	0.9 min./op.
- Runway Crossings	None	None	One
- Taxi Distance	8,500 ft./op.	7,400 ft./op.	9,900 ft./op.
Airspace Operations			
- Flight Path Distance	34 mi./op	31 mi./op.	34 mi./op.
- Flight Path Conflicts	None	None	One
- Wind and Weather	No crosswind coverage	Full coverage	Full coverage
2. Land Impact	12,000 - 26,000 acres	15,000 - 28,000 acres	16,000 - 29,000 acres
3. Construction	$225 million	$330 million	$280 million

Source: HNTB

Concept P-2

The first positive feature of Alternative P-2 is that aircraft would not have to cross active runways due to the stagger of the runways. A second positive feature is the site would be the smallest of the three concepts identified, and consequently the least expensive, since it has only four runways.

In terms of negative features, Concept P-2 would have the greatest runway delay per operation (1.0 minutes per operation vs. 0.9 minutes per operation for the T-2 and L alternatives). Second, at least one runway would have to accommodate a mixture of arrivals and departures in all operating configurations. A free-flowing configuration in which arriving and departing aircraft would be segregated would not be achievable. Another disadvantage is that flight path distances would be relatively high (34 miles per operation vs. 31 miles per operation for the T-2 alternative), due to the lack of crosswind runways. Approximately 50 percent of the air traffic would have to traverse a large portion of terminal airspace to reach the opposite airspace gate or runway end. With no crosswind runways, the airport would have to close for an equivalent of 3 to 4 days a year due to a combination of strong crosswinds and snow/icing conditions. For these reasons, Concept P-2 was not selected as the recommended conceptual layout.

Concept L

Under certain operating modes (arriving aircraft landing towards the terminal and departing aircraft taking-off away from the terminal), Concept L would operate in an efficient manner (approximately 60 percent of the time). Taxi distances would be minimal, and a free-flow system could be used. The L provides full wind coverage, another positive feature.

The L concept has significant operational problems under less favorable wind conditions (which would occur approximately 40 percent of the time). Aircraft would have long taxi distances and would have to cross under the flight paths of arriving aircraft. Average taxi distances would be approximately 9,900 feet, the greatest of the three concepts. During periods of poor visibility, the airport would have to revert to operations in a single direction which would reduce capacity. Although this would occur only 3 to 4 percent of the year, it would result in a less than optimal configuration. Along with P-2, Concept L would have the highest average flight path distances. For these reasons, Concept L was not selected as the recommended conceptual layout.

Concept T-2

The conceptual layout eventually chosen was T-2. It features the lowest airfield delay (0.9 minutes per operation), the lowest average taxi distance (7,400 feet), and the lowest average flight path distance (31 miles per operation). Its layout, featuring four main parallel runways and two crosswind runways, provides full wind coverage and helps ensure all-weather operation.

The negative features of the T-2 layout, specifically its relatively large size and greater cost, were not considered significant impediments. The greater costs would more than pay for themselves by savings in aircraft operations.

The conceptual layout has the terminal area in the middle of the airport with two sets of three runways located on either side. Each runway set consists of two of the main parallel runways oriented in a general northwest/southeast direction and one crosswind runway oriented in a general northeast/southwest direction. The two sets of runways are staggered to minimize taxi distances. In addition, the two main parallel runways within each set are also staggered to eliminate runway crossings. The layout allows aircraft to land on one set of runways, taxi unimpeded (without crossing other active runways) to the terminal area, and from the terminal area taxi unimpeded to the other set of runways for departure. This efficient "flow-through" system simplifies aircraft movement on the ground and reduces airfield congestion. The use of the flow-through system minimizes taxi distance and time for this runway configuration. In addition, aircraft arriving from cities located in the general heading of the crosswind runways would save 10 to 15 miles each in airspace distance by using the crosswind runway versus flying past the airport and lining-up for final approach onto one of the main parallel runways. To a lesser degree, this benefit is also realized for departing aircraft. The new Denver International Airport is based on this layout concept.

Single-direction use of the runways system, either on the primary runways or the crosswind runways, would occur during high winds and/or low visibility and ceiling conditions.

During site selection for the new airport, several modifications were made to the conceptual layout. These modifications are detailed in, *New Airport Site Selection Study, Volume 2, Technical Report* (194) and summarized following.

First, during site identification, the crosswind runways were relocated by several thousand feet (Figure 2) to move their thresholds farther from the primary runways. The adjustment would allow the crosswind runways to be utilized in lower visibility and ceiling conditions which would increase the percentage of time the flow-through concept can be used. It also created a more conservative land area requirement.

During the final site selection phase other modifications were made to the three candidate sites. These modifications were based on the results of site screening analysis and were made in order to present each candidate site as favorably as possible during the final site selection process. For the site eventually selected (Site 3), the two crosswind runways were canted 10° to reduce noise impacts over Hastings, Minnesota and Prescott, Wisconsin (Figure 3).

New Airport Comprehensive Plan Alternatives

During the development of the new airport comprehensive plan, alternative layouts of the selected T-2 concept were evaluated to determine if layout modifications could made to reduce environmental impacts. Two overall modifications were identified: reducing overall airport land requirements and reducing average aircraft taxi distance/time. By reducing overall airport land requirements, surface water, noise, and other environmental impacts may be lessened. By reducing average aircraft taxi distance/time, fuel saving may be realized and air emissions may be reduced.

Any significant changes to the original layout may result in operational impacts as well. For example, moving the crosswind runways closer to the terminal to decrease land area requirements may reduce the percentage of time the highest capacity configurations can be used. Reducing aircraft taxi distances may result in aircraft having to hold short of, and then cross active runways, which could increase delay. Four alternatives were identified.

Alternative 1

Alternative 1 is the original layout chosen from the site selection process, as shown in Figure 5. In this alternative, the two crosswind runways are pulled out and canted 10° clockwise, the two sets of main parallel runways are staggered, and the two runways within each set of main parallels are staggered such that no taxiways transit a Runway Protection Zone (RPZ).

Military facilities are located between the two west parallel runways; air cargo is located south of the terminal area; and airline maintenance is located north of the northeast crosswind runway.

Alternative 1 has no runway crossings, which greatly reduces the possibility of runway incursions and eliminates the need for aircraft holding to cross active runways. Another positive feature

of this concept is the increased use of the crosswind runways. By making all six runways available for aircraft operations, airport capacity is increased, and airspace distances are reduced by using the three-in/three-out "flow-through" system. Arriving aircraft land on one set of runways while departing aircraft use the second set of runways. This simplifies airfield movement and reduces congestion. With this layout, arrivals to the crosswind runways can occur independently of the main runways for weather conditions with a 700-foot ceiling and 2 miles visibility.

Since the main parallel runways are arranged to minimize runway crossings and the crosswind runways are more remotely located, average taxi distances may be longer and overall land area requirements are greater than for other concept alternatives (approximately 9,800 acres).

Alternative 2

Alternative 2 has the same basic layout as Alternative 1 except the overall land area is reduced to approximately 8,700 acres by moving the southern crosswind runway approximately 2,000 feet closer to the main west parallels and shifting it toward the terminal by 7,500 feet, as shown in Figure 6.

Military and cargo facilities are located between the west parallels; and maintenance is located north of the northeast crosswind runway.

The purposes of shifting the southern crosswind runway include a decrease in overall land area and slightly shorter taxi distances for aircraft using the southern crosswind. By shifting the runways in Alternative 2, a decreased use of the "three-in/three-out" flow through concept would result due to higher minimums (approximately 1,000-foot ceiling and 3 miles visibility). As the flow-through system is used less, airport capacity is reduced and average airspace distances increase because aircraft that could have used the crosswinds must be diverted to the main runways.

Alternative 3

This alternative further reduces overall airport size and incorporates some adjustments to lessen taxi distances. First, the stagger between the inboard and outboard parallel runways in each set is reduced, as shown in Figure 7. (The stagger between the two runway sets is maintained.) It is assumed that when the inboard runways are being used for departures, the RPZ on the departure end of the runway will not be in effect. Second, the long runway is moved to the east inboard position to increase use by departing aircraft in a south flow. Finally, the southern crosswind runway is in a tucked position, and the northern crosswind runway is moved south approximately 1,000 feet and tucked toward the terminal by about 2,700 feet. Arriving aircraft on outboard runways will either cross inboard runways or transit the RPZ of the inboard runway.

Military and cargo facilities are located between the west parallel runways; airline maintenance is positioned east of the east parallel runways.

The positive features of Alternative 3 are shorter taxi distances due to the reduced runway stagger, greater use of the long runway for departures and a smaller overall land area requirement (approximately 7,900 acres).

The runway adjustments under Alternative 3 would result in a significant number of aircraft crossing active runways. Also, a decreased use of the three-in/three-out flow-through system, due to higher minimums (1,000-foot ceiling and 3 miles visibility) would reduce airport capacity. As this flow-through system is used less, average airspace distances increase and aircraft ground circulation becomes less efficient.

Alternative 4

Alternative 4 represents the smallest overall airport size of the four alternatives, while still maintaining four independent parallel runways and two crosswind runways (Figure 8). In order to minimize the site area and further reduce taxi time/distance, none of the main runways are staggered, and the two crosswind runways are in a full tucked position. The long runway is located at the east inboard position.

Military facilities are located between the west parallel runways; air cargo is positioned between the east parallel runways; and maintenance is located east of the east parallel runways.

The principal features of this concept include a minimum land area (approximately 7,400 acres) which may reduce some environmental impacts, and slightly reduce land acquisition costs. Taxi distances will also be shorter.

The runway adjustments in Alternative 4 would allow the three-in/three-out flow through procedure only during visual conditions (3,500 feet and 5 miles visibility). When weather conditions did not meet these minimums, a more traditional operational scenario would be used, with aircraft landing on the outboard parallel runways and crossing the inboard departure runways. The crosswind runways would only be used during periods of high crosswinds; and the airspace advantage of these runways would be lost. Aircraft ground circulation would be less efficient because arriving and departing aircraft would not be segregated. Many taxiing aircraft would have to cross active runways which would increase the possibility of runway incursions. Average airspace distances would increase, and airport capacity would be reduced.

7. Project Magnitude Data

Total Project Area Varies: From 9,800 Acres (Alternative 1) to 7,350 Acres (Alternative 4)
Length of Runways Not known
Length of Taxiways Not known
Total Building Area Approx. 46,500,000 sq. ft. (gross floor space)
Runway Protection Zones (RPZ) 474 Acres
Parking Stalls Approx. 39,400

8. Permits and Approvals Required

Unit of Government	Type of Permit/Approval
U.S. Army Corps of Engineers	Section 404 Permit
Federal Aviation Administration	Airspace Approval, Approval of Airport Layout Plan, Approval of EIS and Record of Decision
Federal Highway Administration	Location and Design Approval, Federally-Aided Roadways
Minnesota Environmental Quality Board	EIS Adequacy Determination
Minnesota Department of Transportation	Design Review and Approval, State-Aided Roadways
Minnesota Department of Natural Resources	Water Appropriation Permit, Protected Waters Permit
Minnesota Board of Water & Soils Resources	Compliance with the Wetland Conservation Act of 1991
Minnesota Pollution Control Agency	NPDES Permit, Industrial Storm Water Permit, 401 Water Quality Certification, Indirect Source Permit, Air Emission Facility Permit
Advisory Council on Historic Preservation	Section 106 Review
Minnesota Historical Society, State Historic Preservation Officer	Section 106 Review and Clearance
Metropolitan Council	Long-Term Comprehensive Airport Plan Review, Approval to changes in the Metropolitan Highway System
Vermillion River Watershed Management Organization	Drainage Design Review and Approval, Grading/Land Alteration Permits

9. Land Use. *Describe current land use and development on the site and adjacent lands. Discuss the compatibility of the project with adjacent and nearby land uses.*

Local comprehensive plans were used as a facsimile for current land use. Most of the land in and adjacent to the site is currently in agricultural use. In addition, most of the land adjacent to the site has been designated for Agricultural Preserves in the affected communities' comprehensive plans. This planning designation represents a long term commitment to agriculture. Although the current long-term planning horizon for local communities extends only through the year 2000, the Council has reviewed regional forecasts for 2020 with all local governments in the region. These forecasts reflect a continuation of agriculture in this portion of the region. See Figure 9 and Tables 2 and 3.

The other major use of land in and adjacent to the site is conservation. This use is also forecast to remain the same.

There are several small, commercial sites within the footprint of the alternatives. There are no residences other than those associated with the farms in the site area. However, there are roughly 300 acres of land adjacent to the site designated for existing and future rural residential development.

Communities near the site include the City of Hastings and the following rural centers - Miesville, New Trier, Hampton and Vermillion. Because very little growth is expected in the four rural centers without a new major airport, current land uses (primarily residential with some commercial and public uses) would not be expected to change significantly in the future.

The City of Hastings is a freestanding growth center that has sustained modest growth over the past 20 years. The city completed all of its approved orderly annexations. Recent annexations have occurred south (from Marshan Township) and west (from Nininger Township) of the city. Although the city has no approved plans for additional annexations, the location of the Mississippi River and other natural environmental features suggest that any future annexations would continue both south and west of the current city limits.

The development of a new major airport will not be compatible with some existing land use, notably existing residential development adjacent to each alternative.

TABLE 2
LAND USE - ALTERNATIVES 1 AND 2

Land Use	Alternative 1		Alternative 2	
	Acres	Percent of Site Area	Acres	Percent of Site Area
Ag. Preserve	8,894	90.8%	7,932	91.3%
Agriculture	0	0.0%	0	0.0%
Conservation/Floodplain/ Marsh/Wetland	896	9.1%	748	8.8%
Commercial	10	0.1%	9	0.1%
Industrial	0	0.0%	0	0.0%
Single Family Residential	0	0.0%	0	0.0%
Rural Residential	0	0.0%	0	0.0%
Public Open Space	0	0.0%	0	0.0%
Public/Quasi-Public Facilities	0	0.0%	0	0.0%
Total	9,800	100.0%	8,689	100.0%

TABLE 3
LAND USE - ALTERNATIVES 3 AND 4

Land Use	Alternative 3		Alternative 4	
	Acres	Percent of Site Area	Acres	Percent of Site Area
Ag. Preserve	7,274	92.0%	6,741	91.7%
Agriculture	0	0.0%	0	0.0%
Conservation/Floodplain/ Marsh/Wetland	624	7.9%	602	8.2%
Commercial	9	0.1%	9	0.1%
Industrial	0	0.0%	0	0.0%
Single Family Residential	0	0.0%	0	0.0%
Rural Residential	0	0.0%	0	0.0%
Public Open Space	0	0.0%	0	0.0%
Public/Quasi-Public Facilities	0	0.0%	0	0.0%
Total	7,898	100.0%	7,352	100.0%

10. Cover Types *Estimate the acreage of the site with each of the following cover types before and after development:*

	Before	**After**		**Before**	**After**
Types 2 to 8 Wetlands	Table 4	N.K.	Urban/Suburban Lawn		
Wooded/Forest	N.K.	N.K.	Landscaping	N.K.	N.K
Brush/Grassland	N.K.	N.K.	Impervious Surface	N.K.	N.K.
Cropland	N.K.	N.K.	Other (describe)	—	—

N.K. - Not known.

TABLE 4
ACRES OF AFFECTED WETLANDS BY TYPE

Wetland Type	Alternative			
	1	2	3	4
1	6.0	6.0	0.0	0.2
1L	5.5	5.5	0.4	0.0
1L/6	2.7	2.7	0.0	0.0
1L or 7	0.0	0.0	0.0	0.0
1L or 7/3	0.0	0.0	0.0	0.0
3	1.2	0.3	0.0	0.0
4	0.0	0.0	0.0	0.0
6	0.3	0.3	0.0	0.0
6/3	0.0	0.0	0.0	0.0
Total Acres	10.3	9.4	0.4	0.2

Source: HNTB

Note: Wetlands in the Search Area are shown in Figure 10.

11. Fish, Wildlife, and Ecologically Sensitive Resources

a. Describe fish and wildlife resources on or near the site and discuss how they would be affected by the project.

Generally Site 3 is subject to intensive agricultural use and provides habitat for typical farmland wildlife species such as white-tailed deer, ring-necked pheasants, gray partridge, red and gray foxes, gray and fox squirrels, cottontail rabbits, white-tailed jackrabbits, mourning doves, and a variety of other small mammals and songbirds. The Vermillion River and its forested bottomlands also provide habitat value for mallards, wood ducks, great blue herons, white-tailed deer, raccoons and various songbirds and small mammals. The habitat quality along the river varies considerably as there are many areas where grazing and/or timber cutting have essentially removed most of its wildlife habitat value; the character of river along the north edge of Site 3 is of this character. The fisheries value of the Vermillion River adjacent to Site 3 also is very limited due to the streams water quality, heavy silt load and it's limited volume during low flow conditions.

Site 3 contains almost no permanently or semi-permanently flooded wetland habitat that would be used by diving waterfowl (e.g. scaup, redheads, canvasbacks, etc.). and only a few small,

temporary to seasonal basins that receive some use by dabbling waterfowl (e.g. mallards, blue-winged teal, wood ducks, etc.) and wading birds such as great blue herons. NWI map data, SCS Soil maps and field observations indicate that most of the wetland basins that historically existed have been effectively drained and now receive only limited use by waterbirds.

The Mississippi River and its associated bottomland wetland complexes provide a very important resource in terms of wildlife and fisheries habitat. Neither the river nor any of its associated wetlands fall within Site 3; however, the river will be subject to aircraft overflights at varying locations and altitudes depending on the design concept for Site 3 being considered. The primary concerns with regard to river overflights are the potential for bird-aircraft hazards and the potential for adverse impacts to wintering bald eagles utilizing the river corridor. Bird strike potential is discussed in this section; bald eagles are discussed in Question 11.b.

The potential for bird-aircraft hazards has already been evaluated in some detail for Site 3 utilizing two criteria; (1) the acreage of undrained Circular 39 Type 3, 4 and 5 wetlands (Cowardin Types PEM and PUB with hydrologic regimes of C, F, G and H and not showing the d modifier) within 10,000 feet of runway ends and (2) the presence and relative location of other conditions conducive to bird strikes (e.g. active sanitary landfills, major wetland complexes, etc.) within five miles of runway ends. The wetland types listed would be most likely to receive traditional, concentrated use by waterfowl.

Very few undrained Type 3, 4 and 5 wetlands lie in proximity to Site 3, with about 32 total acres lying within 10,000 feet of runway ends. Pine Bend Landfill lies approximately 3.8 miles from the nearest runway end for Alternative 1; however, this landfill does not appear to represent a major bird-aircraft hazard because only a limited number of departures (about 900 or 2 percent of about 43,572 total operations) would pass over the landfill and all of these overflights would be in excess of 5,000 feet in altitude.

Aircraft operations of the alternatives could involve a substantial number of overflights of Spring Lake, Grey Cloud Island and Gores Pool Wildlife Management Area. Departures over these potential bird concentration areas do not appear to represent a significant bird-aircraft hazard problem due to the altitudes reached by departing aircraft prior to overflying these areas (i.e. over 3,000 feet). However, approaching aircraft will be overflying these areas at lower altitudes and could generate a need for operational mitigation measures. Such measures would maximize aircraft altitudes in relation to potential bird concentration areas.

The AED will consider the relative operational characteristics of the alternatives. This analysis will include additional field investigations at potential bird concentration areas to more accurately project the potential for conflicts.

b. Are there any state-listed endangered, threatened, or special-concern species; rare plant communities; colonial waterbird nesting colonies; native prairie or other rare habitat; or other sensitive ecological resources on or near the site? _X_ *Yes* ___ *No*

There are no federally listed threatened or endangered plant or animal species located within the Site 3 comprehensive plan alternatives. The loggerhead shrike is a candidate for federal listing but are not yet listed. As indicated in the New Airport Site Selection Final AED, two known loggerhead shrike breeding territories are known to exist within Site 3. Based on the grading information currently available, both of these territories would be adversely affected by grading activities associated with the alternatives. Additional information will be collected on the characteristics of these known breeding territories during the 1994 field season. The results of the 1994 MDNR shrike surveys will also be obtained to ensure that any newly located shrike territories are considered. More detailed grading information will be available for each of the alternatives than was available during site selection. This refined information will be used to determine if direct impacts to shrikes can be avoided or minimized through specific design measures. Further analysis of potential shrike mitigation measures will be carried out in the AED. These measures may include acquisition of other known shrike breeding territories, easements, habitat management in known breeding areas, and landowner education.

Bald eagles (federal-threatened) utilize the Mississippi River corridor adjacent to Site 3 for nesting, winter night-roosting, feeding and as a migration corridor. Five known bald eagle nests and two traditional winter night roosting locations exist in close enough proximity to be potentially affected by aircraft noise and disturbance. The potential impacts on these elements of essential bald eagle habitat were analyzed in detail in site selection and will be further refined in the AED. The aircraft operational characteristics of each alternative will be independently analyzed as to the potential for impacts to nesting and night-roosting bald eagles. Updated information will be requested from the MDNR Natural Heritage Program to determine if any new nests are being established during the 1994 nesting season. The potential for impacts associated with the various design alternatives will be compared and appropriate mitigation measures will be explored for any likely impacts.

One area has been identified within Site 3 as harboring rare plant communities. Alternative 1 encompasses about 50 percent of the Chimney Rock natural area, including locations where Canada Frostweed and Kitten-Tails have been found. These species are non-listed rare and state-endangered/federal candidate, respectively. The Chimney Rock area would fall within the State Safety Zone A for the southwesternmost east-west runway. This zone should not have future land uses that would be hazardous to aircraft operations. This zone does not, however, require the removal of existing land uses or structures. Since Chimney Rock represents an existing condition within this zone, it would not be affected by grading for the alternatives. Because Chimney Rock would not be directly affected by grading activity, the rare plants found in this area can also be preserved within the context of the alternatives. In fact, given the public use and vandalism damage this area is currently incurring, acquisition and incorporation of this area within airport property appears to be a satisfactory way to protect the integrity of the Chimney Rock area over the long term. The refined grading information developed for each alternative will be utilized to confirm that the plant communities around Chimney Rock will be preserved.

12. Physical Impacts on Water Resources *Will the project involve the physical or hydrologic alteration (dredging, filling, stream diversion, outfall structure, diking, impoundment) of any surface water (lake, pond, wetland, stream, drainage ditch)?* _X_ *Yes* ___ *No*

The alternatives could involve some fill in wetlands. Because a very limited amount of detail on site grading and location of airport facilities is presently available, the approximate wetland impacts of each alternative were estimated by determining the total wetland acreage falling within the boundaries of each alternative. Since it is likely that some wetland acreage will be preserved, quantifying the total wetland acreage in Table 5 provides a "worst case" estimate of wetland impacts. U.S. Fish and Wildlife Service National Wetland Inventory (NWI) maps were used as the basis for documenting wetland resources and in quantifying the total wetland acreage within each alternative. Digitized NWI data were entered into a Geographic Information System (GIS) overlaid on the alternatives. Table 5 provides the results of this analysis and indicates that each alternative could have two acres of impact or less.

Each alternative will affect the Vermillion River. Development of the airport facilities will involve construction that impacts floodway and floodway fringe areas (Figure 12), and alters existing drainage. As shown in Table 5, the alternatives include approximately 36 acres of Vermillion River floodway and 548 acres of floodway fringe.

TABLE 5
FLOODWAY, FLOODWAY FRINGE AND WETLANDS

Water Resource	Alternative			
	1	2	3	4
Floodway within Site (Ac.)	96	96	0	0
Floodway Fringe within Site (Ac.)	688	652	624	551
Wetlands within Site (Ac.)	10.3	9.4	0.4	0.2

Source: HNTB

13. Water Use

a. Will the project involve the installation or abandonment of any wells? _X_ Yes ___ No

The alternatives contain existing wells which may be eliminated due to development of airport facilities.

b. Will the project require an appropriation of ground or surface water (including dewatering)? ___ Yes ___ No _X_ Unknown

The alternatives overlay the Prairie Du Chien-Jordan aquifer which could be a source of water for the airport facilities. Dewatering may be necessary during construction.

c. Will the project require connection to a public water supply? __ Yes __ No _X_ Unknown

Public water supplies serving municipalities within or near the site could be a potential source of water for the new airport.

14. Water-related Land Use Management Districts *Does any part of the project site involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district? _X_ Yes ___ No*

The alternatives include 100-year floodplain areas and areas managed by the Vermillion Watershed Management Organization. There are no shoreland zoning districts or designated wild or scenic rivers in the Search Area.

15. Water Surface Use *Will the project change the number or type of watercraft on any water body? ___ Yes _X_ No*

16. Soils *Give approximate minimum and average depth (in feet) to groundwater and bedrock. Describe the soils on the site, giving SCS classifications, if known.*

Approximate Depth to Groundwater:	75 feet, average 0 feet, minimum (at Vermillion River)
Approximate Depth to Bedrock:	150 feet, average 0 feet, minimum

The alternatives primarily contain Waukegan-Wadena-Harvick type soils which are well-to-excessively drained overlying a sandy outwash plain. Table 6 gives a listing of the types of soils on the site, using the Soil Conservation Service (SCS) classifications.

TABLE 6
TYPE OF SOIL IN SITE 3

Soil Classification		Approx. % of Site
Superior Lobe Outwash (so)	gravel and sand	35%
Des Moines Mixed Outwash (dso)	sand, loamy sand, and gravel	51%
Bedrock (b)		5%
Floodplain Alluvium (fd)	sand, poorly bedded; well sorted sediments	3%
Colluvium (wc)	carbonate clasts in a silty to sandy mixture, and silt	2%
Slopewash Sand (ws)	unbedded to poorly bedded sand	2%
Loess	uniform bedded silt & fine sand mixed w/ some clay	2%

17. Erosion and Sedimentation *Give the acreage to be graded or excavated and the cubic yards of soil to be moved: acres* approx. 3,800 *cubic yards* unknown
Describe any steep slopes or highly erodible soils.
Describe the erosion and sedimentation measures to be used during and after construction of the project.

Steep Slopes or Highly Erodible Soils
The alternatives are located on nearly level or gently rolling topography, and as such, there are, in general, no steep slopes. The soil type in the alternatives most vulnerable to erosion is the Des Moines Mixed Outwash (dso).

Erosion and Sedimentation Measures to be Used During and After Construction of the Project
During construction, measures will be implemented to control runoff and prevent off-site sedimentation. Ditches, interceptor dikes, siltation fences, and straw bale sediment barriers will be among the measures employed. Silt fences will be maintained to maximize their effectiveness. Sweeping of paved surfaces, watering of exposed surfaces and restricting vehicular traffic on unpaved surfaces will minimize dust and soil erosion.

After construction, all disturbed areas will be sodded or seeded with mulch, leaving temporary erosion control measures in place until the vegetative cover has been established. The proposed storm sewer system will incorporate sump catch basins and sedimentation basins at all discharge points to provide water quality treatment.

All erosion and sedimentation control measures will be implemented in accordance with Dakota County and Vermillion River Watershed Management Organization standards, with coordination from the Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, and the Metropolitan Council.

18. Water Quality -- Surface Water Runoff

a. Compare the quantity and quality of site runoff before and after the project.
The quantity and quality of site runoff is unknown at this time.

b. Identify the route(s) and receiving water bodies for runoff from the site. Estimate the impact of the runoff on the quality of the receiving waters.

The two primary receiving waters possibly impacted as a result of the project are the Mississippi River and the Vermillion River. Potential impacts include discharges of treated sanitary wastewater and contaminated runoff, and construction runoff. The Mississippi River enters the Metropolitan Area at Anoka and generally flows south-easterly, leaving the metropolitan area in southeast St. Paul, and continuing in a south-easterly direction. The Mississippi River is classified 2C from the Metro Wastewater Treatment Plant to the Rock Island Bridge. Factors influencing Mississippi River water quality as the river traverses the metropolitan area include -- Lock and Dam No. 1, the confluence with the Minnesota River, the Metropolitan Waste Water Treatment Plant (MWWTP), Lock and Dam Number 2, and the St. Croix River (see Figure 14). The Vermillion River enters the Mississippi River approximately 1 mile downstream from the City of Hastings. The Mississippi River below the Rock Island Bridge and the Vermillion River are Class 2B waters. The Vermillion River flows in an easterly direction through Dakota County towards the Mississippi River, through the Cities of Farmington and Vermillion. Major factors influencing the water quality of the Vermillion River include the confluence with the South Branch of the Vermillion River approximately 1 mile upstream from the City of Vermillion and the Vermillion Waste Water Treatment Facility (WWTF).

The primary measure used for assessing water quality within the Mississippi River and the Vermillion River is the dissolved oxygen concentration. Well-oxygenated water is essential for sustaining aquatic life. The Minnesota Pollution Control Agency (MPCA) and the Metropolitan Waste Control Commission (MWCC) have performed water quality monitoring and modeling to ensure adequate dissolved oxygen within each of these rivers. The MPCA performed computer modeling of the Mississippi River to ensure adequate dissolved oxygen, given the expansion of the MWWTP. The MPCA modeling estimated minimum dissolved oxygen concentrations in the spring, summer, fall and winter, of 8.1 mg/l, 5.1 mg/l, 5.4 mg/l, and 4.2 mg/l respectively, between river miles 831 and 817 (the area from approximately 5 miles below MWWTP to Lock and Dam Number 2) during low flow conditions (7Q10). The dissolved oxygen water quality standard for this portion of the Mississippi River is 5.0 mg/l except during the winter, when the standard is 4.0 mg/l. The modeling results were generally validated during 1988 by the MWCC. The MWCC performed an intensive field survey during the drought of 1988 and compared the

dissolved oxygen concentrations estimated by the model to the field measurements. The MWCC found good agreement between the modeling results and the field measurements.

Present dissolved oxygen concentrations within the Vermillion River are above the state water quality standard. However, an expansion is planned for the Vermillion WWTF from the present 6.0 million gallons per day (mgd) to 9.0 mgd. The MPCA evaluated the likely impact of the expansion on dissolved oxygen within the Vermillion River. Computer modeling of the Vermillion River estimated minimum dissolved oxygen concentrations of 6.5 mg/l, 5.8 mg/l, 6.5 mg/l, and 5.0 mg/l during spring, summer, fall, and winter, respectively for low flow conditions (7Q10). Immediately upstream of the confluence with the South Fork of the Vermillion River is the location of the spring, summer, and fall minima. The location of the winter minimum is within the City of Hastings.

19. Water Quality -- Wastewaters

a. Describe sources, quantities, and composition (except for normal domestic sewage) of all sanitary and industrial wastewaters produced or treated at the site.

Airport facilities will generate sanitary wastewater and stormwater runoff from runways, terminals and other structures.

b. Describe any waste treatment methods to be used and give estimates of composition after treatment, or if the project involves on-site sewage systems, discuss the suitability of the site conditions for such systems. Identify receiving waters (including ground water) and estimate the impact of the discharge on the quality of the receiving waters.

Sanitary wastewater and contaminated runoff will be collected and conveyed to wastewater treatment facilities on site or off site. The discharge of treated wastewater is not known, but may be to the Vermillion or Mississippi rivers.

c. If wastes will be discharged into a sewer system or pretreatment system, identify the system and discuss the ability of the system to accept the volume and composition of the wastes. Identify any improvements which will be necessary.

The manner of discharge and treatment is not known at this time.

20. Groundwater Potential for Contamination

a. Approximate depth (in feet) to groundwater: 0 *minimum;*
75 ft. *average*

b. Describe any of the following hazards to groundwater on the site: sinkholes; shallow limestone formations/karst conditions; soils with high infiltration rates; abandoned or unused wells.

The alternatives are generally comprised of areas classified as High Sensitivity to groundwater contamination by the Dakota County Geologic Atlas due to the permeability of the soils and proximity to underlying aquifers (see Figure 15). Some areas near the edges of the alternatives are classified as Very High Sensitivity with the potential for transfer of contaminants from the surface to the aquifer in a matter of hours-to-days. The alternatives also contain up to 502 wells, which also create the potential for relatively rapid transport of contaminants to the aquifer.

c. Identify any toxic or hazardous materials to be used or present on the project site.

Airport facilities and operations involve handling and storage of large quantities of petroleum products. Other potential contaminants include deicing solutions and a variety of substances associated with aircraft cleaning/maintenance and repair. Airport facilities will include runoff collection, storage and treatment facilities for treatment of contaminated runoff from airport facilities.

21. Solid Wastes; Hazardous Wastes; Storage Tanks

a. Describe the types, amounts, and compositions of solid or hazardous wastes to be generated, including animal manures, sludges and ashes.

Airport facilities and operations will generate solid wastes and some hazardous wastes (as discussed in Item 20c.). Facilities are available in the metropolitan area for the collection, treatment and disposal of solid wastes. Hazardous wastes would need to be transported to a properly licensed hazardous treatment or disposal facility.

b. Indicate the number, location, size, and use of any above or below ground tanks to be used for storage of petroleum products or other materials (except water).

This information is not known at this time.

22. Traffic *Parking spaces added* 37,600 *Estimated total Average Daily Traffic (ADT) generated* 123,700 *Estimated maximum peak hour traffic generated (if known) and its timing:* 9,900 in the p.m. peak hour, 3:00 p.m. to 4:00 p.m. *. For each affected road indicate the ADT and the directional distribution of traffic with and without the project. Provide an estimate of the impact on traffic congestion on the affected roads and describe any traffic improvements which will be necessary.*

The impacts on affected state and county roadways were developed in the site selection study, using a simplified one access-point road system (see Figure 16). The access from the site

proposes to use the CSAH 85 right-of-way alignment to reach TH 55. The ADT for the alternatives is shown on Figure 17. Further analysis needs to be conducted to fully document the impacts, although the impacts for each alternative are essentially the same.

The travel demand to the airport would need up to 8 lanes at freeway design standards between the airport and TH 55. TH 55 would be impacted and require upgrade between the access road connection and the juncture of TH 55 with U. S. 52. U. S. 52 from that point to TH 56 would also need improvements. Beyond that point, the section of TH 55 common with TH 149 would need improvements, as would the segments south of TH 149 to TH 56.

Another road segment that would experience increased use is the segment of TH 149 just south of I-494. This would serve as the most direct link to the west between TH 55 and the interstate system.

Truck traffic would account for approximately 5% of the total traffic to the sites. This truck traffic would somewhat increase the truck volumes as a percentage of total daily traffic that currently occur on US 52 (11%) and TH 55 (7%).

Travel within the county would be impacted by the disruption and relocation of roads in and around the site. The alternatives would require the elimination of CSAH 47 (Northfield Boulevard) in Marshan Township and the elimination or relocation of several minor county roads.

23. Vehicle-Related Air Emissions *Provide an estimate of the effect of the project's traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts.*

A preliminary analysis of carbon monoxide levels at six off-airport intersections in Dakota County was performed as part of the site selection study. That analysis showed potential problems with carbon monoxide concentrations at three of the six intersections (CSAH 23 at CSAH 42, Dodd Road at TH 55, and TH 149 at TH 55) shown on Figure 18.

On-airport motor vehicle and aircraft emissions will differ for each of the Comprehensive Plan alternatives. Concentrations of CO, NOx, Particulates, and HC at on-airport receptor sites and off-airport sites located adjacent to the airport due to motor vehicle activity on the airport and aircraft operations are not known.

24. Stationary Source Air Emissions *Will the project involve any stationary sources of air emissions (such as boilers or exhaust stacks)?* _X_ *Yes* ___ *No*

The following types of stationary sources will likely be located within the boundaries of the New Airport:

Engine test cells
Fuel storage/transfer facilities
Heating plants
Incinerators
Training fires

Some differences in the location of Fuel Storage and Transfer Facilities, the heating plant and incinerator are expected under the Comprehensive Plan Alternatives. The potential for emissions and air quality impacts from these sources are not known.

25. Will the project generate dust, odors, or noise during construction and/or operation?
_X_ Yes ___ No

The normal operation of commercial, military, and general aviation aircraft will increase sound levels in the vicinity of the potential sites. Noise sensitive receptors that could be impacted include residences, schools, parks, daycare centers, places of worship and hospitals. A majority of the operations will be by jet aircraft meeting FAR Part 36 Stage 3 noise levels. The majority of aircraft operations will occur during daytime hours (i.e. between 7:00 AM and 10:00 PM). Forecasts developed under the Long-Term Comprehensive Plan for Minneapolis-Saint Paul International Airport indicate that Year 2000 aircraft operation levels may reach 453,000 operations annually. By the year 2020, approximately 527,000 aircraft operations are projected annually (1,400 operations on an average day). Figure 19 shows the year 2020 DNL 60 and 65 noise contours for Alternative 1 in relation to noise-sensitive receptors, and the impacts are given in Table 7. The $L_{10}65$ noise contour for Alternative 1 is shown on Figure 20. The noise impacts of Alternatives 2, 3 and 4 are not known.

The construction of a new airport will create temporary dust, odors, and noise from grading and paving activities, utility installation, building construction, and the erection of associated navigation appurtenances. Dust would be generated from earth moving equipment and odors would be emitted from gasoline and diesel fuel-powered equipment.

Construction Noise and odor impacts may be mitigated by limiting contractor work periods between 7:00 a.m. and sunset, and utilizing state-of-the-art well-maintained equipment. Fugitive dust would be limited by water or calcium chloride application, as prevailing weather conditions dictate. Disturbed areas will be sodded or seeded as soon as practicable to further reduce airborne particles. All construction activities will be staged to provide for maximum construction impact management.

TABLE 7
NOISE IMPACTS FOR ALTERNATIVE 1

Factor	Alternative 1 Noise Impact
Year 2000 population residing within DNL 65 contour	56
Year 2000 population within DNL 60 to 65 contour	710
# of noise-sensitive receptors w/in DNL contour in 1990	70
# of noise-sensitive receptors w/in DNL 60 to 65 contour in 1990	210

Source: Site Selection Final AED

26. Sensitive Resources

For each of the sites under consideration, the following sensitive resources would be affected:

a. Archaeological, Historical, or Architectural Resources

Archaeological Resources

The Area of Potential Effect consists of land that may be acquired for the new airport. A survey of land within Site 3 was performed in 1993. Two main categories of archaeological properties were identified -- Native American heritage sites and late 19th/early 20th century Euro-American sites. The sites that are eligible or potentially eligible for listing in the National Register of Historic Places and could be impacted by the four alternatives are shown on Figure 21. They include one Native American site and seven Euro-American properties.

Historical and Architectural Resources

The Area of Potential Effect consists of any land that might be acquired for the new airport, as well as land within the DNL 65 noise contours for related runway concepts. A reconnaissance survey of above-ground properties possibly affected by development of Site 3 was completed in August 1993. Within Site 3 and the associated DNL 65 noise contour the following properties (shown on Figure 22) were identified as meriting additional study to determine eligibility for listing in the National Register of Historic Places:

Chimney Rock
16143 Hogan Avenue
20477 Kirby Avenue

22005 Lewiston Boulevard
17945 Northfield Boulevard
8030 - 180th Street

The State Historic Preservation Officer (SHPO) concurs that intensive-level survey should be completed on these properties. In addition, SHPO has requested more contextual information on the development of agriculture in the region, the evolution of farm building design, and the layout of farms and farmsteads.

26b. Prime or Unique Farmlands

TABLE 8
PRIME AND UNIQUE FARMLANDS

Alter-native	Prime Farmland Within Site (Acres)		Unique Farmlands Within Site	
	Prime Farmland	Ag. Preserves	Century Farms	Other
1	6,227*	3,882**	2	(1) Vineyard
2	5,560	3,421	2	(1) Vineyard
3	4,796	3,151	2	(1) Vineyard
4	4,411	2,957	2	(1) Vineyard

* See Figure 23.
** See Figure 24.

Source: HNTB

26c. Designated Parks, Recreation Areas, or Trails

There are two privately-owned snowmobile trails with MDNR Grant-in-Aid funding that would be eliminated by the alternatives. The trails are developed and maintained by user organizations, and are under easement from the landowners for winter use only. There are no publicly-owned parks, recreation areas, trails, protected wildlife or waterfowl refuges that would be affected by the alternatives.

26d. Scenic Views and Vistas (Spectacular viewing points of lakes, rivers, or bluffs; virgin timber tracts; prairie remnants, geologic features; waterfalls; specimen trees; plots of wildflowers; etc.)

There are no scenic views or vistas within each alternative.

26e. Other Unique Resources (Other sensitive receptors not described above, including human and natural environment considerations).

No unique resources have thus far been identified on each site.

27. Visual Impacts - *Will the project create adverse visual impacts? (Examples include: glare from intense lights; lights visible in wilderness areas; and large visible plumes from cooling towers or exhaust stacks.)* _X_ *Yes* ___ *No*

For each of the alternatives under consideration, the following visual nuisances can be expected for remaining area residents:

Light Emissions: New nighttime light emissions would result from on-airport activities such as taxiing aircraft and from facilities such as building, runway, and taxiway lighting, navigation aid and approach lighting, parking lot and ramp lighting, and access road lighting. Off-airport light emissions would occur with navigation lighting from low-level landing and departing aircraft, and perimeter highway intersection upgrading, and additional vehicular nighttime traffic that will arrive and depart the airport.

General Visual Impacts: New daytime visual impacts associated with low-level landing and departing aircraft, interruption of horizontal vistas and sightlines as a result of building elevation obstructions, and navigation, communication, and other above-ground utility systems would result.

28. Compatibility with Plans *Is the project subject to an adopted local comprehensive land use plan?* _X_ *Yes* ___ *No If yes, discuss the compatibility of the project with the provisions of the plans and explain how any conflicts between the project and the plans will be resolved.*

None of the comprehensive plans for local governments affected by the site or its adjacent area provide for a new major airport. Some areas covered by these plans will be significantly impacted by the introduction of an airport.

If the Minnesota Legislature ultimately decides that a new major airport is to be built, the affected local governments (within the airport development area) would need to amend their comprehensive plans to reflect the development of an airport and to address the requirements of the Airport Development Act. Such amendments would address land use control measures consistent with criteria and guidelines established by the Metropolitan Council to ensure compatible land uses within the airport development area. An established process is already in place for processing local plan amendments.

The airport development area may consist of all or a portion of the property extending out three miles from the proposed boundaries of the new airport site. The airport development area may

extend five miles in any direction from the airport site if the Metropolitan Council determines the extension is necessary to protect natural resources of the metropolitan area.

The site lies within the Vermillion River watershed and is subject to a watershed management plan, prepared under the auspices of the Vermillion River Watershed Management Commission. The Watershed Management Plan calls for a number of Implementation Regulations and Management Programs. These will govern runoff and will mitigate impacts on surface and groundwater throughout the watershed, with or without a new major airport. Construction activities that disturb five or more acres of land will require additional controls for stormwater runoff through the use of National Pollutant Discharge Elimination System/State Disposal System permits (NPDES/SDS) issued by the Minnesota Pollution Control Agency.

29. Impact on Infrastructure and Public Services *Will new or expanded utilities, roads, other infrastructure, or public services be required to serve the project _X_ Yes ___ No*

The extent of the new facilities and services is not known at this time.

30. Related Developments; Cumulative Impacts

a. Are future stages of this development planned or likely? ___ Yes _X_ No

b. Is this project a subsequent stage of an earlier project? ___ Yes _X_ No

c. Is other development anticipated on adjacent lands or outlots? _X_ Yes ___ No
If yes, briefly describe the development and its relationship to the present project.

The project is expected to attract additional development. The amount and type of airport-induced development is not known at this time and will be determined in part by the development scenario the Metropolitan Council selects for integrating a new airport into the regional development framework. If the new airport site remains isolated from the region's urbanized area, less induced development would be projected than if the site is incorporated into an expansion of the region's urban service area.

31. Other Potential Environmental Impacts

Other potential environmental impacts include the social impacts of residential and business displacement, and community facility displacement (including schools, places of worship, and cemeteries). Residential and business relocation will be required with the implementation of any of the alternatives. These impacts are given in Table 9.

TABLE 9
SOCIOECONOMIC IMPACTS

Criterion	Alternative*			
	1	2	3	4
Residents Displaced	457	399	331	307
Dwelling Units Displaced	134	117	97	90
Non-Farm Employees Displaced	65	65	57	41
Non-Farm Businesses Displaced	8	8	8	6
Schools Displaced	0	0	0	0
Places of Worship Displaced	0	0	0	0
Cemeteries Displaced	0	0	0	0
Municipalities Displaced	0	0	0	0

Source: HNTB

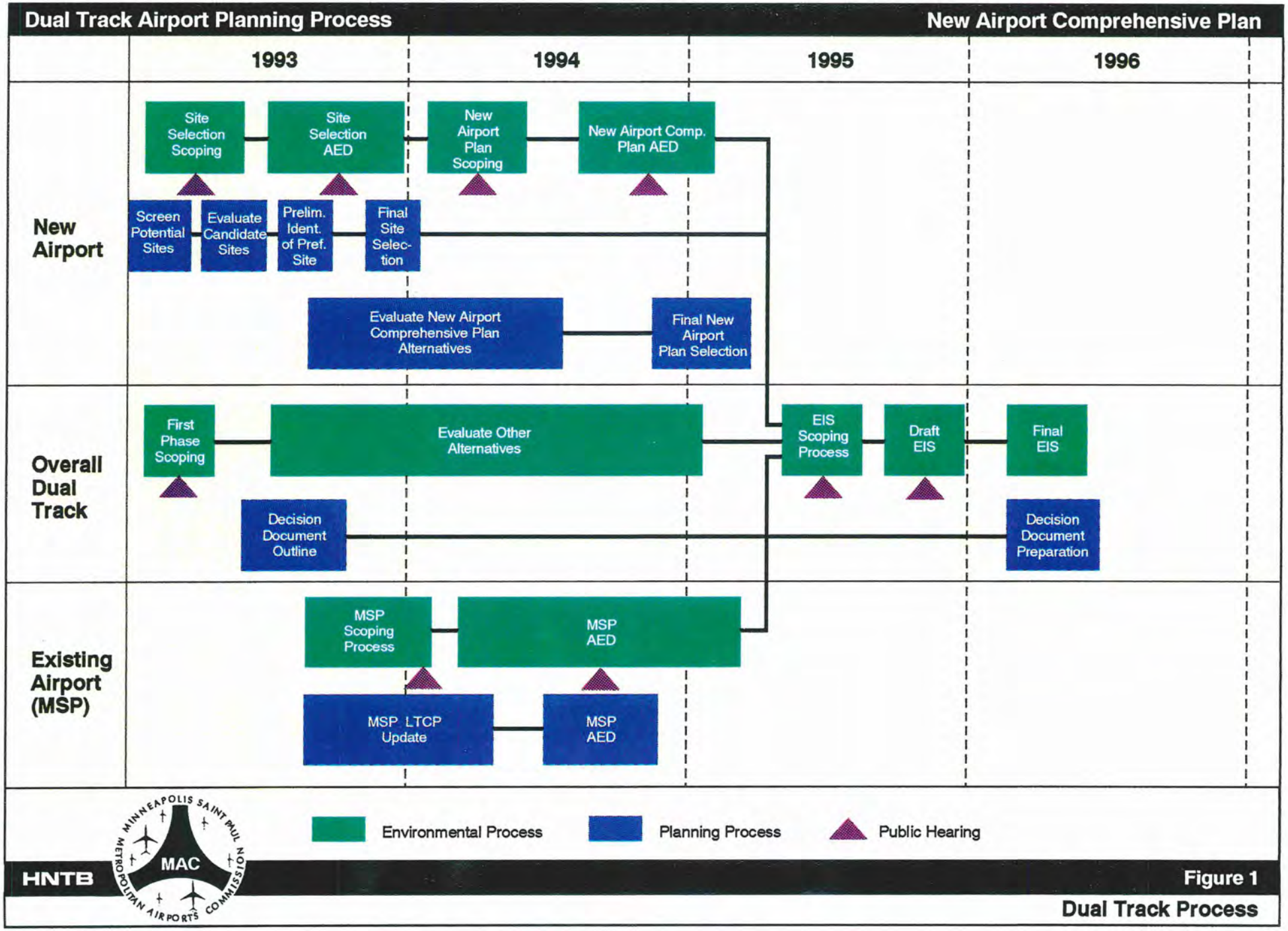
* Includes potential displacement within airport boundary and runway protection zones, based on 1993 data.

The project will alter the rate of growth, local travel patterns and living patterns. These impacts are not known at this time.

k:\15252\NEWARPT.EAW

APPENDIX A

FIGURES 1-24


Dual Track Airport Planning Process
New Airport Comprehensive Plan
1993
1994
1995
1996
New Airport
Site Selection Scoping
Site Selection AED
New Airport Plan Scoping
New Airport Comp. Plan AED
Screen Potential Sites
Evaluate Candidate Sites
Prelim. Ident. of Pref. Site
Final Site Selec-tion
Evaluate New Airport Comprehensive Plan Alternatives
Final New Airport Plan Selection
Overall Dual Track
First Phase Scoping
Evaluate Other Alternatives
EIS Scoping Process
Draft EIS
Final EIS
Decision Document Outline
Decision Document Preparation
Existing Airport (MSP)
MSP Scoping Process
MSP AED
MSP LTCP Update
MSP AED
Environmental Process
Planning Process
Public Hearing
HNTB
MAC
MINNEAPOLIS SAINT PAUL METROPOLITAN AIRPORTS COMMISSION
Figure 1
Dual Track Process

ROSEMOUNT

KOCH REFINERY

U.S.P.C.I. INDUST. WASTE FAC.

CHICAGO & NORTH WESTERN

DAKOTA CO. RESOURCE RECOVERY FACILITY (PROPOSED)

UNIVERSITY OF MINNESOTA

COATES

Nininger

HASTINGS

Vermillion

Vermillion River

Empire

Marshan

ST. PAUL & PACIFIC CHICAGO & NORTH WESTERN

VERMILLION

Vermillion River

South Branch

SEARCH AREA BOUNDARY

220Th St E

HAMPTON

0 .5 1

Scale in Miles

N

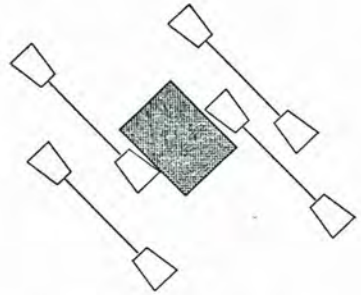
HNTB

MAC

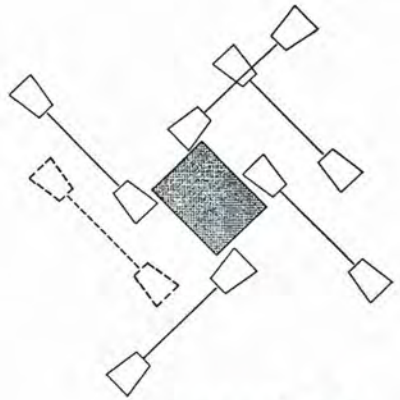
MINNEAPOLIS SAINT PAUL METROPOLITAN AIRPORTS COMMISSION

Figure 2

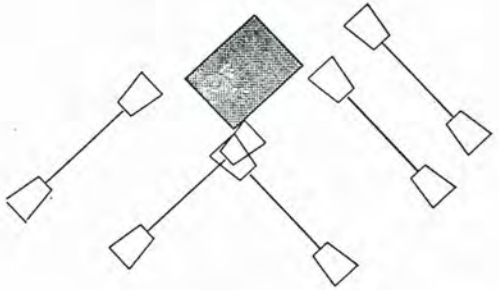
Project Location



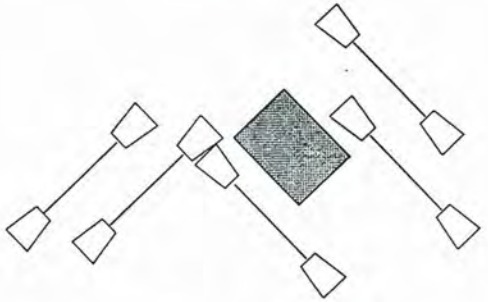
Concept P-2



Concept T-1



Concept L-1



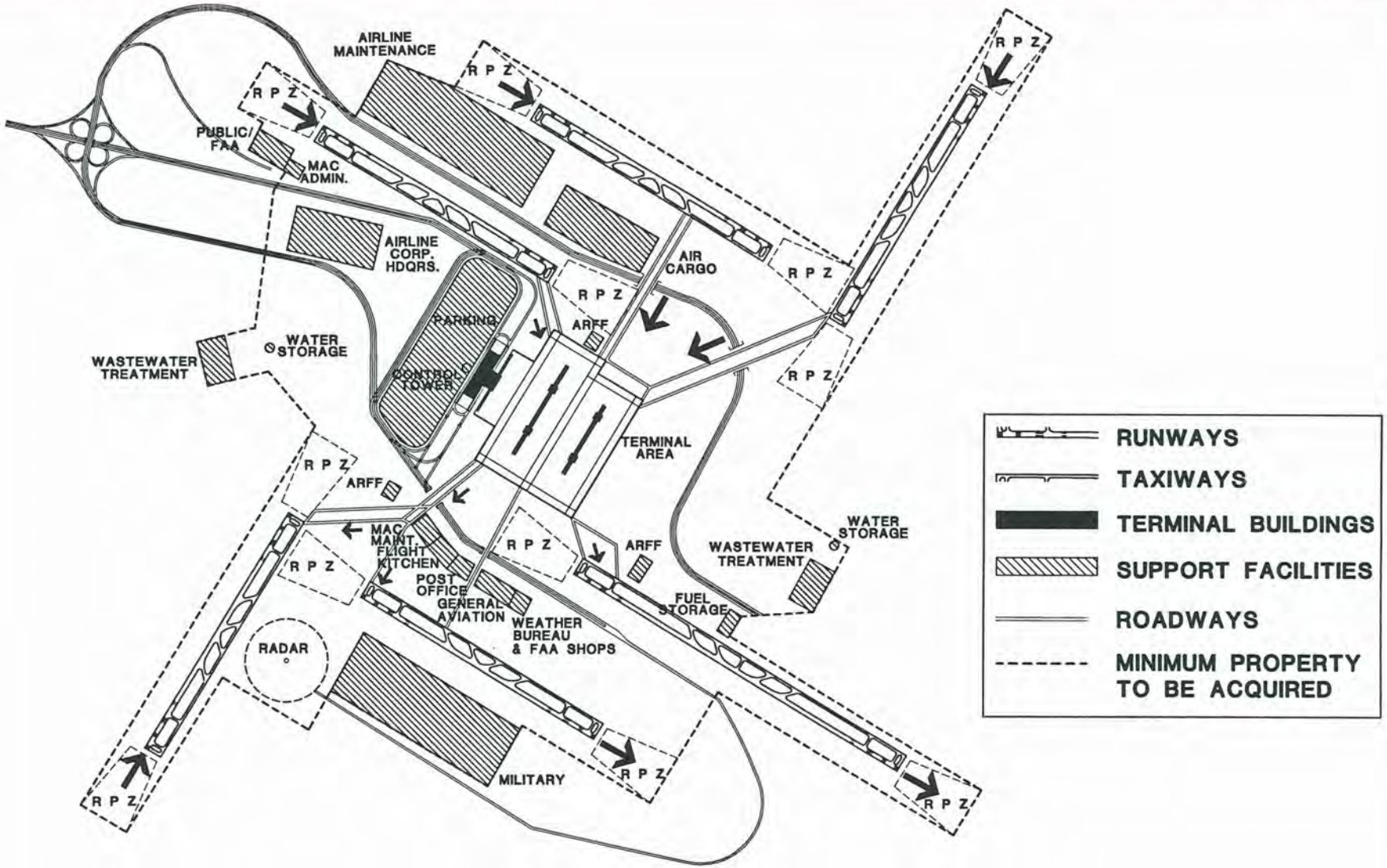
Concept L-2

N

HNTB

Figure 3

New Airport Layout Concepts



Source: Metropolitan Airports Commission

0 2,500 5,000

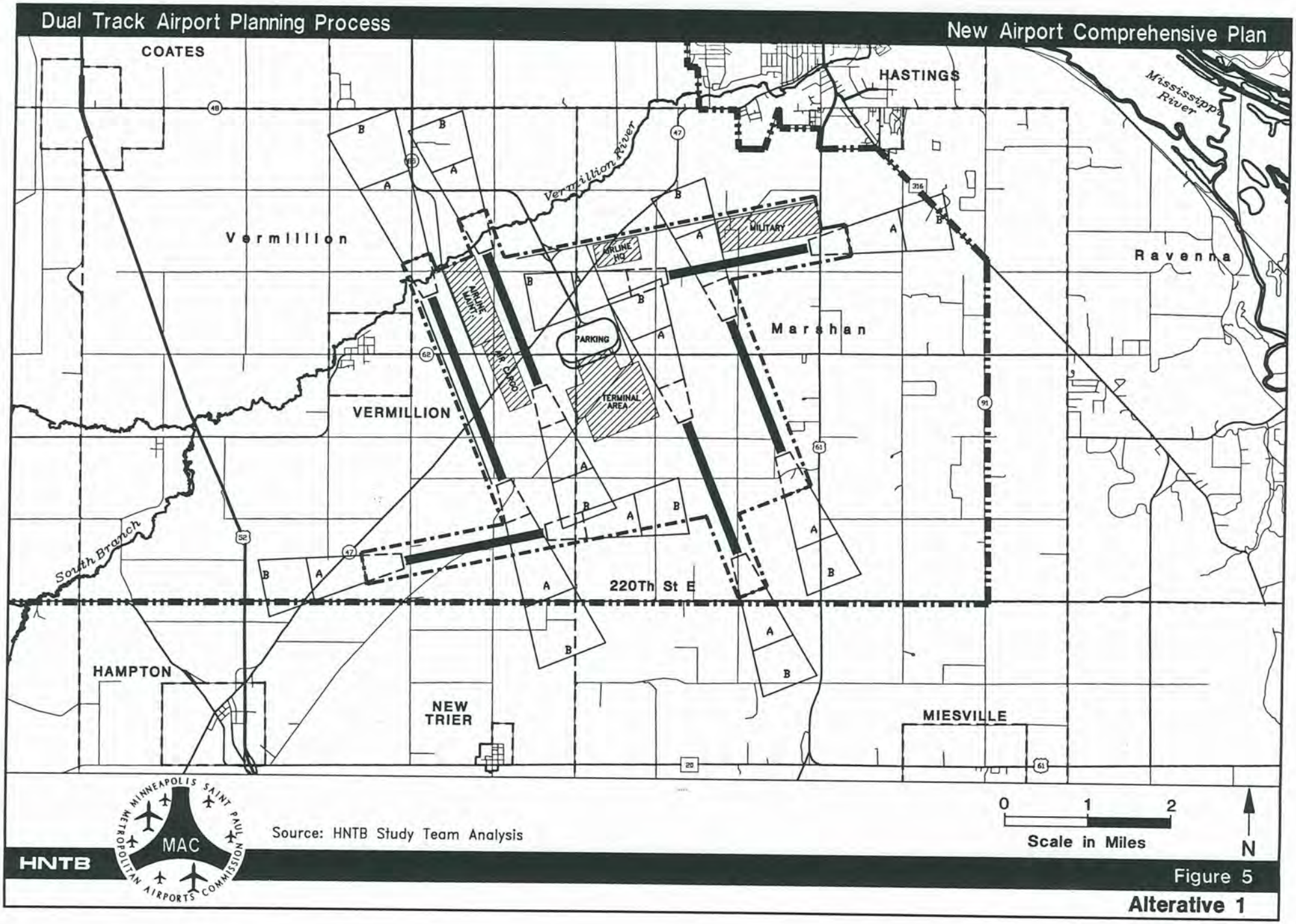
Scale in Feet

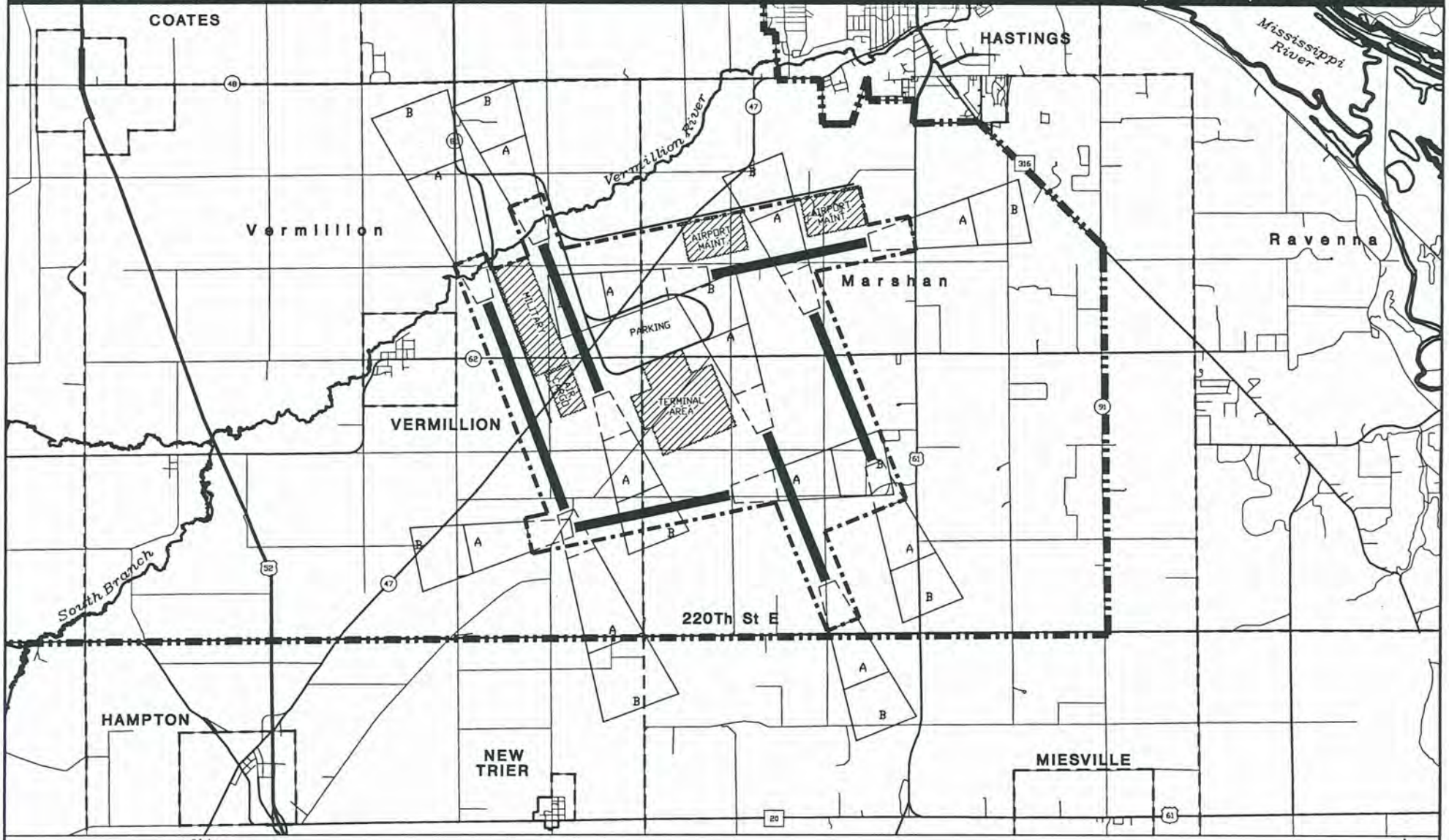
N

HNTB

Figure 4

New Airport Selected Conceptual Design


Dual Track Airport Planning Process
New Airport Comprehensive Plan
COATES
HASTINGS
Mississippi River
Vermillion River
Vermillion
Ravenna
Marshan
VERMILLION
AIRLINE HQ
MILITARY
AIRLINE MAINT.
AIR CARGO
PARKING
TERMINAL AREA
220Th St E
South Branch
HAMPTON
NEW TRIER
MIESVILLE
Source: HNTB Study Team Analysis
Scale in Miles
0
1
2
N
HNTB
MAC
Minneapolis Saint Paul Metropolitan Airports Commission
Figure 5
Alterative 1



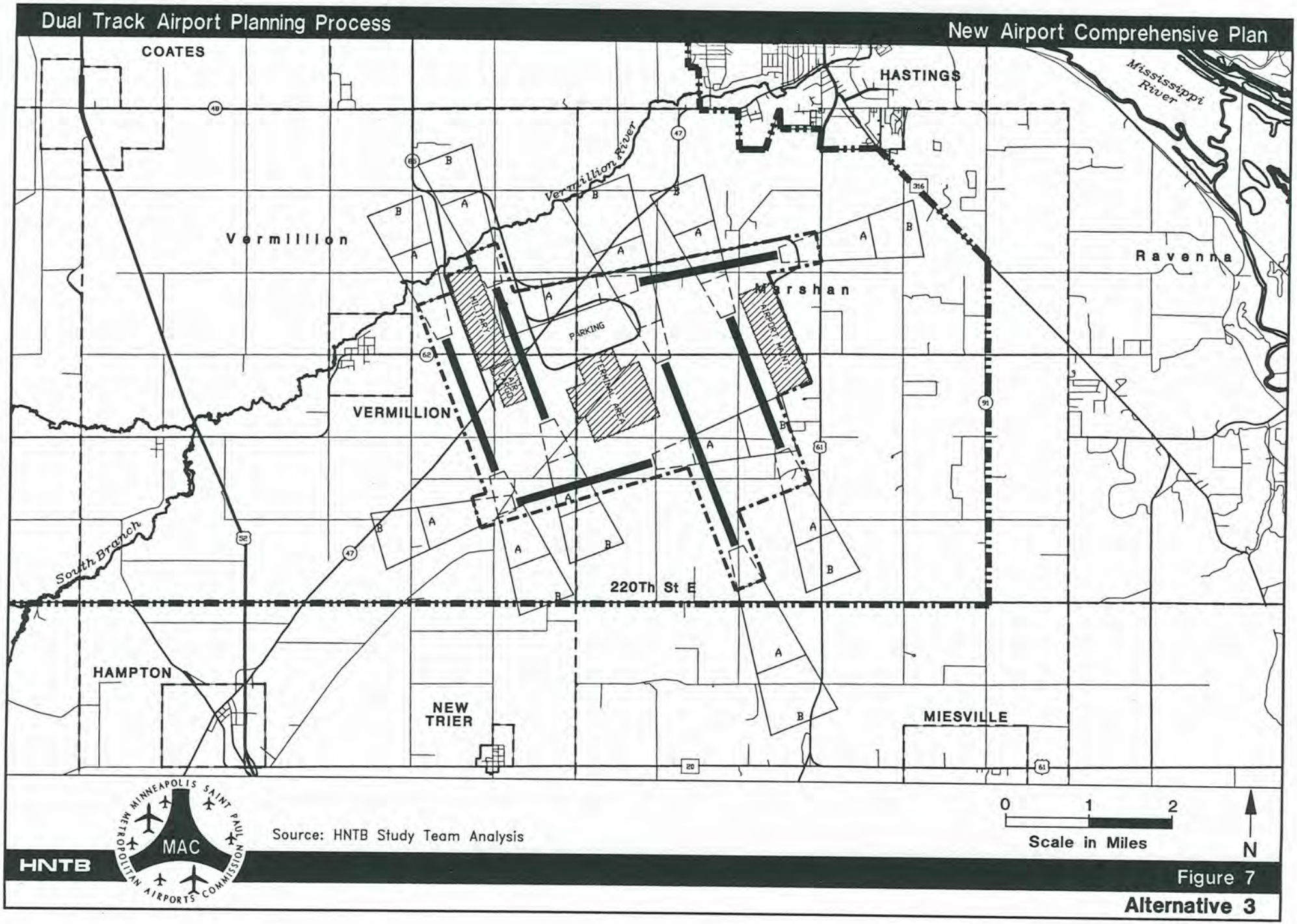
Source: HNTB Study Team Analysis

HNTB

MAC Minneapolis Saint Paul Metropolitan Airports Commission

Figure 6

Alternative 2


Dual Track Airport Planning Process
New Airport Comprehensive Plan
COATES
HASTINGS
Mississippi River
Vermillion River
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Scale in Miles
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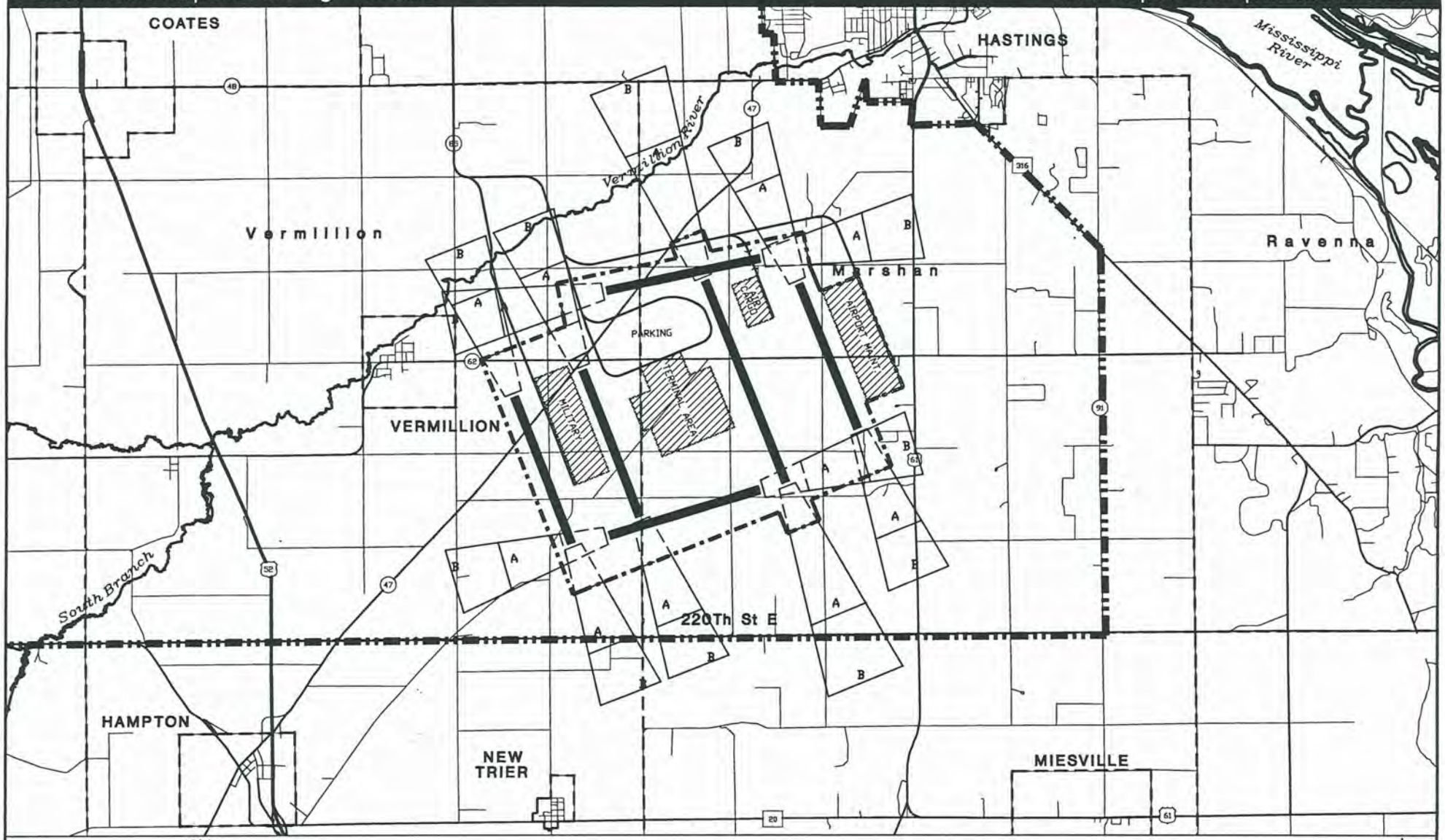
Source: HNTB Study Team Analysis
MAC
MINNEAPOLIS SAINT PAUL METROPOLITAN AIRPORTS COMMISSION
HNTB
Figure 7
Alternative 3



Source: Metropolitan Airports Commission

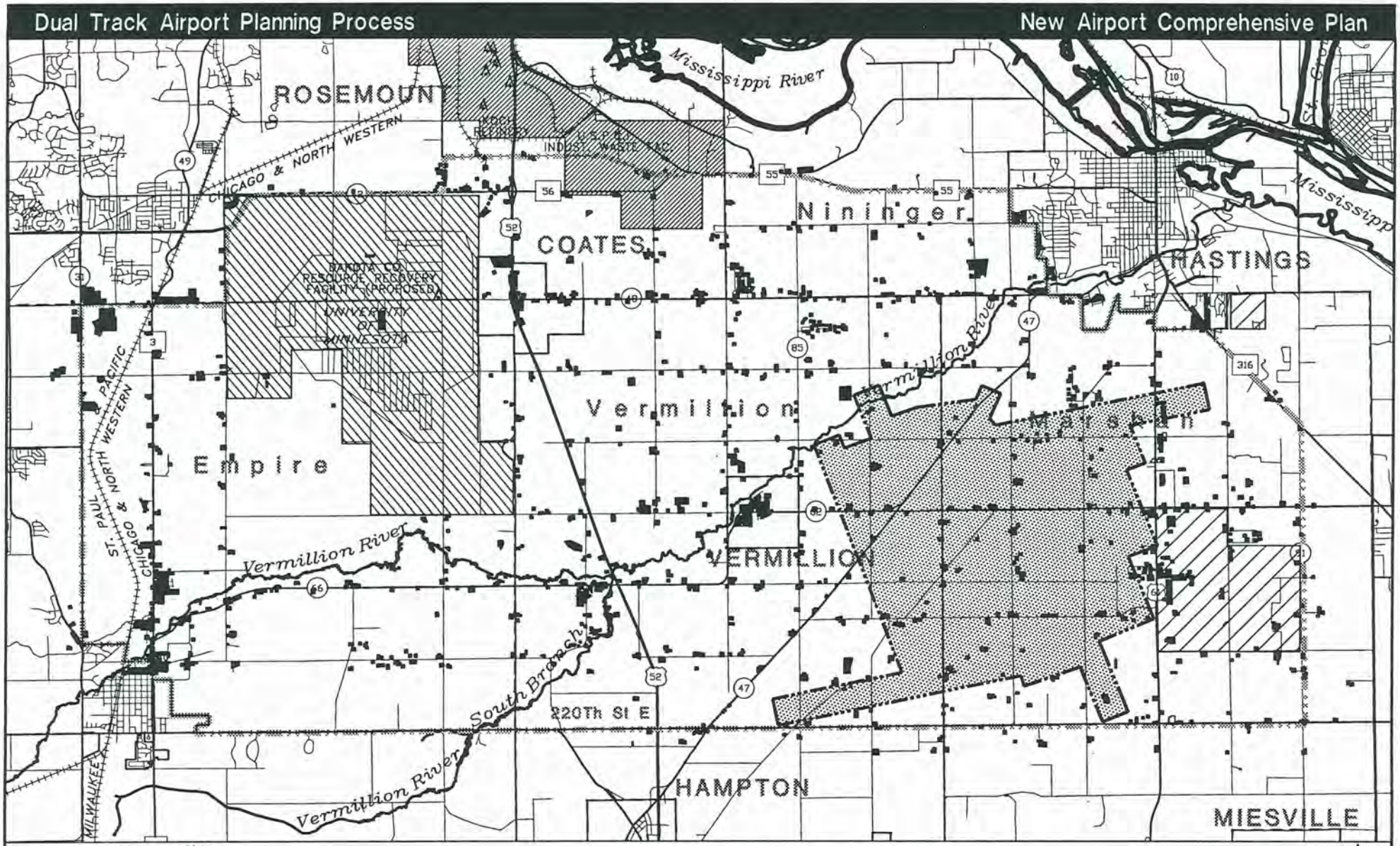
HNTB

Figure 8

Alternative 4

Dual Track Airport Planning Process

New Airport Comprehensive Plan

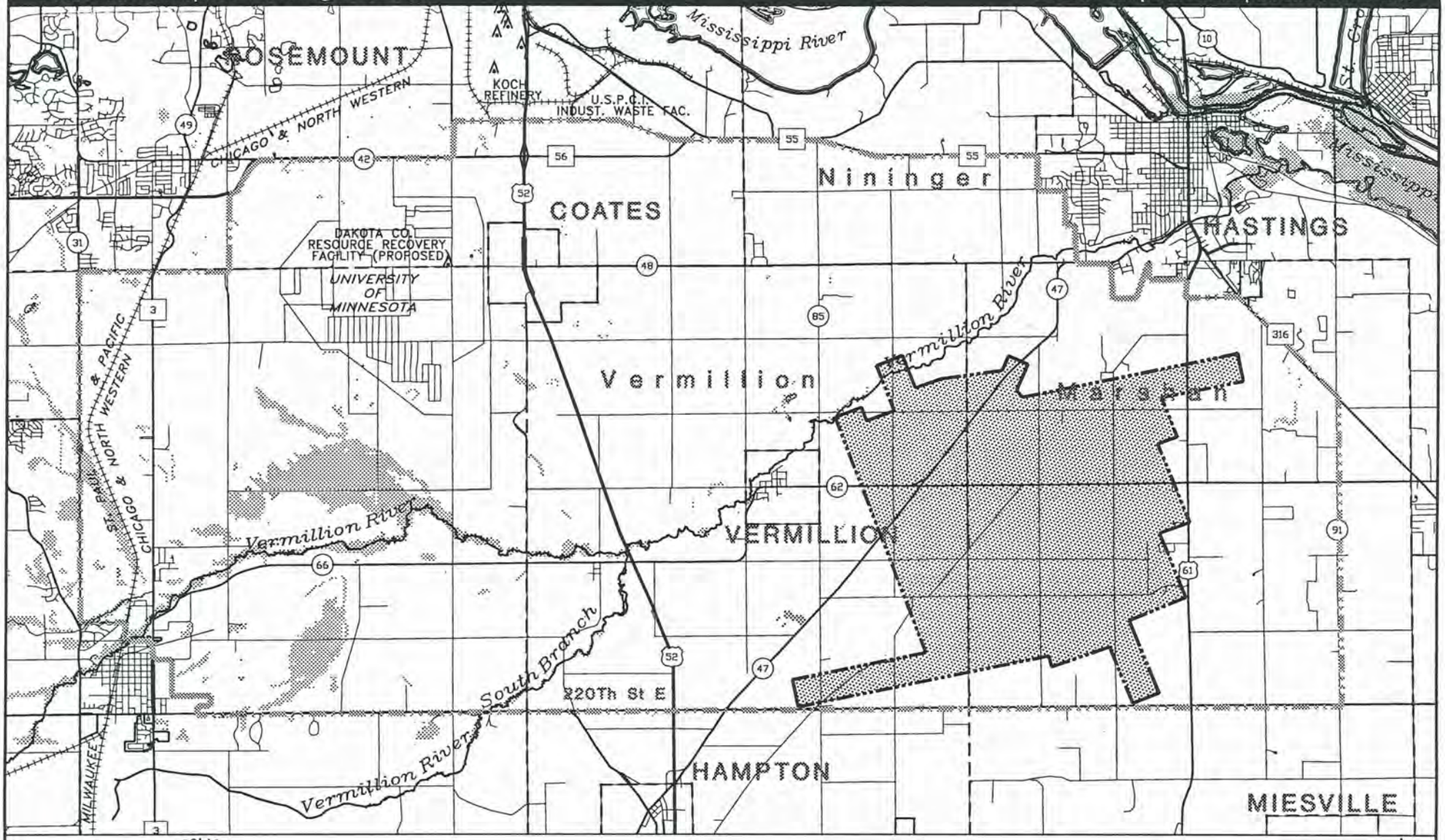


Source: Metropolitan Council

HNTB

Figure 9

Land Use



Source: National Wetlands Inventory, USFWS

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Figure 10
Wetlands

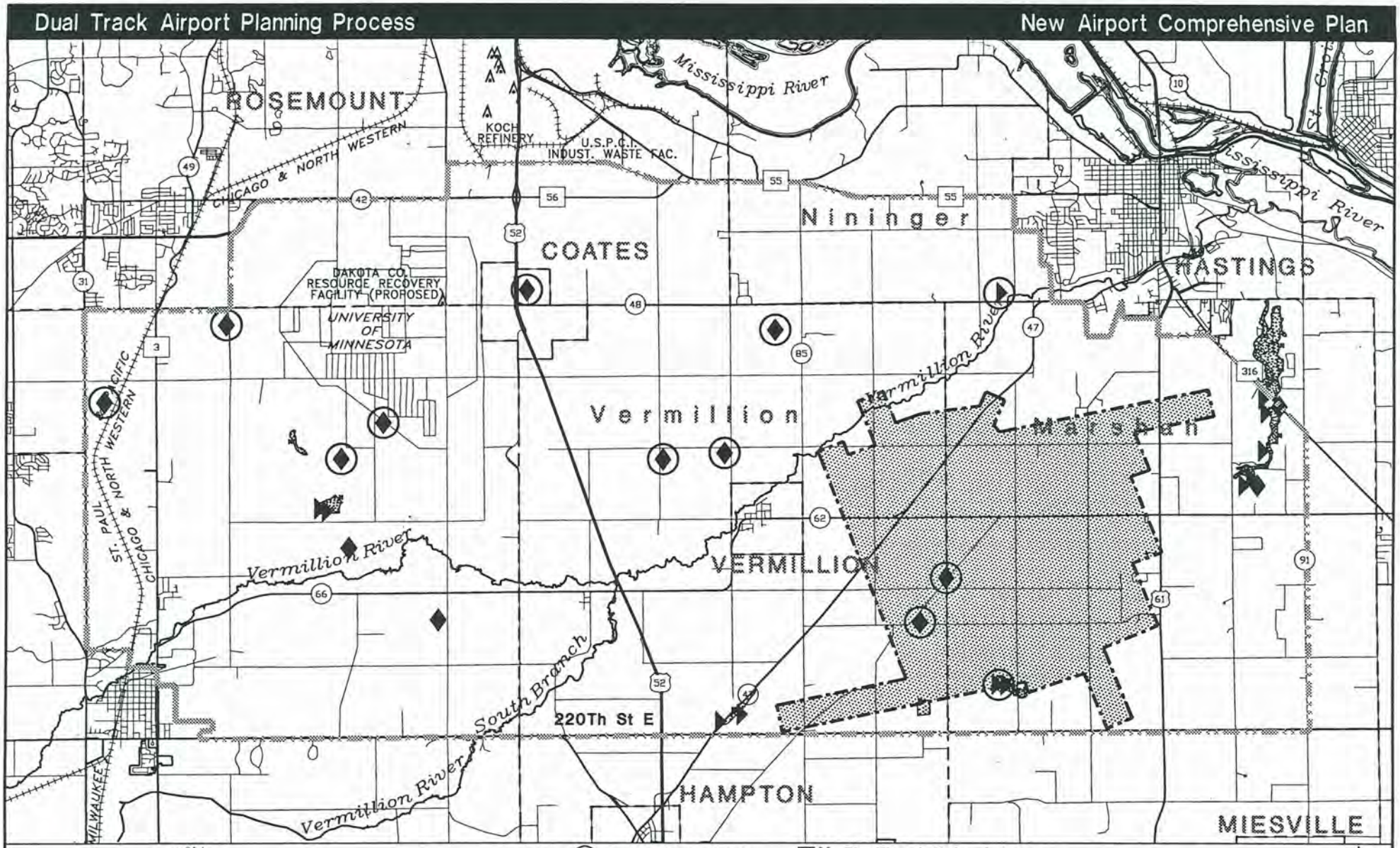

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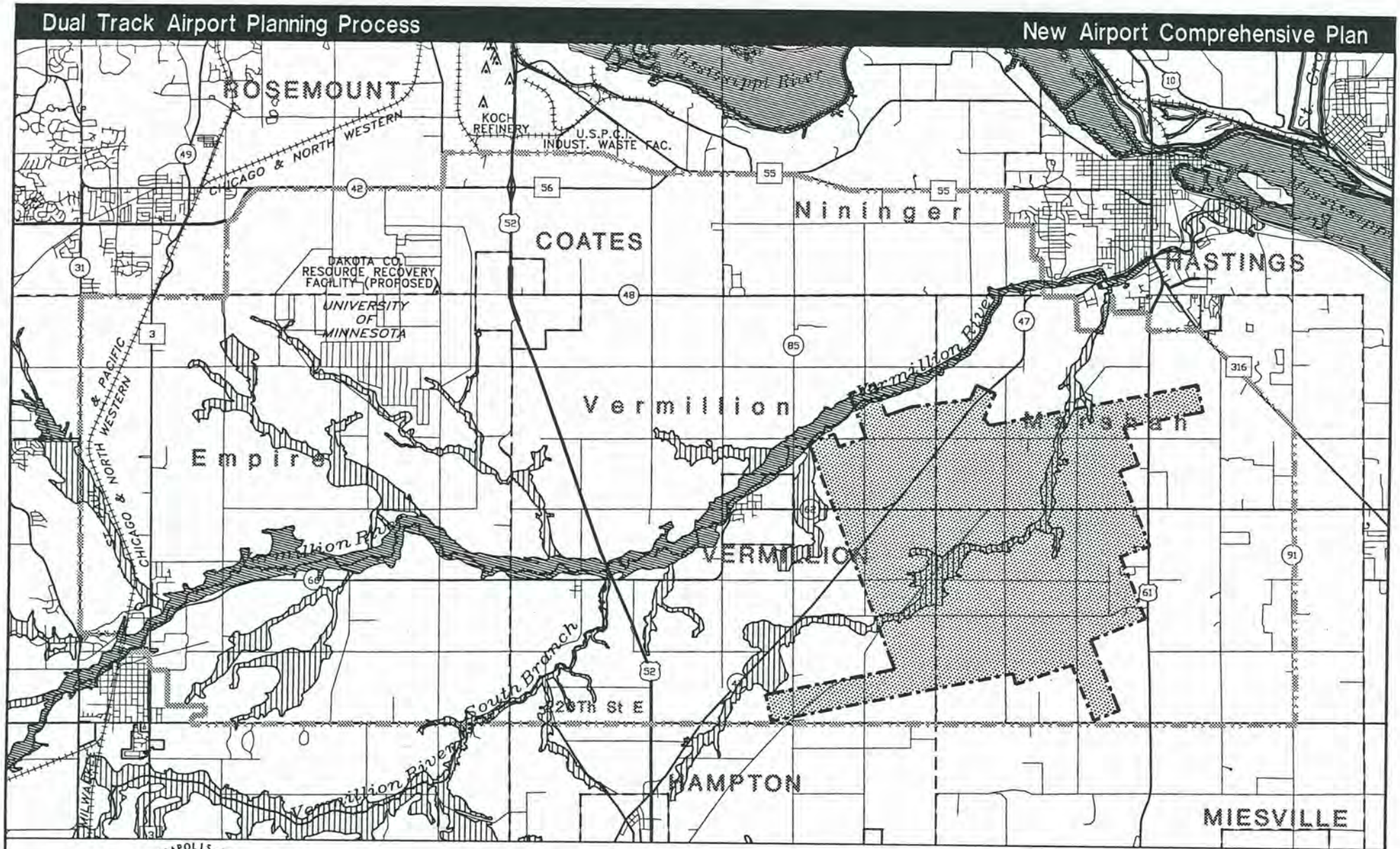
Figure 11

Biotic Communities



Source: Federal Emergency Management Agency

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Figure 12

Floodway and Floodway Fringe

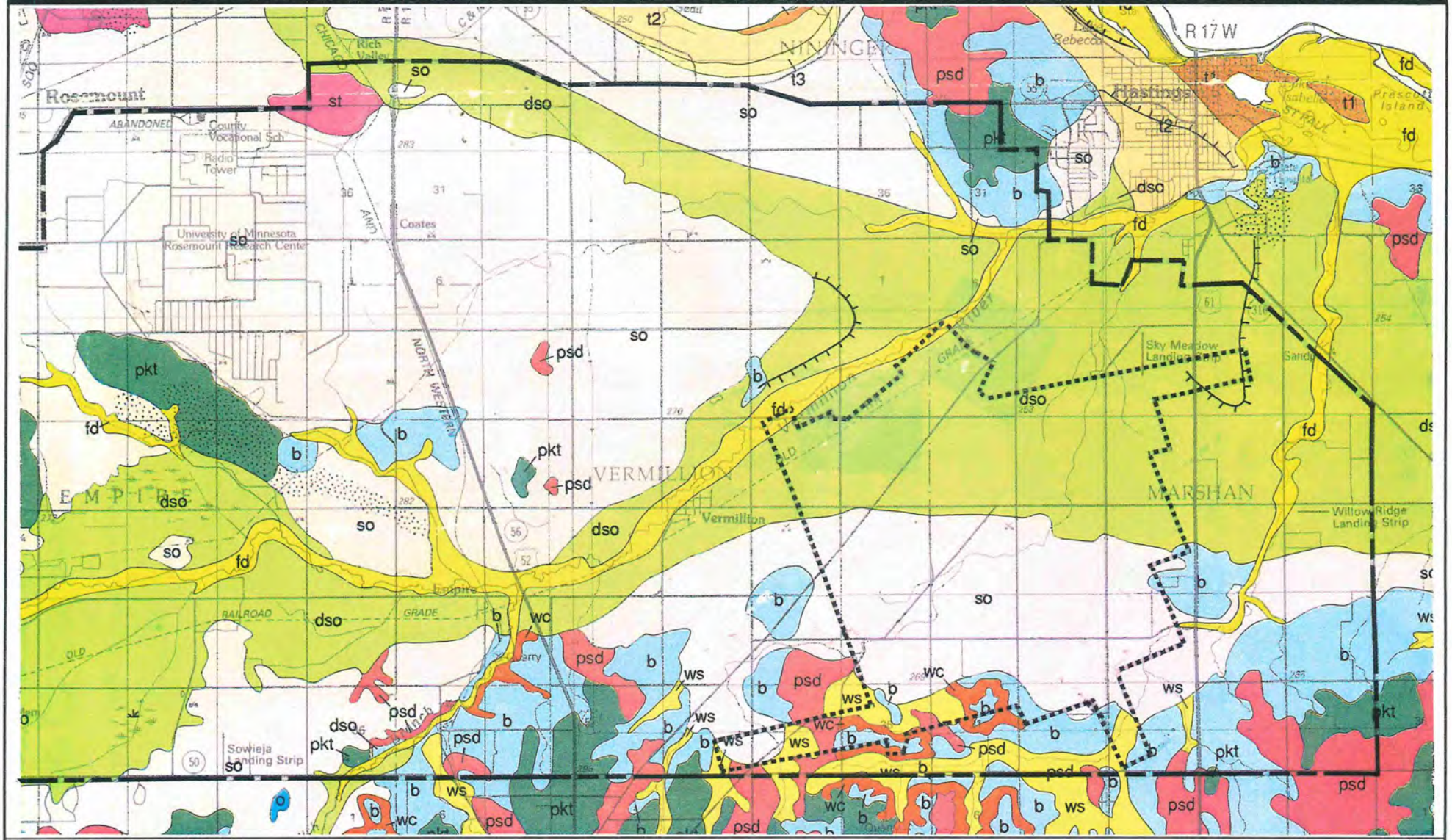

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Figure 13

Soils

o — ORGANIC DEPOSITS—Peat and organic-rich silt and clay; includes small bodies of open water. Largely drained and filled where built over

fd — FLOODPLAIN ALLUVIUM—Poorly bedded, moderately well sorted sediments deposited by modern streams during flood stage. Chiefly sand in the valleys of the Mississippi, Vermillion, and Cannon Rivers; chiefly clayey silt in the valley of the Minnesota River. Typically interbedded with organic-rich layers and buried soil. Much thicker in the valleys of the Minnesota and Mississippi Rivers than elsewhere. Some alluvium mapped in small tributaries to the Vermillion River may have accumulated as slackwater sediment related to outwash from the Des Moines lobe (dso)

wc — COLLUVIUM—Hillslope deposits derived from bedrock and loess upslope. Typically consists of two units—a rocky lower unit of angular carbonate clasts in a silty to sandy matrix, and an upper unit primarily of silt, which contains a few carbonate clasts. The composition of the lower unit reflects the bedrock upslope; the upper unit is largely reworked loess. Typically thickest at the bottom of the slope, and thin and patchy near the top. Colluvium and bedrock form intimate complexes, and their representation on the map has been considerably simplified

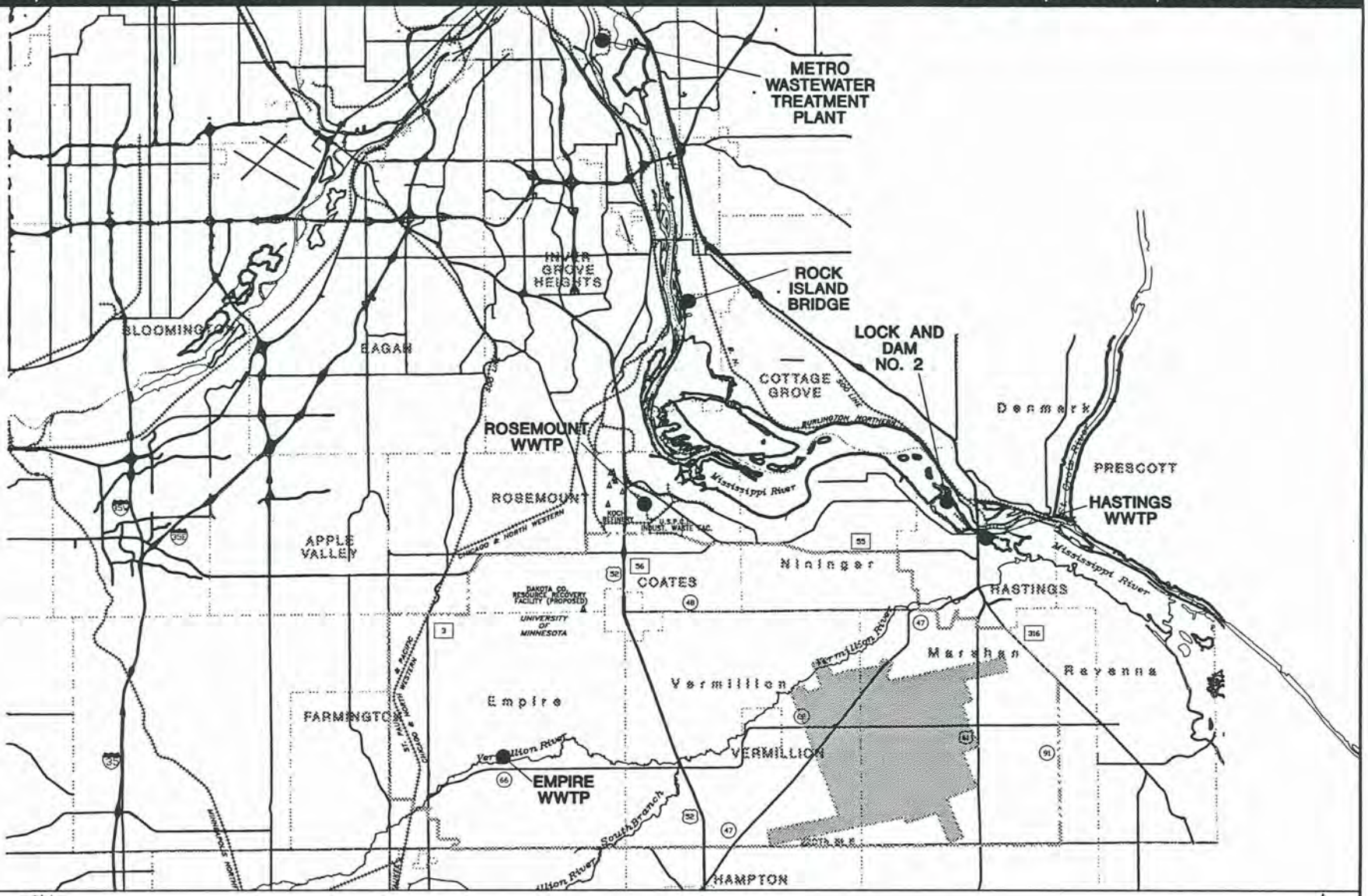
pkt — "OLD GRAY" TILL—Gray calcareous till which is leached and oxidized to yellowish brown near the surface. Consists of at least two tills, undivided. The upper till is friable loam to fine sandy loam; the lower one is firm loam to clay loam. Because of extensive erosion, the lower till is at the surface in much of the area mapped pkt

dso — MIXED OUTWASH—Sand, loamy sand, and gravel; coarser texture near the edge of the lobe. Stone assemblage contains a considerable admixture of rocks typical of the Superior lobe. In places, distinguishable from Superior lobe outwash, only by its shale content

ws — SLOPEWASH SAND—Unbedded to poorly bedded sand deposited in valleys and on gently sloping plains above the level of Wisconsinan outwash. Derived from glacial drift and St. Peter Sandstone. The slopewash deposits commonly head upstream in bedrock escarpments and eroded hills of pre-Wisconsinan drift; they merge downslope into outwash plains or alluvium along modern streams. Where the slopewash merges downstream into outwash, the area of junction may contain flat-bedded silt and clay, deposited in a lake. Unit is gradational with outwash and the boundaries on the map are therefore arbitrary

Source: Geologic Atlas of Dakota County

N



Source: Dakota Soil and Water Conservation District
Department of Natural Resources
United States Geologic Survey

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Scale in Miles

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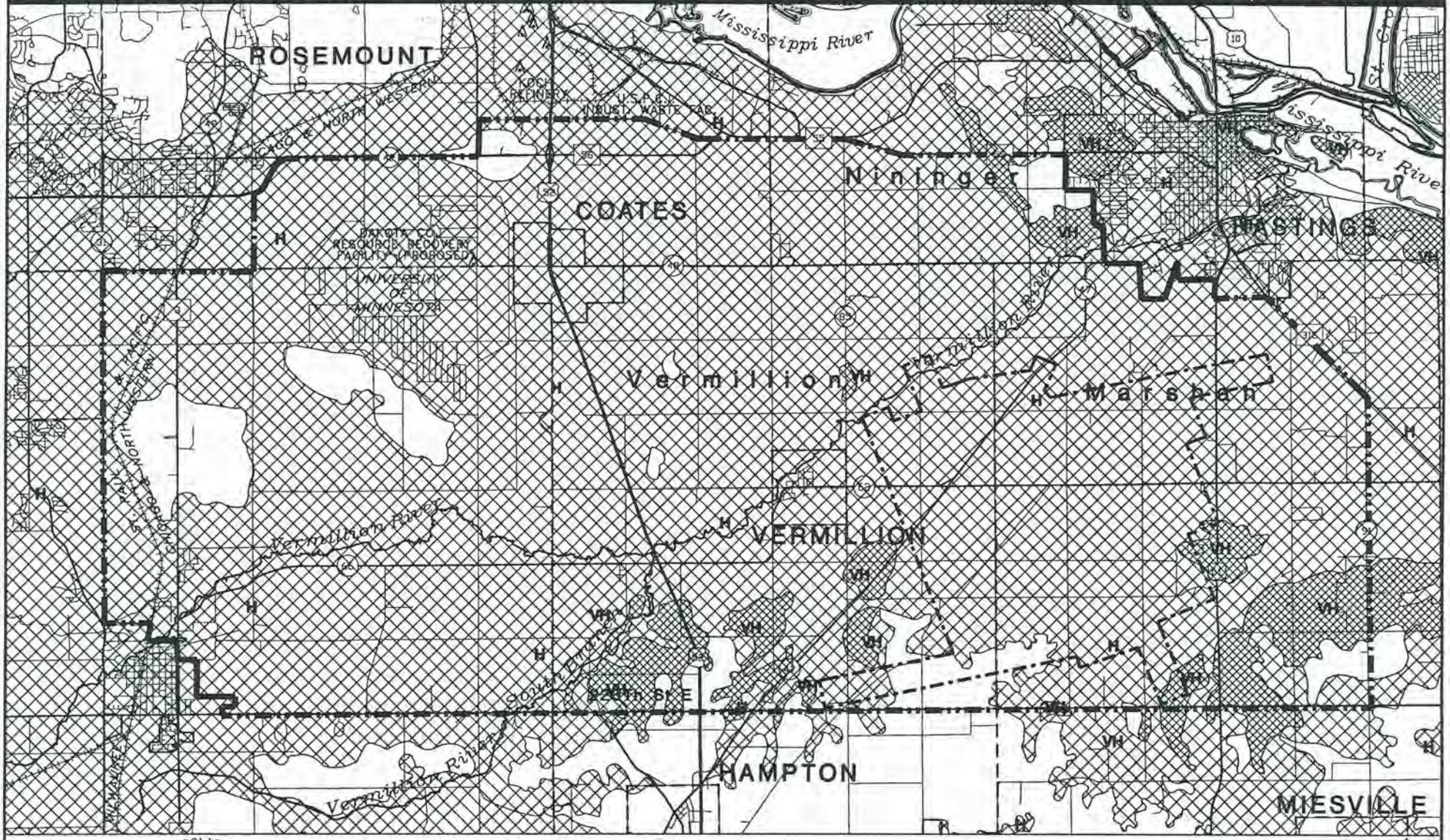
Figure 14

Surface Water Features

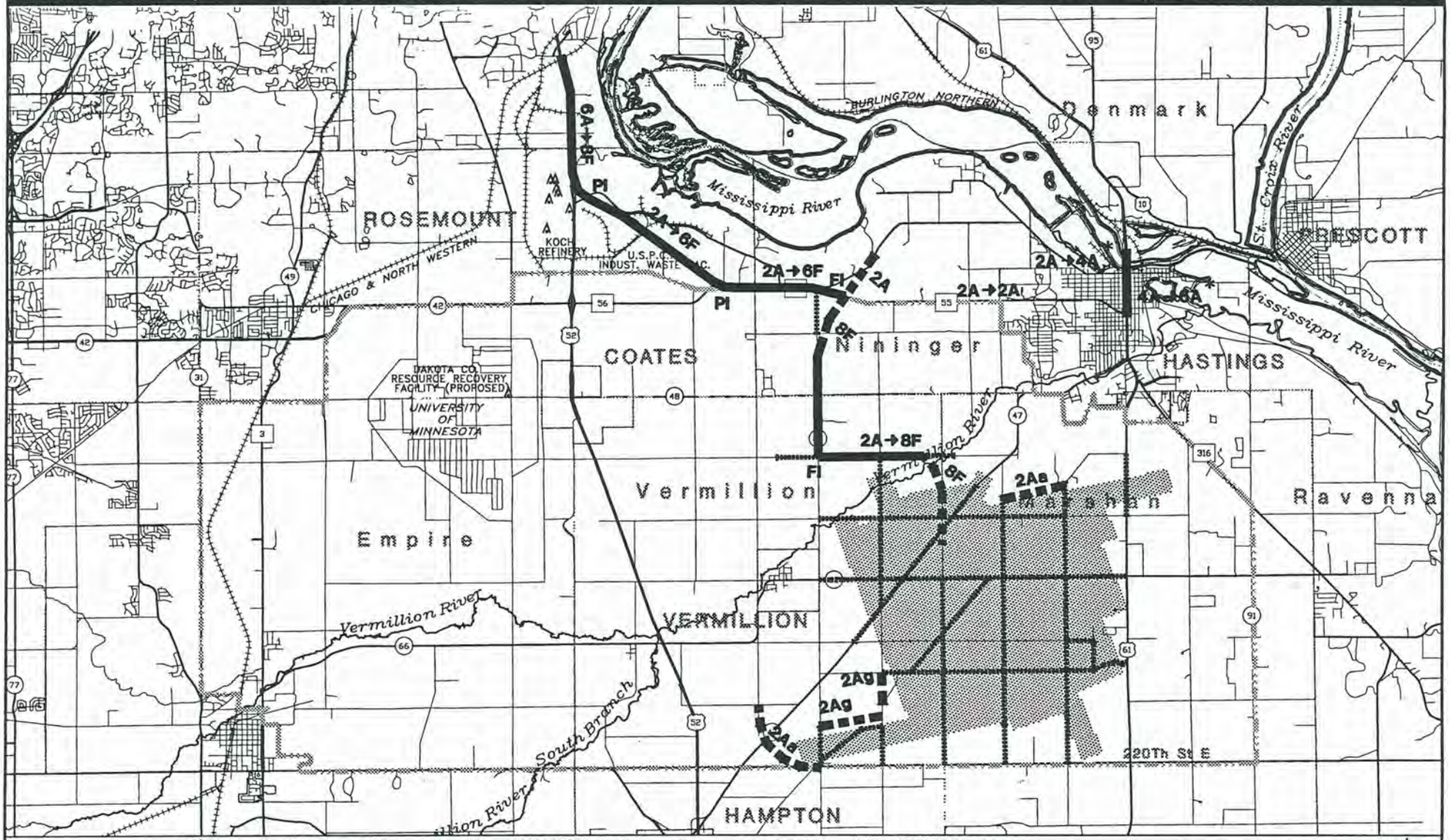


Source: Geologic Atlas,
Minnesota Geological Survey, U. of M.

HNTB

Figure 15

Sensitivity to Aquifer Pollution



Source: HNTB, Metropolitan Council

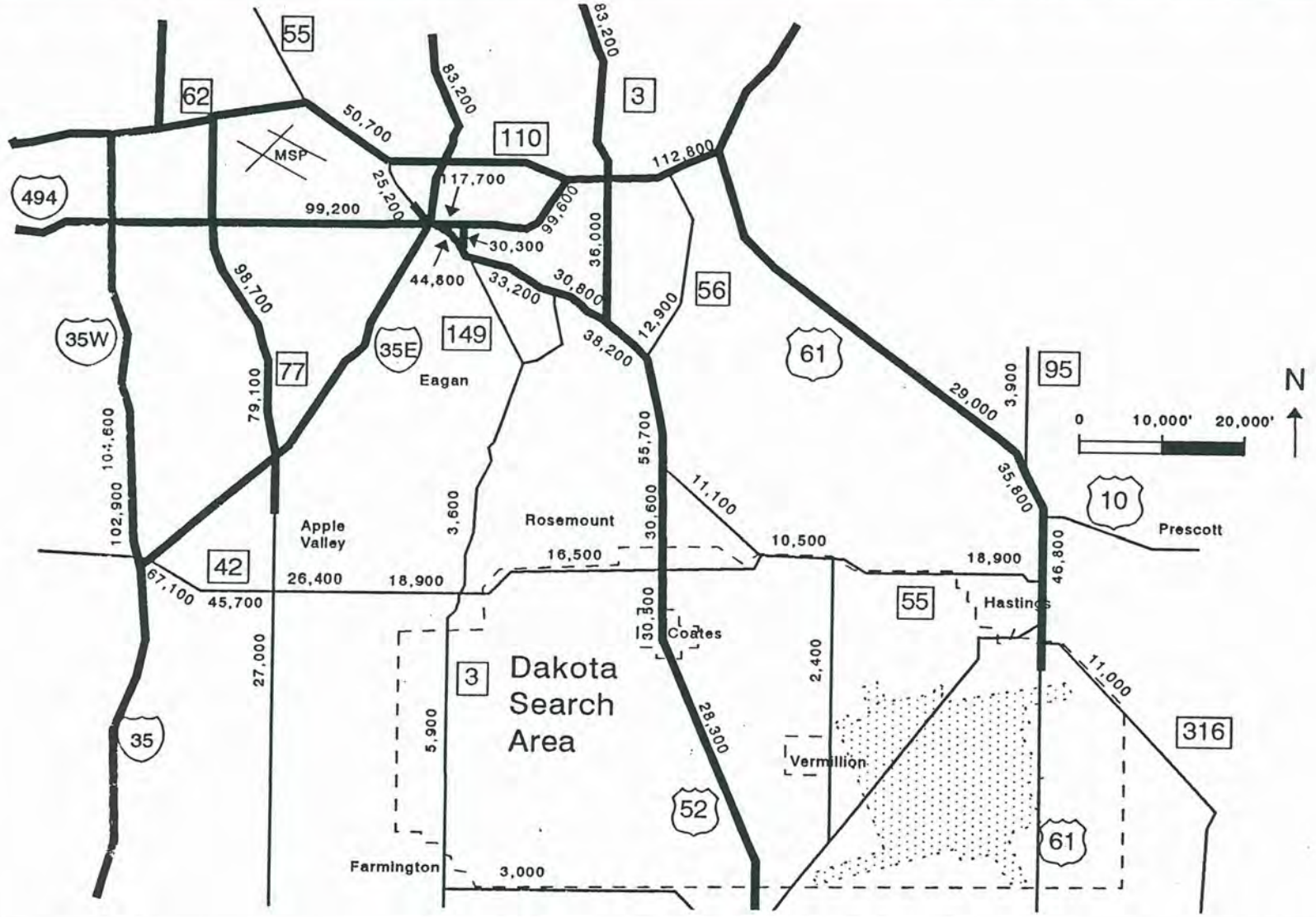
HNTB

MAC

Minneapolis Saint Paul Metropolitan Airports Commission

Figure 16

Ground Access

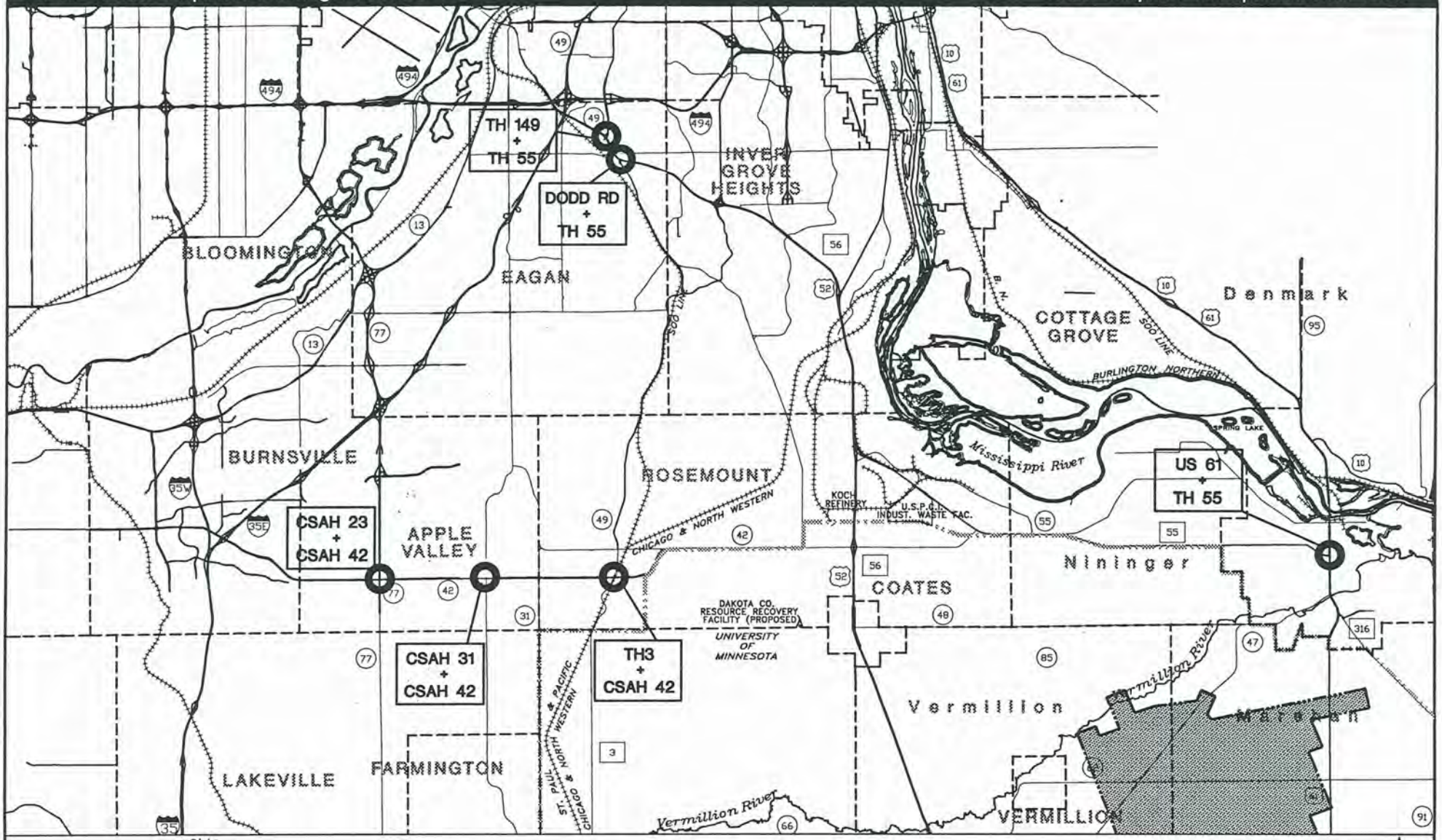


Source: Metropolitan Airports Commission

HNTB

Figure 17

2020 Average Daily Traffic



Source: David Braslau Associates, Inc.

0 1 2 3
Scale in Miles

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HNTB

MAC Minneapolis Saint Paul Metropolitan Airports Commission

Figure 18

Intersections on Regional Network with Potential CO Violations, Year 2020

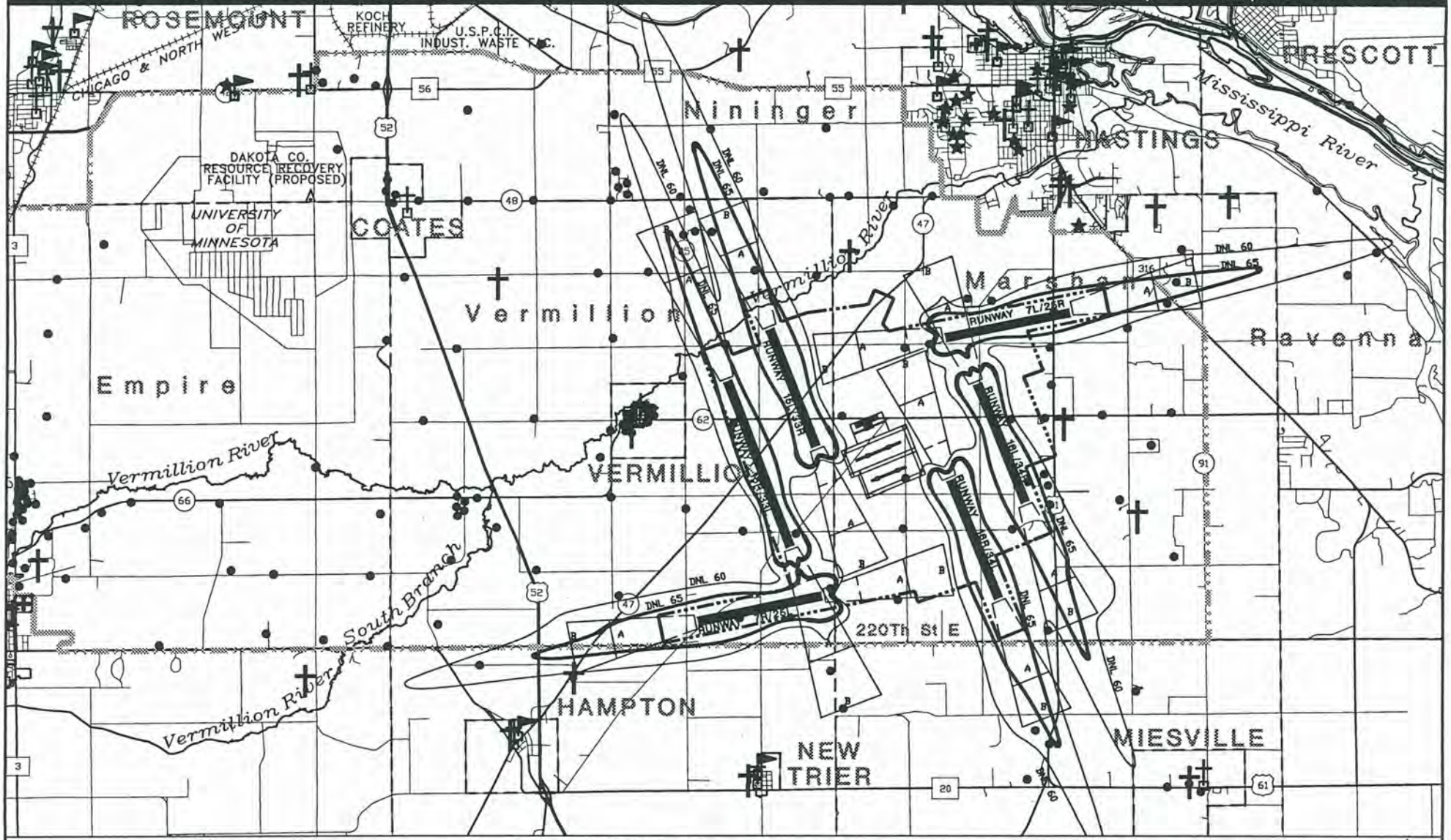

Figure 19

Alternative 1 DNL Noise Contours and Noise-Sensitive Land Use

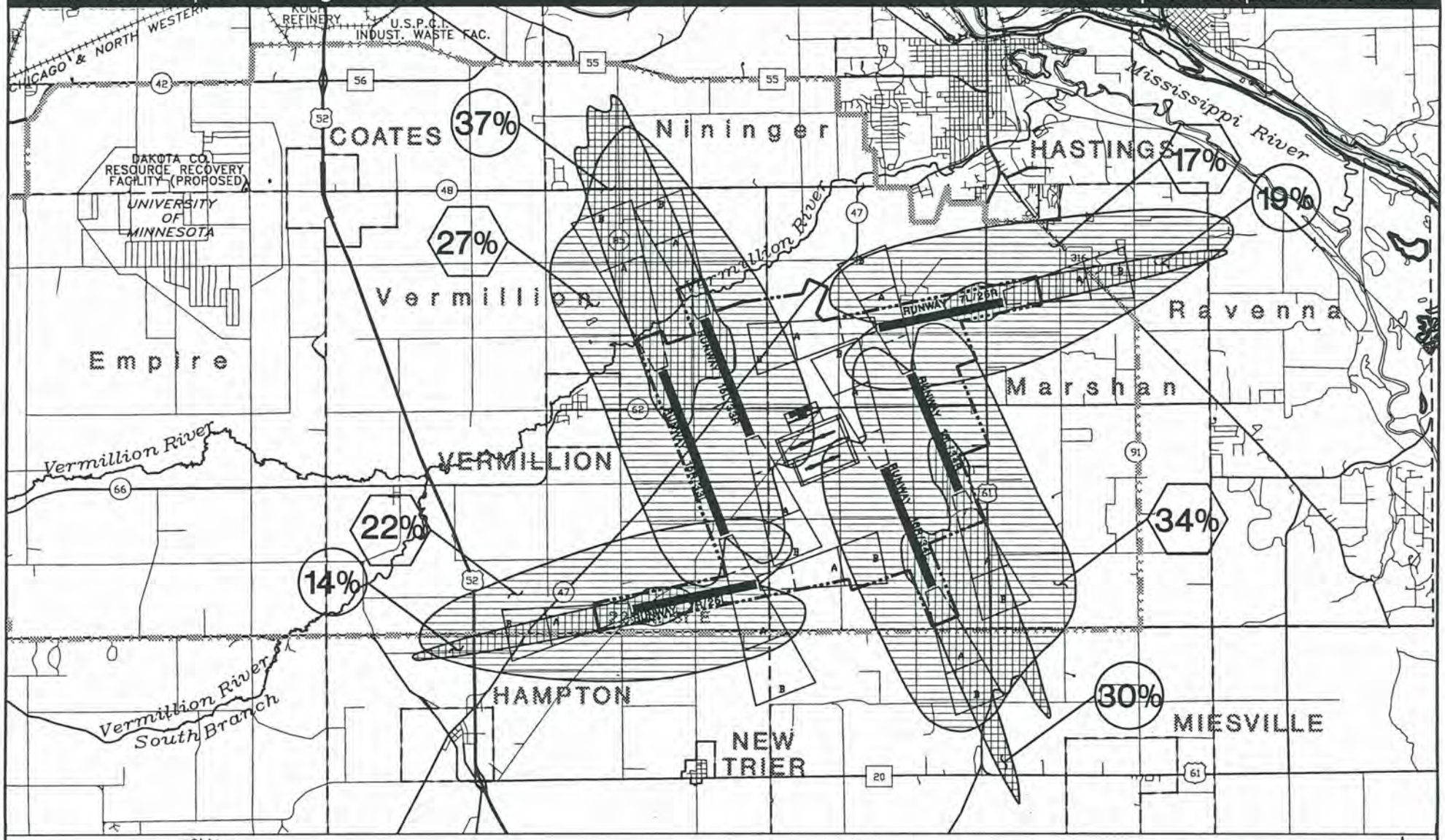

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Figure 20

Alternative 1 L_{10}65 Noise Contours and Runway Use

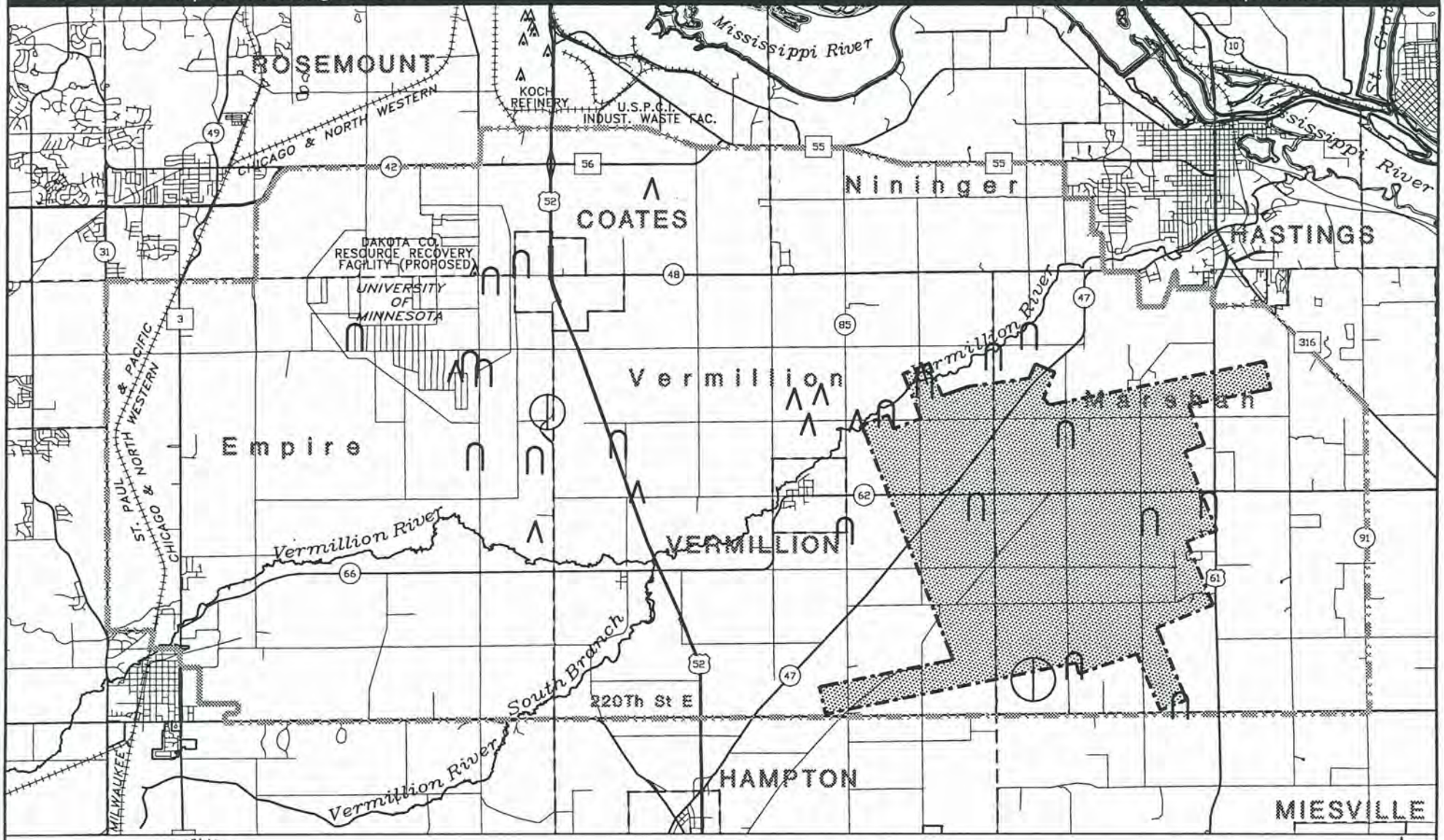

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Figure 21

Archaeological Properties

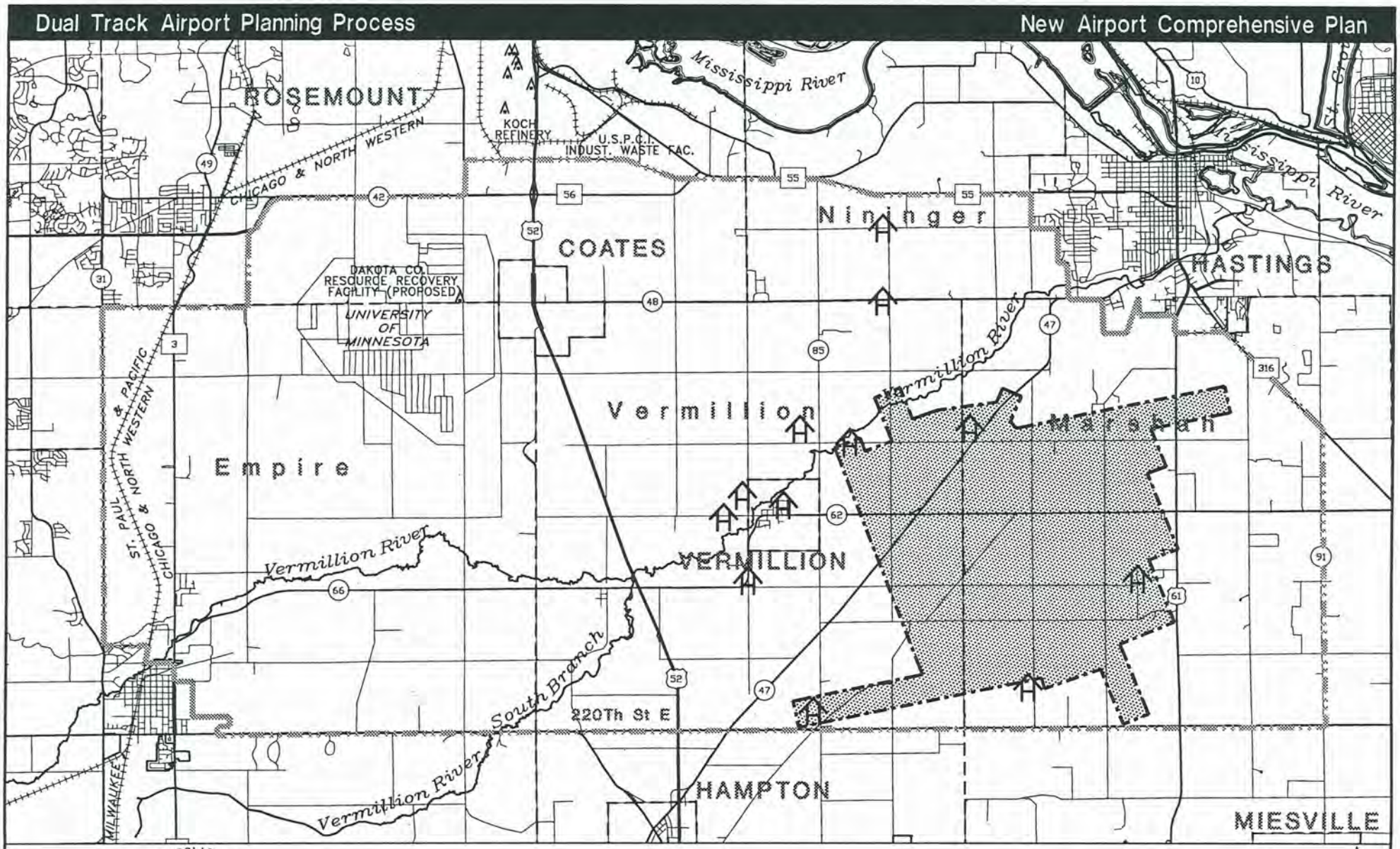

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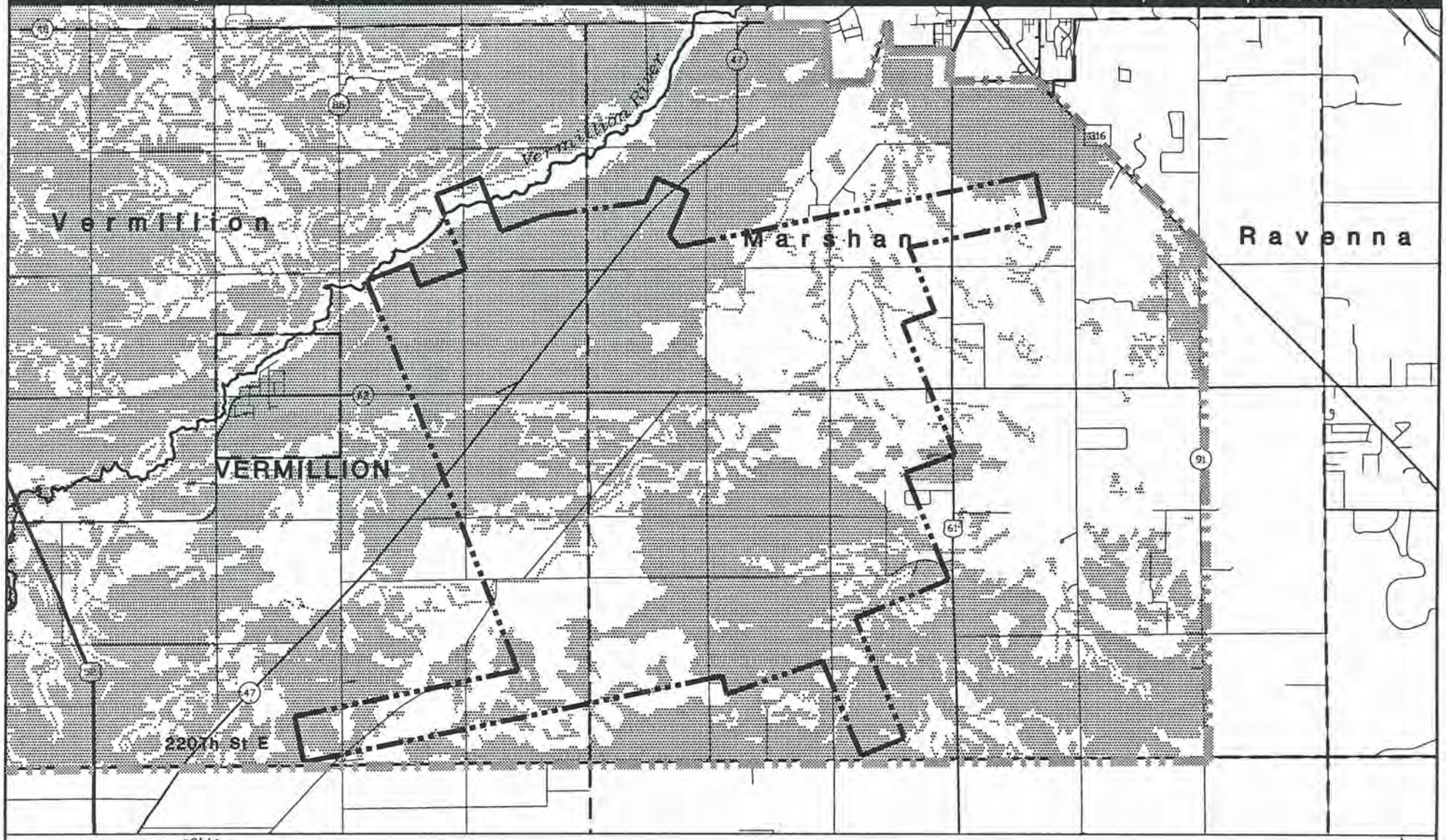
Figure 22

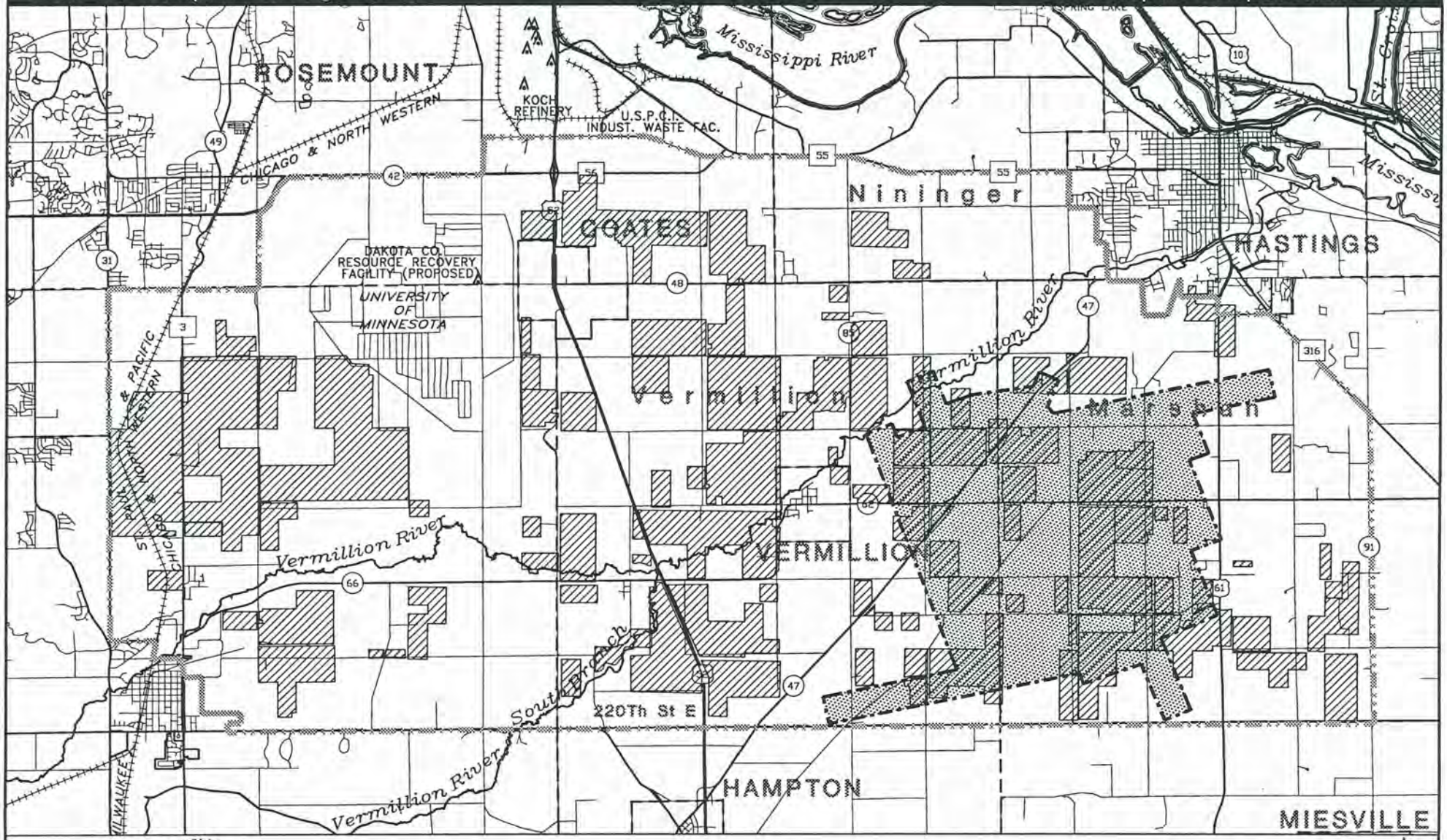
Historic/Architectural Properties



Source: Soil Conservation Service, U.S. Dept. of Agriculture; HNTB

HNTB

Figure 23
Prime Farmland



Source: Metropolitan Council

HNTB

Figure 24

Agricultural Preserves

APPENDIX B

GLOSSARY

SDD -- Scoping Decision Document. The SDD presents the alternatives, issues and impacts that the Responsible Governmental Unit (RGU) has decided to study in the EIS or AED. The SDD is adopted by the RGU after receiving comments from the public and affected agencies. The Draft SDD presents the alternatives, issues and impacts that the RGU is proposing to study. It is made available so that the public and agencies can comment on the adequacy of the proposed alternatives, issues and impacts.

AED -- Alternative Environmental Document. The AED is a document that includes the analysis of environmental impacts and issues in sufficient detail to select the "best" of the alternatives under consideration. It is similar to an EIS, but differs in that the "no action" alternative and other reasonable alternatives and their impacts are not considered (at this time). That is, the New Airport Comprehensive Plan AED will only address the site alternatives and impacts included in the adopted SDD for the New Airport Comprehensive Plan Study.

EIS -- Environmental Impact Statement. This is a document required by federal (if federal funds or properties are involved) and state law for proposed projects that could have significant adverse impacts on the social, economic and natural environment. The EIS must address the environmental impacts of all reasonable alternatives, including the "no action" alternative, and commit to measures that would mitigate those adverse impacts that cannot be avoided.

EAW -- Environmental Assessment Worksheet. The EAW is the standard form of the EQB for describing a proposed project and its impacts.

RPZ -- Runway Protection Zone. This is a trapezoidal area at the end of a runway that must be acquired and cleared to afford a safety zone for aircraft landings and take-offs.

DNL -- Day Night Level metric that describes aircraft noise (also known as Ldn). It is the logarithmic average sound level measured in decibels weighted to closely approximate the sensitivity of the human ear. DNL is based on the annual average of 24-hour Equivalent Sound Level (Leq), which is weighted to account for increased noise sensitivity during nighttime hours (10:00 p.m. to 7:00 a.m.). For example, DNL 65 dBA is the Day Night Level of 65 decibels on the A-weighted scale.

Section 4(f) Land -- This is land afforded protection under Section 4(f) of the 1966 US Department of Transportation Act of Congress. All publicly-owned park and recreation land, and wildlife and waterfowl refuges and historic lands of national, state or local significance are included in Section 4(f). These lands cannot be adversely impacted unless there is no feasible and prudent alternative to the use of the lands.

Comprehensive Plan -- This is the plan for the airport. It includes the runways, taxiways, aprons, internal roadways, building areas, RPZ's, control tower, landing lighting system and treatment facilities.

Section 6(f) Land -- Section 6(f) of the 1965 Land and Water Conservation Fund (LAWCON) Act of Congress stipulates that any land that was planned, developed or improved with LAWCON funds cannot be converted to other than outdoor recreational use unless replacement land of at least equal value and usefulness is provided. Section 6(f) land is outdoor recreational land and can include publicly-owned parks, tennis courts, trails, golf courses, etc.

State Safety Zones -- These are trapezoidal areas beyond the federal RPZ that can be regulated to prevent the use of the included land for purposes which can be hazardous due to aircraft operations. Minnesota Statute 360.063 provides authority for the establishment of a joint airport zoning board consisting of the directly affected municipalities. The board regulates zoning within the State safety zones. The established zoning regulations cannot be retroactive (i.e. existing land use and structures cannot be altered).

EPA -- Environmental Protection Agency (of the United States government)

FAA -- Federal Aviation Administration (of the United States Department of Transportation)

MAC -- Metropolitan Airports Commission (of the Twin Cities Metropolitan Area)

MDNR -- Minnesota Department of Natural Resources

MSP -- Minneapolis-St. Paul International Airport

MWCC -- Metropolitan Waste Control Commission

NRHP -- National Register of Historic Places

SHPO -- State Historic Preservation Officer (of the Minnesota Historical Society)

MPCA -- Minnesota Pollution Control Agency

Dual Track Airport Planning Process

New Airport Comprehensive Plan

Draft Scoping Decision Document

April 1994

Prepared for:

Metropolitan Airports Commission

Prepared by:

HNTB

HOWARD NEEDLES TAMMEN & BERGENDOFF
ARCHITECTS ENGINEERS PLANNERS

and associated firms

Acknowledgements:

Cover includes Landsat-5 images of the Study Area in the visible and infrared bands. Prepared by Remote Sensing Laboratory, Department of Forest Resources, College of Natural Resources, University of Minnesota in cooperation with the Metropolitan Council of the Twin Cities Metropolitan Area. Landsat imagery reproduced by permission of Earth Observation Satellite Company, Lanham, Maryland, U.S.A.

DRAFT SCOPING DECISION DOCUMENT

TABLE OF CONTENTS

LIST OF FIGURES

I. INTRODUCTION

PURPOSE OF DOCUMENT

The purpose of the Draft Scoping Decision Document (SDD) is to present the alternatives, issues and impacts that the Metropolitan Airports Commission (MAC) proposes to study, analyze and discuss in the Alternative Environmental Document (AED) for the selection of the comprehensive plan for a (possible) new major airport in the Dakota Search Area in Dakota County.

The New Airport Comprehensive Plan project is being conducted in accordance with the Alternative Environmental Review Process proposed by MAC and approved by the Minnesota Environmental Quality Board (EQB) on March 19, 1992, and in general accordance with Federal Aviation Administration Order 5050.4A issued October 8, 1985 by the Federal Aviation Administration (FAA) of the U.S. Department of Transportation. Compliance with FAA Order 5050.4A ensures that the project will meet the procedural and substantive environmental requirements set forth by the Council on Environmental Quality in its regulations implementing the National Environmental Policy Act.

MAC is the designated Responsible Governmental Unit (RGU) for the scoping documents and the AED.

Contact Person:

Nigel D. Finney, Deputy Executive Director, Planning and Environment
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, Minnesota 55450
(612) 726-8187

PROPOSED PROJECT

The proposed project is the selection of the comprehensive plan for a new major airport site in the Dakota Search Area. Figure 1 shows the location of the site in the Search Area and Figure 2 depicts a conceptual layout of the plan used for site selection. The comprehensive plan will include the size, location and function of the necessary airport facilities -- and the local/regional facilities needed to accommodate the plan.

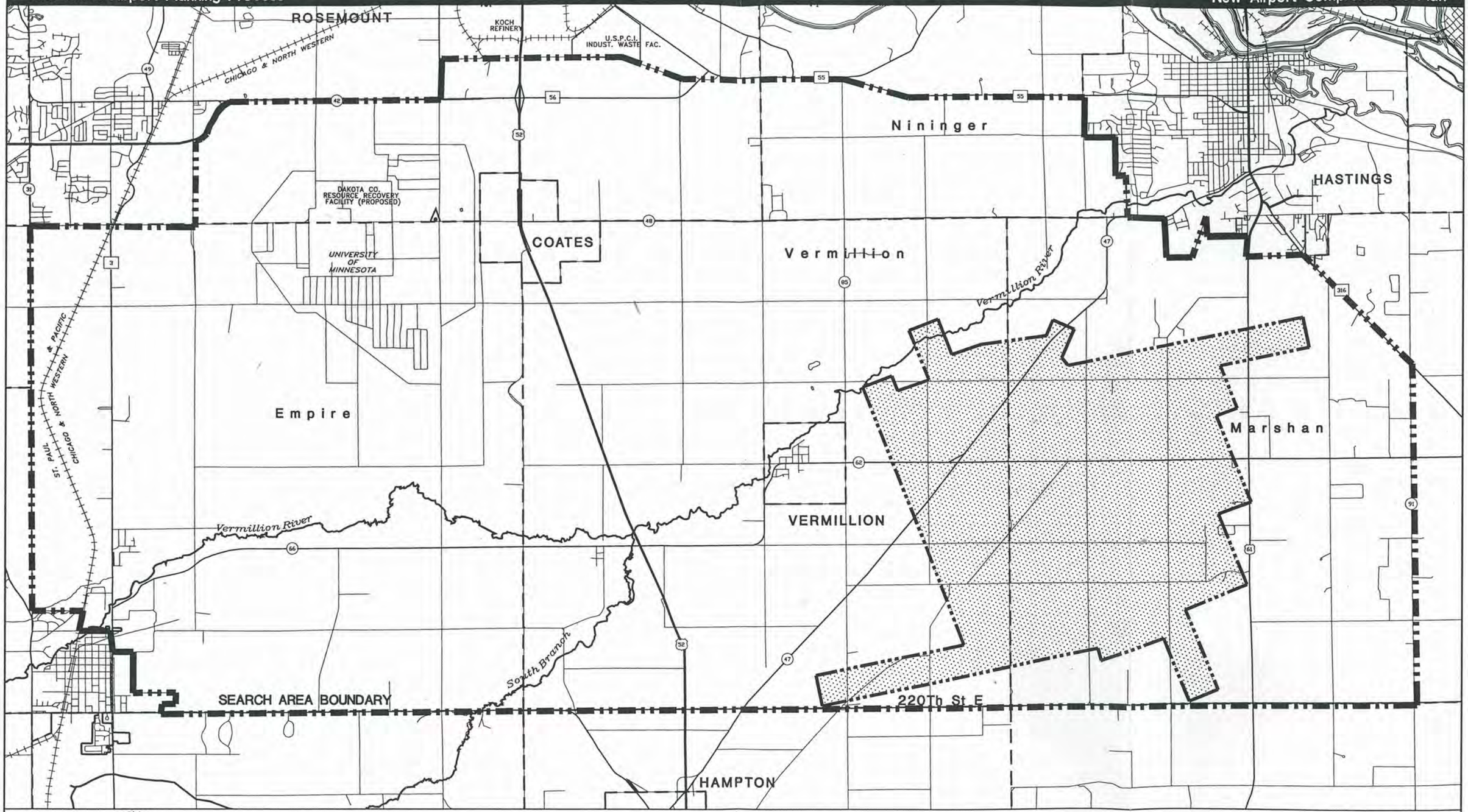


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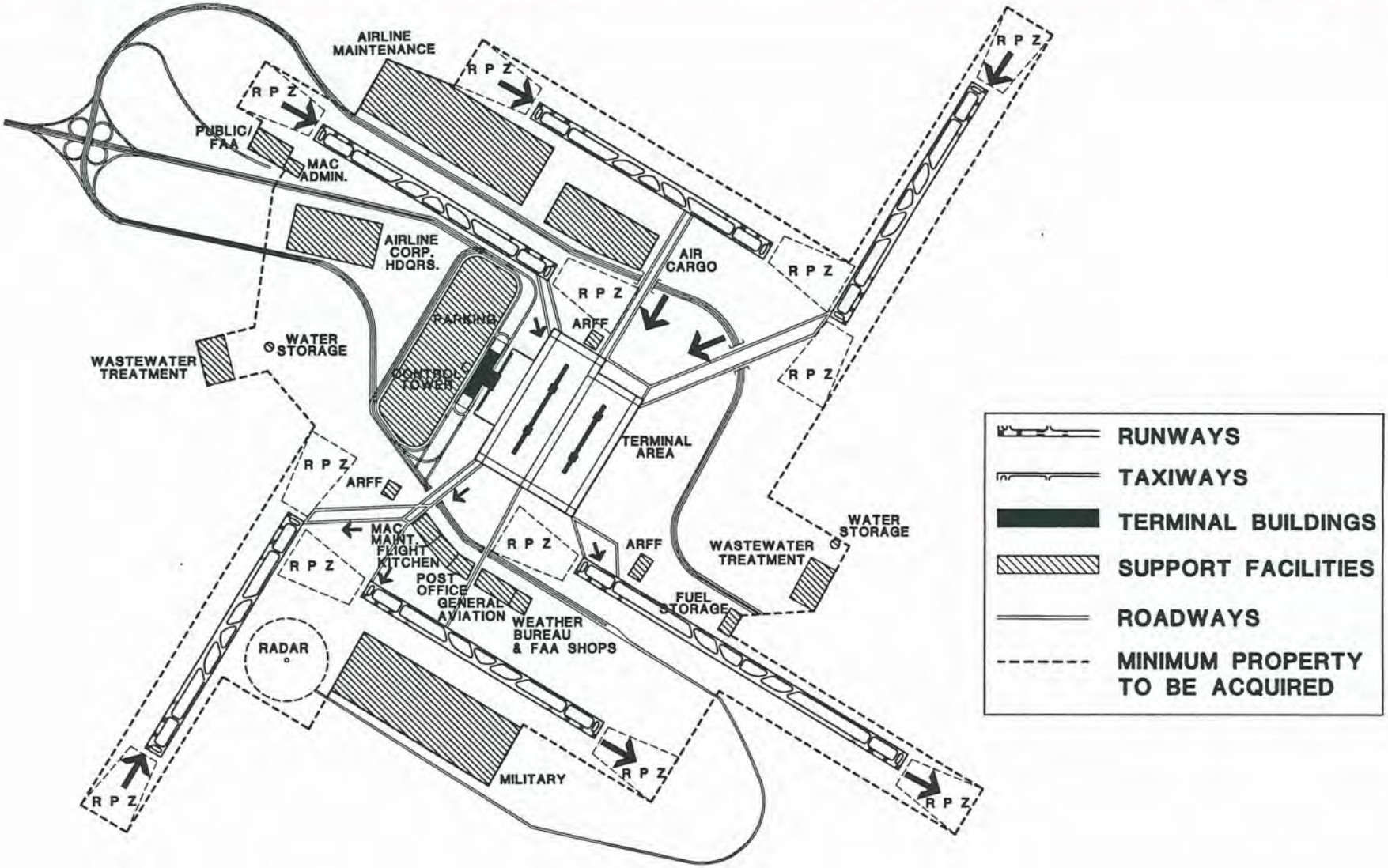
Figure 1
Project Location



Source: Metropolitan Airports Commission

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Figure 2

New Airport Selected Conceptual Design

SCHEDULE

The tentative schedule of activities for selection of the New Airport Comprehensive Plan is:

Scoping EAW/Draft Scoping Decision Document (SDD) Availability and Beginning of Comment Period	April 25, 1994
Public Scoping Meeting	May 10, 1994
End of Comment Period	May 25, 1994
EQB Review/Comment on SDD	June 16, 1994
MAC Adoption of SDD and Response to Comments	June 20, 1994
Draft Alternative Environmental Document (AED) Availability and Beginning of Comment Period	December 5, 1994
Public Hearing(s)	January, 1995
End of Comment Period	February 6, 1995
EQB Review/Comment on Final AED	March 16, 1995
MAC Adoption of Final AED, Determination of Adequacy, and Selection of Comprehensive Plan	April 17, 1995

II. EVALUATION OF ALTERNATIVES

ALTERNATIVES CONSIDERED

The identification and screening of potential airport runway concepts was presented in the Scoping Environmental Assessment Worksheet (EAW). Four alternatives were identified for the selected runway concept. The alternatives are shown in Figures 3, 4, 5 and 6.

ALTERNATIVES ELIMINATED

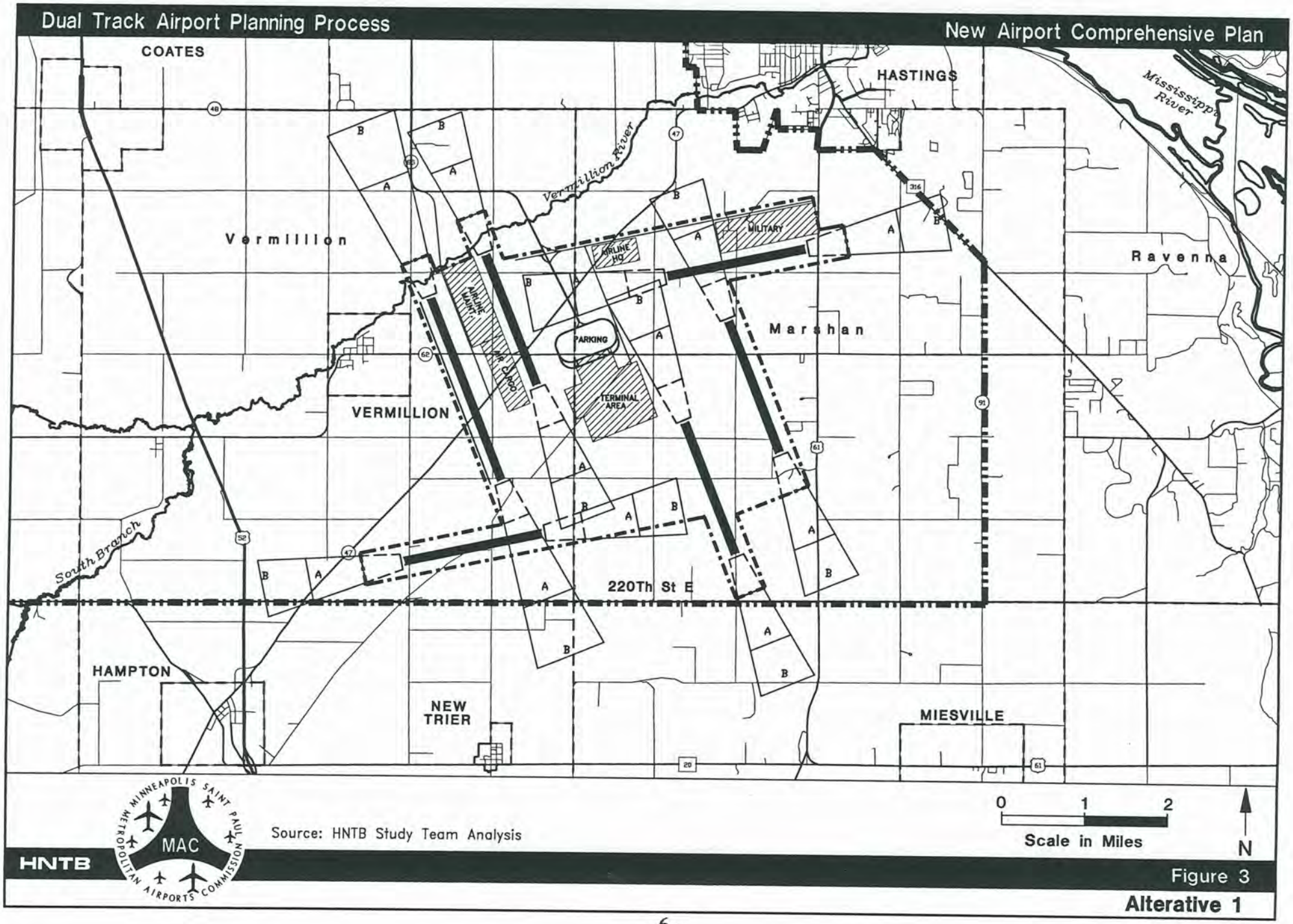
Alternative 4 is eliminated from further consideration because, of the four alternatives, it is the least efficient operationally, while offering only a slight improvement in environmental impacts due to its smaller size.

By eliminating runway stagger, many aircraft would have to cross active runways, increasing the probability of runway incursions. The location of the crosswind runways (bounded by the four parallel runways) results in the desired three-in/three-out flow through procedure being useable for only approximately 70 percent of the year, due to increased minimums. The three-in/three-out procedure is useable at least 90 percent of the time under the other three alternatives. During periods of reduced visibility, a less efficient operating mode using only the four main parallel runways, would be necessary. By restricting aircraft operations to the four parallel runways, arriving aircraft would land on the two outside parallel runways and would have to cross the two inside parallel runways (on which aircraft would be departing), further increasing runway crossings. Airfield circulation would be less efficient and airfield delays would be greater. A new runway may be needed sooner under Alternative 4 than under the remaining alternatives.

Average airspace distances would be greater, because more aircraft would have to fly past the airport to sequence themselves on the final approach course to one of the main parallels instead of flying directly to one of the crosswind runways. Since Alternative 4 is only about six percent smaller than Alternative 3 (7,400 acres vs. 7,900 acres), any improvements in environmental impacts due to its smaller land area would not offset its significantly inferior operational characteristics as compared to Alternative 3 or to other alternatives.

ALTERNATIVES TO BE STUDIED IN AED

Alternatives 1, 2 and 3 will be studied in the AED.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MIESVILLE
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Source: HNTB Study Team Analysis
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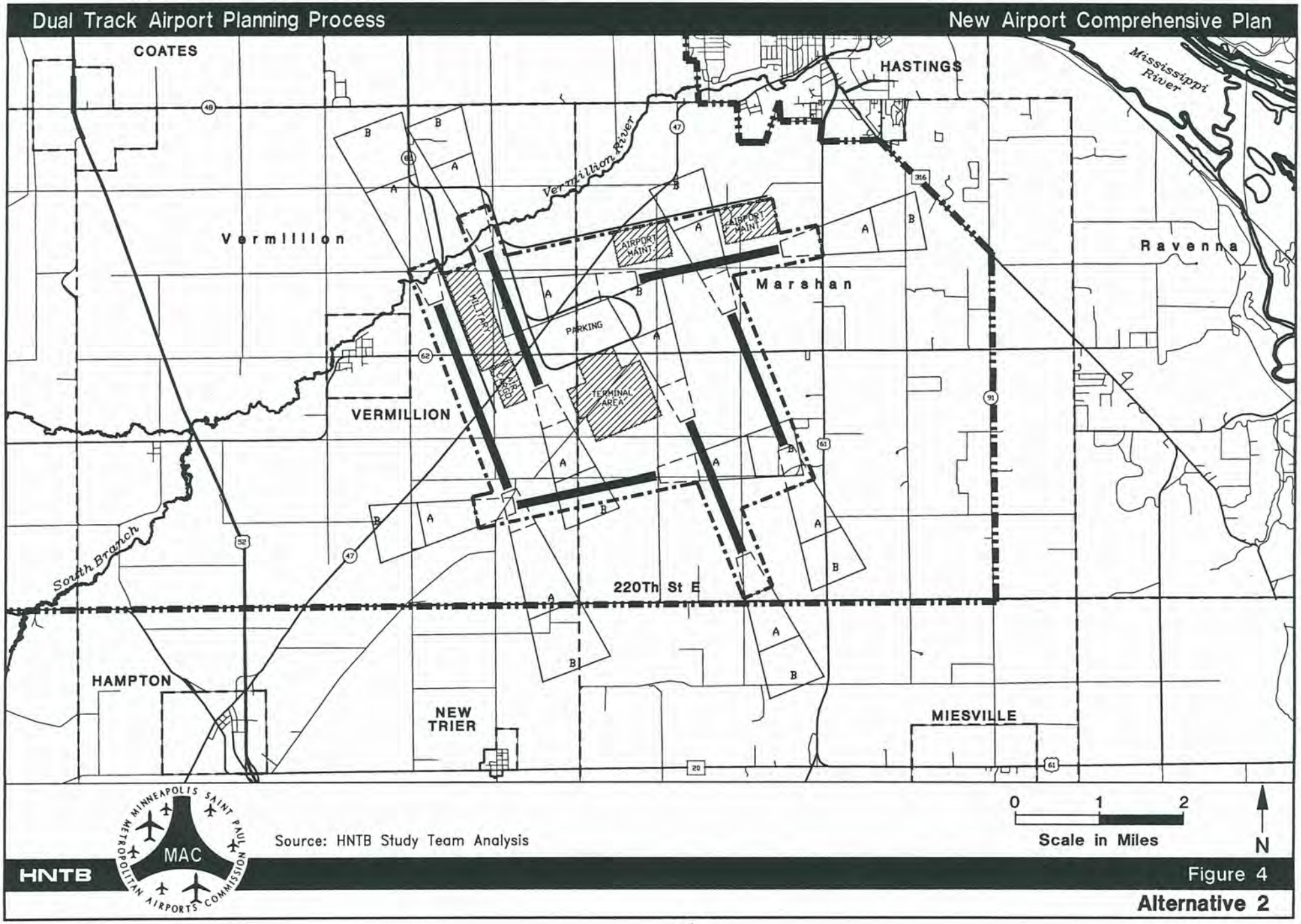
Figure 3
Alterative 1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MAC
Source: HNTB Study Team Analysis
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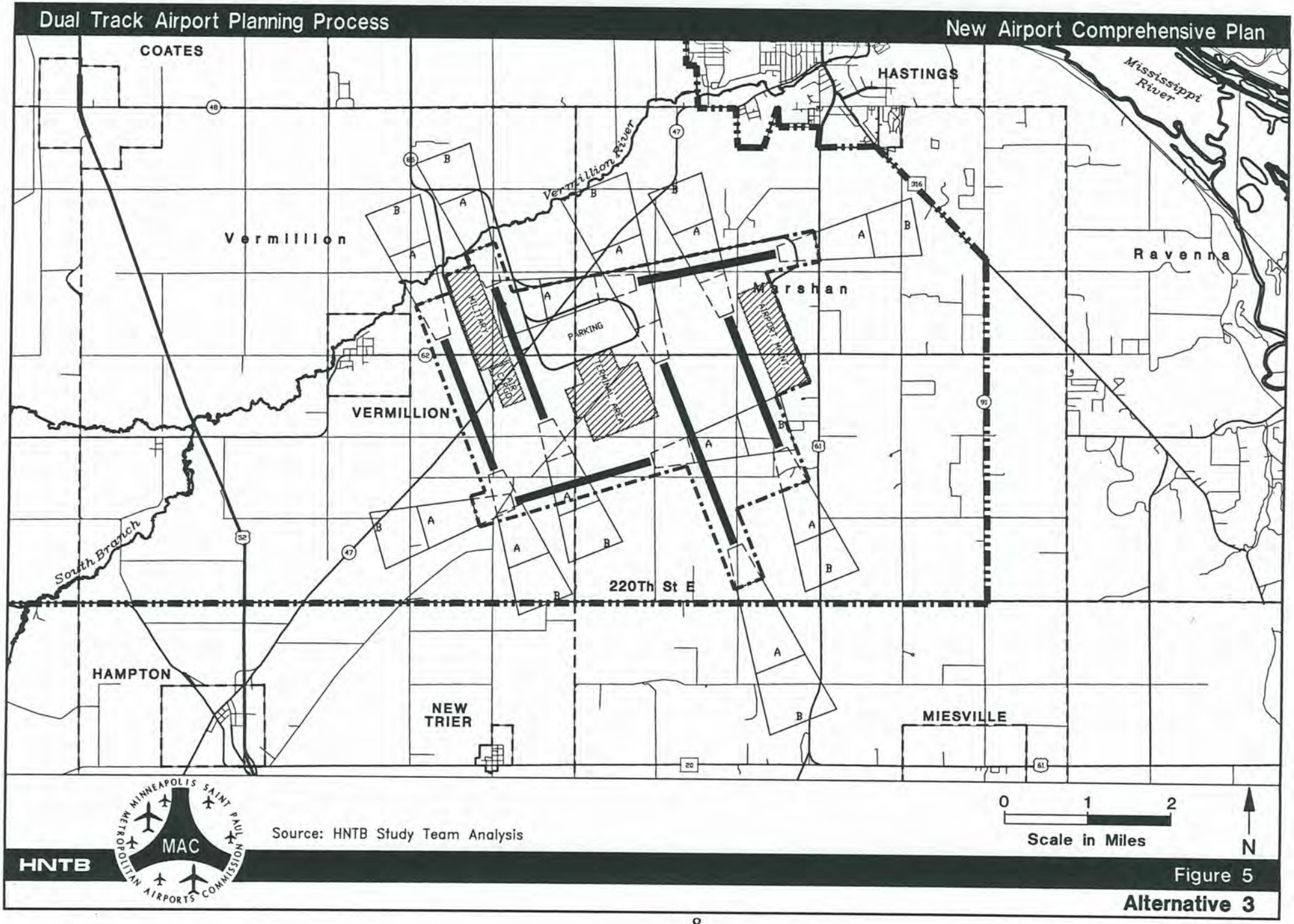
Figure 4
Alternative 2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Source: HNTB Study Team Analysis
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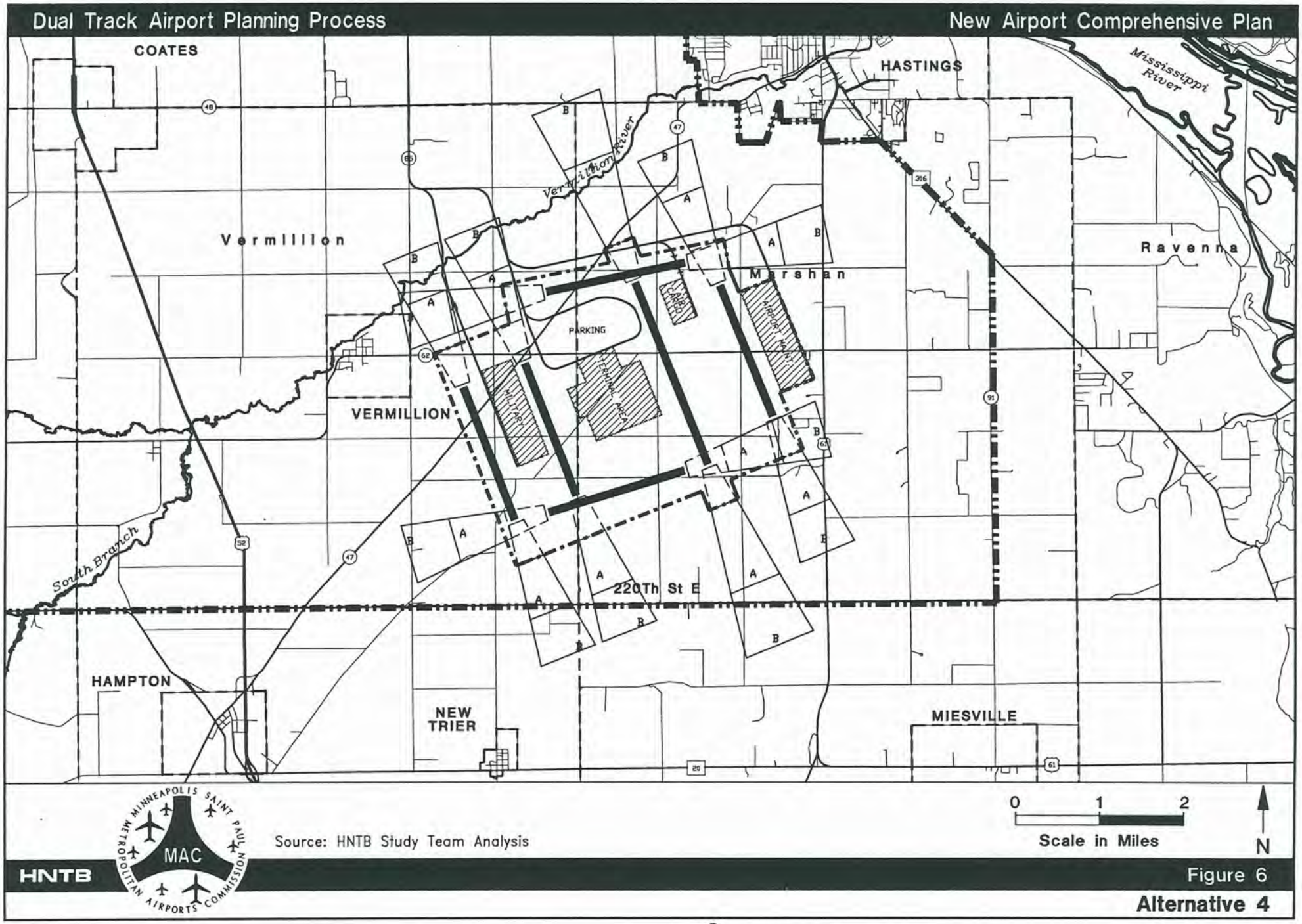
Figure 5
Alternative 3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Source: HNTB Study Team Analysis
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Scale in Miles
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HNTB
MAC
MINNEAPOLIS SAINT PAUL METROPOLITAN AIRPORTS COMMISSION
Figure 6
Alternative 4

III. SUMMARY OF ISSUES AND CONCERNS

The following issues and concerns are related to the development of a possible new major airport in the Dakota Search Area in Dakota County. The list is a summary of comments received on the First Phase Scoping Report and input during the Site Selection scoping process. Additional issues may arise during the preparation of the AED and will be included.

1. The runway configuration.

2. The major assumptions and forecasts that determine airport facility requirements.

3. Impact on natural habitat and wildlife (including bird strikes).

4. Impact on surface water and groundwater (aquifers) and water supply.

5. Impact on wetlands, floodways and floodplains.

6. Impact on agricultural land and local agricultural economy.

7. Potential noise and overflight impacts, including stress-related health disorders.

8. Impact of solid and hazardous waste disposal.

9. Impact on historic, architectural, archaeological, and other cultural resources.

10. Local and regional impacts due to induced/spin-off development from the new airport.

11. Cost of land acquisition and cost of needed improvements to the local and regional transportation systems.

12. Land use compatibility.

13. Impact on public park and recreation land.

14. Impact on rare, threatened, endangered and special-concern species.

15. Social and economic community impacts.

16. Visual impacts (including light emissions).

17. Impact on mineral resources production and development.

18. Site accessibility (travel time) and travel costs to airport users.

19. Consistency with Metro Council policies on MUSA line and agriculture.

20. Relocation of people and businesses.

21. Air quality impacts.

22. Uncertainty of new airport development for residents in and around the Search Area.

23. Provisions for utility and access infrastructures (including sewage treatment plants) to service the airport and secondary development areas.

24. Effect on regional development.

25. Impact on regional transportation system (highways and transit).

26. Effect on property values in the site area and adjacent areas.

27. Effect on lifestyle of Dakota County residents.

28. Ability to finance new airport development.

IV. ANALYSIS OF ISSUES AND IMPACTS

ISSUES AND IMPACTS REQUIRING DETAILED ANALYSIS

The following issues and impact areas were determined in the Site Selection scoping process to be potentially significant and to require detailed analysis in the AED. The level of analysis will be based on the extent to which the issue or impact varies for each candidate site in determining the best site in the Search Area. Measures to mitigate the impacts will be discussed, where appropriate.

Forecasts

The airport activity forecasts developed in 1989 for use in the Long Term Comprehensive Plan for MSP and for the New Airport Site Selection Study will be updated in the Spring of 1993. The updated forecasts will be used in the MSP Long Term Comprehensive Plan Update, the New Airport Comprehensive Plan, and for environmental documents relating to these studies.

The forecast update process was initiated in October 1992, when a public hearing and a series of expert panel sessions were conducted to solicit input on forecast methodologies, aviation assumptions, and socio-economic assumptions. During these sessions, issues were raised regarding the latest socio-economic projections, and uncertainties with various aviation assumptions. To address these uncertainties, options for including alternative scenarios, and/or sensitivity analyses, will be considered in developing the final forecast methodology.

Some of the expert panels will be reconvened after a preliminary forecast is developed, to review the forecasts and the alternative scenarios and/or sensitivity analyses selected.

Noise

Noise sensitive areas and facilities (residences, schools, parks, etc.) will be identified and analyzed to determine the noise impacts of the candidate sites. The effect of aircraft noise on stress-related health disorders will not be determined due to the lack of reliable data showing harmful effects. Future day and nighttime sound levels will be calculated and compared with existing levels, state standards and federal criteria. The future sound levels will be calculated, using the latest version of the Federal Aviation Administration's Integrated Noise Model-INM 3.10. Four primary factors will be used: Day Night Level (Ldn), the State L_{10} descriptor, maximum single event levels, and numbers of overflights.

The DNL metric was developed under the auspices of the U.S. EPA for use in describing aircraft noise impacts and other environmental noise impacts. DNL is the logarithmic average sound level measured in decibels weighted to closely approximate the sensitivity of the human ear. It is based on the yearly average for a 24-hour Equivalent Sound Level (Leq). The metric is

weighted to account for increased noise sensitivity between 10:00 PM and 7:00 AM with a 10 dBA (decibels on the A-weighted scale) penalty applied to noise events during that nighttime period. The output of the noise model includes a noise contour connecting points of equal noise level, which can be used to estimate the number of people and noise sensitive land uses within specified Ldn sound levels. For this study, DNL 65 and DNL 60 will be determined for a conservative future year.

The $L_{10}65$ metric is used by the State of Minnesota in setting State noise standards. The L_{10} is based on a sound level (65 dBA) exceeded 10 percent of the time (6 minutes per hour). It is calculated for the worst hourly noise condition that could occur off each runway end. It says nothing about how often the condition actually occurs, but does show what short-term conditions could be in these areas.

The time-above-threshold (TA) is a measure of the time during a 24-hour day that a point on the ground experiences aircraft-generated noise above specified levels. The level of 85 dBA represents the point at which single-event (not DNL) levels are considered potentially disruptive. Unlike the DNL metric, which uses logarithmic averages in its internal calculations, the TA metric uses arithmetic means to calculate total noise. This latter technique can better demonstrate small changes in noise patterns, and can show changes in noise on a scale commensurate with changes in the number of aircraft overflights.

Peak Sound Exposure Level (SEL) is a calculation of the highest single aircraft A-weighted sound level at a specific point on the ground. Comparison of peak SEL for the various alternatives at the same geographic points shows various single-event impacts by alternative.

The analysis of aircraft overflights focuses on areas near the ends of runways. This analysis provides a straight forward comparison of runway use by alternative.

Noise abatement measures and land use compatibility measures will be considered for each of the alternatives. Appropriate measures will be addressed for each candidate site for comparing the sites and to help determine the best site.

Energy Supply and Natural Resources

Energy requirements associated with the operation of the New Airport will fall generally into two categories: 1) those relating to changed demands for stationary facilities (e.g. airfield lighting and terminal building heating), and 2) those involving the movement of air and ground vehicles.

The provision of power for stationary facilities on the New Airport was addressed in the Site Selection AED. Peak power demand projections were determined to be consistent with energy planning by potential energy providers (Dakota Electric, Minnegasco, and Northern States Power.)

For the alternative layouts considered in the AED, there are no differences in vehicular traffic, and therefore energy consumption between the alternatives. Differences in regional vehicular energy consumption between the New Airport, MSP and the No-Build alternative will be addressed in the Dual Track Environmental Impact Statement.

Historical and Architectural Resources

An intensive-level study will determine the National Register eligibility of the six properties within Site 3 and the associated DNL 65 noise contour (the "Area of Potential Effect") that were identified by the reconnaissance-level survey as meriting further study. Properties beyond the Area of Potential Effect will not be examined at this time, because the impact on these properties would be similar for any runway configuration in Site 3. The six properties to be included in the intensive survey are Chimney Rock, 16143 Hogan Avenue, 20477 Kirby Avenue, 22005 Lewiston Boulevard, 17945 Northfield Boulevard, and 8030 - 180th Street. In addition, other properties from the reconnaissance-level survey that fall within the Area of Potential Effect for Site 3 will be reevaluated in light of the more detailed contextual information generated by the intensive survey.

A research design will be developed to outline survey objectives, methods, and expected results. The research design will be reviewed and approved by the State Historic Preservation Officer (SHPO) before fieldwork and archival documentation is initiated. Evaluation of the National Register eligibility of Chimney Rock will be expedited, since it might prove difficult to mitigate actions adversely affecting this property.

Research will be completed at the Minnesota Historical Society Reference Library, the SHPO, the Dakota County Historical Society, the Dakota County Courthouse, and additional repositories as needed. Sources will include atlases and other maps, deeds, genealogical studies, and architectural surveys of other rural areas. A more detailed physical analysis of the six properties identified by the reconnaissance survey will also be completed. Inventory forms and the final survey report will conform to SHPO guidelines. The report will discuss historic contexts related to properties in the Area of Potential Effect and, based on these contexts, will assess the National Register potential of the properties. As the Comprehensive Plan is developed for each alternative, options that might adversely affect properties eligible for listing in the National Register will be avoided or their effect minimized, when possible.

Archaeological Resources

The Native American and seven Euro-American properties identified in the Scoping EAW will be further analyzed to determine eligibility for listing on the National Register of Historic Places (NRHP). Areas with potential archaeological properties that could not be surveyed during site selection will be surveyed (if possible) and analyzed for NRHP eligibility.

A research plan will be prepared in consultation with SHPO and FAA, and a report will be prepared documenting the results of the analysis, including measures to minimize unavoidable impacts.

Fish, Wildlife and Ecologically Sensitive Resources

Based on the analysis done for the New Airport Site Selection Study AED, additional analysis will be required regarding potential impacts to (1) threatened, endangered and special concern plants and animals and (2) potential bird-aircraft hazards.

The refined analysis of threatened, endangered and special concern species will primarily involve three specific sub-issues; (1) the potential for direct impacts to rare plants or plant communities within the selected Site, (2) the potential for direct impacts to loggerhead shrike breeding territories within or adjacent to the selected Site, and (3) the potential for indirect impacts to wintering bald eagles along the Mississippi River corridor in proximity to the selected Site. The analytical approach to be taken on each of these issues is discussed in detail below.

Rare Plants and Plant Communities within Alternative Sites

Based on the analysis carried out for the New Airport Site Selection Study AED, only two locations known to have rare plants or plant communities would be potentially affected by the selected Site: (1) the Hastings Sand Coulee and (2) the Chimney Rock area. The analysis contained in the New Airport Site Selection Study AED strongly suggests that these sensitive plant communities can be avoided in the design of the selected Site; however, these locations lie near enough to the east and south edges of the selected Site that more refined analysis is necessary to confirm that this is the case. The more detailed level of grading information being developed is expected to allow an accurate assessment of potential impacts.

The relative potential for impacts associated with each alternative will be analyzed and compared. If it is confirmed that such resources will be avoided in grading the site, the AED will explore measures to both ensure their long-term preservation and ways to manage them in a manner that fosters increases in both the population and distribution of rare plants. If rare plant resources are located in areas where avoidance is impossible, the analysis will include other potential mitigation measures such as transplanting or re-establishing such plants in other more protected areas within the selected plan. Ongoing coordination will be maintained with the MDNR Natural Heritage Program to ensure that any proposed management or mitigation measures are feasible and likely to produce the desired results.

Rare Wildlife Species within Alternative Sites

With regard to rare wildlife resources within the selected Site, the only such species needing further analysis in the AED is the loggerhead shrike. As indicated in the New Airport Site Selection Final AED, loggerhead shrikes may potentially be affected by: (1) loss of breeding and

feeding areas due to grading and construction activities associated with the airport and ancillary transportation facilities, (2) loss of perching sites due to removal of trees, shrubs, roadway ditches, power poles and power lines, and (3) loss of food resources due to mowing of grasslands and potential contamination from fuel spills, emissions and de-icing chemicals. The level of information available during the preparation of the Site Selection AED was only detailed enough to assess the comparative impacts of anticipated mass grading operations on known shrike breeding territories.

Because more grading and site design information will be available, a more detailed analysis of the above-listed potential impacts to loggerhead shrikes will be prepared. Ongoing coordination will be maintained with the MCBS to ensure that any newly discovered shrike breeding territories are included in the analysis. Where a given alternative would result in the direct loss of any area having past recorded sightings, the specific habitat characteristics surrounding such areas will be analyzed in detail to provide a model for potential mitigation measures.

Loggerhead shrike mitigation measures to be discussed in the AED will include: (1) the potential for re-creating habitat characteristics favored by shrikes in more protected areas within the selected Site, (2) easements to protect known shrike breeding areas beyond the boundaries of the selected Site, (3) landowner education programs, and (4) habitat management programs. The MDNR Heritage Program staff will be asked to provide input on additional measures that can be incorporated into the planning of the selected plan to preserve and enhance the availability of permanent loggerhead shrike habitat.

Wintering Bald Eagles on the Mississippi River Corridor

As described in the New Airport Site Selection AED, a portion of the Mississippi River corridor lies adjacent to the north and east airport search area boundaries. This area is utilized by bald eagles for nesting, as a migration stop and as a wintering area when ice conditions are favorable. Alternatives 1, 2 and 3 will involve river overflights at various altitudes depending on the ultimate orientation of runways and the distance to the river. The bald eagle impact analysis carried out in the Site Selection AED will be refined to analyze in more detail the operational characteristics of the various design concepts for the selected Site. This analysis will again document the approximate location, frequency and altitude of anticipated overflights and compare this data to known eagle use areas along the river corridor. Of primary importance is the potential for impacts to nests, traditional night-roosting locations and major feeding areas.

As part of this analysis, ongoing coordination will be undertaken with the MDNR Nongame Program to update existing information on eagle use areas along this reach of the Mississippi River. No significant adverse impacts to known eagle nesting or night-roosting areas have yet been identified in relation to the alternatives. If new eagle nests or night-roosts are found in the course of the study, additional analysis will be carried out using the same approach as with prior nests and roosts. Should any potential for adverse impacts to bald eagles be identified, potential mitigation measures will be explored in coordination with the U.S. Fish and Wildlife Service and MDNR.

Bird-Aircraft Hazards

The New Airport Site Selection Final AED included a relatively detailed analysis of potential bird-aircraft hazards. This analysis will be further refined. Additional coordination will be undertaken with the MDNR and the U.S. Fish and Wildlife Service to obtain any available updated information on bird populations and movements relating to the selected Site and potential bird concentration areas. Some field observations will be carried during migration periods in the areas previously identified as likely bird concentration areas and movement corridors. This field data will eventually be supplemented by more intensive field surveys to be carried out during the preparation of the Environmental Impact Statement which will compare the impacts of constructing a new airport against those of implementing improvements at Minneapolis-St. Paul International Airport.

The potential for bird-aircraft conflicts associated with the comprehensive plan alternatives will be analyzed based on the following elements:

(1) the existing and projected character and distribution of wetland resources in the area around the alternatives;

(2) any updated information concentrations and movements of waterfowl and wading birds (e.g.herons and egrets) based on MDNR and U.S. Fish and Wildlife Service records;

(3) field data collected during migration periods;

(4) projected aircraft arrivals and departures, flight tracks and altitudes; and

(5) relative seasonal and temporal distribution of bird and aircraft movements.

The results of the above analysis will be used to compare the distribution of aircraft and birds in space and time for each alternative. Based on this analysis, it will be determined whether the alternative poses any significant potential for bird-aircraft conflicts. If a potential problem with bird-aircraft hazards is found, appropriate mitigation measures will be developed.

Wetlands

The wetland impact estimates contained in the AED for the New Airport Site Selection Study will be substantially refined in the Site Selection Final AED. In addition to information obtained from National Wetland Inventory Maps, several additional sources of data will be utilized to refine earlier estimates of wetland acreage potentially affected by the alternatives. Refinements will be made based on; (1) the location and distribution of hydric soils shown on the SCS Soil Survey for Dakota County, (2) FSA/FACTA wetland determinations done by the SCS, (3) wetland delineations done during the processing of no-net-loss certifications under the Minnesota Wetland Conservation Act of 1991, and (4) field reviews of any questionable areas identified from these

sources of data. Full field delineations of wetlands (i.e. staking and survey location of wetland boundaries) will not be carried out as part of the AED. This level of detail is not considered necessary until permits and certifications are to be processed for the selected alternative, if and when it is implemented.

Each of the alternatives will be analyzed for specific wetland impacts. It is anticipated that substantially more detail will be available on areas to be graded within the selected Site, providing a more accurate assessment of wetland impacts. The AED will describe: (1) the cumulative acreage affected by each alternative, (2) the specific wetland types affected, and (3) the relative level of sensitivity and/or degradation of affected wetlands (to the degree that this information is available). Once these impact estimates have been refined, the AED will explore the amount, type and potential location of necessary replacement wetlands. Any wetland replacement concepts that are developed will be done in a manner which recognizes the bird-aircraft hazard potential of certain wetland types; all wetland replacement concepts will be reviewed by the FAA to ensure that they do not conflict with federal policies regarding the avoidance of bird-aircraft hazards.

Air Quality

On-airport emissions and concentrations of CO, particulates, HC and NOx due to stationary sources, motor vehicles and aircraft operations will be estimated for each New Airport Comprehensive Plan layout alternative using the FAA EDMS air pollution model. This will take into account differences in runway, terminal, roadway, and facility location. Aircraft operations in the year 2020 will be evaluated using aircraft and engine categories that are consistent with the 1990 emission inventory performed by the MPCA. Annual meteorological data from 1992 will be used for annual and short term modelling. Both on- and off-airport receptor sites potentially impacted by on-airport activities will be considered.

Background concentrations of CO determined from the Site Selection study will be used to determine overall CO concentrations. Background levels of other pollutants in the immediate airport study area will be based upon available monitoring and emissions data.

Off-airport air quality analysis at critical intersections and regional emissions analyses will not be performed in the AED since there are no substantive differences in traffic volumes on the local or regional roadway and transit systems between the alternatives. This analysis will be performed during the Dual Track Environmental Impact Statement process. An air quality conformity analysis will also be performed at that time.

Impact on Local and Regional Transportation Systems

In this phase, the traffic impact analysis will address the impacts of airport traffic on the regional transportation system that differ between the alternatives. Little difference between the

alternatives is expected, as the terminal area remains the same among the alternatives, with the location of the runways and other on-site facilities moving. However, if employment concentrations on-site differ between the alternatives or the location of traffic intensive uses (i.e. air cargo/trucking facilities) with different access points, these alternatives may impact the local roads in different manners and would therefore be assessed.

The roadway network for each alternative will replicate as closely as possible a realistic design. The most current available socio-economic data will be used as the basis for trip generation. The best available regional travel demand forecast model will be used in the analysis. Information gathered by the 1990 Travel Behavior Inventory Special Generator Study from the current airport will be used as needed. The potential opportunity for induced development for the alternatives will need to be assessed.

Modeling, using capacity constrained techniques, will be conducted for both daily and peak-hour conditions. The impact of the directional distribution on road capacities will be evaluated for the peak hour. An analysis will be performed to identify the routes used by airport traffic. Issues to be addressed include an analysis of the impacts on the bridges across the Minnesota and Mississippi Rivers that serve the area, and an evaluation of the regional accessibility of the site in the terms of travel times and distance for each scenario.

As this phase is to only address impacts which differ between the alternative plans, many impacts will still need to be addressed in the final comparison between a new airport in Dakota County, an expansion of MSP, and a no-build scenario. Impacts and items to be addressed in future phases include the following:

More in-depth analysis of roadway requirements to provide access to site;
Analysis of environmental impacts and costs of additional roadways, new alignments, and additional laneage;
Express transit routes between the two central business districts and the airport site and the impacts of such routes;
Travel demand management;
Necessary river crossing improvements, costs and impacts;
Public safety;
Interconnectivity of regions within state and areas within the region;
Impacts of new roadway system on adjoining communities;
Impacts of refined induced development assumptions;
Analysis of impacts on principal arterials providing access to site; and
Analysis of external station trends, automobile and truck and potential changes between current site and new site.

Social Impacts

a) Residential, Business, and Non-Profit Organization Relocation

The number of persons to be displaced will be determined, including detailed characteristics to identify the total number of persons impacted and sensitive populations (children, elderly, disabled, group quarters, etc.) which may require special relocation considerations. A profile of racial, income, family, and household characteristics will also be determined for each alternative. Detailed 1990 U.S. Census Bureau information will be used, to the extent available, to obtain this information and as a supplement to other currently available data. The number of households to be displaced and their occupancy characteristics, including replacement valuation, and estimated supply and availability of replacement housing in the region, will be identified in general terms and ultimately determined in a detailed relocation study when an alternative is selected.

The number of non-farm businesses and employees to be displaced will be determined. Unique farm and non-farm businesses (those that are site dependent for survival) will also be analyzed.

Non-profit organizations (places of worship, social service organizations) will be identified. An assessment of the impacts to these organizations will be presented in the AED.

b) Community Disruption

The differences between the alternatives in the level of immediate and secondary community disruption associated with reducing or eliminating neighborhoods, non-farm businesses, roads and community facilities such as schools and places of worship, will be determined. The significance to the local area, metropolitan region and state, of this disruption (i.e. increased travel, replacement facility requirements, taxable property valuation loss and valuation impacts to remaining areas, community identity fracturing) will be the product of this analysis.

Local and Regional Land Use and Comprehensive Planning Compatibility

Specific land use impacts to be analyzed in the AED include an analysis of community impacts on the City of Vermillion (as a result of shifting the location of the northern crosswind runway), an analysis of the impacts on the City of Hastings (specifically on growth potential given the shifting of the location of the northern crosswind runway), and the impacts on the Townships of Vermillion and Marshan (as a result of the different sizes of the site boundary under the four alternatives).

The AED will only address impacts which differ between the alternative airport layout plans. Many impacts will still need to be addressed in the final comparison between a new airport in Dakota County, an expansion of the current site, and a no-build scenario. Impacts and items to be addressed in future phases include the following:

Analysis of how adjacent communities would be affected by road improvements needed by airport;
Governance issues;
Impact on regional structure and economic well-being of communities within the region;
Induced development

Farmland Impacts

The number of acres of commercial farmland, agricultural preserves, and prime and unique farmlands taken for each of the alternatives will be quantified. Farmland isolation, severance, and triangulation impacts will be determined. The applicability of the agricultural land impacts to the Farmland Protection Policy Act will be determined, which will necessitate coordination with the U.S.Department of Agriculture, the Minnesota Department of Agriculture, and Dakota County Soil Conservation Service. If such lands are identified, then Form AD-1006 will be submitted for review and comment to the Dakota County Soil Conservation Service.

Additional farmland impacts will be addressed, including the significance of the loss of farmland and agricultural production areas (as businesses) to the local agricultural economy, to the extent that the alternatives differ significantly.

Impacts on Water Resources

Water Resources Impacts

Estimates of site runoff volumes and loadings will be refined based on conceptual layouts of the new airport facilities. Stormwater runoff modeling will be done incorporating the impervious areas for major facilities on site for the alternatives with the largest area within the site boundary and the smallest area within the site boundary. This information will be utilized in developing a preliminary conceptual layout and sizing of major site drainage and stormwater management features including wet detention basins, major drainageways and site run-on control berms.

Applicable Standards, major issues and major constraints will be identified and discussed in relation to their potential impact on design of stormwater management facilities for the new airport site.

Contaminant loading estimates will be refined using previously identified estimated contaminant concentrations used in the Site Selection AED and the refined runoff modeling data. Approaches to reducing contaminant loadings will be discussed, however, no water quality impact modeling will be performed at this stage due to the preliminary level of site conceptual design information available.

Options for treatment facilities for sanitary/industrial wastewater will be discussed. Potential space requirements for an on-site treatment facility will be identified. Conceptual design of a treatment facility and potential impacts analysis of such a discharge will not be done at this stage of plan development.

Water-Related Land Use Issues

Applicable requirements of the Vermillion River Watershed Management Plan will be discussed relative to their potential impact on stormwater management facilities for the alternatives.

Soils/Geology/Hydrogeology

Soil types present on site will be taken into account in the refined hydrologic modeling done to estimate runoff quantities to be managed. Location of wet detention basins will take into account areas of the site with greater than 50 feet of cover over bedrock.

No additional analysis of potential groundwater impacts will be performed at this time due to the preliminary nature of design data available for facilities within the site.

The Dakota County groundwater protection plan will be reviewed relative to requirements pertinent to airport facilities if available.

Floodplains

Encroachment of the alternatives on floodway and floodway fringe areas will be analyzed to determine the risk of flooding and differential impacts on the natural and beneficial floodway fringe area values.

Airport Development Costs

The differential costs of developing each alternative will be estimated. The costs will include site preparation, land acquisition, improvements to the local and regional transportation systems (including transit), airport facilities, utilities, sewer interceptors, sewage treatment plants, and relocation of residents and businesses.

ISSUES AND IMPACTS NOT REQUIRING DETAILED ANALYSIS

The following issues and impact areas have been determined to be not significant and therefore will not be analyzed. It should not be inferred that these issues/impact areas are less important than the others. If potentially significant impacts are identified during preparation of the AED, they will be analyzed in detail and mitigation measures will be determined.

Impact on Mineral Resources Production and Development

No mineral resource production has been identified in the three candidate sites.

Wild and Scenic Rivers

There are no adverse noise or visual impacts due to overflights on the Lower St. Croix and Cannon Rivers.

Public Parks, Recreation Land and Refuges

The following issues and impacts are essentially the same for each alternative and will therefore not be analyzed in the AED. They will require detailed analysis in the EIS. If significant differences between the alternatives are identified, then a detailed analysis will be performed in the AED.

- Water supply
- Wastewater treatment
- Induced development and effect on regional development
- Regional transportation system (highways and transit)
- Solid and hazardous waste disposal
- Regional air quality analysis for conformity with the State Implementation Plan and the Clean Air Act Amendments
- On-airport construction impacts (noise, dust, runoff, etc.)
- Glycol deicing fluid treatment, discharge and mitigation measures
- Ability to finance a new airport
- Visual impacts

V. PUBLIC AND AGENCY INVOLVEMENT

PUBLIC AND AGENCY INVOLVEMENT

Two advisory committees have been formed to monitor and provide input on technical and policy issues relating to the preparation of the New Airport Comprehensive Plan and AED -- the New Airport Technical Advisory Committee and the Dual Track Task Force. The Technical Advisory Committee is comprised of staff representatives of the affected cities, townships, county and regional, state and federal agencies, and representatives of airport users and local interest groups. The Technical Committee will review the technical approach and products of the process.

The Dual Track Task Force is comprised of elected officials or representatives of the affected cities, townships, county, regional, state and federal agencies, airport users and local interest groups. The Task Force will review the process and products for the New Airport and MSP technical and environmental studies, and provide policy advice to the MAC.

The State Advisory Council established by the legislature will be kept informed of the progress of the study. The general public will be kept informed through a series of public information meetings, newsletters, informational brochures, press conferences and news releases, as appropriate. They will have opportunities to comment both informally and formally. Formal input will be solicited at the AED public hearing. Informal input from the public can be provided at meetings of the advisory groups, and at public information meetings which will be scheduled at key points in the study. The MAC contact person and/or its consultant will be available to provide information and receive input throughout the study.

SCOPING PUBLIC MEETING

The date, location and attendance of the scoping public meeting will be described. A summary of the comments on the Scoping EAW and Draft SDD and MAC responses will be presented in Appendix A.

APPENDIX A

SUMMARY OF COMMENTS ON THE

SCOPING DOCUMENTS AND RESPONSES

Appendix A is a summary of responses to substantive written and oral comments on the Scoping Document and Draft Scoping Decision Document. Comments were received at the scoping public meeting and by mail during the comment period. All written comments and a transcript of the public meeting are available for review at the Metropolitan Airports Commission offices.

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