FINAL DRAFT REPORT VOLUME 2 copies

STATE ENVIRONMENTAL IMPACT STATEMENT
FEDERAL ENVIRONMENTAL ASSESSMENT

AIRPORT MASTER PLAN
PHASE 1A & PHASE 1B IMPROVEMENTS

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD)

METROPOLITAN AIRPORTS COMMISSION

FINAL DRAFT REPORT VOLUME

STATE ENVIRONMENTAL IMPACT STATEMENT
FEDERAL ENVIRONMENTAL ASSESSMENT

AIRPORT MASTER PLAN
PHASE 1A & PHASE 1B IMPROVEMENTS

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD)

METROPOLITAN AIRPORTS COMMISSION

Minneapolis • Saint Paul

MAC METROPOLITAN AIRPORTS COMMISSION

OFFICE OF EXECUTIVE DIRECTOR • PHONE (612) 726-1892

April 10, 1986

To Whom It May Concern:

Transmitted herewith is a copy of the Draft Environmental Impact Statement (EIS) for improvements at the Anoka County-Blaine Airport (Janes Field), prepared in response to a petition brought in accordance with 6 MCAR S 3.026. The document has been developed in accordance with state EIS guidelines contained in 6 MCAR S 3.021 through 3.056 and with Federal Environmental Assessment (EA) guidelines contained in Federal Aviation Administration Order 5050.4A.

Comments on this document will be accepted until May 27, 1986 either through written communication with Mr. Nigel D. Finney, Director of Airport Development, 6040 28th Avenue South, Minneapolis, MN 55450 or at a public hearing to be held at the Spring Lake Park High School (cafeteria), 8001 Able Street NE, Spring Lake Park, Minnesota on Monday, May 12, 1986 at 7:30 p.m.

Sincerely yours,

Nigel D. Finney
Director of Airport Development

/js
enc.

FINAL DRAFT

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD)
STATE ENVIRONMENTAL IMPACT STATEMENT
FEDERAL ENVIRONMENTAL ASSESSMENT

FOR

PHASE 1A AND PHASE 1B IMPROVEMENTS

PREPARED FOR

MINNEAPOLIS-SAINT PAUL
METROPOLITAN AIRPORTS COMMISSION

PREPARED BY

HOYLE, TANNER & ASSOCIATES, INC.
LONDONDERRY, NEW HAMPSHIRE

IN ASSOCIATION WITH

HOWARD NEEDLES TAMMEN & BERGENDOFF
MINNEAPOLIS, MINNESOTA

BARR ENGINEERING COMPANY
MINNEAPOLIS, MINNESOTA

BARTON-ASCHMAN ASSOCIATES, INC.
MINNEAPOLIS, MINNESOTA

TOLTZ, KING, DUVALL, ANDERSON AND ASSOCIATES, INC.
MINNEAPOLIS, MINNESOTA

APRIL, 1986

M.A.C.
APR 5 1986
NDF ☒
LJF ☐
ALO ☐
MJR ☐

Minnesota Pollution Control Agency

April 4, 1986

Mr. Nigel D. Finney
Director of Planning and Engineering
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, Minnesota 55450

Dear Mr. Finney:

Re: Anoka County/Blaine Airport EIS

The preliminary draft EIS for the referenced project and subsequent revisions and additions have been reviewed by Minnesota Pollution Control Agency (MPCA) staff. The proposed revisions and addition substantially address our concerns about the analysis of the potential noise, surface water, and ground water impacts of the project. Thank you for the opportunity to review this information.

Sincerely,

Clifford T. Anderson
Director
Office of Planning and Review

CTA/CNA:jal

Phone: 296-7799
1935 West County Road B2, Roseville, Minnesota 55113-2785
Regional Offices • Duluth/Brainerd/Detroit Lakes/Marshall/Rochester
Equal Opportunity Employer

TABLE OF CONTENTS

		PAGE
1.0	INTRODUCTION AND BACKGROUND	1 -1
1.1	OVERVIEW AND PURPOSE OF THE MASTER PLAN ALTERNATIVE	1 -1
1.2	OVERVIEW OF LEGISLATIVE BACKGROUND AND ENVIRONMENTAL REVIEW PROCESS	1 -2
1.2.1	Federal Legislation and Implementation Procedures	1 -3
1.2.2	State Legislation	1 -5
1.3	REQUIRED FEDERAL STATE AND LOCAL PERMITS/ APPROVALS/FUNDING	1 -7
1.3.1	Permits Required	1 -8
1.3.2	Review Agency Requirements	1-11
1.3.3	Additional Permits and Approvals	1-15
1.4	AIRPORT PLANNING STRUCTURE IN THE TWIN CITIES AREA	1-16
1.4.1	Airport Development Guide	1-16
1.4.2	Airport Master Plan	1-16
1.4.3	Project Implementation	1-17
1.5	AIRPORT SYSTEM PLANNING EFFORTS	1-17
1.5.1	National Plan of Integrated Airport Systems	1-18
1.5.2	1974 Minnesota Aviation System Plan	1-18
1.5.3	1972 Metropolitan Airports System Plan	1-18
1.5.4	1977 Metropolitan Airports System Plan	1-19
1.5.5	1985 Metropolitan Airports System Plan	1-22
1.6	AIRPORT MASTER PLANNING	1-29
1.7	AIRPORT PLANNING DATA USED IN THIS EIS/EA	1-34
1.7.1	Projection of Based Aircraft	1-34
1.7.2	Projection of Annual Operations	1-35
1.7.3	Determination of Aircraft Operational Mix	1-36
1.8	PRELIMINARY ENVIRONMENTAL PLANNING	1-39
1.8.1	Environmental Assessment Worksheet	1-39

TABLE OF CONTENTS

		PAGE
2.0	PROJECT DESCRIPTION AND SETTING	2-1
2.1	DESCRIPTION OF AIRPORT MASTER PLAN ALTERNATIVE	2-1
2.1.1	History of Airport Development	2-1
2.1.2	Existing Facilities	2-2
2.1.3	Master Plan Alternative	2-2
2.1.4	Construction Sequence and Engineering Description	2-5
2.2	PROJECT SETTING	
2.2.1	Description of Site	2-10
2.2.2	Regional Characteristics	2-13
2.3	RELATED LAND USE PLANS	2-18
2.3.1	Metropolitan Development Guide	2-18
2.3.2	Blaine	2-19
2.3.3	Mounds View	2-24
2.3.4	Spring Lake Park	2-25
2.3.5	Fridley	2-25
2.3.6	Coon Rapids	2-26
2.3.7	Ham Lake	2-26
2.3.8	Lino Lakes	2-26
2.3.9	Circle Pines	2-27
2.3.10	Lexington	2-27
2.3.11	Shoreview	2-27
3.0	PROJECT NEED AND JUSTIFICATION	3-1
3.1	ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) ROLE IN THE METROPOLITAN AIRPORT SYSTEM PLAN	3-1
3.2	RELATIONSHIP TO ENVIRONMENTAL AND AVIATION NEEDS	3-3
3.2.1	Environmental Needs	3-3
3.2.2	Aviation Needs	3-3
3.2.3	Summary	3-5
4.0	DEFINITION AND INITIAL EVALUATION OF ALTERNATIVES	4-1
4.1	DESIGN REQUIREMENTS	4-1
4.1.1	Runway Length Requirements	4-2
4.1.2	Runway Alignment	4-2
4.1.3	Building Areas	4-3

TABLE OF CONTENTS

		PAGE
4.2	"NO BUILD" ALTERNATE	4-3
4.3	EXISTING AIRPORT ALTERNATIVE	4-3
4.4	NEW SITE ALTERNATIVE	4-7
4.5	ABANDONMENT OF JANES FIELD ALTERNATIVE	4-7
4.6	DEVELOPMENT ALTERNATIVE	4-8
	4.6.1 Site and Location Constraints	4-8
	4.6.2 Development Options	4-12
4.7	DEFINITION OF ALTERNATIVES	4-16
	4.7.1 Existing Conditions	4-17
	4.7.2 Future No-Build	4-17
	4.7.3 Building Area Development Only	4-17
	4.7.4 Alternative 4	4-18
	4.7.5 Alternative 5	4-18
	4.7.6 Alternative 6	4-18
	4.7.7 Alternative 7	4-18
	4.7.8 Alternative 8	4-19
4.8	AVIATION ACTIVITY AND RUNWAY USE CHARACTERISTICS	4-20
	4.8.1 Introduction	4-20
	4.8.2 Aircraft Activity	4-20
	4.8.3 Runway Use Characteristics	4-25
5.0	POTENTIAL IMPACTS	5-1
5.1	NOISE IMPACTS	5-1
	5.1.1 Noise Metrics	5-1
	5.1.2 Existing Noise Environment	5-3
	5.1.3 Ldn Analyses	5-5
	5.1.4 L_{10} Analyses	5-7
5.2	IMPACT TO GROUNDWATER AND SURFACE WATER	5-9
	5.2.1 Impact to Groundwater	5-9
	5.2.2 Impact to Surface Water	5-21
5.3	SEWAGE DISPOSAL	5-28
	5.3.1 Existing and Proposed Practices	5-28
	5.3.2 Volumes of Sewage	5-28
	5.3.3 Sewage Disposal Authority	5-28
	5.3.4 Implications for Sewage Disposal with Sewer and Water Extension to the Airport	5-29

TABLE OF CONTENTS

		PAGE
5.4	HAZARDOUS WASTE	5-29
5.4.1	Identification of Potential Waste Issues	5-29
5.4.2	Existing Disposal Plans	5-30
5.4.3	Impact to Groundwater	5-30
5.4.4	Recommended Changes to Plans	5-30
5.5	IMPACTS ON 100 YEAR FLOODPLAIN	5-32
5.5.1	Potential for Permanent Loss of Flood Storage Capacity	5-33
5.5.2	Confirmation of 100 Year Floodplain Contour	5-34
5.5.3	Methods of Obtaining Compensatory Flood Storage	5-35
5.5.4	Floodplain Mitigative Measures	5-35
5.5.5	Blaine Requirement for Specific Height Above Floodplain	5-36
5.5.6	Work Coordinated with Agencies	5-36
5.6	IMPACTS ON ON-SITE AND DOWNSTREAM DRAINAGE	5-37
5.6.1	Potential Downstream Drainage Effects	5-37
5.6.2	Requirements to Control Rate of Discharge	5-37
5.7	IMPACTS TO WETLANDS	5-41
5.7.1	Identification and Classification of Wetlands on the Project Site	5-41
5.7.2	Wetland Impacts	5-42
5.7.3	Comparison of Alternatives	5-49
5.7.4	Measures to Minimize Harm	5-52
5.7.5	Coordination	5-56
5.8	FLORA AND FAUNA	5-56
5.8.1	Movements of Resident and Migratory White-Tailed Deer	5-56
5.8.2	Upland Wildlife Habitat	5-59
5.8.3	Movements of Resident and Migratory Great Egrets	5-62
5.9	SURFACE TRANSPORTATION IMPACTS	5-63
5.9.1	Existing Traffic	5-64
5.9.2	Capacity Analysis	5-64
5.9.3	Trip generation Correlations	5-65
5.9.4	Airport Trip Generation Summary	5-66
5.9.5	Area Road Net Volumes	5-67
5.9.6	Traffic Forecasts	5-68
5.9.7	Observations on Surface Transportation Impacts	5-68
5.9.8	Conclusions on Traffic Capacity	5-69

TABLE OF CONTENTS

		PAGE
5.10	SOCIAL IMPACTS	5-70
	5.10.1 Approach Surfaces in Relation to Existing and Planned Land Uses	5-71
	5.10.2 Compatibility of Development Alternatives with Comprehensive Plans in the Airport Vicinity	5-73
	5.10.3 Community Access and Emergency Vehicle Response	5-77
	5.10.4 Acquisition of Lands Beneath Phase 2 and Phase 3 Runway 26 Clear Zone	5-81
5.11	INDUCED SOCIO-ECONOMIC IMPACTS	5-82
	5.11.1 Introduction	5-82
	5.11.2 Urban Regional Development	5-82
	5.11.3 Employment and Economic Benefits	5-84
	5.11.4 Sociological Benefits	5-84
5.12	EROSION	5-85
	5.12.1 Potential for Erosion During Construction	5-85
	5.12.2 Addition of Impervious Surfaces	5-85
	5.12.3 Erosion Control Plans	5-86
6.0	FEDERAL ENVIRONMENTAL ASSESSMENT	6-1
6.1	FEDERAL EA REQUIREMENTS INCLUDED IN OTHER SECTIONS OF THE STUDY	6-1
6.2	FEDERAL EA REQUIREMENTS AND ENVIRONMENTAL IMPACT CATEGORIES INCLUDED IN THE SCOPING EAW	6-1
	6.2.1 Air Quality	6-1
	6.2.2 Historic, Architectural, Archaeological or Cultural Resources	6-3
	6.2.3 Endangered and Threatened Species of Flora and Fauna	6-3
	6.2.4 Farmland	6-4
	6.2.5 Impact on Energy Supply and Natural Resources	6-5
6.3	FEDERAL REQUIREMENTS NOT DISCUSSED ELSEWHERE IN STUDY	6-6
	6.3.1 DOT Act, Section 4(f) Lands	6-6
	6.3.2 Coastal Zone Management Program	6-7
	6.3.3 Coastal Barriers	6-7
	6.3.4 Wild and Scenic Rivers	6-7
	6.3.5 Light Emissions Impacts	6-8

TABLE OF CONTENTS

		PAGE
	6.3.6 Solid Waste Impact	6-12
	6.3.7 Construction Impacts	6-12
7.0	DIRECT, INDIRECT OR BENEFICIAL EFFECTS	7-1
	7.1 BASED AIRCRAFT CAPACITY	7-1
	7.2 NUMBER OF PERSONS WITHIN THE $L_{10}65$ NOISE CONTOUR	7-1
	7.3 IMPACTS TO GROUNDWATER	7-1
	7.4 CHANGE IN WETLAND ELEVATION CAUSED BY FOUNDATION DRAINS	7-1
	7.5 IMPACT TO SURFACE WATER QUALITY	7-2
	7.6 HAZARDOUS WASTES	7-2
	7.7 AMOUNT OF 100 YEAR FLOODPLAIN REPLACEMENT REQUIRED	7-2
	7.8 RATES OF SURFACE WATER RUNOFF	7-2
	7.9 AMOUNT OF WETLANDS ENCROACHMENT (ACRES)	7-3
	7.10 HABITAT LOST	7-3
	7.11 WILL DEER TRAILS HAVE TO BE RELOCATED	7-3
	7.12 NUMBER OF DEER TRAILS TO BE REROUTED	7-3
	7.13 ABANDONMENT OF XYLITE STREET	7-3
	7.14 REROUTING A SECTION OF 101ST AVE N.E.	7-4
	7.15 HEIGHT OF 40:1 MNDOT RUNWAY APPROACH SURFACES OVER NORTH, EAST, SOUTH AND WEST AIRPORT PROPERTY LINES	7-4
	7.16 DISTANCE MNDOT SAFETY ZONE A EXTENDS INTO RESIDENTIAL AREAS SOUTH AND WEST OF AIRPORT PROPERTY	7-4
	7.17 NET EARTHWORK	7-4

TABLE OF CONTENTS

		PAGE
	7.18 DEVELOPMENT COSTS	7-5
	7.19 SOCIOECONOMIC	7-5
8.0	PREFERRED ALTERNATIVE	8-1
9.0	IMPACTS OF PREFERRED ALTERNATIVE AND MITIGATION MEASURES	9-1
	9.1 IMPACTS	9-1
	9.1.1 Noise Impact	9-1
	9.1.2 Impact to Groundwater	9-1
	9.1.3 Impact to Surface Water	9-2
	9.1.4 Sewage Disposal	9-2
	9.1.5 Hazardous Waste	9-2
	9.1.6 Loss of Flood Storage Volume	9-2
	9.1.7 Impacts on On-Site and Downstream Drainage	9-2
	9.1.8 Impacts to Wetlands	9-3
	9.1.9 Movements of Resident and Migratory White-Tailed Deer	9-3
	9.1.10 Upland Wildlife Habitat	9-3
	9.1.11 Movements of Resident and Migratory Great Egrets	9-3
	9.1.12 Surface Transportation Impacts	9-4
	9.1.13 Approach Surfaces in Relation to Existing and Planned Land Uses	9-4
	9.1.14 Compatibility with Comprehensive Plans in the Airport Vicinity	9-4
	9.1.15 Community Access	9-5
	9.1.16 Emergency Vehicle Response	9-5
	9.1.17 Acquisition of Lands Beneath the Phase 2 and Phase 3 Runway 26 Clear Zone	9-5
	9.1.18 Induced Socio-Economic Impacts	9-5
	9.1.19 Erosion	9-6
	9.1.20 Air Quality	9-6
	9.1.21 Historic, Architectural, Archaeological, or Cultural Resources	9-6
	9.1.22 Endangered or Threatened Species of Flora and Fauna	9-6
	9.1.23 Farmland	9-6
	9.1.24 Energy Supply and Natural Resources	9-7
	9.1.25 DOT Section 4(f) Lands	9-7
	9.1.26 Coastal Zone Management Program	9-7
	9.1.27 Coastal Barriers	9-7
	9.1.28 Wild and Scenic Rivers	9-7
	9.1.29 Light Emissions	9-7

TABLE OF CONTENTS

	PAGE
9.1.30 Solid Waste Impact	9-8
9.1.31 Construction Impacts	9-8
9.2 MITIGATION MEASURES	9-8
9.2.1 Impacts to Surface Water	9-8
9.2.2 Hazardous Waste	9-9
9.2.3 Impacts on 100 Year Floodplain	9-9
9.2.4 Impacts on On-Site and Downstream Drainage	9-9
9.2.5 Impacts to Wetlands and Habitat Areas	9-9
9.2.6 Deer Movement Areas	9-10
9.2.7 Surface Transportation Impacts	9-10
9.2.8 Construction Impacts	9-11
10.0 ENVIRONMENTAL CONSEQUENCES AND OTHER CONSIDERATIONS	10-1
10.1 CONFLICTS BETWEEN THE PROPOSED ACTION AND FEDERAL, STATE, REGIONAL AND LOCAL USE PLANS	10-1
10.2 INCONSISTENCY OF THE PROPOSED ACTION WITH APPROVED STATE, REGIONAL OR LOCAL PLANS AND LAWS	10-1
10.3 MEANS TO MITIGATE ADVERSE ENVIRONMENTAL IMPACTS NOT PREVIOUSLY ADDRESSED	10-2
10.4 DEGREE OF CONTROVERSY OF THE PROPOSED ACTION ON ENVIRONMENTAL GROUNDS	10-2
10.5 POSITIVE IMPACTS OF THE PREFERRED ALTERNATIVE	10-3
10.6 RELATIONSHIP BETWEEN SHORT TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY	10-3

APPENDICES

1.0 INFORMATIONAL APPENDIX

1.1 Ldn Analyses
1.2 L_{10} Analyses
1.3 Impact to Groundwater
1.4 Impact to Surface Water
1.5 Blaine Requirement for Specific Height Above Flooddplain
1.6 Requirements to Control Rate of Discharge
1.7 Impacts to Wetlands

TABLE OF CONTENTS

1.8 Flora and Fauna
1.9 Movements of Resident and Migratory Great Egrets
1.10 Traffic Forecasts
1.11 Approach Surfaces in Relation to Existing and Planned Land Uses
1.12 Induced Socio-Economic Impacts
1.13 Erosion
1.14 Air Traffic Control Tower and Precision Instrument Approach Procedure
1.15 Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights

2.0 GENERAL APPENDICES

2A Scoping Environmental Assessment Worksheet
Citizens Petition
Scoping Decision Document
2B Aviation Policy
2C Minnesota DOT Land Use Safety Zones
2D Imaginary Surfaces
2E Runway Use Characteristics
2F Noise Monitoring Legs and INM Input Data
2G Monitoring Wells and Borings Legs
2H MPCA Noise Rules
2I Highway Capacity Calculations
2J Correspondence
2K Cost Data
2L List of Preparers

TABLE OF TABLES

TABLE		PAGE
1-1	Metropolitan Airports System Plan - 1972 Classification of Existing and Proposed Airports	1-20
1-2	Summary of Metropolitan Airports System Plan Changes	1-23
1-3	Metropolitan Airports System Plan - 1977 Proposed 1990 Status of Metropolitan Airports System Elements	1-24
1-4	Events Affecting Aviation in the Metropolitan Region Since 1977	1-25
1-5	Summary Comparison of 1977 and 1985 Airports System Plan	1-26
1-6	Aircraft operational Capacity (General Aviation) (In Thousands)	1-27
1-7	Based Aircraft Storage Capacity and Requirements	1-28
1-8	Master Plan Aviation Forecasts	1-30
1-9	Summary of Terminal Area Requirements	1-32
1-10	Anoka County-Blaine Airport Implementation Plan	1-33
1-11	Based Aircraft Demand Forecasts	1-34
1-12	Annual Aircraft Operations Forecasts	1-35
1-13	Annual Operations Selected Forecast	1-36
1-14	1985 Based Aircraft Mix	1-37
1-15	Projected Based Aircraft Mix	1-38
1-16	Projected Annual Operations Mix (Nearest 100)	1-38
1-17	Chronological Environmental Planning	1-41
2-1	Earthwork Quantities	2-7
2-2	Economic Indicators of Surrounding Communities	2-14
2-3	Parks in Anoka/Ramsey Counties	2-17
2-4	February 1979 Blaine Land Use	2-20
4-1	Aircraft Approach Categories	4-10
4-2	Airplane Design Groups	4-11
4-3	Projected Based Aircraft Mix (Future No-Build)	4-22
4-4	Local/Itinerant Mix	4-23
4-5	Annual Operational Mix - Future	4-23
4-6	Peak Hour Operational	4-26
4-7	Preferred Runway Usage - All Weather Conditions	4-26
4-8	Preferred Runway Operations	4-26
4-9	Runway Use Distribution-Turboprop Aircraft by Runway Length	4-28
5-1	Hourly L_{10} and L_{90} Valves	5-4
5-2	Typical Single-Event Noise Levels and Durations Above 65 dBA	5-5

TABLE OF TABLES

5-3	Affected Population and Noise Sensitive Uses Within L_{10} 65 Contours	5-7
5-4	Municipal Water Wells	5-12
5-5	Changes in Protected Wetland Elevations	5-19
5-6	Hazardous Waste Management-Existing Commercial Use	5-31
5-7	Comparison of Stormwater Drainage	5-40
5-8	Wetland Types Occurring on Airport Program	5-43
5-9	Impacted Wetland Acreage-Master Plan Alternative	5-44
5-10	Habitat Suitability Indicies (HSIs) for Wetland Types	5-46
5-11	Wetland Habitat Units Lost with Phase 1A and Phase 1B Development with Master Plan Alternative	5-48
5-12	Wetland Acreage Impacts	5-50
5-13	Wetland Habitat Unit Losses	5-51
5-14	Required Wetland Mitigation and Excavation Required	5-55
5-15	Aircraft Hangared at Anoka County Airport (Number of Aircraft)	5-65
5-16	Annual Aircraft Operations at Anoka County Airports	5-65
5-17	Peak Hour Aircraft Operations at Anoka County Airport	5-65
5-18	Anoka Airport Trip Generation	5-67
5-19	Zone 490; Socioeconomic Indicators	5-70
5-20	Businesses Located on Xylite Street	5-79
5-21	Additional Impervious Areas (Acres)	5-86
6-1	Location of Federal EA Required Analyses in This EIS/EA	6-2
6-2	Earthwork Quantities	6-13
6-3	Earthwork Quantities for Alternatives	6-15
6-4	Development Costs - Alternatives 1 through 8	6-16
8-1	Comparison of Future Development Alternatives	8-2

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.0 INTRODUCTION AND BACKGROUND

This chapter first presents an overview of the proposed action and its purpose. The State Environmental Impact Statement (EIS) and Federal Environmental Assessment (EA) review processes and respective legislative backgrounds are discussed and a summary of the required permits and the reviewing agency requirements provided. To provide an overview of the airport planning structure in the Twin Cities Area, the previous airport planning efforts at the system planning level, as well as at the Master Planning level, are reviewed. Additionally, the airport environmental planning to this point has also been reviewed. Finally, the study design and early coordination efforts leading to this EIS/EA have been summarized.

1.1 OVERVIEW AND PURPOSE OF THE MASTER PLAN ALTERNATIVE

This EIS/EA has been prepared to analyze the environmental issues associated with the shifting of Runway 17-35 to the north, an extension of Runway 8-26, and development of two new hangar areas which complement the existing airfield structure at Anoka County-Blaine Airport (Janes Field). These actions were proposed as the Phase 1A and Phase 1B projects in the 1983 Airport Master Plan for ANE. More specifically, the Phase 1A and Phase 1B Master Plan proposed actions are as follows:

- Development of the east building area, approximately 33 acres.
- Development of the west building area, approximately 33 acres.
- Extension of Runway 8-26, and its parallel taxiway, on the easterly end by 800 feet, thereby increasing the runway length from 3,200 feet to 4,000 feet.
- Abandonment of a part of Xylite Street as required by the Runway 8-26 Extension.
- Extension of Runway 17-35, and its parallel taxiway, on the northerly end by 950 feet, and relocating the Runway 35 threshold northerly by an equal amount, thereby leaving the present runway length of 4,855 feet unchanged. This will include removal and/or relocation of lighting and landing aids, as appropriate, from the abandoned southerly portion of the runway.

- Removal of the connector taxiway on the easterly side of Runway 17-35 at the existing Runway 35 threshold.

- Construction of new connector taxiways as required by the development items listed above.

- Possible land acquisition in the Runway 26 clear zone.

These actions are depicted in Figure 1-1 and more particularly described in Chapter 2. The objectives of these Phase 1A and Phase 1B improvements are to mitigate aircraft noise impacts in the residential areas bordering the airport, particularly to the south, and to provide additional hangar development areas to accommodate demand for aircraft storage facilities similar to those now on the field.

Phase 2 and Phase 3 development called for in the Master Plan includes additional shifting of Runway 17-35 to the north as well as the construction of two new runways, one parallel to, and west of the existing Runway 17-35 and one parallel to, and north of existing Runway 8-26. Coupled with these airfield developments, the Master Plan proposed the provision of an air traffic control tower (ATCT) and a precision instrument landing system (ILS). Additional new aviation building areas are also included in Phase 2 and Phase 3. The objectives of those Phase 2 and Phase 3 improvements are to further mitigate aircraft noise impacts on residential areas around the airport, to further improve the margin of safety by fostering separation of itinerant and training air traffic, and to provide operational capacity consistent with possible future levels of demand. The Phase 2 and Phase 3 developments are not, however, considered in this EIS/EA as they are much longer term developments dependent on actions beyond the control of the airport owner, namely, the provision of an ATCT by the FAA to allow a parallel runway operation. Phase 2 and Phase 3 improvements, if implemented, would require detailed environmental analysis at the time of their implementation. However, to place the proposed improvements in perspective with the Phase 1A and Phase 1B improvements which are the subject of this EIS/EA, an informational appendix (Appendix I) has been prepared which includes informal discussions of the environmental implications of Phase 2 and Phase 3.

1.2 OVERVIEW OF LEGISLATIVE BACKGROUND AND ENVIRONMENTAL REVIEW PROCESS

In accordance with the provisions of the National Environmental Policy Act of 1970 as amended, and the Airport and Airway Improvement Act of 1982 (hereafter the Airport Act), Order 1050.1D,

WEST BUILDING AREA

950' RUNWAY SHIFT

CONNECTOR TAXIWAY

TAXIWAYS

800' RUNWAY EXTENSION

EXISTING BUILDING AREA

EAST BUILDING AREA

CONNECTOR TAXIWAY

EXISTING BUILDING AREA

RELOCATED THRESHOLD

604W
595W
598W
594W
706W
705W
578W
580W
589W
707W
590W
599W
597W
603W

LEGEND

PROTECTED WETLANDS

EXIST. BLDG. AREA

AIRPORT DRAINAGE DITCHES

PHASE 1A & 1B DEVELOPMENT

ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

MASTER PLAN ALTERNATIVE

1" = 1000'

FIGURE 1-1

HTA companies

Policies and Procedures for Considering Environmental Impacts, was issued December 12, 1983. FAA Order 1050.1D establishes FAA policies and procedures for the preparation of Federal Environmental Impact Statements (EIS), for Findings of No Significant Impact (FONSI) and for preparing and processing Federal Environmental Assessments (EA). FAA Order 5050.4, Airport Environmental Handbook, issued March 21, 1980 and revised October 8, 1985 to 5050.4A, contains more detailed information on the form and contents of Environmental Assessments and Environmental Impact Statements. FAA Order 5050.4A identifies which Federal actions must be supported by an environmental assessment and resultant finding. Construction of runway extensions, as planned for Janes Field, is one of the Federal actions so identified.

Moreover, Executive Order 11990, Protection of Wetlands, requires that an environmental assessment be prepared for any new construction in wetlands. Similarly, Executive Order 11988, Floodplain Management, requires an environmental assessment for federally assisted construction within a floodplain.

The Minnesota Environmental Quality Board requires an EIS for actions involving the filling of more than 5 acres of Type 3 or 4 wetland in a metropolitan area. The magnitude of potential impacts to such areas as identified by previous planning studies of Anoka County-Blaine Airport (Janes Field) warrants that both an EIS in accordance with State laws and a Federal EA be prepared.

The environmental review process begins at the local planning level with the airport sponsor. In 1983, the Minneapolis-Saint Paul Metropolitan Airport Commission (MAC), owner and operator of Janes Field, completed a Master Plan for that airport. The objective of the master planning effort was to recommend a systematic program of development at Janes Field to efficiently carry out its role as prescribed in the Minneapolis-Saint Paul Metropolitan Airports System Plan. The Phase 1A and Phase 1B facility improvements were the major recommendations of the 1983 Master Plan.

There are additional Federal and State laws, regulations, and orders that specifically address the environmental review process for airport projects. In the following section, an overview of the legislative background and environmental review process is presented.

1.2.1 Federal Legislation and Implementation Procedures

- National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 established

environmental protection as a national policy. To carry out the intent of the Act, Congress has assigned responsibility to all Federal agencies to use all practicable means to coordinate programs in a manner which will preserve and maintain, whenever possible, important historic, cultural and natural aspects of the national environment. The Congress has authorized and directed all Federal agencies to use a systematic, interdisciplinary approach in all planning and decision-making processes that may have an impact on the environment.

Every proposal for major Federal actions that would significantly affect the quality of the human environment must, per section 102(2) (C) of NEPA, include a detailed statement on:

a. the environmental impact of the proposed action.

b. any adverse environmental affects which cannot be avoided should the proposal be implemented.

c. alternatives to the proposed action.

d. the relationship between short term uses of the environment and maintenance and enhancement of long term productivity.

e. any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

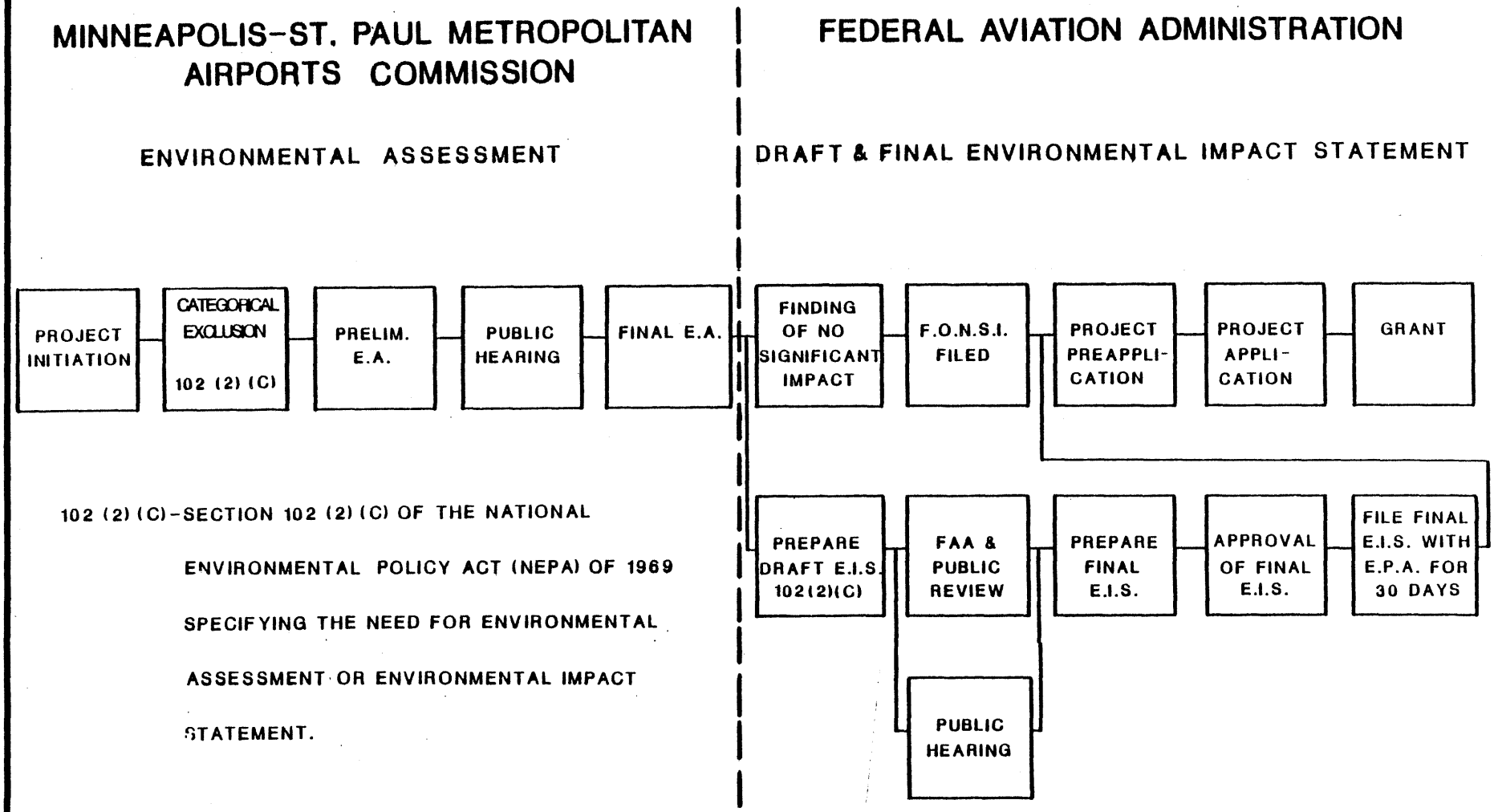
After an assessment report and draft statement have been prepared, copies of the assessment or statement must be distributed to appropriate Federal, State, and local agencies for review and comment in a manner specified by the appropriate Federal agency.

The Act directs Federal agencies to review their statutory authority, administrative regulations, and policies for deficiencies that would not permit full compliance and to make any changes necessary to bring their authority and policies into conformity with the intent, purposes, and procedures set forth in NEPA.

- Federal Aviation Administration Order 1050.1D

Consistent with the National Environmental Policy Act, FAA Order 1050.1D, "Policies and Procedures for Considering Environmental Impacts", defines the procedures and guidelines that must be followed by the Federal Aviation Administration in evaluating potential impacts to the environment that might result from the construction of a major, federally assisted project such as the proposed development at Janes Field. The required Federal environmental review as applicable to Janes Field is shown in Figure 1-2.

OVERVIEW OF FEDERAL ENVIRONMENTAL REVIEW PROCESS



SOURCE: FAA ORDER 1050.1D

ANOKA COUNTY BLAINE AIRPORT
(JANES FIELD) EIS/EA
OVERVIEW OF FEDERAL
ENVIRONMENTAL REVIEW PROCESS

HTA companies

FIGURE 1-2

The Metropolitan Airport Commission (MAC) is responsible for preparing the Environmental Assessment (EA) for the proposed improvements at Anoka County-Blaine Airport (Janes Field). According to FAA Order 1050.1D, the FAA may use information submitted by the project's sponsor, the MAC in this case, as the basis for its further action. The environmental review process relative to Federal requirements is shown in Figure 1-2. If the potential for significant impacts does not exist, the Federal Aviation Administration will prepare and issue a Finding of No Significant Impact (FONSI). If, however, it is found that a project will significantly alter an airport's present impact on the surrounding environment, the Federal Aviation Administration will present its evaluation of such impacts in a Draft Environmental Impact Statement (DEIS). This statement will serve as a basis for a fully coordinated review by all appropriate Federal, State and local agencies. After all appropriate comments are received, the Federal Aviation Administration will either change the Draft EIS into a Negative Declaration, or will publish a Final Environmental Impact Statement, based on a comprehensive evaluation of all important factors. The decision to implement the project is made subsequent to the approval of the Final EIS, after the appropriate officials review all project requirements and determine that the action is feasible and should be taken. The project approval and issuance of any federal grant offer then follows.

- Airport and Airway Improvement Act of 1982

In addition to the requirements affecting airport development set forth in NEPA and FAA Order 1050.1D, other Federal legislation is pertinent to airport projects. Of particular note, the Airport and Airway Improvement Act of 1982 (P.L. 97-248, as amended) requires, prior to project approval, the opportunity for public hearings to consider social, economic, and environmental effects of proposed developments that involve a new runway or a major extension to an existing runway.

1.2.2 State Legislation

The Minnesota Environmental Quality Board issued rules for the preparation of State Environmental Impact Statements in accord with the Minnesota Environmental Policy Act of 1973 amended in 1980. The rules, entitled Environmental Quality Board Environmental Review Program (6 Minnesota Code of Agency Rules) (MCAR) S 3.021-3.056 specify conditions requiring preparation of a State Environmental Assessment Worksheet (EAW), State Scoping Decision

Document, and a State EIS for a proposed action. The factors to be considered by the Board in its determination of whether a State EIS is necessary are identified in the rules, as well as procedures to be followed for review of the EAW and the draft and final EIS's. The required State environmental review process is summarized below.

The following is extracted from Guide to the Rules of the Minnesota Environmental Review Program 1982 Edition, "A Guide for Responsible Governmental Units" by the Minnesota Environmental Quality Board.

> "For different categories of projects, different governmental units are identified in the 1982 rules as responsible for Environmental Review. The designated local government or state agency, referred to as the Responsible Governmental Unit (RGU), implements the review process and makes all the necessary decisions. In some cases, the Environmental Quality Board determines the RGU.
>
> For most projects that receive Environmental Review, the RGU begins the process by preparing an Environmental Assessment Worksheet (EAW). Depending on the size, type and location of a project, preparation and review of an EAW is either mandatory, specifically exempted, or left to the discretion of the RGU.
>
> The EAW is a four page form containing questions related to various environmental impacts. Its purpose is to set out the information needed to determine if an Environmental Impact Statement should be prepared. After a 30 day comment period, the RGU must decide whether an EIS is needed, based on whether the project has the potential for significant environmental effects.
>
> The purpose of the Minnesota Environmental Review Program is to provide information to decision-makers which allows them to incorporate environmental protection into the planning and design of development projects that may have significant impacts on environmental resources. After projects are completed, unanticipated environmental consequences can be very costly to undo, and environmentally sensitive areas can be impossible to restore. Environmental Review creates the opportunity for project proposers and governmental units to anticipate and correct these problems before projects are built.
>
> Rather than create an additional source of approval, the environmental review process provides information to governmental units that already have approval or permit authority. If a project has the potential for significant environmental impacts, then an Environmental Impact Statement (EIS), must be prepared. By using the EIS as a guide when issuing,

amending or denying permits, governmental units can require actions which minimize the adverse environmental effects of a project.

A further process of Environmental Review is to encourage public participation in environmental decision-making. There are provisions for public comment at each stage of the process to help ensure that there will be full consideration of the issues.

Some types of projects are major enough to automatically require preparation of an EIS. Whether mandatory or the result of an RGU's decision, preparation of the EIS begins with a scoping process, which is used to reduce the scope and bulk of the EIS and to decide the issues, alternatives, and information which should be included in the EIS.

The 1982 rules include a petition process for projects where preparation and review of an EAW is at the discretion of the RGU. The petition, which must have 25 signatures, requires that the RGU designated by the Environmental Quality Board formally decide whether or not an EIS is needed."

Where the requirements for preparation of a State EIS and a Federal EIS or EA coincide, relevant parts of the Federal statement or assessment may be submitted as part of the State EIS. The rules provide that where a required element of the State EIS does not have a counterpart required in the Federal EIS or EA, the State EIS must contain material in addition to that used in the Federal statement or assessment. For example, the State of Minnesota noise analysis requires using the L_{10} metric rather than Ldn methodology. Additionally, the analyses of impacts on the State government and analyses regarding energy use and conservation, are elements required in the State EIS, but not in the Federal submission.

1.3 REQUIRED FEDERAL STATE AND LOCAL PERMITS/APPROVALS/FUNDING

The use of the nation's natural resources is controlled by various Federal, State and local agencies having permitting authority over discrete, legally defined functional areas or having the power to authorize access (by issuing permits) to public facilities or utilities. In addition to issuing permits, agencies may also serve to protect the environment by conducting reviews of proposed projects or actions falling within their authority. The proposed project under consideration in this EIS/EA will need to satisfy permit and review requirements set by various agencies. In this section, the permit requirements that may have bearing on the proposed project are first discussed.

Then, the review procedures conducted by different agencies for major projects, such as the proposed action, are outlined.

1.3.1 Permits Required

- United States Army Corps of Engineers

In 1972, the Congress of the United States enacted the Federal Water Pollution Control Act Amendments for the purpose of restoring and maintaining the chemical, physical and biological integrity of the nation's waters.

Section 404 of the Act established a permit program administered by the U.S. Army Corps of Engineers to regulate the discharge of dredged and fill materials into the waters of the United States. The Corps also administers similar permit programs established under Sections 9 and 10 of the Rivers and Harbors Act of 1899 to control such work as dredging, stream channelization, or construction of structures in the nation's navigable waters.

Legislation was passed on October 5, 1984 (Federal Register Volume 49 No. 195) concerning Army Corps of Engineers, Section 404 permitting procedures. The recent legislation requires an individual permit for alteration of more than 10 acres of wetlands. The project site is in a headwaters area and 21.3 acres of wetlands would be affected. Procedures for an individual permit require a public hearing and the filing of a "401 Water Quality Certification" from the Minnesota Pollution Control Agency.

- Minnesota Department of Natural Resources

The Minnesota Department of Natural Resources (MDNR) requires that a permit be issued for activity which changes the course, current, or cross section of public waters of the State of Minnesota. 2/ The stated policy of the MDNR is to conserve and utilize the water resources of the State in the best interests of the people. Specifically with regard to wetlands, the MDNR attempts to preserve all existing wetlands unless there is no feasible and prudent alternative. The MDNR will coordinate the review with other appropriate Federal, State and local governmental units and may require that a hearing be held to collect pertinent public comment. The project will require an Application for a Permit to Work in Public Waters to place fill in

Protected Wetlands 594W and 595W. Construction of Foundation drains in the proposed building areas may require an Appropriation of Waters of the State permit.

- Minnesota Pollution Control Agency

The Air Quality Division of the Minnesota Pollution Control Agency (MPCA) has adopted rules, regulations and standards to control potential air pollution from both direct and indirect sources throughout the State of Minnesota. 3/ Control of direct sources is exercised through the issue of both Installation and Operating Permits for any facility that would directly generate air pollutant emissions. It is anticipated that no air quality permit will be required for the Anoka County-Blaine Airport (Janes Field) project. The conclusion is based on the following considerations regarding the types of activities expected in the proposed building area at the Airport.

First, there will be no industrial-manufacturing operations on or associated with Janes Field; second, commercial freight handling and the storage of freight will be practically non-existent at the airport; third, any buildings (primarily hangars) which are built on the Airport will be built by private enterprise, and not the MAC, and will be in accordance with all Air Pollution Control (APC) regulations.

Furthermore, no Indirect Source Permit will be needed as Regulations do not apply to the proposed project.

Specific new auto parking spaces will be confined to the FBO areas of the proposed building areas. Sufficient parking spaces will be required to serve the commercial population. Actual numbers will be determined by individual site plans for each FBO area. Estimates for the two buildings areas are as follows:

East Building Area	174	
West Building Area	174	
Total Parking Spaces	348	Say 350 spaces

All other auto parking will be in the hangars constructed by aircraft owners.

These numbers are probably the maximum auto parking spaces this project could produce. No local permits for parking spaces are required since the City of Blaine does not review site plans for airport property. The project will also be exempt from filing for an indirect source permit from the Minnesota Pollution Control Agency. Per 6MCAR S 4.313A, an indirect source permit is

required for a new parking facility or other new indirect source with an associated parking area which has a new parking capacity of 2,000 cars or more or a modified parking facility or modification of an associated parking area which increases parking capacity by 1,000 cars or more, or which increases total parking capacity to 2,000 cars or more. Per 6MCAR S 4.4314C, parking facilities are exempt from requiring an indirect source permit if new auto parking capacity is fewer than 1,000 cars or if parking capacity is increased by less than 500 cars. As only 350 additional auto parking spaces are proposed, an MPCA indirect source permit will not be required for development of the project.

The Water Quality Division of the MPCA has the responsibility to insure that the designated quality standards are maintained through its control over the content of all discharges into public waters. The Division currently regulates water quality by three methods: first, through the National Pollutant Discharge Elimination System (NPDES) Permits 4/; second, through the State Disposal System Permit; and third, through the Section 401 Certification. Additionally, through the Section 208 planning process, non-point source control is being addressed.

NPDES permits would be issued for point source discharges of wastewater or stormwater discharges where stormwater is determined to be a significant source of pollutants, or if treatment will be required as part of a spill prevention and containment plan. It is anticipated that a stormwater drainage system serving the proposed new building areas will be required to separate potential spills of fuel or other contaminants from the stormwaters. Hence, an application would be required for a NPDES permit. If the Director of MPCA, after review, determines that a NPDES Permit is not required, but determines that a State Disposal System Permit is required by the Minnesota law and regulations, he may proceed to process the NPDES application as an application for a State Disposal System Permit.

The State Disposal System Permit would be required for the construction and operation of a disposal system for dredge spoils (if dredging is undertaken to use dredged material from protected wetlands 594W and 595W as fill) which would require monitoring of discharged dredge spoil and compliance with the appropriate final effluent limitations.

Section 401 Certifications are required for Federal Permits to receive authorization for any applicant to perform work such as hydraulic dredging in public waters. The State must certify to the U.S. Army Corps of Engineers that the discharge from such activity will comply with the applicable provisions of the Federal Water Pollution Control Act.

- City of Blaine Conditional Use Permit

A conditional use permit will be required from the City of Blaine. Section 33.05 Land Reclamation requires a Conditional Use Permit when 400 or more cubic yards of fill is deposited on any lot or parcel. More than 400 cubic yards of fill will be required for construction of proposed runways and taxiways. The City of Blaine Zoning Ordinance includes a requirement that uses regulated by the ordinance, in this case runways, taxiways and building areas, be constructed so they are one foot above the surface waters associated with the 100 year flood and any increases in flood heights due to floodplain encroachment.

- Rice Creek Watershed District

The Rice Creek Watershed District provides local citizens with a legal and financial authority to act upon projects initiated within the District aimed at solutions to water problems. A Rice Creek Watershed District Permit is required for proposed wetland alteration, development in and adjacent to a 100 year floodplain, development within 1000 feet of a public water, (in this case 594W), development in or within 300 feet of an officially established county or judicial ditch as well as provision for a stormwater management plan, if required.

- Coon Creek Watershed District

The purpose of the Coon Creek Watershed District is the same as that for Rice Creek Watershed District. A permit will be required from the Coon Creek Watershed District for alteration of County Ditch 41, Wetland 595W and review of stormwater management plans and wetland mitigation plans for the northerly relocation of Runway 17-35 and development of the West Building Area.

1.3.2 Review Agency Requirements

- Federal Aviation Administration Airport and Airway Improvement Act of 1982 (P.L. 97-248)

All major airport projects are reviewed and controlled by the FAA through the judicial use of financial aid under the Airport and

Airway Improvement Act of 1982 (P.L. 97-248) as amended. Airport Master Plans which are prepared under that Act must include an assessment of environmental impacts which may occur as a result of developments proposed in the Master Plan. The analysis from a master plan study serves as a basis for preparation of an Environmental Assessment, and eventually either an Environmental Impact Statement or a Finding of No Significant Impact (FONSI) by the FAA. As the usual lead agency in the Federal Government for airport projects, the FAA has the ultimate responsibility to insure that all environmental consequences resulting from the development of such projects are fully considered. The FAA review procedure is discussed in more detail in Section 1.2.1.

- Minnesota Department of Transportation

The Minnesota Department of Transportation (Minn DOT) is the channeling agency for all federal and state assistance for airport development projects and planning grants. Applications for federal assistance are reviewed by Minn DOT prior to submission to the appropriate Federal agency.

- Minnesota State Planning Agency

The Minnesota State Planning Agency acts as the statewide planning clearinghouse. In that capacity, it must conduct a review of proposed Federal actions by procedures set forth in Section 401 of the Intergovernmental Corporation Act of 1968, 31USC6505; Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966, 42 USC3334; Presidential Executive Order No. 12372, July 14, 1982 as amended by Executive Order No. 12416, April 8, 1983; MS Chapter 473.171 Subdivision 1; and MS, Chapter 462.391, Subdivision 3. The review process allows Federal projects and assisted programs to be reviewed by state and local agencies for their consistency with state plans and programs and with the objectives of agencies responsible for protecting the environment.

- Metropolitan Council of the Twin Cities Area

Acting as the regional planning clearinghouse for the Twin Cities area, the Metropolitan Council conducts the review of proposed Federal actions at the local level. This process permits local governments to comment on the consistency of federally assisted

programs with local objectives and plans. The Metropolitan Council evaluates proposed actions for consistency with regional plans and policies, including the Metropolitan Airports System Plan as set forth in the Metropolitan Development Guide. (See Section 1.5 of this document for further discussion of this plan.)

- Airport Act

Section 509(b)(7)(A) of the Airport and Airway Improvement Act of 1982 requires that, for projects involving airport location, runway location or major runway extension, before approval for funding by the FAA, the Governor of the state in which the project is located must certify with reasonable assurance that the project will be located, designed, constructed and operated in compliance with applicable air and water quality standards. The MPCA has established air and water quality standards and implementation procedures and is the designated official body with the authority to enforce compliance with these standards in Minnesota.

- Anoka County Commissioners

Extension of Runway 26 will require closing a portion of Xylite Street (County State Aid Highway 37) within airport property. MAC will petition Anoka County for abandonment of this portion of the County Highway. The County Commissioners must approve the petition before construction.

- City of Blaine

In addition to permits previously mentioned, the City of Blaine must also approve the abandonment of Xylite Street before extension of Runway 26.

- MS 473.875-473.879

Minnesota Statutes 473.875-473.879 require coordination of stormwater management plans with the Minnesota Water Resources Board, Metropolitan Council, Rice Creek and Coon Creek Watershed

Districts, City of Blaine, MPCA, MDNR, Anoka County, and the Soil and Water Board of the Minnesota Department of Agriculture.

- Environmental Protection Agency

As provided in FAA Order 5050.4A para 47(6)(b) 2, coordination with the EPA is required if there is the potential for contamination of an aquifer designated by the EPA as a sole or principal source of drinking water source for the area pursuant to Section 1424(e) of the Safe Water Drinking Act as amended.

- U.S. Department of the Interior Fish and Wildlife Service

As provided in FAA Order 5050.4A para 47(9)(c), if the proposed project would affect water resources (i.e. impoundment of wetlands, groundwater, streams) and wildlife resources, the Fish and Wildlife Coordination Act applies. Evidence of correspondence with the U.S. Fish and Wildlife Service and the applicable state wildlife resources administering agency is required. Correspondence with the wildlife service is also required to determine impact to threatened and endangered species of flora and fauna.

- U.S. Department of Interior (DOI), Department of Housing and Urban Development (HUD) and Department of Agriculture (DOA)

FAA Order 5050.4A para. 47(7)references Department of Transportation Section 4(f) in stating DOT cannot approve any project which requires the use of certain publically owned land unless there is no prudent alternative to use of such lands and all possible mitigation has been planned for. Such lands may include a public park, recreation area or wildlife and waterfowl refuge of national, state or local significance or any land from a historic site of national, state or local significance. FAA Order 5050.4A para. 47(7)(e) provides that consultation with DOI, as well as HUD and USDA as necessary, be undertaken. Provisions of FAA Order 5050.4A para. 47(e)(14) suggest contacting USDA to determine if areas to be impacted by the proposed project are prime or unique farmland.

- Minnesota Historical Society-State Historic Preservation Office (SHPO)

FAA Order 5050.4A para 47e(8)(b) provides that the SHPO should be consulted to determine if any properties in or eligible for inclusion in the National Register of Historic Places will be impacted by the proposed project. If such areas are found, further analysis is required.

1.3.3. Additional Permits and Approvals

MAC will construct paved surfaces within the proposed east and west building areas. Construction of other facilities for the proposed building areas will be done by private developers. Construction and installation of facilities in the proposed building areas will require the private developers to obtain permits and agency approvals described below:

- City of Blaine

Developers will have to obtain building and plumbing permits from the City of Blaine. Developers will also have to obtain City approval of locations and methods of waste disposal.

- Minnesota Pollution Control Agency

Developers who install above ground fuel tanks must obtain a permit for storage of liquid substances. A permit for Sanitary Sewer Extensions will be needed for sanitary sewer collection systems extensions, replacements or relocations.

- Environmental Protection Agency

Developers who install below ground fuel tanks which by volume are 10% or more underground, must do so pursuant to rules promulgated under the underground Storage Tank portion of the Resource Conservation and Recovery Act (RCRA).

- Minnesota Department of Natural Resources

Developers who install wells and foundation drains must obtain an Appropriation of Waters of the State Permit from MDNR if wells or foundation drains will result in a water appropriation of more than 10,000 gallons/day or one million gallons/year.

1.4 AIRPORT PLANNING STRUCTURE IN THE TWIN CITIES AREA

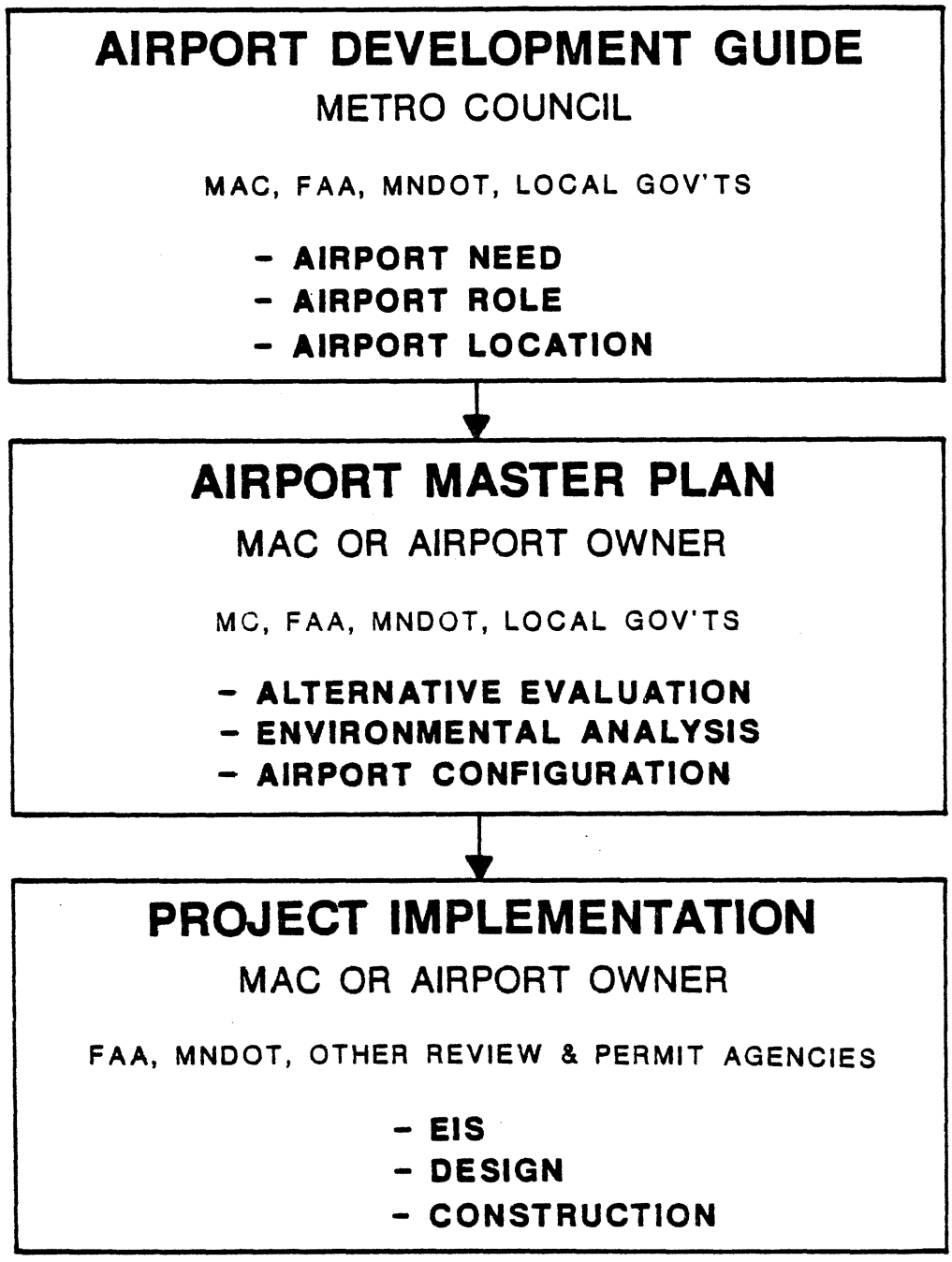
The Metropolitan Airports Commission (MAC) and the Metropolitan Council of the Twin Cities Area (Metro Council) have responsibility over different stages of the planning structure that exists in the Twin Cities Area. The planning roles of both the MAC and the Metropolitan Council are shown in Figure 1-3. This section will detail the planning structure and describe the roles of each agency within it.

1.4.1. Airport Development Guide

The first stage of the planning process involves the preparation of a regional development guide. The state legislation directing the Metropolitan Council to prepare a Comprehensive Metropolitan Guide specifies that the guide "shall recognize and encompass... those future developments which will have an impact on the entire area including...the necessity for and location of airports.." 5/ The Aviation Chapter of the Metropolitan Development Guide is intended to determine the number and type of airports necessary to meet the area's air transportation needs, to identify the role that each airport performs in the overall airport system, to specify general areas for the location of any new airports necessary, and to determine what environmental consequences the recommended airport system will have on the metropolitan area. The Aviation Chapter of the 1977 Metropolitan Development Guide is currently being updated.

1.4.2. Airport Master Plan

The second stage of the planning process involves preparation of site specific Master Plans. In the Twin Cities metropolitan



ANOKA COUNTY BLAINE AIRPORT
(JANES FIELD) EIS/EA

AIRPORT PLANNING & DEVELOPMENT
PROCESS IN THE TWIN CITIES AREA

HTA companies

FIGURE
1-3

area, the Minneapolis-Saint Paul Metropolitan Airports Commission (MAC) owns and operates seven public airports including Anoka County-Blaine Airport (Janes Field). The MAC is responsible for preparing master plans for its airports. A master plan should recommend improvements to the airport that permit the facility to fulfill its role as identified in the Metropolitan Development Guide.

The airport master planning process includes: a detailed examination of the existing facilities at an airport, demand-capacity analysis and alternative development strategies. Based upon these analyses, supported by environmental studies, airport plans are developed for implementation. These environmental studies examine airport related land use impacts including those associated with airport ground access facilities to develop strategies and policies that would further airport/community compatibility. See Section 1.6 for a discussion of the current master plan for Anoka County-Blaine Airport (Janes Field)

1.4.3 Project Implementation

The third and final stage of the planning process involves the implementation of the project. This EIS/EA is part of the third stage. Following the completion of the airport master plan, a preliminary environmental study design is developed through use of State environmental review procedures including the Environmental Assessment Worksheet and Scoping Decision Document to define the scope of any further analysis. Such analysis may include a Federal Environmental Assessment or State Environmental Impact Statement, depending on the specific master plan recommendations to be implemented.

The Metropolitan Airports Commission is responsible for preparing Environmental Assessment Worksheets, Scoping Decision Documents, State Environmental Impact Statements and Federal Environmental Assessments and Environmental Impact Statements for its airports. The MAC also has the responsibility for design and construction of airport development projects as set forth in its airport master plans except for those developments such as hangars and FBO facilities to be undertaken by tenants of the airport.

1.5 AIRPORT SYSTEM PLANNING EFFORTS

Airport System Planning is not a study of a particular airport and its needs per se, but a study of a system of airports and the impact of the system needs on the individual airports within it.

Airport system planning discussed in this section includes the FAA's 1985 National Plan of Integrated Airport Systems, the 1974 Minnesota Aviation System Plan, the 1972 Metropolitan Airports System Plan, the 1977 Metropolitan Airports System Plan and the 1985 Metropolitan Development Guide, Aviation Chapter Update.

1.5.1 National Plan of Integrated Airport Systems

The National Plan of Integrated Airport Systems (NPIAS) is a nationwide plan of airports prepared by the FAA as prescribed by the Airport and Airway Improvement Act of 1982. The NPIAS categorizes airports relative to service level, and design type and includes projections of based aircraft and annual operations. The NPIAS lists Janes Field as a Reliever to MSP in the General Utility design type. The NPIAS lists based aircraft levels of 260 in 1984 increasing to 360 by 1994, and annual operations levels of 188,000 in 1984 increasing to 205,000 by 1994. The NPIAS also lists a 10 year development plan for Janes Field which includes paving, lighting, approach aids, runway extensions and a parallel runway.

1.5.2 1974 Minnesota Aviation System Plan

In 1974, the State of Minnesota Department of Aeronautics prepared the Minnesota State Aviation System Plan Phase II. Phase II dealt with forecasts and requirements for system airports. The airports within the Metropolitan Council area were excluded from the plan as an airport system plan for the Metropolitan Area had been prepared in 1972.

1.5.3 1972 Metropolitan Airports System Plan

In 1972, the Metropolitan Council of the Twin Cities Area prepared an Airports System Plan for the seven-county Twin Cities Metropolitan Region. The plan was adopted as the Airports Chapter of the Metropolitan Development Guide. The State legislature, directing the Council to prepare the Guide, specified that "the necessity for and location of airports..." 6/ be among the development issues addressed.

The major purpose of the Metropolitan Airports System Plan is to provide for an integrated system of aviation facilities located and developed in a manner that is compatible with existing and

proposed land development, other transportation systems and natural resource uses in the Metropolitan Area. The plan serves as a statement of the direction metropolitan airport investments should take in the future. The Metropolitan Council uses the system plan as a guide in their review of proposed airport projects.

The 1972 Metropolitan Airports System Plan projected a system of air carrier and general aviation airports needed to accommodate the Region's commercial, general aviation and military aviation needs beyond 1995, based on the then current forecasts of aviation activity.

In the 1972 plan, the ultimate role and maximum capacity of each airport in the system was identified by establishing an airport functional classification scheme which provided a basis for determining how many and what kind of aircraft could be accommodated. The classification also related the airspace requirements for each airport to its operational role, i.e., the airport's ability to accommodate air traffic during different weather conditions.

The 1972 Plan proposed that nine new airport facilities be added to the existing airport system. The new facilities proposed by the 1972 Plan were to include a major commercial airport and eight general aviation airports. "Search areas", or general locations for each new airport, were identified instead of specific sites. See Table 1-1 for a classification of the existing and proposed airports.

The prominent feature of the 1972 Plan was the proposal that a new major airport, sited in the North Search Area, be built to replace MSP International as the major air carrier airport for the Twin Cities Area. Under the 1972 Plan, MSP International would function as a reliever to the new airport upon its completion. MSP International Airport would expand significantly only if the new airport reached capacity or if aviation technology advanced to a stage where noise impacts of MSP on its surroundings could be reduced. The 1972 Plan provided that Holman Field and four other airports - Lake Elmo Airport, Flying Cloud Airport, and two new airports - function in the "Basic Transport" role, a classification for airports providing the most sophisticated services for high-performance, general aviation activity.

1.5.4 1977 Metropolitan Airports System Plan

In 1977, as a result of a number of events that occurred subsequent to the adoption of the 1972 Metropolitan Airports System Plan, the Metropolitan Council found it necessary to conduct a

TABLE 1-1
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
METROPOLITAN AIRPORTS SYSTEM PLAN - 1972
CLASSIFICATION OF EXISTING AND PROPOSED AIRPORTS

FUNCTIONAL CLASSIFICATION	NAME	COUNTY
PUBLICLY OWNED		
MAJOR AIR CARRIER	New Major Airport	Anoka
AIR TRANSPORT	MSP International	Hennepin
BASIC TRANSPORT	Lake Elmo	Washington
	Flying Cloud	Hennepin
	Holman Field	Ramsey
	Search Area H	Hennepin/Wright
	Search Area E	Dakota
GENERAL UTILITY	Crystal	Hennepin
	Search Area G	Carver
	Search Area C	Dakota
BASIC UTILITY	Anoka County	Anoka
	South St. Paul	Dakota
	Search Area A	Hennepin/Anoka
	Search Area B	Washington/Chicago
	Search Area D	Dakota
	Search Area F	Carver
PRIVATELY OWNED		
	Airlake Industrial	Dakota
	Southport	Dakota
	Journey's End	Washington
	Northport	Washington
	Benson	Ramsey

Source: Metropolitan Council of the Twin Cities Area, Metropolitan Development Guide, "Airports Policy Plan, Program", March, 1973.

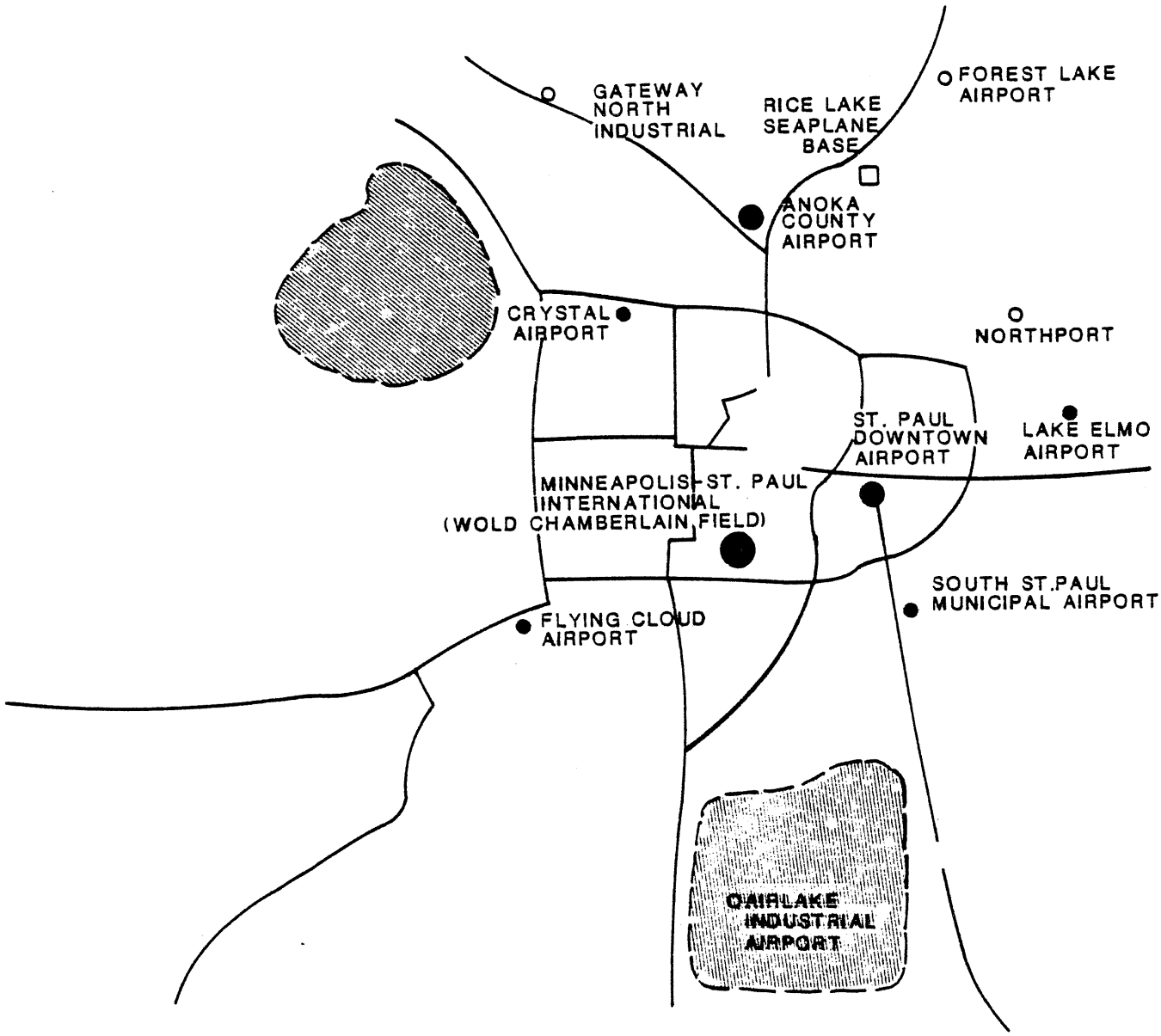
major reassessment of aviation system planning for the metropolitan region. The council had significantly revised downward the previous population and employment forecasts. The 1972 Airport System Plan was based upon a projected year 2000 population of 3,200,000 and employment of 1,900,000. The revised System Plan was based upon a projected year 2000 population and employment of 2,487,000 and 1,342,000 respectively. 7/

These reduced forecasts reflected a comparable decrease in the number of commercial airline passengers and general aviation operations. Similarly, as the airlines were achieving increased operating efficiency, the Federal Aviation Administration had continuously revised the total projected number of air carrier aircraft operations downward. Factors such as improved engine design to reduce noise generation, together with a comprehensive noise abatement program, placed a new perspective on the longterm capability of MSP International to serve as the Metropolitan Area's sole air carrier airport. The completion of master plans for Lake Elmo and Flying Cloud Airports provided new perspectives as to their roles in a regional airport system, by essentially reducing the role of each airport to that of a Minor facility.

There are several significant differences between the 1972 and 1977 Airports System Plans. While the 1972 Plan indicated a pressing need by the year 1990 for a new air carrier airport, it was determined in 1977 that Minneapolis-Saint Paul International Airport could handle the air carrier traffic anticipated in the year 2000. The possibility of a new major airport was removed from further consideration, and it was determined that MSP International would continue in its role as the sole air carrier airport. Where the 1972 Plan recommended eight "search areas" for new general aviation airports, the 1977 Plan recommended that only two new general aviation airports be developed, and these were to be Minor facilities. (Figure 1-4 shows the search areas for the two airports in relation to the Metropolitan Airports System.)

In keeping with the stated policies of the Metropolitan Development Guide, implementation of the 1977 Metropolitan Airports System Plan was intended to maximize the capabilities of existing airport facilities before developing new facilities. Also following the Guide's philosophy, the existing general aviation airports were to function as general aviation traffic relievers to MSP International.

The report stated that the success with which MSP International would be able to accommodate air carrier traffic was predicated upon other airports in the system functioning properly as relievers of general aviation traffic from MSP. Anoka County-Blaine Airport (Janes Field) was listed as particularly important, as a general aviation reliever and shown in an ultimate "Intermediate" role.



Source: Metro Council, 1977 Aviation Chapter of MDG

ANOKA COUNTY BLAINE AIRPORT (JANES FIELD) EIS/EA

METROPOLITAN AIRPORTS SYSTEM PLAN 1977

SCALE: 1"=9 MI.

FIGURE 1-4

The basic differences between the 1972 and 1977 Metropolitan Airports System Plans are outlined in Table 1-2. For the 1977 Plan, a new airports classification system was developed which took into account a broader range of operational and functional characteristics for each airport. By this classification system, Janes Field is designed to serve in the role of a Minor Airport in 1977, upgraded to an Intermediate Airport by 1990. Table 1-3 shows the roles of the different airports in the 1977 Plan. Both Intermediate airports and Minor airports serve general aviation activity, but Intermediate airports have greater operational capability as well as the capability, to serve air traffic in a wider range of weather conditions.

1.5.5 1985 Metropolitan Airports System Plan

A number of events impacting aviation occurred subsequent to the adoption of the 1977 Metropolitan Airports System Plan. As such, the Metropolitan Council began reassessing aviation system planning for the metropolitan region to determine whether or not the existing system with the recent changes would be able to accommodate future levels of demand. The Aviation Chapter, as well as the rest of the Metropolitan Development Guide, is being updated as of this writing (March, 1986). Events subsequent to the 1977 Metropolitan Airports System Plan are listed in Table 1-4. Most prominent of the changes shown in Table 1-4, is the State Statute that airports owned by MAC cannot be upgraded from Minor to Intermediate designation as defined in the Development Guide. (MS 473.671, Subdivision 4) This statute affected implementation of the 1977 plan in that there can only be one Intermediate airport in the MAC system of airports, Holman Field. Janes Field is now limited to its existing Minor role by this statute. Additional differences between the 1977 and 1985 Draft Aviation Chapter of the Metropolitan Development Guide are shown on Table 1-5.

The Aviation Chapter Update capacity analysis concluded that on the whole, Metropolitan airports could accommodate projected operational demands if aircraft storage capacity could be expanded at Metropolitan airports as called for in respective Airport Master Plans. Analysis of operational and based aircraft storage capacities contained in the Aviation Chapter Update is shown on Tables 1-6 and 1-7, respectively.

TABLE 1-2
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
SUMMARY OF METROPOLITAN AIRPORTS SYSTEM PLAN CHANGES

Former System Plan (1972)	Revised System Plan (1977)
1. Aviation Goals Not Specified.	Six Major Goals Adopted.
2. Thirty-three Aviation Policies Adopted.	Nine Policies Adopted.
3. Functional Classification of Metropolitan Airports as follows: Air Transport Basic Transport General Utility Private Airfield	Functional and Operational Classification: Major Intermediate Minor Special Purpose
4. Performance of Existing System Not Established.	Performance Analyzed.
5. Future Metropolitan General Aviation Aircraft Distribution and Mix not Forecasted.	General Aviation Aircraft Mix and Operations Determined by Minor Civil Division.
6. Metropolitan Aviation Forecasts Year 2000:	Metropolitan Aviation Forecasts Low-High Range - Year 2000:
Commercial Air Passenger 58,000,000	18,000,000 - 22,000,000
Commercial Air Cargo (Tons) 3,035,000	236,000 - 550,000
Commercial Air Carrier Operations 550,000	214,000 - 291,000
General Aviation Based Aircraft 12,900	2,800 - 3,500
General Aviation Aircraft Operations 11,000,000	2,000,000 - 2,500,000
7. North Search Area Site for Major New Airport Identified.	North Search Area Eliminated.
8. Search Areas for Eight New General Aviation Airports Identified.	Search Areas for Two New Minor Airports Identified.
9. Private Airports Included in System without establishing Role and Function.	Private Airports Role and Function Identified and Majority included in System.
10. Need and Role of Heliports and Seaplane Bases not Determined.	Special Purpose Facilities Considered.

Source: Metropolitan Council of the Twin Cities Area, Metropolitan Development Guide, Aviation Chapter, Final Draft dated December 22, 1977.

TABLE 1-3
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
METROPOLITAN AIRPORTS SYSTEM PLAN - 1977
PROPOSED 1990 STATUS OF METROPOLITAN AIRPORTS SYSTEM ELEMENTS

FUNCTIONAL CLASSIFICATION	NAME	COUNTY
PUBLICLY OWNED		
MAJOR	Minneapolis-St. Paul International (Wold-Chamberlain Field)	Hennepin
INTERMEDIATE	St. Paul Downtown (Holman Field)	Ramsey
	Anoka County, Blaine (Janes Field)	Anoka
MINOR	Flying Cloud	Hennepin
	Crystal	Hennepin
	Lake Elmo	Washington
	South St. Paul Municipal	Dakota
	Search Area A	Hennepin
	Search Area B	Dakota
PRIVATELY OWNED		
	Gateway North Industrial	Anoka
	Forest Lake	Washington
	Northport	Washington
	Airlake Industrial	Dakota
	Rice Lake	Anoka

Source: Metropolitan Council of the Twin Cities Area, Metropolitan Development Guide, Aviation Chapter, Final draft dated December 22, 1977.

TABLE 1-4

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
EVENTS AFFECTING AVIATION IN THE METROPOLITAN REGION SINCE 1977

1978 Deregulation on national scale implemented.

MAC adopts Ordinance 51 at Flying Cloud Airport. Ordinance 51 sets 20K weight limit plus meeting FAR 36 on all jets using airport.

Cities of Crystal and Brooklyn Park petition the Metropolitan Council to close Crystal Airport.

1979 Airlake Industrial Airport - Acquisition by MAC initiates as a result of federal effort to have "reliever" airports.

MSP Airport Master Plan conditionally approved by Metropolitan Council with requirement that MC/MAC address additional concerns regarding noise impacts and some adjacent development.

State Legislature prohibits expanding any existing Minor airports owned by MAC to "Intermediate" role. (Minnesota Statute MS 473.641 Subdivision 4).

1980 Lake Elmo Airport Master Plan approved by Metropolitan Council.

1981 City of Ramsey initiates Phase I (alternate site locations) of Master Plan for Gateway North Industrial Airport.

Series of accidents at Crystal Airport begin.

MAC established policy on hang gliders and ultralights.

1982 MC report on proposed Guidelines for Land Use Compatibility with Aircraft Noise.

1983 City of Ramsey decides to stay with existing Gateway North Airport site and proceed with Master Plan for federal and state funding.

State Legislature prohibits causing a net reduction in useable runway length at any airports owned by MAC (Minnesota Statute MS 473.673)

Anoka County - Blaine Airport Master Plan adopted by Metro Council. Plan includes constraint for no upgrade to Intermediate.

1984 City of Ramsey undertakes Master Plan for Gateway North Industrial Airport.

St. Paul EIS completed by FAA/MnDOT for new runway construction.

Deregulation of communications industry limits new radio tower construction after 1987 and forces radio stations to locate new towers as soon as possible.

Source: Preliminary Draft of the Metropolitan Development Guide, Aviation Chapter
Needs Analysis, Metropolitan Council, 1985. Hoyle, Tanner & Associates, Inc.

TABLE 1-5
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
SUMMARY COMPARISON OF 1977 AND 1985
AIRPORTS SYSTEM PLAN

	1977 Plan	1985 Plan
1.	Six Major Goals Proposed Nine Policies Proposed	Five Major Goals Proposed Sixteen Policies Proposed
2.	Land Use Compatibility Guidelines added as amendment in 1983	Land Use Compatibility Guidelines included in Plan
3.	Economic Impacts Not Analyzed	Economic Impacts of Aviation estimated at over $2.1 billion annually
4.	Metropolitan Aviation Forecasts For Year 2000 (Low-High):	Metropolitan Aviation Forecasts For Year 2003:*
	• Commercial Air Passengers (millions) 18-22	29
	• Commercial Air Cargo (1,000 Tons) 236-550	274
	• Commercial Air Carrier Operations (1,000's) 214-291	271
	• General Aviation Based Aircraft 2,800-3,500	2,600
	• General Aviation Aircraft Operations (Millions) 2.0-2.5	1.15
5.	Metropolitan Airports System	
	• MSP only Major Airport • St. Paul Downtown, Anoka County-Blaine Designated Intermediate Airports • Search Area "A" designated • Search Area "B" designated acquired by MAC	• MSP only Major Airport • St. Paul Downtown only Intermediate Airport • Search Area "A" retained • Airlake Airport (Search Area "B")

*Unconstrained

Source: Metropolitan Council of the Twin Cities Area. Metropolitan Development Guide Aviation Chapter, Draft Update 1985.

TABLE 1-6
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
AIRCRAFT OPERATIONAL CAPACITY (GENERAL AVIATION)
(IN THOUSANDS)

	Existing Capacity[A/]	Future Capacity[B/]	Demand 1983	Demand 1993	Demand 2003
MSP Total	370.0	415.0-500.0	307.8	C/	C/
MSP (Non-Airline)	110.0	D/	63.7	74.9	88.1
St. Paul Downtown	375.0	375.0	84.0	99.2	116.6
Lake Elmo	220.0	385.0	90.0	120.7	141.8
Anoka	220.0	385.0	190.0	252.3	296.5
Crystal	385.0	385.0	135.6	159.5	187.6
Flying Cloud	385.0	385.0	165.9	195.1	229.5
Airlake	190.0	210.0	20.0	23.5	27.7
So. St. Paul	215.0	215.0	45.0	52.9	62.2
Northport	62.0	---	8.0	--E/	--E/
Benson	62.0	---	4.6	---	---
Forest Lake	124.0	---	9.5	---	---
Gateway North	62.0	---	15.1	---	---
Total	2410.0	2450.0	831.7	978.1	1150.0

A Based upon approved Master Plans for public owned airports and FAA estimates for privately owned public use airport.

B Future capacity for MSP on Airport Master Plan and estimates based upon plans for typical General Aviation airports.

C Future activity at MSP predicted on mix of aircraft types, i.e, airline and General Aviation using the airport.

D Given that there is no assurance the existing privately owned public use airports will exist beyond the present, the demand allocated to the present public use airports is shared with Lake Elmo and the Anoka County-Blaine Airport. Approximately 35% assigned to Lake Elmo and 65% to Anoka-Blaine.

E Excludes military activity

Source: Metropolitan Council Aviation Chapter Draft Update, November 26, ed.

TABLE 1-7
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
BASED AIRCRAFT STORAGE CAPACITY AND REQUIREMENTS

	Existing Capacity [A/]	D/	Future Capacity [B/]	Demand 1983	Demand 1993	Demand 2003
MSP	87	13	100	87	94	102
St. Paul	205+	95	300	164	177	194
Lake Elmo	236	294	530	236	333	360
Anoka	360+	340	700	362	442	478
Crystal	386	4	390	327	353	382
Flying Cloud	615	5	620	615	665	718
Airlake	38	292	330	38	41	44
So. St. Paul	300	30	330	277	299	324
Northport	25	--	--	25	-- [C/]	-- [B/]
Benson	47	--	--	47	--	--
Forest Lake	24	--	--	24	--	--
Gateway North	23	--	--	23	--	--
	2346	1073	3300	2225	2404	2600

A/ Based upon estimation of covered storage area available at individual airports. (+)indicates that upon completion of programmed expansion, additional storage will be available.

B/ Based upon master planned development for respective airport and for Airlake. Preliminary estimates by MAC consultant.

C/ Given that there is no assurance the existing privately owned public use airports will exist beyond the present, the demand allocated to the present public use airports is shared with Lake Elmo and the Anoka County-Blaine Airport. Approximately 35% assigned to Lake Elmo and 65% to Anoka-Blaine.

D/ Difference between existing capacity and future capacity computed by Hoyle, Tanner and Associates, Inc.

Source: Metropolitan Council Aviation Chapter Update, Draft
Hoyle, Tanner & Associates, Inc.

The Aviation Chapter Update also contains a recommendation that a new Minor Airport be developed in west-central Hennepin County in approximately the area identified as "Search Area A" in the 1977 Airport System Plan (See Figure 1-5).

In the Needs Analysis Section of the Aviation Chapter Update, the Metropolitan Council expressed concerns as to the demand vs. potential capacity of Metropolitan Area airports. The Metropolitan Council's concerns relative to Anoka County-Blaine Airport (Janes Field) as extracted from the preliminary draft of the Aviation Chapter Update Needs Analysis section (Draft Technical Reports) are as follows:

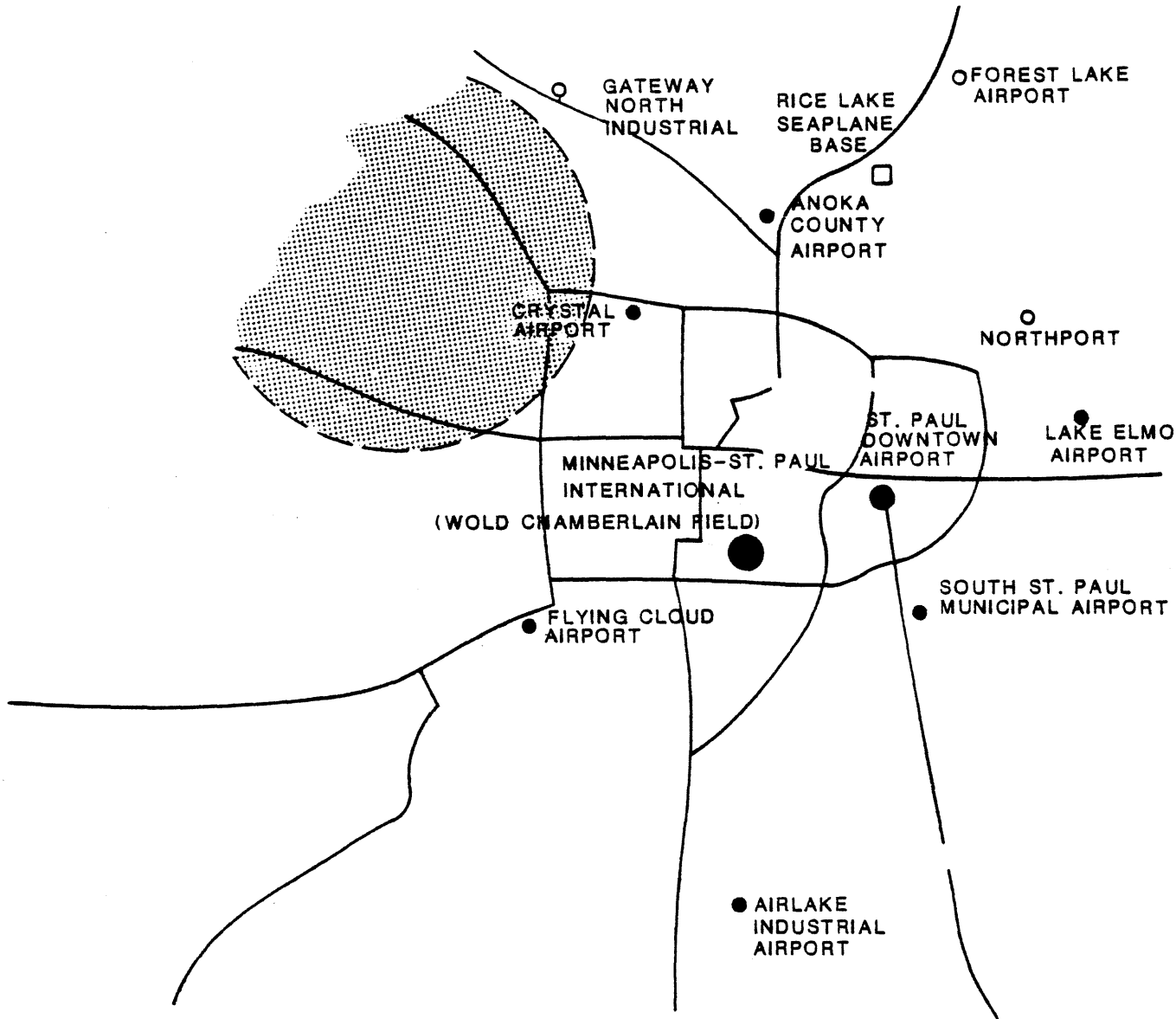
> "The Anoka County-Blaine Airport is an important element to the region's aviation capacity. It is unique among the region's airports in that most of the high-noise exposure zone is within the airport boundary. Furthermore, within the constraints of the existing Master Plan there is substantial room for aircraft storage area expansion, even with the planned shifting of the north/south runway."

Due to enactment of legislation previously mentioned, the 1985 Draft Aviation Chapter Update includes a recommendation that Anoka County-Blaine Airport (Janes Field) remain a Minor airport.

1.6 AIRPORT MASTER PLANNING

In 1979, the Metropolitan Airports Commission, owner and operator of Anoka County-Blaine Airport (Janes Field), undertook preparation of a Master Plan for that airport. The objective of the master planning effort was to provide a document for the orderly development of Janes Field over a 20 year planning period to accommodate a specified portion of future air transportation demands forecasted for the Metropolitan Region. The Anoka County-Blaine Airport Master Plan was prepared consistent with the Aviation Chapter of the 1977 Metropolitan Development Guide which is the 1977 Metropolitan Airports System Plan.

The Airport Master Plan (AMP) forecasts of aviation activity to determine numbers of based aircraft and levels of operations at Anoka County-Blaine Airport were derived by comparing results from both "top-down" and "bottom-up" methods. The "top-down" method used in the 1977 Development Guide assumed numbers of based aircraft and operations in the Metropolitan area would maintain a constant share of projected nationwide aviation activity. The "bottom-up" method related aircraft owners' location and where they based their aircraft. The AMP included projections of aircraft type, local vs. itinerant operations, instrument operations, and peak hour operations. A summary of AMP forecasts is shown on Table 1-8.



Source: Metro Council, 1977 Aviation Chapter of MDG

ANOKA COUNTY BLAINE AIRPORT (JANES FIELD) EIS/EA

METROPOLITAN AIRPORTS SYSTEM PLAN 1985

SCALE: 1"=9 MI.

FIGURE 1-5

TABLE 1-8
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
MASTER PLAN AVIATION FORECASTS

		1980	1985	1990	2000
Based Aircraft					
High Forecast	Type D	30	52	73	116
	Type E	323	347	379	514
Total		353	399	452	630
Low Forecast	Type D	30	44	62	99
	Type E	323	278	303	411
Total		353	322	365	510
Annual Operations					
High Forecast	Type D	15,520	36,400	51,100	81,200
	Type E	178,480	242,900	265,300	359,800
Total		194,000	279,300	316,400	441,000
Low Forecast	Type D	15,520	24,200	34,100	54,450
	Type E	178,480	152,900	166,650	266,050
Total		194,000	177,100	200,750	280,500
Local/Itinerant Operations					
High Forecast	- Local	127,000	171,490	194,370	270,774
	- Itinerant	67,000	107,810	122,130	170,226
Total		194,000	279,300	316,500	441,000
	Local	127,000	108,739	123,260	172,227
	Itinerant	67,000	68,361	77,490	108,273
Total		194,000	177,100	200,750	280,500
Peak Day Operations					
High Forecast		617	841	953	1,329
Low Forecast		617	533	605	845
Peak Hour Operations					
High Forecast		69	94	107	149
Low Forecast		69	60	68	95
Annual Instrument Approaches					
High Forecast		140	384	434	606
Low Forecast		140	187	212	296

Source: Anoka County-Blaine Airport Master Plan, 1983, Metropolitan Airport Commission.

The AMP also contained a determination of required facilities (See Table 1-9), alternatives analyses, detailed environmental analyses, and an implementation plan for recommended development. Appended to the study was a community attitude survey detailing community sentiment toward the airport.

Initial alternatives analyses reflected upgrading the airport from "Minor" to "Intermediate" classification as provided in the 1977 Metropolitan Council Development Guide. Alternatives were then revised to show the airport remaining in the "Minor" category with no reduction in runway length pursuant to the provisions of MS 473.641, Subdivision 4 and MS 473.673. Based on aviation forecasts, projected requirements, the environmental study, public workshop meetings, and state statutes, three alternatives, A, B and C, were assessed further.

Alternative A included shifting the southern end of Runway 17-35 2655 feet to the north with a northerly extension for a runway length of 3,200 feet, and a new 4,800 foot runway, 500 feet west of the existing north south runway with an ILS System to the longer runway. Existing Runway 8-26 would be lengthened 800 feet to the east for a total length of 4,000 feet.

Alternative B included relocating Runway 17-35 1,700 feet to the north and reducing its length to 4,000 feet. Runway 8-26 would be extended 1,600 feet to the east for a total length of 4,800 feet and would be the primary runway with an ILS approach from the east. A new 3,200 foot long runway would be constructed parallel to, and 500 feet north of Runway 8-26.

Alternative C included parallel runways to both runways 17-35 and 8-26 which, in effect, is a combination of Alternatives A and B. Due to the additional runways, Alternative C was determined to impact wetlands more than Alternatives A and B. Implementation of Alternative C was determined as most beneficial in reducing noise impact to off-airport properties.

Following review and receipt of public comment, the Metropolitan Airports Commission selected Alternative C for implementation. The MAC then revised Alternative C in two ways by directing that all runways be a maximum length of 4,000 feet in conformance with MS 473.641, Subdivision 4 and, in conformance with MS 473.673, directed that Runway 17-35 remain 4,855 feet long and the primary east-west runway be lengthened from 4,000 to 4,800 feet. The result was Alternative C - Modified with new runways 3,200 feet long in a north-south and east-west direction and parallel to the primary runways. Following a public hearing, the MAC recommended the length of the primary east-west runway be reduced from 4,855 to 4,000 feet. The AMP included an implementation plan for the 20 year future broken down to Phase 1A and Phase 1B (1980-1985), Phase 2 (1986-1990) and Phase 3 (1991-2000). A summary of the AMP implementation plan is shown on Table 1-10. The Airport Layout Plan resulting from the AMP process reflecting current conditions is shown on Figure 1-6.

TABLE 1-9
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
SUMMARY OF TERMINAL AREA REQUIREMENTS

	1980	1985	1990	2000
Aircraft Parking Spaces				
High Forecast - Hangared	247	279	316	442
Tie-Down	106	120	136	188
Total	353	399	452	630
Itinerant Parking Spaces	130	147	167	233
Low Forecast - Hangared	247	225	255	357
Tie-Down	106	97	110	153
Total	353	322	365	510
Itinerant Parking Spaces	130	94	106	148

Sources: Anoka County-Blaine Airport Master Plan, 1983
Metropolitan Airports Commission

TABLE 1-10
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
ANOKA COUNTY-BLAINE AIRPORT IMPLEMENTATION PLAN

Phase 1A (1980-1985)

- Construct East Building area.
- Construct taxiways to Runway 17-35 and Runway 8-26 south parallel taxiway.

Phase 1B (1980-1985)

- Construct West Building area.
- Extend Runway 8-26; 800 feet east.
- Widen Runway 8-26 to 100 feet.
- Shift Runway 17-35; 950 feet north.
- Construct taxiways from West Building area and for runways 17 and 8.

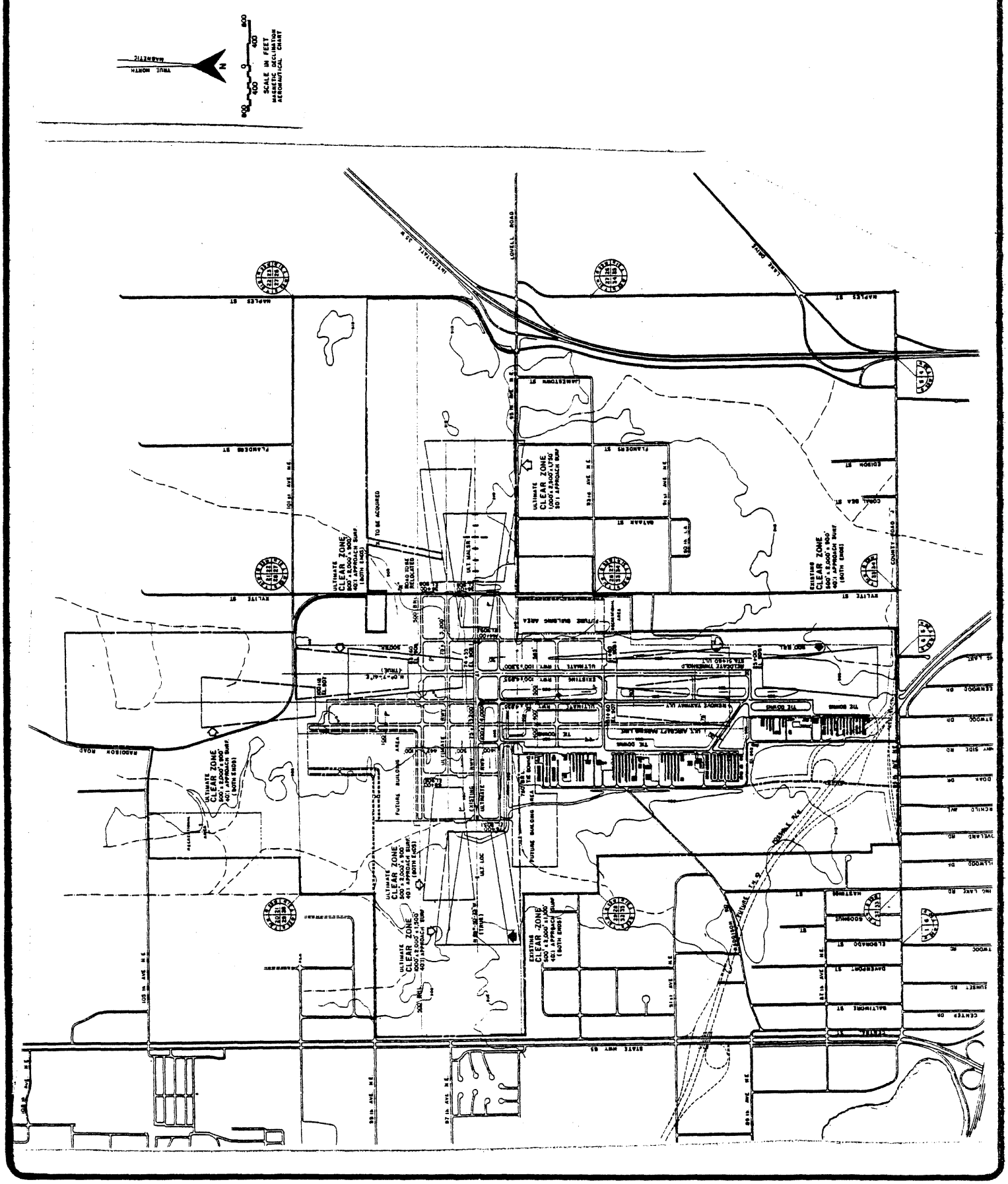
Phase 2 (1986-1990)

- Construct Northwest Building area and access road.
- Construct Runway 8L-26R (75' x 3200').
- Construct Runway 8L-26R taxiway.
- Construct Runway 17L-35R taxiway.

Phase 3 (1991-2000)

- Expand Northwest Building Area to the north.
- Construct Runway 17R-35L (75' x 4,855')
- Construct Runway 17R-35L taxiway.
- Runway 35R relocation and taxiway removal.

Source: Anoka County-Blaine Airport Master Plan for Minneapolis-St. Paul Metropolitan Airports Commission, 1983



ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

AIRPORT LAYOUT PLAN

HTA companies

1"=1,120'±

FIGURE 1-6

1.7 AIRPORT PLANNING DATA USED IN THIS EIS/EA

1.7.1 Projection of Based Aircraft

The number of based aircraft are used to determine size of terminal area facilities, e.g. hangar areas, aircraft aprons, etc. Table 1-11 lists based aircraft projections for the airport from the 1983 Anoka County-Blaine Airport Master Plan and the Metropolitan Council Development Guide, 1985 Aviation Chapter Update for Anoka County-Blaine Airport. Additionally, Table 1-11 lists the national based aircraft projection from the FAA Aviation Forecasts FY 1985-1996. These figures are used throughout this section as the basis for this analysis of growth rates of based aircraft. They represent local, regional and national estimates of based aircraft trends.

TABLE 1-11
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
BASED AIRCRAFT DEMAND FORECASTS

	1983	1985	1990	1993	2000	2003
1983 Master Plan (Low Value)		322	365		510	
1983 Master Plan (High Value)		399	456		630	
Met Council 1985 Update Aviation Chapter	362			442		478
FAA Aviation Forecasts FY 1985-1996 (x1000)		204.1	227.3		260.9	

A 1985 survey of the airport showed 387 based aircraft. This is only twelve less than that shown for the "high value" forecast in the AMP. Interpolating the Met Council forecast of 362 for 1983 and 442 in 1993 results in a forecast of 378 based aircraft for 1985, lower than the current level of 387.

Average annual growth between the Master Plan 1985 and 1990 based aircraft figures is 2.7%, and between 1990 and 2000, 3.9% per year. The Met Council figures show an average annual increase in based aircraft of 2.2% between 1983 and 1993 and 0.8% between 1993 and 2003. FAA Aviation Forecasts projections show an average annual increase in based aircraft of 2.3% between 1985 and 1990 and 2.5% between 1990 and 1996.

The higher average annual growth factors of the AMP and the FAA forecasts more closely correspond with each other than the flatter, post-1993 projections from the Met Council's Aviation Chapter Update. Additionally, the AMP projections are very close to the current level of aircraft, indicating a close correlation between those assumptions and the historical trends at the Airport. It is reasonable to expect the historical trend will continue, as it is reinforced by the FAA projections for the nation as a whole. Therefore, the high value projections of based aircraft contained in the AMP have been used for this EIS/EA. This higher level of based aircraft also represents an "outside number" which is a conservative approach to calculating the impact of aircraft activity at the airport.

1.7.2 Projection of Annual Operations

The number of annual aircraft operations (a takeoff or a landing) is used in this EIS/EA as partial input for making estimates of aircraft noise impacts, aircraft parking apron requirements, and vehicular traffic levels. Table 1-12 shows annual operations projections from the 1983 AMP, the update of the Met Council "Aviation Chapter" and the "FAA Terminal Area Forecasts" (TAF) for the Anoka County-Blaine Airport (Janes Field).

TABLE 1-12
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
ANNUAL AIRCRAFT OPERATIONS FORECASTS

	1980	1983	1985	1990	1993	1995	2000	2003
1983 Master Plan								
Low Value	194,000		177,100	200,750			280,500	
High Value	194,000		279,300	316,400			441,000	
Aviation Chapter Update		120,000	146,460[A/]	212,610[A/]	252,300		283,240[B/]	296,500
FAA TAF	194,000	188,000	190,000	197,000	202,000	205,000		

A/ Interpolated between 1983 and 1993 figures by Hoyle, Tanner & Associates, Inc.
B/ Interpolated between 1993 and 2003 figures by Hoyle, Tanner & Associates, Inc.

The Minnesota Air National Guard staffs the air traffic control tower (ATCT) at the airport on weekends from 9:00 A.M. to 5:00 P.M. Tower personnel stated that weekends are the busiest days of the week for aircraft operations at the airport. Air traffic records from tower personnel show an average of 280 operations during a weekend day. Assuming the 280 daily operations level was sustained 365 days per year, annual aircraft operations would equal 102,000 operations. This, in turn, equates to 262 annual

operations per based aircraft (102,000 ÷ 390 based aircraft) for 1985. Since this is the best data available regarding existing operations levels and, as in the based aircraft analysis, represents an "outside number" with which to calculate impact, the level of 102,000 was used as the existing level of operations in the projections for this EIS/EA.

The forecasts of annual operations in Table 1-12 were reviewed to determine future annual operations figures to be used in this EIS/EA. The AMP high value and low value forecast figures reflect a 2.7% average annual increase in operations between 1985 and 1990 and approximately 3.9% annually between 1990 and 2000. The Met Council "Aviation Chapter" figures reflect an 11.0% annual growth rate from 1983 to 1993 and 1.75% annually from 1993 to 2003. The FAA TAF-1985 to 1995 figures reflect average annual increases in operations of 0.7% between 1985 and 1990 and 5.6% between 1990 and 1995. Consistent with the idea of presenting an "outside number" for calculation of impacts, the annual operations forecasts for this EIS/EA were computed by applying the high, 11.0% average annual growth rate from the Met Council "Aviation Chapter Update" between the years 1985 and 1990 and the high 3.9% average annual growth rate from the AMP forecast between the years 1990 and 2000. These selected forecast numbers are shown below in Table 1-13.

TABLE 1-13
ANOKA COUNTY BLAINE AIRPORT (JANES FIELD) EIS/EA
ANNUAL OPERATIONS SELECTED FORECAST

	1985	1990	2000
Selected Forecast	102,000	159,000	222,000

Source: Hoyle, Tanner and Associates, Inc.

1.7.3 Determination of Aircraft Operational Mix

Aircraft noise contours presented in the EIS/EA are partially based on the operational mix of aircraft types, i.e. number of single engine, multiengine, turboprop, jet and helicopter operations. At airports that do not have control tower data to document this mix, a forecasting method frequently used is to assume the based aircraft mix corresponds to the operational mix. At Anoka County-Blaine Airport (Janes Field), a high percentage of single engine, piston operations related to the high level of training flights corresponds closely to the almost 90% share of

the based aircraft fleet held by single engine, piston aircraft. Therefore, the based aircraft mix will be used as a base for estimating the operations mix.

The Met Council "Aviation Chapter" update does not include a projection of based aircraft mix for the airport. The AMP study assumed based aircraft at Anoka County-Blaine Airport (Janes Field) would be limited to single engine piston, multi-engine piston, and turbo-prop aircraft less than 12,500 pounds Maximum Take-off Weight (MTOW). However, current records indicate there is also one jet based at the airport. According to a 1985 field survey at Anoka County-Blaine Airport (Janes Field) there are 387 based aircraft classified as shown in Table 1-14:

TABLE 1-14
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
1985 BASED AIRCRAFT MIX

Single-engine - Piston	346	89.4%
Multi-engine - Piston	35	9.0%
Turbo-prop	2	0.5%
Jet	1	0.3%
Helicopter	3	0.8%
TOTAL	387	100.0%

Source: Field Survey at Anoka County-Blaine Airport (Janes Field), 1985, Howard Needles Tammen and Bergendoff

The percentage point share changes of types of aircraft as projected in Table 7 of FAA Aviation Forecasts FY 1985-1996, (e.g. 2.4% point decrease in the number of single engine piston aircraft between 1985 and 1990) were applied to the based aircraft mix distribution shown in Table 1-14. The percentage point changes in the share of aircraft mix between 1990 and 1996 from the FAA Aviation Forecasts were applied to the computed 1990 figures to compute the year 2000 based aircraft operational mix on the assumption that changes between 1990 and 1996 will closely approximate changes at the airport between 1990 and 2000.

The existing 1985 and projected 1990 and 2000 percentage distribution of based aircraft mix and the corresponding numbers of based aircraft are shown in Table 1-15.

TABLE 1-15
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
PROJECTED BASED AIRCRAFT MIX

	1985	(%)	1990	(%)	2000	(%)
Single-Engine Piston	346	(89.4)	397	(87.0)	540	(85.8)
Multi-Engine Piston	35	(9.0)	44	(9.7)	62	(9.9)
Turbo prop	2	(0.5)	6	(1.4)	13	(2.0)
Jet	1	(0.3)	3	(0.7)	5	(0.8)
Helicopter	3	(0.8)	6	(1.2)	10	(1.5)
TOTAL	387	(100.0)	456	(100.0)	630	(100.0)

Calculations subject to rounding

Source: Hoyle, Tanner and Associates, Inc.

The based aircraft mix shown in Table 1-15 was adjusted slightly to more accurately reflect the operations mix at the airport. An adjustment was made to the based jet aircraft share to reflect levels of jet operations activity which are slightly higher than the percent share of jets in the based aircraft fleet, verified by MAC airport personnel observations. Table 1-16 presents the resulting aircraft operational mix projected for Anoka County-Blaine Airport (Janes Field):

TABLE 1-16
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
PROJECTED ANNUAL OPERATIONS MIX
(Nearest 100)

	1985	(%)	1990	(%)	2000	(%)
SE-P	91,000	89.2%	138,100	86.8%	190,100	85.6%
ME-P	9,200	9.0%	15,400	9.7%	22,000	9.9%
Turboprop	500	0.5%	2,200	1.4%	4,400	2.0%
Jet	500	0.5%	1,400	.9%	2,200	1.0%
Helicopter	800	0.8%	1,900	1.2%	3,300	1.5%
Total	102,000	100.0%	159,000	100.0%	222,000	100.0%

Source: Hoyle, Tanner & Associates, Inc.

1.8 PRELIMINARY ENVIRONMENTAL PLANNING

This section describes environmental planning for Anoka County-Blaine Airport (Janes Field) subsequent to the Airport Master Plan.

1.8.1. Environmental Assessment Worksheet

On March 20, 1984, a petition from residents near Janes Field was submitted to the Minnesota Environmental Quality Board. The petition included a request that an Environmental Impact Statement be undertaken for projects at the airport proposed in the AMP. The Metropolitan Airports Commission began preparation of an Environmental Assessment Worksheet (EAW) in April 1984. See Appendix 2A for copies of the EAW and petition. The following paragraph is extracted from the petition.

> "We the undersigned petitioners, do hereby demand that the project proposer be required to perform an Environmental Impact Statement under Minnesota Code of Agency Rules 6 MCAR S 3.021 through 6 MCAR S 3.056.
>
> We further petition for remedies and amendments to the project plan, including but not limited to the following:
>
> 1. Restrict taxiway, runway, structural buildings and all impervious surface construction to such lengths, placement, and physical size, as to protect wetlands and floodplains located within airport boundaries. (Exhibits F & G).
>
> 2. Restrict airport facility improvements to accommodate class D and E aircraft as described for airports of minor role classification, in compliance with Minnesota Statutes Section 473.641 Subd. 4, as described in the Metropolitan Development Guide.
>
> 3. Implement strict controls for fuel storage facilities within airport boundaries to minimize the potential for spillage or leaks into ground water tables."

The petitioners also requested that MPCA be the lead agency in preparation of the EIS, rather than the MAC.

Subsequently, the EQB designated the MAC as the Responsible Governmental Unit (RGU). During development of the EAW, it became clear that several potential areas of impact should be studied at a level of detail well beyond that normally undertaken

for an EAW. MAC voted at its meeting of May 29, 1984 to proceed with a Discretionary Environmental Impact Statement (EIS) and to convert the EAW to a Scoping EAW. A Scoping EAW is the same as a regular EAW except the former is used to allow the public and other governmental units an opportunity to review the EAW and assist in identifying and assessing what potential environmental effects will be studied in the EIS. At MAC meetings of April 16, 1984 and May 29, 1984, MAC voted to formally request the Minnesota Pollution Control Agency to participate in the EAW/EIS process. See Scoping Decision Document in Appendix 2A.

On May 31, 1984, MAC formally requested MPCA's assistance in preparation of the Anoka County-Blaine Airport (Janes Field) Environmental Impact Statement. On June 4, 1984 MPCA entered into a formal agreement to assist MAC with preparation of the Scoping Decision, Draft EIS and Final EIS. Specifically, the MPCA is given the opportunity to review and approve analyses related to aircraft noise impact, surface water impacts, and groundwater impacts prior to completion of the Scoping Decision, Draft EIS and Final EIS. See Appendix 2A.

On June 7, 1984, pursuant to 6 MCAR 3.031.G.1, MAC requested that the Environmental Quality Board (EQB) assume responsibility for the determination of adequacy of the EIS. On June 7, the EQB agreed to assume responsibility for determination of the adequacy for the EIS. See Appendix 2A.

Table 1-17 shows a chronological listing of subsequent events leading to preparation of this EIS/EA.

TABLE 1-17
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
CHRONOLOGICAL ENVIRONMENTAL PLANNING

February 1, 1985 - Scoping Environmental Assessment Worksheet certified by MAC, the Responsible Governmental Unit.

February 7, 1985 - Scoping EAW sent to persons on EQB distribution list. (See Appendix 2A).

February 11, 1985 - Notice of Availability of Scoping EAW published in EQB monitor (See Appendix 2A).

February 13 - February 19, 1985 - Press release concerning notice of availability of Scoping EAW and date of public hearing and comment period published in local newspapers. (See Appendix 2A).

February 15, 1985 - Letter distributed to EQB distribution list (see Appendix 2A) to inform recipients of the availability of a draft Scoping Decision Document at MAC offices and Blaine, Fridley and Circle Pines Branches of the Anoka County Library.

February 25, 1985 - Copy of draft Scoping Decision Document made available for public review at MAC offices and Blaine, Fridley and Circle Pines Branches of the Anoka County Library.

March 6, 1985 - Public meeting held pursuant to 6 MCAR S 3.030 C.1.b. to review the Scoping EAW at Blaine Senior High School.

March 13, 1985 - Scoping EAW comment period ends.

April 15, 1985 - MAC approves Scoping Decision.

April 17, 1985 - MAC distributes Scoping Decision.

May 20, 1985 - EIS preparation notice published in EQB Monitor on May 20, 1985. MAC issues press release concerning preparation of the EIS which was published in the Fridley - Spring Lake Park Focus on May 20, 1985.

Source: Hoyle, Tanner & Associates, Inc.

CHAPTER 1

REFERENCES AND NOTES

1/ 6 Minnesota Code of Agency Rules, Section 3.

2/ State of Minnesota, Department of Natural Resources, Standards and Criteria from Granting Permits to Change the Course, Current of Cross-section of Public Waters, June 1, 1978.

3/ Minnesota Pollution Control Agency, Air Pollution Control, Rules, Regulations and Air Quality Standards, 1976 Edition.

4/ Minnesota Pollution Control Agency, Rules,Regulations, Classifications and Water Standards, WPC-36.

5/ Statutes 1976, Section 473.145.

6/ Chapter 896, 1967 Minnesota Session Laws.

7/ Metropolitan Development Guide, Aviation Chapter, 1977.

CHAPTER 2

PROJECT DESCRIPTION AND SETTING

2.0 PROJECT DESCRIPTION AND SETTING

2.1 DESCRIPTION OF MASTER PLAN ALTERNATIVE

2.1.1 History of Airport Development

The Metropolitan Airports Commission (MAC) was established by the State Legislature in 1943, to oversee development and management of the airports within the Twin Cities region. Anoka County-Blaine Airport first underwent major development in the 1950's to serve an Intermediate role. At that time the primary north-south runway was 5,900 feet long. The crosswind east-west runway was 3,200 feet long. In the mid-1960's, the north-south runway was shortened to 4,855 feet, the length it remains today.

The Metropolitan Council, established by the Minnesota State Legislature in 1968, has authority over regional planning including airport systems planning. The proposed future role of Anoka County-Blaine Airport (Janes Field) within the regional system has changed twice because of variations in aviation demand, reevaluation of proposed air carrier airport sites, and need for an Intermediate category airport. Listed below is a chronology of events which have effected the development of Anoka County Airport. However, a most important development has been the residential urbanization into the environs.

- 1972: Updated regional aviation system plan dictated Anoka as a Minor airport because of possible airspace conflicts with proposed Grow Township air carrier facility.

- 1976: FAA funding grant agreement for pavement resurfacing required MAC to maintain runways as constructed for at least twenty years.

- 1977: Trends indicated aviations forecasts would not reach predicted rates. A second Air Carrier airport no longer needed, but Janes Field redesignated Intermediate category, and MAC undertook a master plan based upon this classification.

- 1979: Legislature established moratorium prohibiting land acquisition or construction of facilities at Anoka County-Blaine Airport until July 1, 1981 and directed the preparation of a new master plan.

- 1985: Draft update of the aviation chapter of the Metropolitan Development Guide lists Anoka County-Blaine Airport as in a Minor role.

2.1.2 Existing Facilities

The two existing runways at Anoka County-Blaine Airport are each served by a full length parallel taxiway. The north-south primary runway, designated 17-35, is 4,855 feet long and 100 feet wide. The east-west crosswind runway, designated 8-26, is 3,200 feet long and 75 feet wide.

A separate apron taxiway, widened in some areas to serve an apron, runs along the the east side of the building areas which are currently located to the west of Runway 17-35 and southwest of the end of Runway 35 pavement end. See Figure 1-1 for graphic representation of existing and future Anoka County-Blaine Airport facilities.

2.1.3 Master Plan Alternative

The master plan alternative consists of four major, distinct, but interrelated components (See Figure 1-1). Components included are the 950 foot northerly shift of Runway 17-35, the 800 foot easterly extension to Runway 8-26, development of the east building area and development of the west building area.

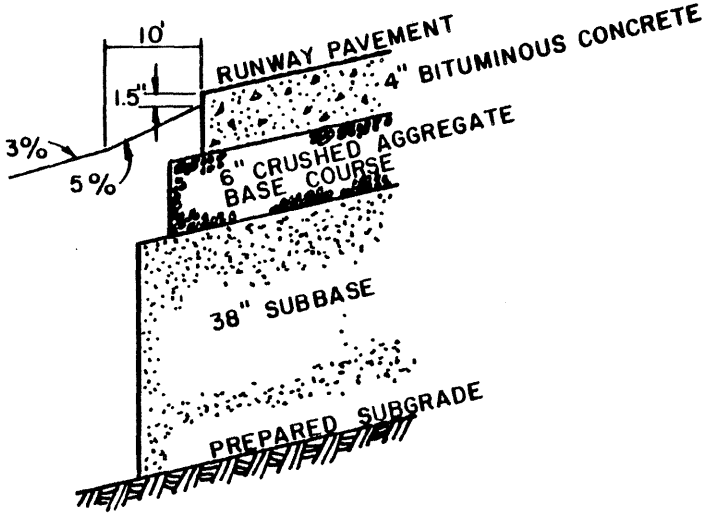
Figure 2-1 represents a typical runway and taxiway cross section and pavement design based on available subsoils information and future pavement strength requirements. The pavement design is subject to confirmation following more detailed analysis of subsoil information which would occur during final design if the project is approved. In addition, it would be modified to reflect dimensional limits existing or proposed at Janes Field. Figure 2-2 represents typical cross sections in the area of the northerly shift of Runway 17-35, the easterly extension to Runway 8-26 and the area of the east and west building areas, to illustrate the conditions at the site.

- Runway 17-35

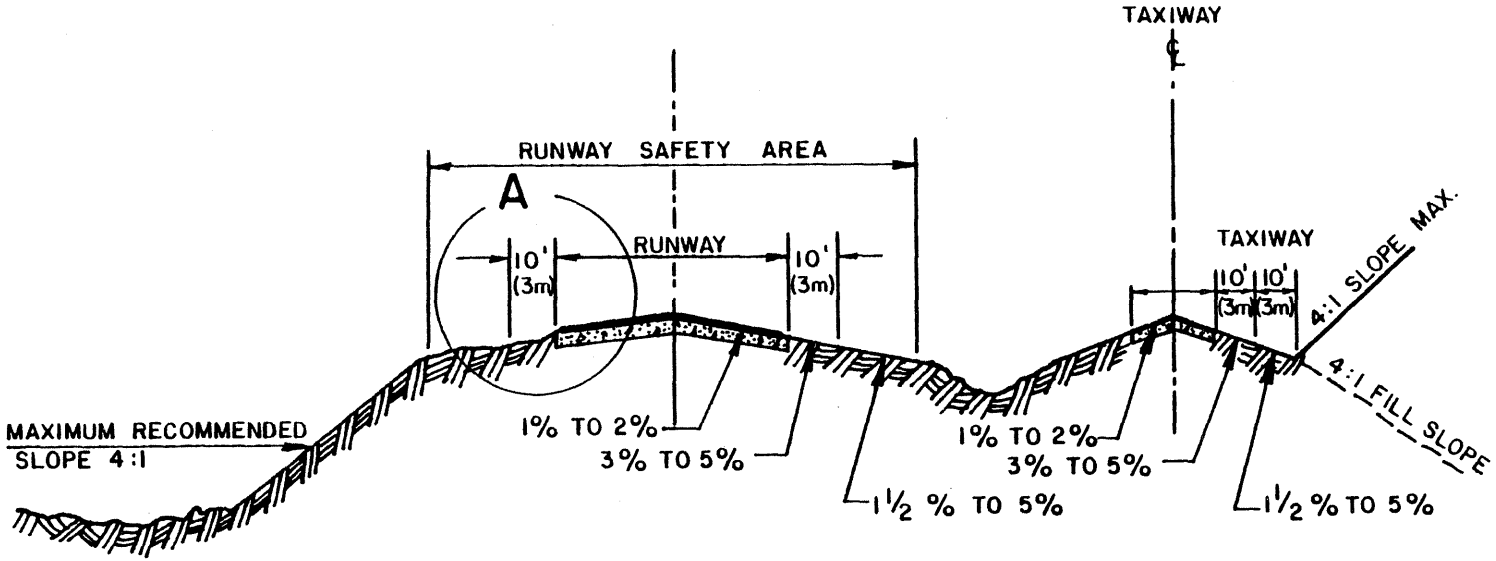
The existing Runway 17-35 is 100 feet wide and 4,855 feet long. Runway 17 is proposed to be shifted 950 feet to the north, maintaining its existing width of 100 feet. A 300 foot long turf overrun would be constructed north of the Runway 17 extension. Relocated threshold markings would be applied to the southern 950 feet off the existing runway, thereby making it illegal to use this area for take-off roll or landing roll out. The 950 foot area where the relocated threshold markings would be applied, could only be used as a taxiway. A new 40 foot wide connector

ANOKA COUNTY - BLAINE AIRPORT
(JANES FIELD) EIS/EA

TYPICAL CROSS SECTION



DETAIL 'A'



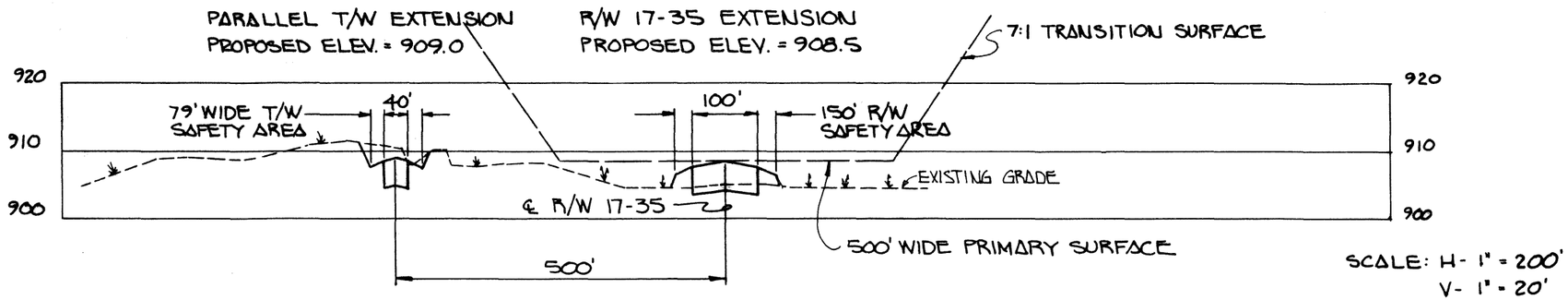
LOCATION OF DITCH, SWALE OR HEADWALL DEPENDS ON SITE CONDITION BUT IN NO CASE WITHIN LIMITS OF RUNWAY SAFETY AREA.

Source : FAA AC 150/5300-4B

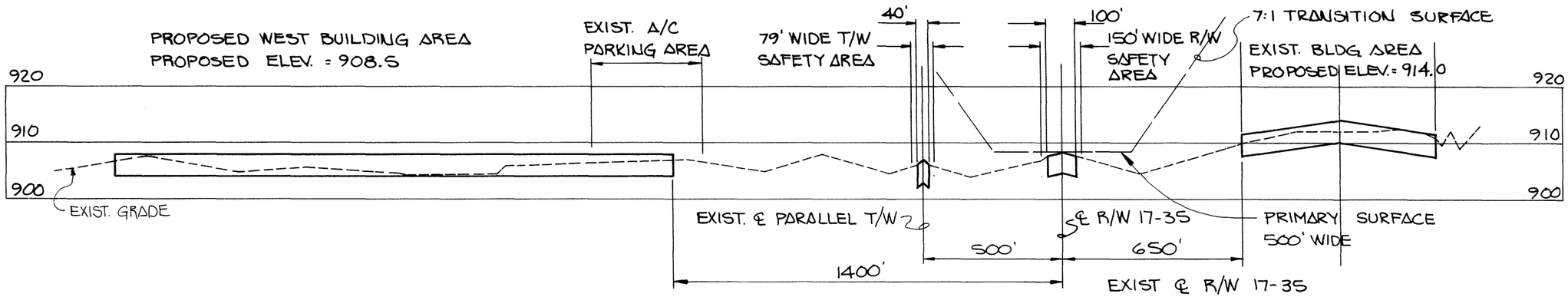
HTA companies

NOT TO SCALE

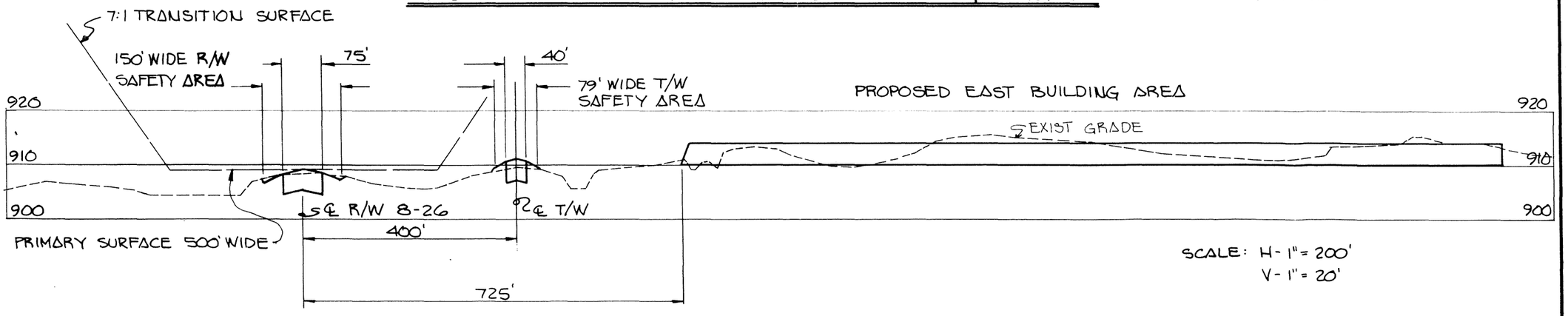
FIGURE 2-1



RUNWAY 17-35 NEW CONSTRUCTION



WEST TO EAST VIEW OF PROPOSED BUILDING AREAS



NORTH TO SOUTH VIEW OF EAST BUILDING AREA AND RUNWAY 8-26

FIGURE 2-2

IHA

ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA
TYPICAL CROSS SECTIONS

taxiway would be constructed between the new Runway 35 threshold and the Runway 17-35 parallel taxiway to the west. The connector taxiway from the Runway 17-35 parallel taxiway to the existing Runway 35 threshold would be abandoned. The existing 40 foot wide parallel taxiway located 500 feet west of Runway 17-35, would be extended 950 feet to the north with a 500 foot long connector taxiway to connect the proposed Runway 17 end to the taxiway system. Holding aprons located adjacent to taxiways to provide an area for aircraft to park while completing flight check lists without interrupting taxiway traffic flows are proposed in the following locations: south of the proposed connector taxiway to the relocated Runway 35 threshold and north of the connector taxiway to the proposed Runway 17 end.

The existing Runway 35 Runway End Identifier Lights (REILS) will be removed, and relocated to the proposed Runway 35 threshold, if appropriate. The existing Medium Intensity Runway Lights (MIRLS) and threshold lights to the abandoned portion of the runway will be removed and relocated to the new Runway 35 threshold or the portion of Runway 17-35 north of Runway 8-26.

- Runway 8-26

The existing Runway 8-26 is 75 feet wide and 3,200 feet long. In the AMP, Runway 26 is proposed to be extended 800 feet to the east for a total length of 4,000 feet, maintaining its width of 75 feet. A 300 foot long turf overrun would be constructed east of the Runway 26 extension. The existing 30 foot wide parallel taxiway located 500 feet south of Runway 8-26 would be extended 800 feet to the east with a 500 foot long connector taxiway to connect the proposed Runway 26 end to the taxiway system.

The portion of Xylite Street within airport property would be abandoned when Runway 8-26 is extended east. A 30 foot wide connector taxiway is proposed between Runway 8-26 and its parallel taxiway 800 feet east of the existing Runway 8 threshold to provide an exit point from Runway 8-26 for aircraft arriving on Runway 26 which require only 3,200 feet for landing or to serve as an entrance point for aircraft departing Runway 8 which require 3,200 feet or less for takeoff. Holding aprons are proposed west of the existing connector taxiway to the Runway 8 end and east of the connector to the proposed Runway 26 end. The existing line of MIRLS and MITLS (runway and taxiway lights) will be extended to the east for the runway extension.

- East Building Area

The proposed east building area as shown on Figure 1-1, would be located west of Xylite Street and east of Runway 17-35 and would occupy approximately 33 acres. To comply with the City of Blaine requirement that buildings be constructed one foot above 100 year flood elevation, the east building area will be constructed at elevation 900 MSL. This will require earthwork of between a cut depth of 2 feet and a fill depth of 4 feet in this area. All side slopes from the proposed building area to existing ground will be 4:1 (horizontal:vertical). A 40 x 1,800 foot taxiway would be constructed from the existing Runway 8-26 parallel taxiway to the southern edge of the building area. Two 40 foot x 500 foot taxiways would be constructed to connect the building area to Runway 17-35. One taxiway would be located at the southern edge of the building area and the other taxiway would be located at the approximate midpoint of the building area. A holding apron would be constructed south of the taxiway to the south end of the building area. MITLS would be installed for all taxiways to the east building area.

- West Building Area

The proposed west building area as shown on Figure 1-1, would be located south of Runway 8-26 and north and northwest of the existing north building area and would occupy approximately 33 acres. To comply with the City of Blaine requirement that buildings be constructed one foot above 100 year flood elevation, the west building area would be constructed at elevation 906 MSL. This would require a depth of fill of between 1 foot and 4 feet in this area. All side slopes to existing ground will be 4:1. A 40 foot wide connector taxiway would connect the west building area to the existing Runway 17-35 parallel taxiway. MITLS would be installed for the west building area taxiway.

It has not yet been determined what buildings would occupy the building areas, nor has it been decided what configuration of access roadways and access taxiways or taxilanes would be provided. MAC would provide support facilities such as access taxiways etc., and would lease the land to tenants who, in turn would construct the building facilities.

2.1.4 Construction Sequence and Engineering Description

The exact scope of the improvement project will be determined, pending outcome of the EIS/EA review process, available funding and construction schedule. Moreover, not all of the improvement alternatives defined subsequently in Section 4.7 can be built, as some alternatives are mutually exclusive. This section will describe construction sequences and typical practices employed during construction of the various improvements described in the alternatives. Although the different alternatives vary in scope and magnitude, the construction sequences and practices essentially remain the same. It should be noted that the alternative selected as the proposed project may not necessarily require all of the construction sequences and practices described below.

- Abandonment of Xylite Street

The principal considerations in abandoning part of Xylite Street are safety and rerouting of traffic. The impacts to the area resulting from the abandonment are discussed in Sections 5.9 and 5.10. To satisfy the safety requirements, the general public would need to be notified through the news and other media, well in advance of the official closing. The construction sequence, after public notification, would generally consist of the following activities:

Paving of 101st Ave., N.E., between Xylite and Naples Streets, to provide a suitable alternate access route.

Installation of temporary and permanent signing and barricades advising motorists of the closing and recommended detour and alternate routes.

Installation of street lighting to increase visibility and conspicuousness of the closing.

Construction of an earth berm, guard rail or other positive barrier, preventing entrance onto the abandoned portion of roadway.

Removal and disposal of existing pavement and regrading of embankment as required for drainage purposes or construction of airport improvements.

Construction of drainage structures, if needed, and the establishment of turf to reduce erosion and sedimentation of surface water.

After construction is complete, and motorists have become familiar with the Xylite Street closing, the temporary construction signs can be removed.

- Building Areas

Two building areas on airport property are proposed for aviation purposes. The East Building Area will cover approximately 33 acres, will permit easy access for aircraft to both runways and can be reached from 95th Ave., N.E., from the east and the remaining portion of Xylite Street from the south. The West Building Area will also be approximately 33 acres in size and will also provide easy access to both runways. Access to the West Building Area is via Radisson Road from the south and west and the Airport Access Road from the south.

The MAC intends only to prepare the sites for building. Actual development and construction of building will be left to private developers. Although the MAC is not fully developing the building areas, the discussion of impacts created will be based on full development. These impacts are discussed elsewhere in this report. The construction activities to be performed at the airport are as follows:

Stripping and stockpiling of existing topsoil found suitable for reuse.

Construction of temporary and permanent erosion and sedimentation control structures.

Excavation of existing soil found to be unsuitable as a building foundation or pavement subbase to a sufficient depth to achieve a design subgrade cross section based on required frost protection or foundation design load.

Earthwork as outlined in Table 2-1.

Construction of a portion of the building area drainage system. It is not practical to construct the entire building area drainage system, as it may cause conflicts with a developer's specific building layout or configuration. The portion of the drainage system which will be constructed, will be limited to the main carrying pipe for the building drainage area which will be located within the limits of internal taxilanes.

Following placement of fill and pending commencement of specific development, the surface of the fill would be protected from erosion by the establishment of a temporary layer of stabilizing turf.

TABLE 2-1
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
EARTHWORK QUANTITIES

CONSTRUCTION AREA	(1) MUCK REMOVAL CY	(2) EXCAVATION CY	(3) TOTAL EXCAVATION CY	(4) GRANULAR FILL REQUIRED CY	(5) GRANULAR FILL FILL AVAILABLE FROM EXCAVATION CY	(6) UNUSEABLE EXCAVATION REMAINING CY	(7) BORROW REQUIRED FROM OFF-SITE CY	(8) AGGREGATE BASE REQUIRED SY	(9) BITUMINOUS PAVEMENT (T)
East Building Area	0	120,000	120,000	120,000	50,000	70,000	70,000	36,000	4,600
West Building Area	40,000	95,000	135,000	180,000	0	135,000	180,000	33,000	4,000
R/W 8-26 800' Extension East (4,000' Length)	0	72,000	72,000	49,000	0	72,000	49,000	18,200	2,700
R/W 17-35 950' Shift Extension North (4,855' Length)	0	80,000	80,000	90,500	0	80,000	90,500	19,200	3,400
Subtotal	40,000	367,000	407,000	439,500	50,000	357,000	389,500	106,400	14,700
Excavation for Wetland Mitigation	0	66,100	66,100	0	0	66,100	0	0	0
Excavation for Relocating County Ditch 41 and Compensatory Storage of 100 year Flood Plain	0	20,500	20,500	0	0	20,500	0	0	0
Total	40,000	453,600	493,600	439,500	50,000	443,600	389,500	106,400	14,700

Notes: Column (3) = (1) + (2)
Column (4) = From engineers estimates
Column (5) From engineers estimates
Column (6) = (3) - (5)
Column (7) = (4) - (6)
Column (8) From engineers estimates
Column (9) From engineers estimates

Source: Engineering estimates by TKDA, Wetland mitigation estimates by Barton Aschman Associates, Inc.
Compiled by Hoyle, Tanner & Associates, Inc.

- Runways and Taxiways

There are several different alternatives for layout of runways and taxiways presented in this report. However, regardless of which alternative is selected for construction, the construction sequence for each is as follows:

Clearing, stripping and stockpiling of existing topsoil found suitable for reuse.

Excavation of existing soil found to be unsuitable as pavement subbase to a sufficient depth to achieve a design subgrade cross section and provide adequate frost protection and pavement strength.

Placement of suitable fill material to raise the grade to the design subgrade cross section.

Placement of non-frost susceptible subbase material which would conform to FAA Specification P-154 for Subbase Course.

Placement of a crushed aggregate base course conforming to FAA Specification P-209 for Crushed Aggregate Base Course.

Construction of drainage and subdrainage systems. The subdrain will typically include underdrains and cleanouts along both edges of runways and taxiways for their entire length. The storm drainage system may include a closed system or culverts with headwalls.

Construction of conduit and electrical cable for the runway and taxiway lighting system.

Installation of runway and taxiway edge lights, runway threshold lights, and guidance signs.

Placement of a bituminous concrete surface course conforming to FAA Specification P-401 for Airport Bituminous Surface Course.

Respreading and fine grading of topsoil, lime, fertilizer, seed and mulch to establish turf.

Installation of runway and taxiway pavement markings.

It should be noted that during the construction process, temporary erosion and sedimentation controls will be installed and maintained as needed. These items may include haybales, diversion ditches, sediment basins and silt fences.

- Wetland

There will be wetland encroachment in some of the runway, taxiway and building area alternatives. Wetlands on airport property are characterized by low areas of fine, poorly drained sand. A few of the area wetlands also have mucky, organic soil deposits on the surface. Construction in some of the wetland areas will be difficult because of the poor load bearing capacity of the soil. The construction procedures which follow are for the special case of construction when wetlands are involved:

Clear and grub vegetation. Salvageable timber would be made available to the local economy as cordwood. Slash would be chipped and returned to the soil elsewhere on airport property as forest litter.

Excavation of unsuitable material to the depth necessary to provide an adequate foundation under the runway, taxiway or building areas, for frost protection and building and pavement loads.

Placing suitable fill material to subgrade level.

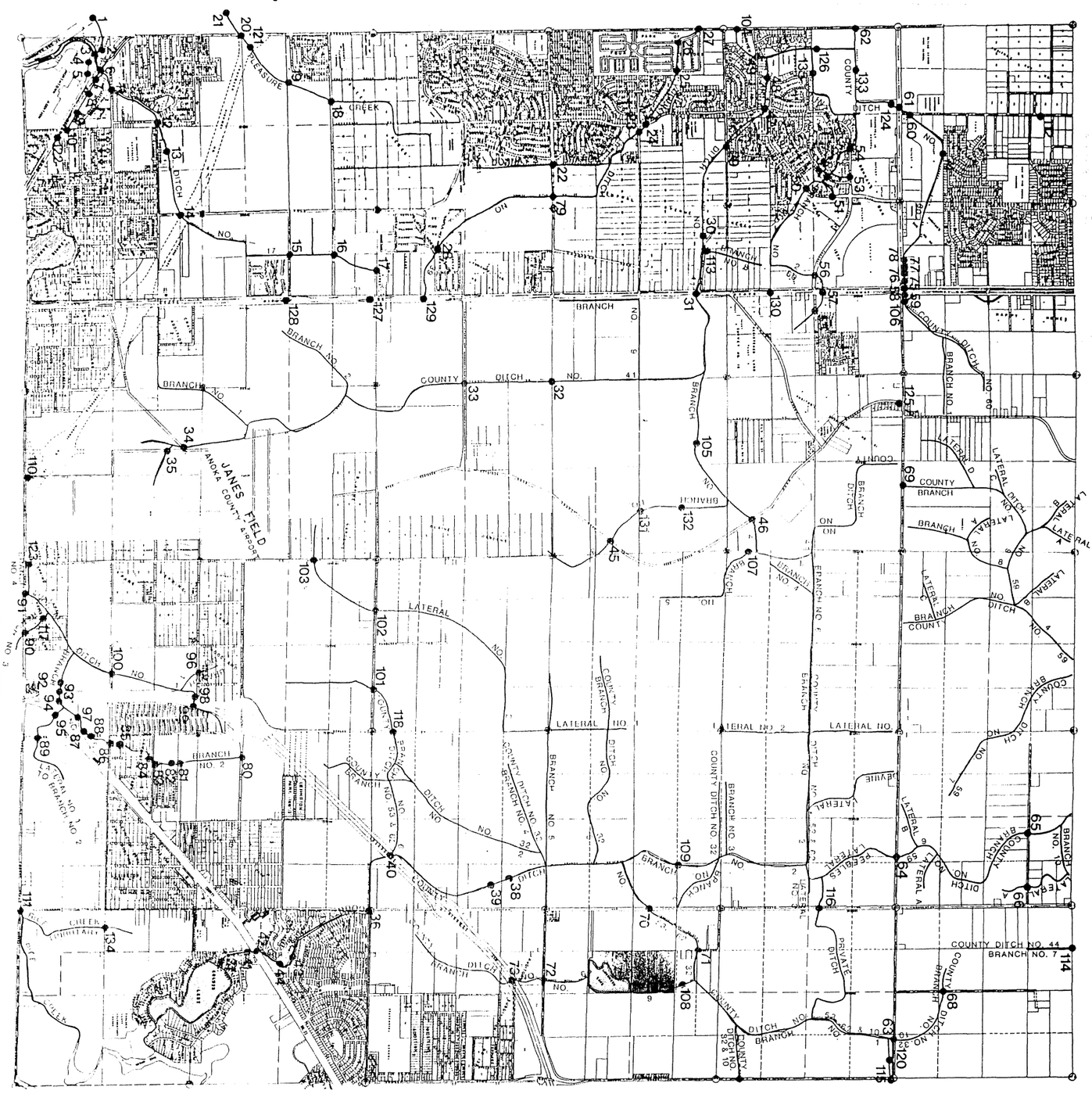
Construction of necessary drainage structures and storm-water detention areas.

Disposal of previously excavated unsuitable material on embankment slopes and disturbed areas.

Replacement of wetland area thrash construction of areas similar in site and type to that affected by construc-tion.

- Relocation of Ditches and Stormwater Detention Areas

Anoka County has a well established drainage ditch system, part of which is within airport property. Reference is made to Fig. 2-3, Drainage Structure Location Map from the Comprehensive Storm Drainage Plan for the City of Blaine, 1975. Immediately to the west of the approach end of Runway 8 is a detention area as part of County Ditch No. 41. Portions of the ditch run from the south and parallel to both sides of the runway into the detention area and exit to the north. Northeast of the existing runway inter-section is the county ditch Lateral No. 2. This ditch drains the



LEGEND

● STRUCTURE

30 REFERENCE NUMBER

ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

DRAINAGE STRUCTURE LOCATION

HTA companies

FIGURE 2-3

wetland area through an 18" CMP under Xylite Street. It is not known at this time whether this portion of Xylite Street will be abandoned as previously discussed. The following construction sequence will be employed for any conflicts of existing drainage systems with proposed construction.

Clearing, grubbing and stripping in the area of the relocated drainage structure.

Regrading and ditch excavation in new location.

Placement of erosion control matting and turf establishment or stone ditch lining as is appropriate.

Connection of relocated ditch with existing ditch system.

Construction in the abandoned ditch or detention area can proceed for the various functions described earlier in this section.

2.2 PROJECT SETTING

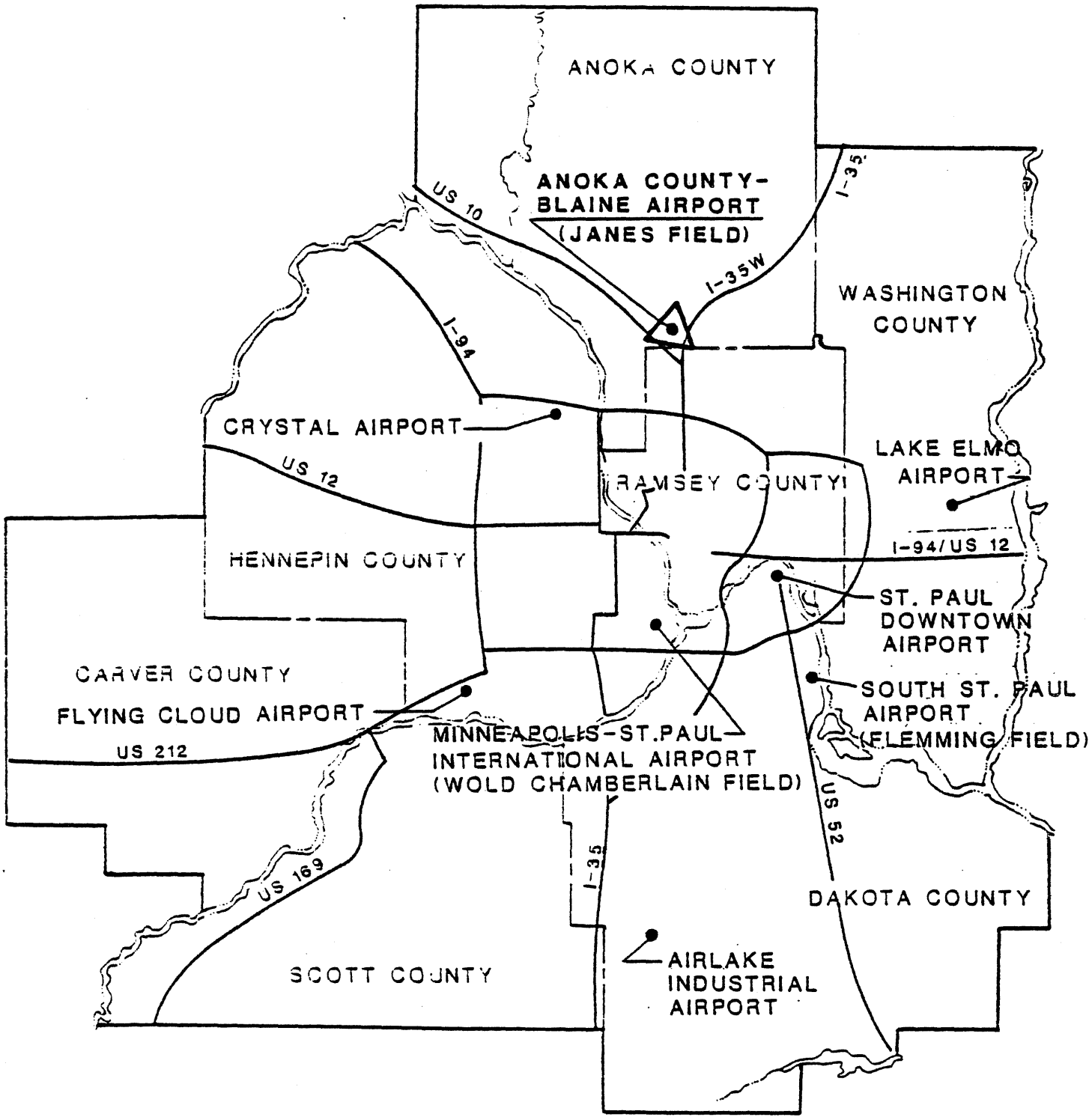
2.2.1 Description of Site

- Airport Location

The City of Blaine is located in the southern half of the State approximately 20 miles north of Minneapolis, Minnesota and 80 miles west northwest of Eau Claire, Wisconsin. The City is located in southern Anoka County just north of the border with Ramsey County. (See Location Map Figure 2-4). Anoka County-Blaine Airport (Janes Field) is located in the southern portion of the City of Blaine. The City of Blaine is bounded by the municipalities of Mounds View, Spring Lake Park and Fridley to the south, Coon Rapids to the west, Ham Lake to the north and Shoreview, Lexington, Circle Pines and Lino Lakes to the east. The location of municipalities, roads and other facilities in relation to the airport is shown on the Vicinity Map, Figure 2-5.

- Topography

The airport site occupies approximately 1,900 acres in the southwestern corner of Blaine. The topography is characteristic of the gently rolling hills of the Anoka Sand Plain which was



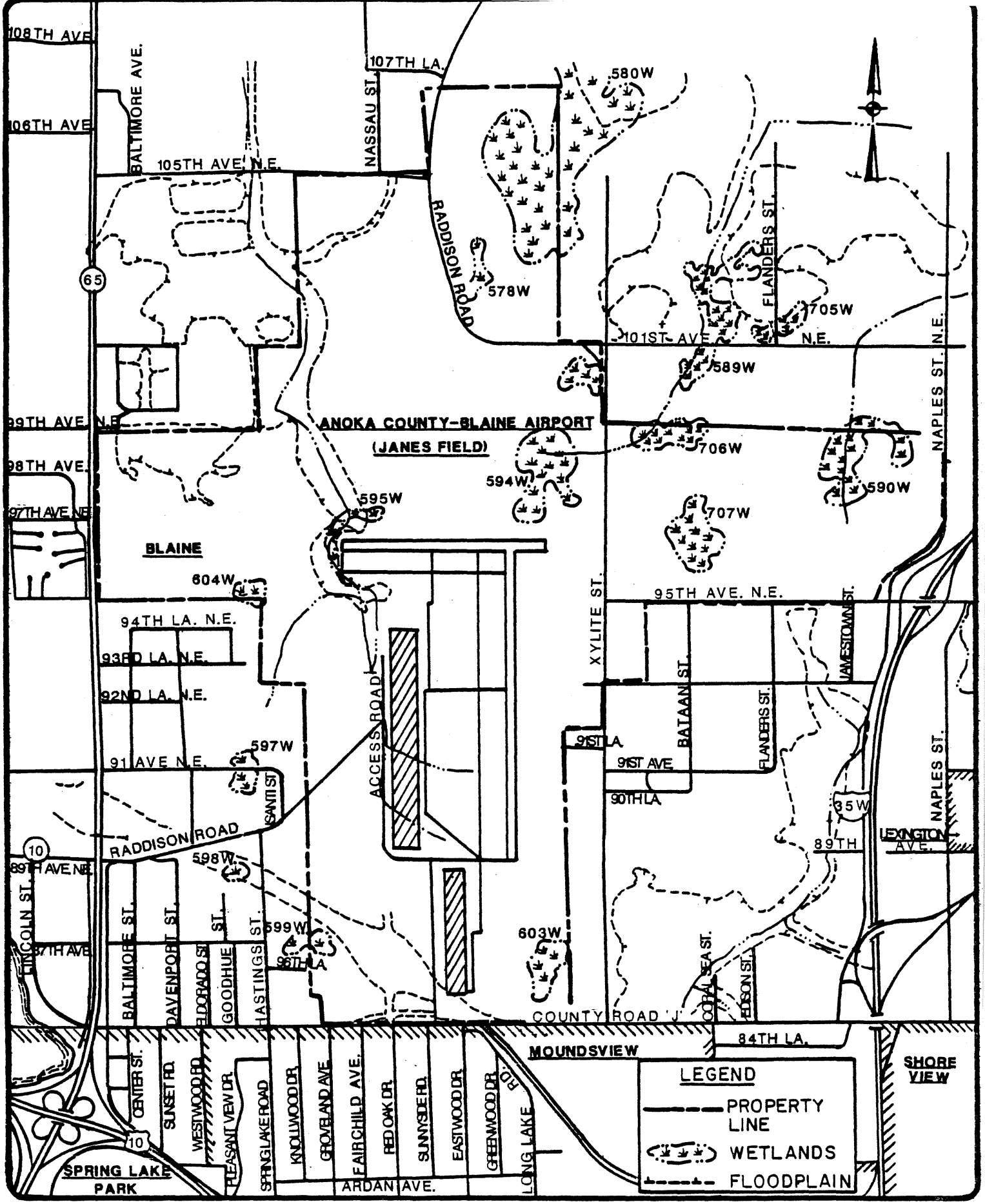
ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA

LOCATION PLAN

HTA companies

Scale: 1"=9 Miles

FIGURE
2-4



ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

VICINITY MAP

HTA companies

1" = 2000'

FIGURE 2-5

created by sand deposit from meltwater of retreating glaciers. Numerous iceblock depressions and glacial drainage ways have created current wetlands. The City of Blaine is primarily flat with the vast majority of the City's relief below one percent. This flat topography causes high volumes of storage and storm water retention and results in a high water table.

- Soils

Two soil associations occur within the vicinity of Anoka County-Blaine Airport. The Rifle-Isanti Association stretches from the northeast corner of the county to an area around the airport. Characteristics of this formation are nearly level topography, fine sand and poorly drained soils formed in organic material. The Zimmerman-Iranti-Lino association forms the perimeter of the Anoka Sand Plain and is dominated by sands that are excessively drained, somewhat poorly drained, or very poorly drained soils. Some of the soils within the airport boundaries have engineering constraints because they cannot support excavation and grading for runways, taxiways and other airport facilities.

- Vegetative Cover

Three general vegetation associations are present on airport property: wetlands, woodlands and upland grasslands. In many cases, wetlands and woodlands are intermixed. Mature woodlands are present on the north, east and south portions of the site. Major wetland systems exist to the northeast, northwest and west of existing airport development. Upland grasslands occupy the remainder of the airport site. MAC mows the grassland areas adjacent to runways and taxiways.

- Habitat

Wildlife habitat in the airport region is directly related to the vegetative cover. Wetlands provide habitat for small mammals such as muskrats and beavers and birds such as ducks, geese, herons, and king fishers. Woodland habitat can support squirrels, racoons and white-tailed deer as well as birds such as grouse, woodcocks, thrushes and woodpeckers. Upland grassland can provide nesting and feeding habitat for ground nesting waterfowl and upland birds such as pheasant, flicker and sparrows. The edge conditions between these habitat types are also beneficial to many bird species.

The area where the west building area is proposed is marginal for support of wildlife. However, the east edge of the Runway 17 extension will encroach into the Minnesota protected waters basin 594 which is a Type 4 wetland. Other than this wetland, the land in the area of the proposed Runway 17 extension and taxiway is not unique. However, the interspersion of the cropland, wetland, grassland, savannah and mature oak woods makes the environs valuable habitat area. A deer trail runs west of the airport to the northeast and crosses the area proposed for the Runway 17 extension.

In the proposed west building area, deer use, particularly in winter, is heavy in the oak woods and shrub swamp. A ditch that runs north-south in this vicinity supports a small beaver colony. Protected waters basin 580 within the area known as Blaine Gardens supported nesting great egrets in 1979, but latest observations show no birds using this habitat.

- Utilities

According to the current Anoka County-Blaine Airport Master Plan, utilities are adequate for expansion at the airport. At this time, however, the airport is not serviced by public water or sewer service. Individual airport tenants maintain wells and septic tanks on the airport property. The following utilities are available at Anoka County-Blaine Airport.

Natural gas is provided by Central Gas Company. The airport is served by a 3 inch pipeline with 50 pounds pressure per square inch. An 8 inch gas line enters the airport property from State Highway 65 and crosses to the east side of the airport.

Electrical service of 7,200 volts is provided by Anoka Electric. The nearest substation is on Highway 65 northwest of the airport.

A surface drainage system of culverts and drainage ditches collects and channels surface runoff into the natural drainage system.

2.2.2 Regional Characteristics

- Natural and Geographic Description

The regional characteristics of the topography in the Twin Cities area are similar to that found at Anoka County-Blaine Airport. The formerly glaciated area of gentle rolling ground and sandy soils is characterized by numerous lakes and wetlands. The flow of formerly swift rivers has created cliffs and steep banks in some areas. Regionalized land planning has helped preserve the natural and geographic resources of open space.

- Socioeconomic Characteristics

The Twin Cities Metropolitan area consists of seven counties: Anoka, Carver, Dakota, Hennipin, Ramsey, Scott and Washington. Its high quality of life can be linked to characteristics such as far reaching planning policies and high educational, cultural and income levels.

Blaine, located in southern Anoka County, is linked into the regional economy, transportation and utility systems via the Metropolitan Council's Development Framework Guide. This northern portion of the Twin Cities Metropolitan area is within one of the most rapidly urbanizing portions of the Metropolitan region. The population of Blaine grew by 291% between 1950 and 1960 and by 173% between 1960 and 1970. This rate is more than double the increase in Anoka County as a whole during the same period.

As the regional planning agency for the Twin Cities area, the Metropolitan Council is responsible for defining the planned metropolitan limits for urban land use and services. The Metropolitan Urban Service Area Line (MUSA Line) is used to delineate the planned urban growth areas from rural service areas. Provision for public services including extension of sewer service must be contained within the MUSA Line to be approved by the Metro Council.

As of the current Metropolitan Council Development Guide, the MUSA Line includes the Anoka County-Blaine Airport, but leaves northeast Blaine as a rural service area. The City of Blaine has requested the MUSA Line be redesignated further to the north and that the metropolitan sewer interceptor in Mounds View be extended northward to serve this area to make development north of the airport more feasible.

TABLE 2-2
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
ECONOMIC INDICATORS OF SURROUNDING COMMUNITIES

City/Town	% of Ed. Past H.S.	1979 Median Family Income	1980 Median Value of Housing Unit	% Engaged in Manufacturing	% Professional/ Managerial
Blaine City	29%	24,725	62,500	35.92	14.79
Mounds View City	33%	23,547	62,800	32.18	19.17
Lexington City	23%	20,466	48,600	39.87	9.49
Circle Pines City	25%	25,406	56,600	37.84	15.08
Spring Lake Park City	27%	24,293	61,600	29.24	16.59
Fridley	38%	25,660	65,600	30.16	23.57
Coon Rapids City	33%	25,865	62,400	30.35	19.59
Ham Lake	28%	25,540	64,100 (Ham Lake City)	34.37	19.57
Lino Lakes	30%	24,055	63,400 (Lino Lakes City)	35.06	18.28

Source: 1980 Census Data: Minnesota Analysis and Planning System, Metropolitan Council

As mentioned previously, the Twin Cities area is noted for its quality of life. As detailed in Table 2-2, the communities surrounding Anoka county Airport are fairly homogeneous in terms of such economic indicators as the range of education past high school (21-31%), median family income ($20,466-$25,865) and percent professional/managerial occupations (9.49-19.59%).

- Airports

Because of its relative geographic isolation, aviation has had a significant impact on the economic vitality of both the region in particular and the Upper Midwest in general. The Metropolitan

Council is responsible for developing and updating of the Metropolitan Airports System Plan, while the Metropolitan Airports Commission (MAC) is responsible for the operational aspects of the metropolitan airport system. Of the area's 12 public use airports, MAC presently owns and operates seven. There is a great degree of air accessibility from the Twin Cities because over 130 U.S. cities have direct air service and nearly the entire continental U.S. is within 5 hours of the Twin Cities.

- Road System

The Twin Cities area is served by an extensive road system which provides ready access to both the central cities of Minneapolis-St. Paul as well as the suburban metropolitan area. Interstate 94 runs east and west while Interstate 35 provides north/south access. In the metropolitan region, I-35 branches off into east and west trunks. An interstate perimeter highway I-694 and I-494 also surrounds the Twin Cities.

Other major roads in the vicinity of Anoka County-Blaine Airport as shown on Figure 2-5, include T.H. 65 running north/south and Highway 10 which passes through the southwest corner of Blaine and runs northwest to eventually parallel the Mississippi River. A proposed northerly extension of Highway 10 will continue from 85th Avenue from Mounds View, traverse the southwestern portion of Anoka County-Blaine Airport and join Highway 10 and 47 in Coon Rapids as an at-grade roadway. It is due to be constructed in 1987, and be upgraded to interstate standards at a future unspecified time.

In the vicinity of the airport, T.H. 65, a four lane divided road, provides access from the west via Radisson Road. Existing U.S. Highway 10 which traverses Mounds View approximately one mile south of the airport, connects to T.H. 65 via a cloverleaf interchange.

An existing segment of relocated U.S. Highway 10 connects 85th Avenue Northeast which is the access point for the main entrance to the airport. This segment of U.S. 10 is a controlled access dual highway which is due to be extended at 85th Avenue Northeast.

Interstate 35W is accessible both from 85th Avenue Northeast and 95th Avenue Northeast. The undeveloped eastern portion of airport property borders the latter interchange.

Xylite Street is a local access road on the east side of the airport from 85th Avenue Northeast to 101st Ave., N.E., between Route 65 and Interstate 35W. West of Xylite Street, 101st Avenue Northeast provides access to an undeveloped part of airport property via an unimproved road through Blaine Gardens. Radisson Road, which in a north-south direction from 101st Avenue northeast, connects to 105th Avenue or County Road 85 which in turn accesses State 65.

In addition to the relocated U.S. 10, the Blaine comprehensive plan calls for:

- Extension of 109th Street north of Anoka County Airport for better east/west access.
- Service roads to relieve congestion along TH 65 and portions of CR 14 and I-35.
- Upgrading of University Avenue with turn lanes and signals.
- Stringent land use standards and local transportation system guidelines at interstate interchange areas, along I-35 such as at 85th, 95th and Lexington Avenue for a balance of land service and efficient travel flow.

- Transit System

Currently, the primary areas in the City of Blaine served by a bus system providing service to the Twin Cities is in the southeastern and western part of the City between University Avenue and TH 65. The Blaine Comprehensive Plan recommends additional Metropolitan Transit Commission (MTC) bus routes to serve new residential development, principally in the western and northwestern sectors of the City.

- Parks and Recreation Areas

It is important to inventory parks and recreation areas in an airport area to assess noise compatibility with the subject airport and surrounding parks.

Through careful conservation and land use planning, the State of Minnesota has preserved and is planning improvements to an extensive system of parks and recreation areas under state,

TABLE 2-3
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
PARKS IN ANOKA/RAMSEY COUNTIES

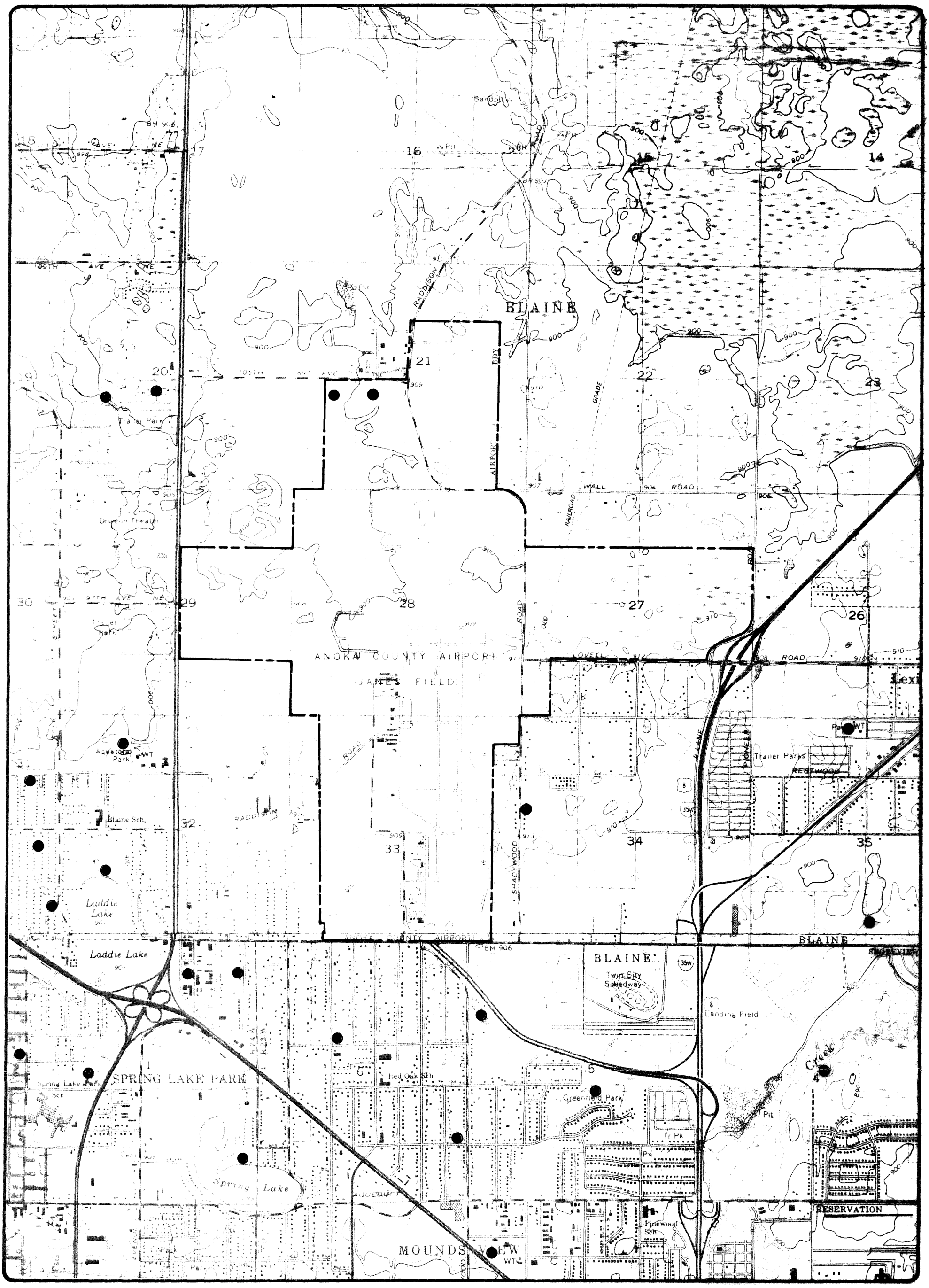
STATE	COUNTY	MUNICIPAL	BEING PLANNED
Bethel Wildlife Management Area	East Twin Lake Park	Greenhaven Golf Course	Island Martin - Linewood Park
Cedar Creek Natural History Area	Mississippi West Park	Locke Park and Municipal Facility	Lake George Park
Carlos Avery Wildlife Manage-Ment Area	Rum River South Park		St. Francis Park
Highway 10 Wayside Park	Bunker Hills Park		Goose Lake Forest
Rice Creek West Regional Trail	Rum River Central Park		Pickerel-Bass Lake Forest
	Rum River Central Park		Cedar Creek Scenic Easement
	East Twin Lake Park		Coon Creek Watershed
	Golden Lake Beach		Swan Lake Forest Area
	Manomin Park		Ned's Lake Forest Area
	Albert Kordiak Park		
	4-H Camp Salve		
	Coon Lake Park		
	Chain of Lakes Park		
	Rice Creek North Regional Trail		

Source: Anoka County Park Brochures

county and local jurisdiction. Table 2-3 lists various parks in Anoka County. Parks in northwest Ramsey County include Long Lake Regional Park, Turtle Lake in New Brighton and the open space preserved in the Rice Creek area in Shoreview.

Land is also considered to be "used" under Section 4 of the U.S. Department of Transportation Act if impacted by noise. This issue is of concern to various nature centers in the area such as Spring Brook Park, Coon Rapids Dam, Pioneer Park and Rice Lake that offer outdoor interpretive programs.

Among nearby recreation areas are Xylite Park which is a neighborhood park with a playground, skating rink and picnic grounds. Directly south of Runway 17-35 and 1000 feet from airport property, there is a small triangular shaped neighborhood park along Long Lake Road in Mounds View. Several other Mounds View city parks also are in this vicinity. See Figure 2-6 for Parks in the vicinity of Anoka County-Blaine Airport.



ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

SURROUNDING PARKS

HTA companies

1"=2000'

FIGURE 2-6

2.3 RELATED LAND USE PLANS

2.3.1 Metropolitan Development Guide

To accommodate the projected increase in population, jobs and households in the Twin Cities Area through 2000, the Metropolitan Council is currently updating its Development and Investment Framework, which is a regional plan for orderly economic growth and change.

The preliminary findings of the Development and Investment Framework indicate housing activity since 1970 has been equal in both the area north and south of east/west Highway 12 through Minneapolis. If, however, the region's growth is analyzed in relation to a north/south dividing line along Highway 65, the west side of the region is experiencing twice as much housing construction annually as the east. Since Highway 65 bisects Blaine and is oriented along the western border of Anoka County-Blaine Airport, indications are that residential growth in the airport vicinity will be varied, but heavier to the west of the airport.

The 1977 Metropolitan Council Aviation Chapter included four Aviation Policies. Policy No. 4 dealt with land use compatibility with airports. Aviation Policy No. 4 was revised and included in the present 1985 Draft Aviation Chapter as Policy No. 9 and is included in Appendix 2-B.

The direction expressed in Policy No. 9 is that land use surrounding an airport in the Metropolitan System should be compatible with the role and function assigned to that airport and where incompatibility with that airport exists, jurisdictions and affected agencies should work together to lessen the incompatibility. To provide assistance to municipalities around airports to discourage incompatible land uses and encourage compatible land uses, the Metropolitan Council adopted "Guidelines for Land Use Compatibility with Aircraft Noise." on March 24, 1983. The "Guidelines" are appended to the 1985 Draft Aviation Chapter and are included in this EIS/EA in Appendix 2-B.

One set of Guidelines pertains to major and intermediate airports and one set of Guidelines pertains to minor airports. Noise exposure contours prepared for the minor airports incorporate the Ldn noise metric. The Guidelines for minor airports incorporate noise exposure zones A,B,C and D which include areas exposed to noise levels of 70, 65-70, 60-65 and 55-60 Ldn, respectively. The Guidelines provide recommendations for compatible land uses under "New Development and Major Redevelopment" and "Infill

development and reconstruction or additions to existing structures". The Guidelines include a description of the degree of compatibility of land uses with noise exposure zones as follows:

- Consistent - Land uses that are compatible with airport operations.
- Provisional - Land uses must comply with certain land use provisions to be acceptable.
- Conditional - Land uses listed as conditionally acceptable in local comprehensive plans. The Metropolitan Council will review those local conditionally acceptable uses for conformance with conditional land use factors also included in the Guidelines.
- Inconsistent - Land uses not acceptable even if acoustical treatment were incorporated in the structure and outside uses were restricted.

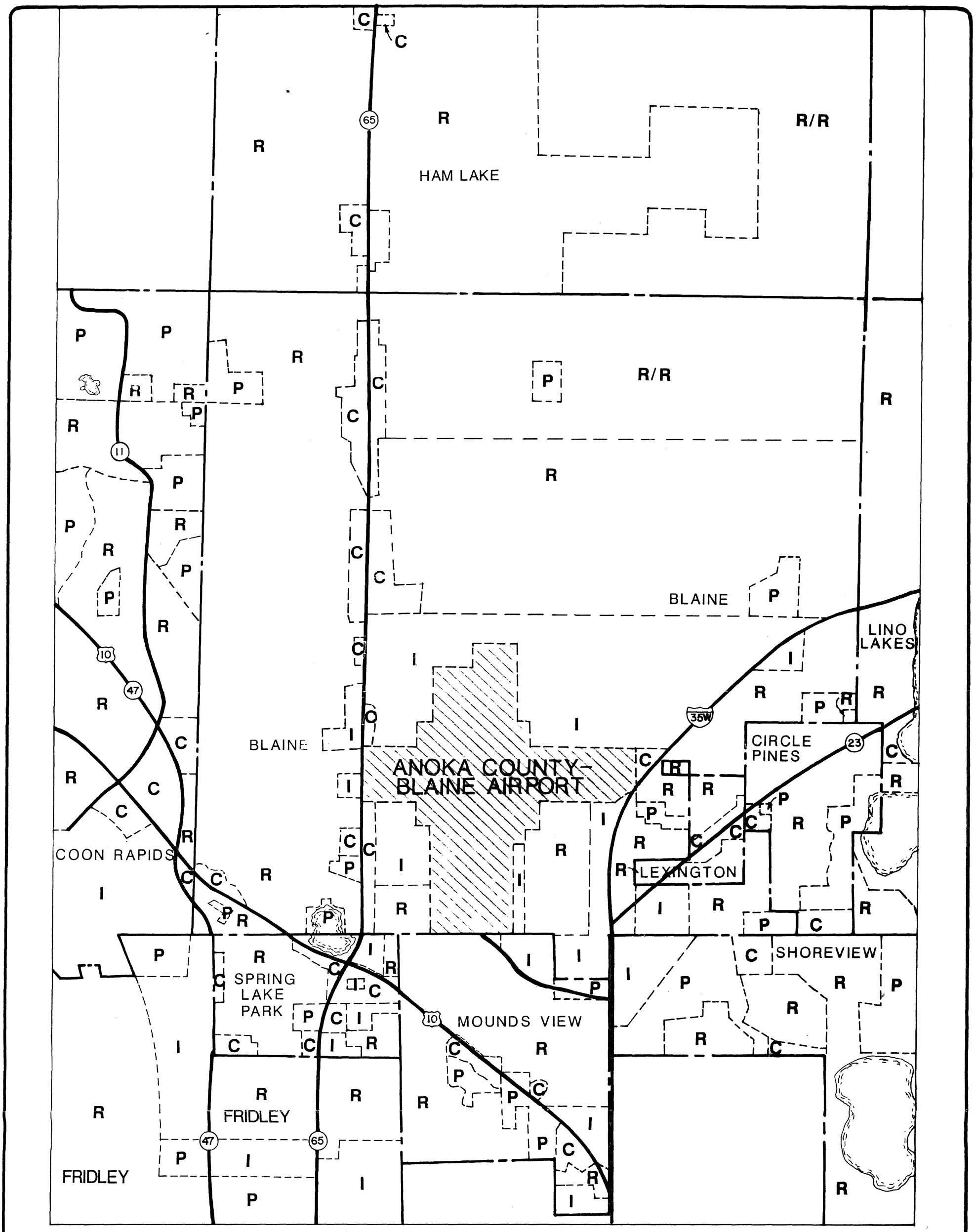
Also included in the Guidelines is a description of the steps and suggested timetable to implement the Guidelines. Noise exposure contours for Anoka County-Blaine Airport (Janes Field) and Airlake Airport were not available to the Metropolitan Council when they prepared the Guidelines. Noise exposure contours for Janes Field using both the Ldn and L_{10} noise metric are being prepared as part of this EIS/EA and will be discussed in Section 5.1, Noise Impact.

For some of the communities surrounding Anoka County-Blaine Airport, Land Use Planning is synonymous with zoning because cities such as Mounds View and Spring Lake Park are already 75-85% developed with very little vacant land left with which to implement land use planning.

Figure 2-7 is a composite map from surrounding communities of Land Use Zoning designations for the Anoka County-Blaine Airport environs.

2.3.2 Blaine

The City of Blaine encompasses 33 square miles and is the largest and most populous of communities in the airport vicinity. The airport occupies approximately 10% of the land area of the City.



LEGEND

R RESIDENTIAL
R/R RURAL RESIDENTIAL
I INDUSTRIAL
C COMMERCIAL
P PUBLIC, PARKS, CONSERVATION AREAS

SOURCE: EXTRAPOLATED FROM SURROUNDING COMMUNITY LAND USE PLANS

ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

GENERALIZED LAND USE PLANNING

HTA companies

1" = 4,390'±

FIGURE 2-7

Because of the high water table and the large amount of peaty soils throughout the vicinity, approximately 60% of Blaine land is considered undevelopable. Of the remaining 40%, 25% is reserved for residences and 15% for commercial-industrial uses. The table below lists the most current land use data from the 1982 Blaine Comprehensive Plan.

TABLE 2-4
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
FEBRUARY 1979 BLAINE LAND USE

Use	Acres	Percent of Developed Area (Urban Land)
Residential	2,668	67.2
Single-Family	2,344	59.0
Two-Family	309	7.7
Multi-Family	15	.38
Commercial	246	6.2
Industrial	181	4.56
Institutional	364	9.17
Public	510	12.85
Airport	1,893	
Utilities and Easements	26	
*Urban Total	3,969	
Specialized Agriculture	1,860	
Other (vacant,streets,etc.)	14,330	
TOTAL	22,078	

*Includes: Residential, Commercial, Industrial, and Public

Source: Blaine Comprehensive Plan, 1982

The City of Blaine land use focus has evolved to staged development which encourages clustering to promote orderly growth. Implications of such development include:

On the updated City of Blaine Future Land Use Plan 1980-2000, Anoka County-Blaine Airport has an airport designation. The majority of property abutting the airport is designated Industrial with Commercial and some residential areas adjoining these Industrial designations to the west and urban residential areas to the northeast and southeast.

The zoning ordinance is one of the basic means of implementing orderly land development. Elements of the Blaine zoning ordinance designed to insure compliance with the City's land use plan include:

- Farm Residence district north of the MUSA line where agriculture is encouraged by 10 acre minimum lot size.
- Rural Residential area north of I-35 and the airport where the minimum lot size is 5 acres. Some areas will be reclassified urban. Residential and minimum lot size will be decreased to 10-12,000 square feet if and when central sewers are extended to the area.
- Urban Residential district to allow a variety of housing types, clustering and Planned Unit Developments (PUD's).
- Commercial development encouraged along major highway intersections.
- Environmental provisions such as Floodplain Zoning Map as an overlay district with clustering, density transfer system and wetland drainage provisions.
- Subdivision regulations conforming to land use and zoning.
- Private sanitary sewer ordinance according to state standards that provides for monitoring and inspection.

The Blaine zoning map coincides reasonably closely with the Land Use Plan. To the southeast, a Light Industrial District separates the one family residence zoned areas, east and west of I-35W to I-35W to slightly south of Woodhill Lane. To the northwest there is a mix of Heavy and Light Industrial and Business zones compatible with the airport. To the east of the airport, zones are a mix of Mobile Home Parks, Light Industrial, Two Family and Limited Business.

One of the key planning issues for the City of Blaine is the future development of Anoka County Airport. The Blaine Comprehensive Plan includes discussions on the effects, advantages and disadvantages of an upgraded airport facility. Whether planning for either the existing or an expanded airport, the report puts forward the following as constraints to land use planning caused by the airport:

- Because of its shape, size and location the airport forces the City to deviate from traditional and efficient methods for growth and extension of services.
- The airport divides the City into many distinct and isolated areas without physical links to other parts of the City.
- The airport impacts vital east-west connections between Highway 65 and Lexington Avenue.
- The airport physically and economically restricts sewer extensions because as a different governmental authority, Anoka County-Blaine Airport cannot be assessed for benefits.

The Blaine Comprehensive Land Use Plan recommends policies in regard to the airport that call for the City to provide input and participation in the planning process, coordination between the Airport and the City's public facilities plans and regulation of development adjacent to the airport to minimize land use conflicts.

Municipalities within the State of Minnesota should adopt airport zoning ordinances or regulations at least as restrictive as described in 14 MCAR S 1.3016. Airport zoning described in 14 MCAR 1.3016 includes Airspace Zones, Height Restrictions, Land Use Safety Zones and Use Restrictions. Airspace Zones and Height Restrictions generally coincide with airport imaginary surfaces described in Section 4 of this EIS/EA. Land use safety zones are established relative to each airport and runway and are delineated by the area within the approach surfaces or horizontal surface (Safety Zone A,B or C), as described in Appendix 2-C of this EIS/EA.

The Use Restrictions as described in 14 MCAR S 1.3016 are to:

> "...restrict those uses which may be hazardous to the operational safety of aircraft operating to and from an airport, and furthermore to limit population and building density in the runway approach areas, thereby creating sufficient open space so as to protect life and property in case of accident..."

The Use Restrictions describe permitted uses of land within Safety Zones A,B and C, specify maximum building to lot size, list prohibited uses and provisions for implementing use restrictions. Provisions for implementing use restrictions is discussed relative to whether or not the area is in "established residential neighborhoods in a built-up urban area."

The City of Blaine has not incorporated the provisions of 14 MCAR S 1.3016 into its zoning regulations but has incorporated the Land Use Safety Zones in its Comprehensive Plan. Land Use Safety Zones as discussed in the City of Blaine Comprehensive Plan are as follows:

Zone A. This zone is two-thirds of the length of the runway in size. Located immediately adjacent to the end of the runway, it is very restrictive regarding urban land uses. No structures are allowed in this zone, and land uses are restricted to open space uses such as agriculture, outdoor recreation, parking, etc..

Zone B. This zone is one-third the length of the runway in size and is located immediately beyond Zone A. All land uses in this area must have a three acre minimum lot size (including residential, commercial, and industrial structures). In addition, the maximum population density in this zone is 15 persons per acre. This would rule out land uses which result in population concentrations such as schools, hotels and motels, apartments, etc.

Zone C. This zone is the land enclosed within the perimeter of the horizontal zone (See Appendix 2-C) not included in Zone A or Zone B. The major restrictions in this zone relate to the height of structures.

In relation to aircraft noise zones, the preferred airport development alternative is not definitive enough to set noise contours. Noise contours are, however, developed as part of this EA. Under the City of Blaine Nuisance Ordinance, however, there are specific zoning prohibitions against noise in excess of six decibels above the ambient noise levels. The category which would apply to aircraft noise would usually be duration of sound for less than 10 minutes. In all districts, daytime noise (7:00 A.M. - 6:00 P.M.) cannot exceed 75 db or 70 db during evening hours (6:00 P.M.-7:00 A.M.). In residential areas, the maximum noise level for less than 10 minutes during evening hours (6:00 P.M.-7:00 A.M.) is 60 db.

The planning approach for airport safety and noise zones preferred by the City of Blaine is to confine those safety and noise zones within the boundaries of Anoka County-Blaine Airport.

2.3.3 Mounds View

Mounds View, four square miles in size, is primarily a residential city located south of Anoka County-Blaine Airport (Janes Field). Of the twelve Planning Districts in Mounds View, nine are designated residential with the exceptions being the central city core consisting of open space, public land and businesses and two industrial/commercial areas in the southeast and northeast sectors of the City along the trunk Highway 10 corridors.

Although 95% developed, Mounds View still has undeveloped land in the central core which will allow development as a commercial focal point to unite the areas fragmented by Highway 10. Another development goal is to provide greenways and pedestrian easements for community trail systems to integrate the community and protect remaining natural areas.

The largest industrial land reserve remaining in Mounds View is its northeast corner, isolated by Highway 10. Although compatible with Anoka County-Blaine Airport to the northwest, development of this potential industrial area is constrained by natural features, drainage and recharge areas, wetland protection and airspace zoning restrictions. Low intensity industrial development of this area could preserve natural areas, compensate for soil conditions and meet existing constraints.

According to city planning personnel, as Mounds View is so fully developed, the zoning map is the controlling land use document. In addition to the previously mentioned industrial zone, a large area of R-2 (single and two-family housing) exists immediately south of Anoka County-Blaine Airport and extends to the city center. This residential area is the most noise sensitive to aircraft operations at Anoka County-Blaine Airport.

The Mounds View Noise Ordinance conforms to the sound frequency standard established in Chapters 7010, Section .0410 of the MPCA Air Quality Division Noise Pollution Control Rules, stipulates maximum noise levels using the Noise Area Classification System (NAC) for NAC area where residential units are allowed, maximum noise levels are L_{10} = 65 during the day and L_{10} = 55 at night.

Exceptions include noise not under direct control of the property owner, construction and maintenance activities from 7 A.M. - 9 P.M. and the noise of safety signals, warning devices and emergency pressure release valves.

2.3.4 Spring Lake Park

The City of Spring Lake Park lies to the southwest of Janes Field. Since Spring Lake Park is 85-95% developed, the land use inventory forms the bulk of the development plan for the city. Although the Comprehensive Plan divides the city into eleven planning areas for convenience of identification, the goal of the interrelated development for the city is to create a homogeneous suburban community.

Residential land classification represents 41.1% of the land use in Spring Lake Park. Because three major highways are located within the corporate limits, the public and right of way land is a disproportionately high percentage (32.9%), leaving approximately 20% for industrial/commercial uses.

According to the zoning map, residential development is located primarily to the west of the intersection of trunk highways 10 and 65. The areas surrounding these highways which are in closest proximity to Anoka County-Blaine Airport have mixed zoning of industrial and various commercial classifications. There are pockets of single family residences near Laddie Lake and Spring Lake and one residential area to the northeast of Highway 10, which borders Spring Lake Park and Mounds View.

2.3.5 Fridley

The southwesternmost corner of Blaine borders on the City of Fridley, a first ring Minneapolis suburb situated on the east bank of the Mississippi River in southern Anoka County. Unlike most suburbs, Fridley's mix of residential, industrial and commercial districts make Fridley a net importer of jobs. In other words, businesses in Fridley provide more positions than there are city residents available in the labor force.

In terms of land use, there is a mix of residential parkland and some industrial uses bordering the Mississippi River. The central section of the city between I-694, T.H.65 and T.H.47, is comprised of residential uses with a few commercial areas. North of the central section of the city, a residential district abuts the City of Spring Lake Park. South of the central section of the city, an industrial district forms an "L" which extends north to border Spring Lake Park on the east and Blaine on the north. A park is located on the northern border of the Town.

2.3.6 Coon Rapids

The City of Coon Rapids, located two miles west of the airport, encompasses an area of 25 square miles. The city is over 75% developed with over 50% of that being single family dwellings. The southeastern section of Coon Rapids between Highway 10 and Coon Rapids Boulevard is a mixture of industrial/commercial uses with adjoining residential use which borders the Mississippi River. The city has a good percentage of public and private open space, i.e., along the Mississippi River, surrounding McCay Lake, and along the Highway 10 south of Crooked Lake. North of Highway 10 and bordering Blaine is a mixed residential area.

The Coon Rapids zoning ordinance follows MPCA guidelines for noise control standards as described in Section 2.3.3.

2.3.7 Ham Lake

The City of Ham Lake is located north of Blaine and the furthest proximity from Anoka County-Blaine Airport. Land uses in Ham Lake remain largely agricultural and low density residential. In addition to these classifications, the Comprehensive Land Use Plan describes a number of commercial areas and one light industrial area along the Highway 65 corridor.

The zoning map coincides closely with the Land Use Plan except for a greater number of areas of limited commercial which have developed around the lakes and adjacent to the highway commercial corridor.

The Ham Lake Zoning Regulations include height regulations specifically relating to the FAA designated airport approach zones and navigable airspace. Thus the 45 feet height limitations in the Ham Lake Zoning Ordinance can be overruled and revised to accommodate approach zones and navigable airspace in and around Janes Field.

2.3.8 Lino Lakes

The City of Lino Lakes is located to the east of Blaine. In this area dominated by lakes, a county park and a water district make 50% of the land non-developable. In addition to the urban residential areas already developed around the southwestern lakes, the Land Use Plan designates Expansion Residential zones adjoining the developed areas and north of Highway 35W. Aside

from a small area of commercial development, and one industrial zone along Highway 35E near the city's eastern border, both the land use and zoning maps show a predominance of current and projected rural land use.

Currently, the 15-20% developed land is occupied by primarily single-family dwellings. Little industry exists because at present, there is no sewer system to support industrial development.

2.3.9 Circle Pines

Circle Pines is a 2½ square mile community located one mile from the eastern border of Anoka County-Blaine Airport (Janes Field) and two miles east of Runway 8-26. Located between Blaine and Lino Lakes, Circle Pines is a predominantly residential community. Approximately a quarter of the town's land which borders Rice Creek and Baldwin Lake is designated Regional Open Space. Existing vacant land to the south is zoned commercial and protected open space, while land along County Road 23 is designated single and multiple family with exception of a shopping center.

The nuisance criteria of the zoning ordinance dictates that noise exceeding 70 decibels at the property line of an adjacent property is excessive unless a special use permit stating otherwise is obtained.

2.3.10 Lexington

The City of Lexington, less than one square mile in size, is approximately 1/2 mile east of airport property, and 1½ miles east of Runway 8-26. Lexington is 90% developed into primarily residential districts with some local businesses along Highway 23. Lexington has adopted a nuisance ordinance which has the same noise provisions as the Blaine ordinance described in Section 2.3.2.

2.3.11 Shoreview

The City of Shoreview, located approximately four miles southeast of the airport, encompasses an area of 13½ square miles. Ninety-five percent of the developed land is occupied by single family dwellings.

The northern sector of Shoreview nearest Anoka County-Blaine Airport has a proportionately large share of undeveloped and Open Space/Active Park area. The eastern sections are designated for future residential use, while the western corner is designated for industrial/ office, office/commercial or retail/office uses.

The Environmental Overlay District on the Shoreview Zoning Map indicates many planned unit developments and urban underdeveloped areas, but further development of these areas might be restricted by floodplains and wetlands.

CHAPTER 3

PROJECT NEED & JUSTIFICATION

3.0 PROJECT NEED AND JUSTIFICATION

This section analyses the need and justification for the implementation of the master plan alternative. First, the role of Anoka County-Blaine Airport (Janes Field) in the Metropolitan Airport System is described. Next the relationship of the master plan alternative to the ability of the airport to fulfill its system role is analyzed.

3.1 ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) ROLE IN THE METROPOLITAN AIRPORT SYSTEM PLAN

Anoka County-Blaine Airport (Janes Field) is one of the eight publically owned airports in the Metropolitan Airports System of the Twin Cities Area. The need for the proposed improvements at Janes Field must be viewed, therefore, in the context of the airport's role in the Metropolitan Airports System. Hence it is critical to understand the role of Janes Field and the way it is to assist in accomplishing the System's goals and objectives.

It is equally important to realize that the goals of the Metropolitan Airports System are established and pursued in the framework of the Twin Cities area regional goals and policies. A transportation system is not an end in itself; rather, it is a means to aid in achieving the socioeconomic goals of the area it serves. In fact, the Aviation Chapter of the Metropolitan Guide is prepared within this framework. In the following, then, the evolution of Janes Field to its current role in the Metropolitan Airports System is briefly highlighted.

Janes Field is categorized in the 1985 "Aviation Chapter" update as a Minor Airport and System Role of Secondary Reliever. As stated previously, the typical users accommodated by a "Minor" airport are air taxi, business, General Aviation, flight training, personal use, recreational use and military. The airport users accommodated by an "Intermediate" airport include Regional/Commuter airlines, air taxi, corporate, business, GA, flight training, personal, recreational and military. The airport users accommodated by a "Major" airport include Air Carriers, Supplemental Charters Regional/Commuters, Air Cargo, air taxi, corporate, General Aviation, and military. In the Metro airports system there is only one "Major" airport (Wold Chamberlain Field) designated MSP and one "Intermediate" airport (Holman Field).

For the total Metropolitan Airports System to work efficiently, MSP must accommodate the "Major" airport types of users which cannot be typically accommodated at "Intermediate" or "Minor" airports. Holman Field must then be able to relieve MSP of that portion of traffic which requires "Intermediate" facilities

but cannot operate at a "Minor" airport. The "Minor" airports in the system must have the capacity to absorb as much traffic as possible to allow the "Major" role and "Intermediate" category airports in the system to accommodate the aviation users which they can best accommodate. The interrelationships of the system are critical to its concept.

Per MS 473.641 Subdivision 4, MAC owned airports within the Metropolitan Airport System cannot be upgraded from a "Minor" role to an "Intermediate" role. This in effect means that Holman Field is and will remain the only "Intermediate" airport within the Metropolitan Airport System Plan and the only airport in the system which can relieve MSP of corporate air traffic. Therefore, it is essential that Holman Field be relieved of the users capable of operation at "Minor" airports such as Janes Field.

As shown on Table 1-7, along with Flying Cloud and Crystal Airports, both of which are at or close to capacity, Janes Field has the largest capacity for growth of based aircraft storage of any Metropolitan Area airports. As such, Janes Field is in the position of being able to provide maximum capacity relief to Holman Field.

The draft of the "Aviation Chapter" update showed figures for commercial air carrier operations of 170,560 for 1983, 221,000 by 1993 and 271,000 by 2003. MSP is the only airport in the Metropolitan Area which has commercial air carrier operations. During preparation of the MSP Airport Master Plan Update, calendar year (CY) 1984 levels of annual operations at MSP were higher than the figures projected for the year 1993 from the Aviation Chapter Update. Year 1984 figures for annual air carrier operations at MSP are 202,300 as opposed to 221,000 projected for year 1993 in the Aviation Chapter Update.

The increasing levels of air carrier activity at Wold Chamberlain Field emphasize the need for Holman Field to relieve MSP of corporate air traffic, and in turn for Holman Field to be relieved of air taxi, business, GA, flight training, personal, recreational and military air traffic.

As discussed in Chapter 4, the greatest increases in aviation activity, particularly that of business users, is occurring in the west and northwestern portions of the Metro area. Of airports in the west and northwestern Metro area, Flying Cloud and Crystal airports are at or near based aircraft capacity, making Janes Field the key airport to accommodate increases in aviation activity in the area.

3.2 RELATIONSHIP TO ENVIRONMENTAL AND AVIATION NEEDS

In this section, the new runway and building area development as described in Section 1-1 is evaluated in terms of the environmental and aviation needs.

3.2.1 Environmental Needs

During preparation of the 1983 Anoka County-Blaine Airport Master Plan, and the period since, persons principally residing in Mounds View, Fridley and other municipalities south of the airport, have been concerned with, and registered complaints about aircraft noise. A northerly shift of Runway 17-35 is proposed to decrease aircraft generated noise levels in residential areas south of the airport.

The Anoka County Airport Operations Rules by the MAC provide that Runway 26 be the preferred runway for flight training activity at the airport. This is to decrease noise levels to areas south of the airport. All aircraft that operate at Janes Field but require a runway longer than 3,200 feet must use the 4,855 foot long Runway 17-35. An extension to Runway 8-26 to 4,000 feet would allow more aircraft which are currently restricted to use of Runway 17-35 to use Runway 8-26. This in turn should result in fewer operations to Runway 17-35 and less noise impact to residential areas to the south. Relocating Runway 17-35 to the north will cause a corresponding shift of operations to the north. This in turn will result in aircraft approaching runway 35 to the north or departing Runway 17 to the south to be higher over, and cause less noise impact to residential areas south of the airport. The sole benefit of proposed Phase 1A and Phase 1B airfield development, e.g., shifting Runway 17-35 to the north, extending Runway 8-26, is to improve the compatibility of the airport with land uses surrounding the airport, particularly residential areas to the south.

3.2.2 Aviation Needs

As discussed in Section 3.1, development of new airport building areas is required to accommodate present and future needs of the Metropolitan Airports System. Figures for existing and projected based aircraft demand for Janes Field are shown on Table 1-15.

Currently, there are 387 aircraft based at Anoka County-Blaine Airport (Janes Field). Approximately 260 aircraft are stored in

hangars, which are now at capacity. Approximately 90 aircraft are parked at paved tie-downs within the building area. Of these, a number of aircraft owners prefer to store their aircraft in hangars. Paved aircraft parking aprons at the airport are now at capacity. Approximately 40 aircraft are now parked in the turf area between the north building area and the Runway 17-35 parallel taxiway. Aircraft are parked in the temporary turf tie-down area, not out of pilot preference, but because the existing hangar storage and apron parking areas at the airport are at capacity.

Conversations with MAC personnel revealed that due to the high water table, the turf tie-down area surface is frequently so unstable that taxiing aircraft is difficult. Building areas must be constructed to adequately store these aircraft.

The City of Blaine is planning to construct an at-grade extension of Highway 10 from County Road J to Route 65 to be followed by an upgrade of this road to "interstate" standards with an interchange at the south border of the airport. This will cause relocation of approximately 50 aircraft stored in buildings in the south portion of the existing building area. As the existing building area is nearly at capacity, new building areas will be required to house the aircraft displaced by the Route 10 extension.

The numbers of based aircraft are projected to increase from 387 at present to 456 by 1990 and 630 by 2000. Building areas will be developed to house and park the additional aircraft consistent with the pace of actual growth.

The building areas to be constructed during Phase 1A and Phase 1B will be limited to a total of approximately 66 acres, consistent with the Airport Master Plan projection of demand, for Phase 1A and Phase 1B.

The Anoka County-Blaine Airport must be maintained for a number of reasons which are more specifically presented in Sections 4.3, 4.4 and 4.5. There are no other airports in the Metropolitan System which can adequately serve the aviation transportation needs of the north and northwest section of the Metropolitan Area. The only other system airports which have facilities to serve this area are Crystal and Flying Cloud airports both of which are at, or close to capacity. Therefore, Crystal and Flying Cloud airports could not accommodate even the 390 aircraft presently based at Janes Field, let alone increased numbers of based aircraft in the future. Future aircraft users, (and existing aircraft users if Janes Field were abandoned) from this part of the region would have to travel some 25-38 miles to use other Metropolitan System airports which are planned for predominantly single and twin engine aircraft and can accommodate increased numbers of based aircraft. Such airports include only Airlake to the south and South St. Paul and Lake Elmo airports to the east.

The implications of constructing a replacement airport for Janes Field are discussed in Section 4.4. The "Aviation Chapter Update" includes a recommendation for development of a new "Minor" airport in Search Area A (See Figure 1-5). However, development of a new "Minor" airport is planned by the Metropolitan Council to be in addition to, not instead of existing Metropolitan System airports, consistent with Metropolitan Council policies and fiscal prudence of developing existing system airports to capacity before developing new airports.

Sound airport planning dictates that development projects planned for the short term, should be environmentally, aeronautically and fiscally sound, relative to short term needs while being adaptable to development projects which may be required in the long term. The master plan alternative, and additional proposed alternatives discussed in Section 4.7, are all planned to be conducive to further development of the airport after implementation of one of those alternatives. Additionally, due to the existing area of the airport property, there is latitude as to how to undertake later phases of airport development. Therefore, implementation of Phase 1A and Phase 1B development described in Section 4.7 will not significantly affect the probability or method of long term airport development.

Development of new building areas at Janes Field is needed, not only to support future aviation needs of the Metropolitan Airport System, but to adequately support aviation needs at Anoka County-Blaine Airport (Janes Field) at present.

3.2.3 Summary

Implementation of the master plan alternative is justified on two grounds 1) to decrease noise levels to residential areas and 2) to accommodate existing and future aviation growth in the region, particularly in the north and northwest portions of the Metropolitan Area.

CHAPTER 4

DEFINITION AND INITIAL EVALUATION OF ALTERNATIVES

4.0 DEFINITION AND INITIAL EVALUATION OF ALTERNATIVES

Hypothetically, a large number of facility development alternatives could be analyzed for their contribution to the capability of Janes Field to fulfill its role in the metropolitan system of airports. However, they may have practical physical constraints and should not be subjected to the detailed examination of alternatives conducted in later phases of this EIS/EA. This section presents a preliminary examination of alternatives considered infeasible or imprudent. By explanation, an alternative can be deemed feasible from an engineering and/or environmental standpoint, but not prudent from a social and/or fiscal standpoint. For example, an alternative could incorporate state-of-the-art engineering, but not be prudent because it would be cost prohibitive. On the other hand, an alternative can be fiscally sound, but it might involve unacceptable environmental consequences or exceed state-of-the-art engineering practices. Ideally, several alternatives would be both prudent and feasible, while satisfying the needs of the proposed project. The viable alternatives identified are subjected to detailed environmental analyses in later sections of this report.

This section starts by identifying the design requirements that must be met as a minimum to fulfill the project needs as discussed in Section 3 of this EIS/EA. Next, the following non-development alternatives are determined:

- the do-nothing alternative
- expanding an existing airport other than Janes Field
- building a new minor airport on a new site
- abandoning Janes Field

Thirdly, development alternatives for Janes Field were identified in light of constraints dictated by the Metropolitan Guide and by the location of Janes Field. Alternatives for further consideration in subsequent sections of this report were then selected, and finally, airfield operational usage (in relation to the selected alternatives) was analyzed.

4.1 DESIGN REQUIREMENTS

The Project Need and Justification section of this report includes a detailed analysis of aviation requirements for any Janes Field improvements. The conclusions of that section are summarized below as they relate to design requirements for the alternatives.

4.1.1 Runway Length Requirements

As stated in Section 3.1, enactment of MS 473.641, Subdivision 4, prohibited MAC from expanding any existing "Minor" airport to an "Intermediate" role as defined in the Development Guide. The Metropolitan Development Guide Aviation chapter is now being updated. As of this writing, it has not yet been determined in the update if the maximum primary runway length for a "Minor" airport could be greater than 4,000 feet as stated in the 1977 Aviation Chapter. Pursuant to provisions of MS 473.641 Subdivision 4, the Aviation Chapter of the Development Guide shows Janes Field remaining in the Minor category. For the purposes of this EIS/EA, the Consultant applied the 4,000' runway length shown in the 1977 Aviation Chapter for a "Minor" Airport.

Also, as stated in Section 3.1, enactment of MS 473.673 prevented MAC from reducing the net useable runway length at any MAC owned airports. MS 473.673 in effect provides that Anoka County-Blaine Airport (Janes Field) must have at least two runways, one 4,855 feet long and one 3,200 feet long.

Reviewing these two statutes indicates that once a 4,855 foot long runway is provided at the airport, the only other runway development options that can be exercised at Janes Field are limited to extensions of existing runways less than 4,000 feet long to a maximum of 4,000 feet and/or construction of new runways to a maximum length of 4,000 feet.

4.1.2 Runway Alignment

The alignment of the runway system at Janes Field should provide sufficient wind coverage to limit the occurence of a crosswind component greater than 12 mph (10.5 knot) to 5% of all weather conditions. Based on the AMP wind data analysis, the optimum alignment for a primary runway at Janes Field would be in a northwest-southeast direction. The existing runways are aligned on a north-south (17-35) and east-west (8-26) axis. Existing 10.5 knot all weather wind coverage at the airport for runways 8-26 and 17-35 combined is only 92.38%, indicating the presumed benefit of a northwest-southeast runway at Janes Field. Runway orientation is more specifically addressed in Section 4.6.2.

4.1.3 Building Areas

Existing aircraft hangar and maintenance facilities at Janes Field are almost occupied to capacity and cannot be expanded to meet projected demand within the existing building areas. The facility needs, as discussed in Sections 3.1 and 3.2, can only be satisfactorily met by providing additional building areas at the airport.

4.2 "NO BUILD" ALTERNATE

The do-nothing option is also called the "no build" or "base case" alternative. It would involve no further development at Janes Field except for minor improvements of existing building areas. This alternative would not satisfactorily meet the needs of future levels of based aircraft as discussed in Section 3 of this report. More importantly, no further building area development would result in congestion for users of the existing building areas. Without an extension of Runway 8-26, increasing levels of aircraft operations would be constrained to use only Runway 17-35, arriving and departing over noise sensitive residential areas south of the airport. Turboprop aircraft in particular could be diverted to Runway 8-26 with an extension of that runway from 3,200' to 4,000'.

4.3 EXISTING AIRPORT ALTERNATIVE

Besides Janes Field, there are seven other publicly-owned airports within the Metro Area. These airports are: Minneapolis-St. Paul International, Crystal, Flying Cloud, Lake Elmo, Holman Field, South St. Paul Municipal and Airlake. Each of these could possibly be considered as alternative sites to accomplish the objectives of the proposed action within the context of the Metro System of Airports.

However, none of these airports meet the criteria of being both a prudent and feasible alternative, as well as meeting the needs of the system plan. This situation is illustrated by the following specific reasons:

- Minneapolis St. Paul International Airport (Wold-Chamberlain Field)

  The purpose of Minneapolis-St. Paul International Airport (MSP), as designated in both the 1977 Metropolitan Council 1977 Aviation Chapter and the 1985

Aviation Chapter Update, is to serve as the only "Major" airport in the Metro Area. The typical users to be accommodated by a "Major" airport are international and domestic air carriers including scheduled air passenger, commuter and supplemental/charters. General aviation aircraft and operations at MSP encroach on facilities which are increasingly required to support air carrier operations. The stated purpose of "Minor" Airports and the "Intermediate" Airport surrounding MSP is to relieve MSP of Corporate and other GA traffic. Transferring GA aircraft activity to MSP from Janes Field would be contrary to the intended role of MSP in the System Plan.

- Crystal Airport

The airport is severely constrained by residential development in all quadrants, as well as a railroad line (Great Northern Railroad) and Highway 52 with a frontage road adjacent to the property's southwest quadrant. Designated as a "Minor" airport in the Metropolitan Airport System in the 1977 Aviation Chapter and 1985 Draft Update of the Aviation Chapter, Crystal Airport has four runways (the largest is 3,266 feet), none of which can be extended. The preliminary draft of the "Aviation Chapter Update" noted that:

> "Crystal Airport is currently quite close to its storage capacity, especially in light of the continuing demand for aviation on the west side of the Metro Area. Besides the threat of closing, which has tended to dampen new demand on the facility, the airport is totally engulfed by adjacent non-airport development. The airports attractiveness to the general aviation community is, however, its proximity to downtown Minneapolis as well as having several full service FBO's on site."

- Flying Cloud Airport

Designated as a "Minor" airport in the Metropolitan Airport System by the 1977 Aviation Chapter and 1985 Draft Update of the Aviation Chapter, this airport is bounded by Highway 212/169 (Flying Cloud Drive) and a golf and ski club on its western boundary. In addition, Flying Cloud is situated on the bluffs of the Minnesota River, considered an environmentally sensitive area. The preliminary draft of the "Aviation Chapter Update" contains the following concerns about Flying Cloud Airport.

"Flying Cloud Airport is currently at its maximum storage capacity level. The feasibility of adding additional capacity and associated development (given the terrain near the airport) was evaluated and discarded in the Airport's Master Plan. Based aircraft capacity at Flying Cloud is basically limited to current levels, i.e., approximately 615 aircraft. The existence of a precision instrument landing system, air traffic control tower, adequate services, and the airport's proximity to the growing southwestern side of the region indicates that this airport will continue to be attractive to both based and transient (visiting) aircraft."

Flying Cloud Airport, some 30± road miles south of Janes Field would not serve the aviation needs of the north and northwest portions of the Metropolitan Area.

- Lake Elmo

Designated as a "Minor" airport in the Metropolitan Airport System in the 1977 Aviation Chapter and 1985 Draft Update of the Aviation Chapter, this airport is located in a rural area. It is bounded by three roads - each along one airport boundary - and tracks of the Chicago and Northwestern Railroad on the fourth boundary.

A Master Plan has been completed with the recommendation that the airport's "Minor" role be continued. The largest of two existing runways is 2,850 feet. Present planning calls for additional building areas and maintains the airport as a two runway, uncontrolled airport. The shorter of the two existing runways, which is 2,500 feet long, is planned to be extended to 3,500 feet. Lake Elmo airport is 25 road miles east-southeast of Janes Field in the far eastern portion of the Metropolitan Area. As such, the Lake Elmo airport cannot serve the aviation needs of the west and northwest portions of the Metropolitan Area.

- Holman Field

Holman Field is the only designated "Intermediate" airport in the Metropolitan Area. A new building area and 6,700 foot runway are now under construction. As an "Intermediate" airport, Holman Field's primary user category, as designated in the 1977 Aviation Chapter, is corporate aircraft. A major benefit of Holman Field is to relieve MSP airport of corporate aircraft so the latter can better accommodate commuter and air carrier traffic. Transferring lighter, general aviation aircraft to Holman Field which are capable of being

suitably based at Janes Field would reduce the ability of Holman Field to relieve MSP of heavier GA, corporate aircraft.

- South St. Paul Municipal Airport

  The South St. Paul Municipal Airport is owned by the City of St. Paul. The airport is currently close to aircraft storage capacity. At present the airport's runway is 4,000 feet long. As South St. Paul Airport is at capacity, it can not accommodate increased numbers of based aircraft such as exists or is projected, for Janes Field.

- Airlake Industrial Park

  The Airlake Airport, acquired by MAC in 1979, has a 4,100 foot runway and a precision instrument approach system. However it is some 35± road miles from Janes Field and would not serve the north and northwestern portions of the Metropolitan Area.

Analyses in the draft of the 1985 Aviation Chapter update show that within the Metropolitan Area, there is a greater demand for aviation services on the west side than on the east side and the Metropolitan Airport System has sufficient corresponding aircraft storage capacity on the east side while nearing capacity on the west side of the Metropolitan Area. This situation reflects the predominant direction of urban growth and the corresponding increases in personal income and business activity toward the west and northwest. The "Aviation Chapter Update" also states that general aviation activity on the west side of the region would not migrate to the airports with more capacity on the east side because of increased travel time to the east side. Users of any facility prefer a facility closest to their homes and businesses as that has direct bearing on the facility's usefulness to them. In the metropolitan area, growth is increasing on the west side creating greater need for all facilities, including airports, in that area.

The Aviation Chapter Update states that the existing aircraft storage capacity of west side airports is not yet at the "crisis" stage. However, Anoka County-Blaine Airport (Janes Field) is the only existing west side airport that has the potential to increase aircraft storage capacity in the area to meet growing demand. Both Crystal and Flying Cloud airports, in the same area, are presently at, or close to, aircraft storage capacity.

4.4 NEW SITE ALTERNATIVE

This alternative would involve the construction of a new "Minor" airport on a site somewhere within the Twin Cities Metropolitan Area in addition to maintaining Anoka County-Blaine Airport (Janes Field). The 1977 Aviation Chapter contained recommendations for development of a new Minor airport in "Search Area A" (west central Hennepin County) and "Search Area B" (Dakota County). MAC's acquisition of Airlake Industrial Park Airport in 1980 accomplished the recommendation of locating a "Minor" airport in Search Area B. The Aviation Chapter now being prepared, again contains recommendations of development of a new "Minor" airport in "Search Area A" in west central Hennepin County in addition to maintaining existing MAC owned airports, including Janes Field.

The location of Search Area A was chosen to provide maximum relief of aviation demand to Crystal and Flying Cloud Airports and also because existing land use patterns are conducive to development of an airport. Both the 1977 Aviation Chapter and 1985 Aviation Chapter Update recommend assessment of a specific airport site in "Search Area A" as soon as possible, so steps can be taken to acquire the property. Private development of the area is continuing, which limits future options for airport sites within "Search Area A". MAC does not currently own sufficient land in this area to develop a new airport site.

4.5 ABANDONMENT OF JANES FIELD ALTERNATIVE

It is important to note that both the 1977 Aviation Chapter and the 1985 Aviation Chapter Update require development of a new Minor airport in "Search Area A" by 2003. This requirement presupposes all publicly owned airports in the metropolitan area to remain operational. If Anoka County-Blaine Airport (Janes Field) were closed in favor of an airport in "Search Area A", the airport in "Search Area A" would have to be developed prior to the closing of Janes Field and then, approximately in the year 2000, another "Minor" airport, in a Search Area yet to be identified, would have to be developed to accommodate Metropolitan Area aviation needs.

The new site alternative would also be at variance with the land use policies set forth in the Metropolitan Development Guide. These policies include protecting investment in existing facilities, preventing urban sprawl, preserving open spaces and agricultural land and enhancing environmental quality. By requiring the use of land presently serving in some other capacity to develop a new airport, the new site alternative runs counter to the Metropolitan Development Guide land use policies.

4.6 DEVELOPMENT ALTERNATIVE

4.6.1 Site and Location Constraints

- **Property Lines and Available Land**

Anoka County-Blaine Airport (Janes Field) presently encompasses 1900 acres and is situated as shown on Figure 1-6. The present airport property abuts County Road J (85th Avenue, N.E.) and the City of Mounds View to the south, Hastings and Isanti Streets and County State Aid Highway 10 (State Highway 65) to the west, Radisson Road and 101st Avenue N.E. to the north, and Xylite Street (County State Aid Highway 37 and County Road 37) to the east as shown on Figure 2-5.

The airport cannot be developed to the south due to the proximity of County Road J and residential areas of Mounds View. Development of the southwestern area of airport property west of the Access Road is not feasible due to the planned extension of Town Highway (T.H.) 10 in a northwesterly direction from County Road J to State Highway 65. Airport property in the vicinity of Radisson Road west of the north building area is available for building area expansion. However, except for the proposed west building area, access for aircraft from this area to Runway 17-35 would not be possible with the existing building area access road. Airport property west of Runway 8 is available for only minor development, as it is severely constrained by protected wetland 595W, County Ditch 41 and the 100 year floodplain. There is substantial airport property north of Runway 8-26 that is available for both airfield and terminal area development principally limited by the 100 year floodplain and protected wetlands 595W, 594W and 588W. Airport property bounded by 95th Avenue N.E. to the south is available for airfield development limited by protected wetland 707W. Development of airfield facilities in this area would require closing a portion of Xylite Street. Airport property east of Runway 17-35 available for development is limited to the proposed building area due to the proximity of Xylite Street and residential areas east and west of Xylite Street, and south of 95th Avenue N.E.

- **Wetlands and Floodplain**

Pursuant to Federal and State regulations, for the purposes of this EIS/EA, it was assumed that no wetland, protected wetland, or floodplain may be encroached upon without compensatory area,

volume or storage capacity being provided. It was the intent of this EIS/EA, therefore, to investigate alternatives to minimize encroachment of wetlands, protected wetlands and floodplains.

- Land Acquisition and Relocation

For the purposes of this EIS/EA, proposed airport development was assumed to be limited to that which can be accomplished within existing property, with the exception of possible acquisition of property to protect the future Runway 26 approach surfaces. It was further assumed that proposed airport development will not cause relocation of any buildings, homes or businesses on or off existing airport property.

- Road System

The highway system abutting the airport was described earlier in this section. For the purposes of this EIS/EA it was assumed that airport development will be such that the only alteration of the off-airport road system will be the abandonment of a portion of Xylite Street between 95th Avenue N.E. and 101st Avenue N.E. and possibly rerouting the portion of 101st Avenue within airport property which lies between Xylite Street and 105 Avenue. Airport development was also assumed to be limited to that which will not impede construction of T.H. 10 from County Road J to State Highway 15.

- Obstructions

After reviewing the National Oceanic and Atmospheric Administration (NOAA) Obstruction Chart for Janes Field, the Consultant determined there are no structures, terrain or vegetation which are obstructions, and which would curtail airport development alternatives, except the Shoreview Towers which are discussed in Section 4.6.2.

- Land Use Compatibility

For the purposes of this EIS/EA, it was assumed that airport development should be done in a manner which is both prudent and ensures the maximum degree of compatibility with surrounding land uses. Therefore, future development of facilities and aviation

activity should be accomplished in the northern part of the airport, abutting compatible rural or uninhabited areas. Development of the southern portion of the airport (south of 91st Avenue N.E. and 91st Lane) would be less compatible than development of the northern portion, due to the residential areas of varying densities to the east, south and southwest.

- Minnesota DOT and FAA Standards

Arrangement of airport facilities should be according to current State and Federal airport standards. The MAC has recommended standards for distance between rows of hangars, taxilane width and maximum length of run between rows of hangars. The MnDOT, through 14 MCAR S 1.3015, also establishes dimensional criteria and limits of imaginary surfaces and obstructions. Federal airport standards discussed in this EIS/EA include FAA Advisory Circular (AC) 150/5300-4B- Utility Airports Air Access to National Transportation and Federal Aviation Regulations (FAR) Part 77-Objects Affecting Navigable Airspace.

Dimensional Standards contained in AC 150/5300-4B are primarily categorized by aircraft approach speed, airplane design group and type of airport. Approach speed is categorized into classes as shown on Table 4-1.

TABLE 4-1
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
AIRCRAFT APPROACH CATEGORIES

(1)	Category A:	Speed less than 91 knots;
(2)	Category B:	Speed 91 knots or more but less than 121 knots;
(3)	Category C:	Speed 121 knots or more but less than 141 knots;
(4)	Category D:	Speed 141 knots or more but less than 166 knots; and,
(5)	Category E:	Speed 166 knots or more.

Source: FAA AC 150/5300-4B para 3.a.

A review of Business and Commercial Aviation Planning and Purchasing Handbook (BCAPPH) for 1985, shows that all aircraft which can operate within a 4,855 foot runway at Maximum Gross Takeoff Weight (MTOW) at sea level have an approach speed of less than 121 knots which corresponds to Approach Category B.

Airplane design group is categorized into groups as shown on Table 4-2.

TABLE 4-2
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
AIRPLANE DESIGN GROUPS

(1) Airplane Design Group I: Wingspan up to but not including 49 feet (15 m);

(2) Airplane Design Group II: Wingspan 49 feet (15 m) up to but not including 79 feet (24 m);

(3) Airplane Design Group III: Wingspan 79 feet (24 m) up to but not including 118 feet (36 m);

(4) Airplane Design Group IV: Wingspan 118 feet (36 m) up to but not including 171 feet (52 m);

(5) Airplane Design Group V: Wingspan 171 feet (52 m) up to but not including 197 feet (60 m); and,

(6) Airplane Design Group VI: Wingspan 197 feet (60 m) up to but not including 262 feet (80 m).

Source: FAA AC 150/5300-4B para. 3.C.

After a review of Business and Commercial Aviation Planning and Purchasing Handbook (BCAPPH)-1985 and FAA AC 150/5300-4B, the Consultant determined most aircraft which can operate from a 4,855 foot long runway at MTOW at Sea Level elevation, have a wingspan of 79 feet or less which corresponds to Airplane Design Group II.

Airport Type is determined by the approach speed and airplane design group which the airport can accommodate. As defined in FAA AC 150/5300-4B, airport type is categorized into Basic Utility Stage I (BU-I), Basic Utility Stage II (BU-II), General Utility Stage I (GU-I) and General Utility Stage II (GU-II). Anoka County-Blaine Airport (Janes Field) classifies as a GU-II type airport as defined in AC 150/5300-4B.

> "General Utility-Stage II. This type of airport serves large airplanes in Aircraft Approach Category A and B and usually has the capability for precision approach operations. This airport is normally designed for airplanes of Airplane Design Groups I and II. It may also be designed to serve Aircraft Approach Category A large airplanes in Airplane Design Group III. While runways serving or expected to serve large airplanes may be built to utility airport standards, they are considered as other than utility runways in aeronautical studies."

FAA dimensional standards for various airfield and terminal area components are prescribed in AC 150/5300-4B and have been used in this EIS/EA. Until such time as a precision approach to the airport is installed, applicable dimensional standards for Janes Field are Nonprecision & Visual Runway Airplane Design Group II.

FAA AC 150/5300-4B also contains a discussion of line of sight requirements for individual and intersecting runways, with and without an operating control tower. The requirements are that for airports without a 24 hour control tower, there must be a clear line of sight from any point 5 feet above one runway centerline to any point 5 feet above an intersecting runway centerline, both points being within the area of the runway visibility zone (RVZ). The RVZ is formed by imaginary lines connecting visibility points on the two runways.

The location of visibility points are determined relative to the distance between the runway end and runway intersection as shown in Appendix 2-D. At Janes Field, the RVZ criteria must be adhered to because there is not a 24 hour control tower and there are two runways.

In accordance with Federal Aviation Regulations (FAR) Part 77, there are imaginary planes and surfaces in the immediate vicinity of Janes Field that define the airport's protected airspace. It is desirable to reserve all of the airspace above these imaginary surfaces for the operation of aircraft, either during normal operations (i.e. arrival and departures) or for missed approaches or emergency maneuvers. Generally, any objects penetrating these surfaces must either be removed or appropriately marked to prevent interference with aircraft operations. Approach and primary surfaces are presented in Appendix 2-D.

4.6.2 Development Options

Within the context of the constraints and criteria listed previously, this section will include discussions on prudent options for runway location and alignment and building area development.

- Runway Location

As presented in Element 3.0 of the Scoping Decision Document dated April 15, 1985 for Phase 1A and Phase 1B Improvements at Anoka County-Blaine Airport (Janes Field), the parameters of possible runway shifts to be assessed in this EIS/EA are as follows:

A. No southerly shift of Runway 17-35.
B. Maximum northerly shift of Runway 17-35 will be 2,580 feet north of the Runway 17 threshold.
C. Maximum westerly shift of Runway 8-26 will be 3,100 feet west of the Runway 8 threshold.
D. Maximum easterly shift of Runway 8-26 will be 2,600 feet east of the Runway 26 threshold.

As mentioned previously, no Runway 17-35 development or shift is proposed to the south as it would place aircraft operations nearer to noise sensitive residential areas in Mounds View south of County Road J. The maximum northerly runway shift of Runway 17-35 was limited to that stated in Parameter B so the Runway 35 end at its northernmost location would intersect the existing connector taxiway from Runway 17-35 to the center of the existing west building area. The concept of limiting the northerly location of the south end of any north-south runway to this connector taxiway is reflected in the current airport layout plan. The maximum easterly shift of Runway 8-26 was limited to that stated in Parameter C above to comply with MNDOT prescribed 40:1 approach surfaces to be 15 feet above public roadways, in this case State Highway 65. The Anoka County-Blaine Airport Master Plan contained a recommendation for a precision approach procedure to Runway 26 supplemented by a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR). The MALSR is a system of lights in a row 2,400 feet long beginning at the runway end. While this EIS/EA does not assess the installation of a precision approach or of the approach light system, the maximum easterly runway shift in parameter D was limited to that stated so the possible future Runway 26 MALSR would remain on airport property west of Interstate 35W.

For the purposes of this EIS/EA, it was assumed that Runway 17-35 would not be shifted to the east, which would locate the runway closer to residential areas west of Xylite Street. Phase 3 development proposed in the AMP includes a 4,855 foot runway constructed parallel to, and 500 feet west of, existing Runway 17-35. Current FAA criteria requires a minimum of 700 feet between parallel runways. To conform to this current criteria, a runway parallel to Runway 17-35 must be located at least 700 feet west of the existing Runway 17-35 centerline.

As stated in the EAW in Appendix 2A, a full-time air traffic control tower is not expected at the airport until after 1990, beyond the scope and timing of Phase 1A and Phase 1B developments. Control tower personnel from the Minnesota Air National Guard who man the tower at Janes Field on weekends, as well as FAA personnel in the Crystal Airport control tower concurred that with two non-parallel runways at an uncontrolled field (times when the tower is not operating), it is essential that the runways be connected. The recommendation that the two runways intersect is to minimize the potential for conflicting, simultaneous operations. This requirement prescribes the maximum westerly shift of Runway 8-26.

The maximum westerly shift of the ultimate Runway 8-26 (4,000' long) will be 1,400 feet west of the existing Runway 8 threshold or 4,000 feet west of the edge of Runway 17-35. The maximum easterly shift of Runway 8-26 is still constrained by the Runway 26 MALSR system proposed beyond the Phase 1A and Phase 1B time period.

- Runway Alignment

As shown in Exhibit 3-6 of the AMP, winds at Janes field are predominantly from the northwest and southeast. Existing 10.5 knot wind coverage at the airport for Runways 8-26 and 17-35 combined is 92.38%. Reorientating one runway in a northwest-southeast orientation to be more in line with prevailing winds would increase 10 knot wind coverage. However, two television towers known as the Shoreview Antennas (Elevation 2376 MSL) located in Shoreview, 6 statute miles southeast of the airport, preclude reorientation of any runways at Janes Field to a north-west-southeast orientation. Although the Shoreview Towers are not within the boundary of Janes Field imaginary surfaces prescribed by FAR 77, the towers are 1,467 feet above Janes Field elevation and present a hazard to flight operations southeast of the airport. Although a northeast-southwest or north-northeast, south-southwest runway orientation could be implemented at the airport, it would require substantial relocation of existing building areas and, since it would be opposite the predominant winds, would offer very low utility relative to 10.5 knot (12 mph) cross wind coverage.

Runway 8-26 could be realigned between an east northeast and an east southeast orientation and comply with requirements to maintain the existing straight-in non-precision instrument approach procedure to Runway 8 and Runway 26. To avoid substantial building area relocation or encroachment to wetlands, a reorientation of existing Runway 8-26 within the range stated would cause the runway to be located in the far northwestern area of the airport. This runway would then be far away from existing terminal areas. Thus, changing the orientation of Runway 8-26 from its present location would also offer little utility.

Based on the above analysis, reorientation of existing runways would not be feasible. Therefore, all future runways at Janes Field should be parallel to or have the same orientation as the existing runways, 8-26 and 17-35.

- Change of Primary Runway from 17-35 to Runway 8-26

The primary runway is typically the longest runway at an airport. As explained in Section 4.1.1, a 4,855 foot runway must be

provided at Janes Field. Thus, the primary runway length at Janes Field must be 4,855 feet. To avoid substantial encroachment on the 100 year floodplain or protected wetlands, if Runway 8-26 were the primary runway (4,855' long), it would have to be relocated north of wetland 595W. An east-west primary runway would cause a substantial shift in aircraft operations from a north-south direction to an east-west direction. However, east-west primary runway north of wetland 595W would be too far from existing building areas to provide good utility. Therefore, the primary runway at Janes Field should remain in a north-south orientation.

- Building Areas

As discussed in Section 1.1, MAC will do the preparatory site work in the building areas. MAC will then lease the parcels of the building areas to private individuals. Construction of buildings and appurtenant facilities, i.e. foundation drains, plumbing, utilities, etc. will be accomplished by private developers. The layout of the building areas will be determined by MAC during engineering design subsequent to this EIS/EA.

The discussion of proposed building areas in this Section is focused on location of the building areas relative to location of runways and taxiways, conformance to Federal and State dimensional and line of sight criteria, and vehicular access. Subsequent sections of this EIS/EA will contain discussions on the impact of the proposed building areas. As discussed in Section 1.1, two, 33 acre building areas including connector taxiways are proposed within Phase 1A and Phase 1B development and are discussed in this EIS/EA. Development of approximately 46 acres of additional building area including connector taxiways is proposed within Phase 2 and Phase 3 development and is discussed in Appendix 1 to this EIS/EA.

Building areas are aligned as close to and along parallel taxiways as much as possible to provide maximum access from the building areas to the airfield. Building areas are also located to minimize taxiing distance and crossing of runways between runway ends, exit taxiways and building areas.

Building areas are located using at least minimum dimensional criteria e.g. distances between aircraft parking areas, buildings to taxiway centerline and imaginary surfaces requirements. Building areas are located such that they do not obstruct the applicable Runway Visibility Zones.

Adequate vehicular access to building areas are planned for each alternative. Proposed vehicular access will use the existing road system as much as possible to minimize new road construc-

tion. One alternative to be investigated in this EIS/EA is construction of proposed building areas with no runway development.

4.7 DEFINITION OF ALTERNATIVES

From the analysis of design requirements, FAA and MNDOT dimensional and obstruction standards, site and location constraints and development options discussed previously, eight (8) scenarios or alternatives were chosen for further investigation in this EIS/EA. The alternatives focus on the three elements which comprise Phase 1A and Phase 1B as generally described in the AMP and Scoping Decision Document; namely Runway 17-35, Runway 8-26 and the east and west building areas. Current dimensional criteria was used which varies somewhat from the criteria used in the AMP. The alternatives chosen for analysis are designed to bracket the maximum development scenarios for each element while conforming to local, state and federal standards, thereby bracketing the maximum environmental impacts expected at Janes Field.

Both the existing and future scenarios were investigated. The existing scenario is the level of activity and layout of facilities (length of runways, location of building areas, runways and taxiways, etc.) that exists at Janes Field in 1985. Future scenarios in this EIS/EA are discussed relative to the proposed layout of facilities as well as the level of activity which was projected for the airport, and presented in Section 1.7, for the year 1990. An assessment of the activity level and type of activity and the resultant environmental impacts of Phase 2 and Phase 3 development is contained in the Informational Appendix (Appendix 1.)

All alternatives are described relative to extension and/or shifting of runways and/or location of building areas. Except for existing, future no-build and building area development only alternatives, all alternatives include extending Runway 8-26 from 3,200 feet to 4,000 feet to increase the operational capability of the runway and to entice pilots to use Runway 8-26 rather than Runway 17-35 and thereby decrease noise levels in the residential area south of the airport. An 800 foot easterly extension to Runway 8-26 with the Runway 8 threshold remaining in place is included in various alternatives. So that Runway 8-26 remains connected with the existing and future Runway 17-35 (See discussion in Section 4.6.2), a maximum westerly shift of the Runway 8 threshold of 1,400 feet and the maximum easterly shift of Runway 26 of 3,300 feet is included in various alternatives.

To comply with FAA requirement for a 20:1 approach surface to Runway 17 the maximum possible northerly shift of Runway 17-35 is 2,700 feet. To provide for relocation of operations to Runway 17-35 to the north as much as possible away from residential areas to the south. While with the Runway 35 end intersecting the connector taxiway to the existing west building area, the maximum northerly shift of Runway 17-35 to be reviewed in this EIS/EA is 2,580 feet. A northerly shift of Runway 17-35 of more than approximately 2,400 feet will require a waiver of MnDOT critieria for a 40:1 approach surface to a 30:1 approach surface. A northerly shift of Runway 17-35 of more than approximately 2,550' feet would obstruct a 30:1 approach surface and would require rerouting a section of 101st Avenue N.E. An alternative which includes a 950 foot northerly shift of Runway 17-35 as shown in the AMP will also be investigated in this EIS/EA.

Except for the future no-build alternative, all "Future" alternatives include development of east and west building areas as proposed in the AMP. Development alternatives that are analyzed in this EIS/EA are described below.

4.7.1 Existing Conditions

Existing conditions are conditions present at the airport in 1985. A description of the environment in and around the airport as related to existing conditions form a base against which environmental impacts of future conditions may be compared.

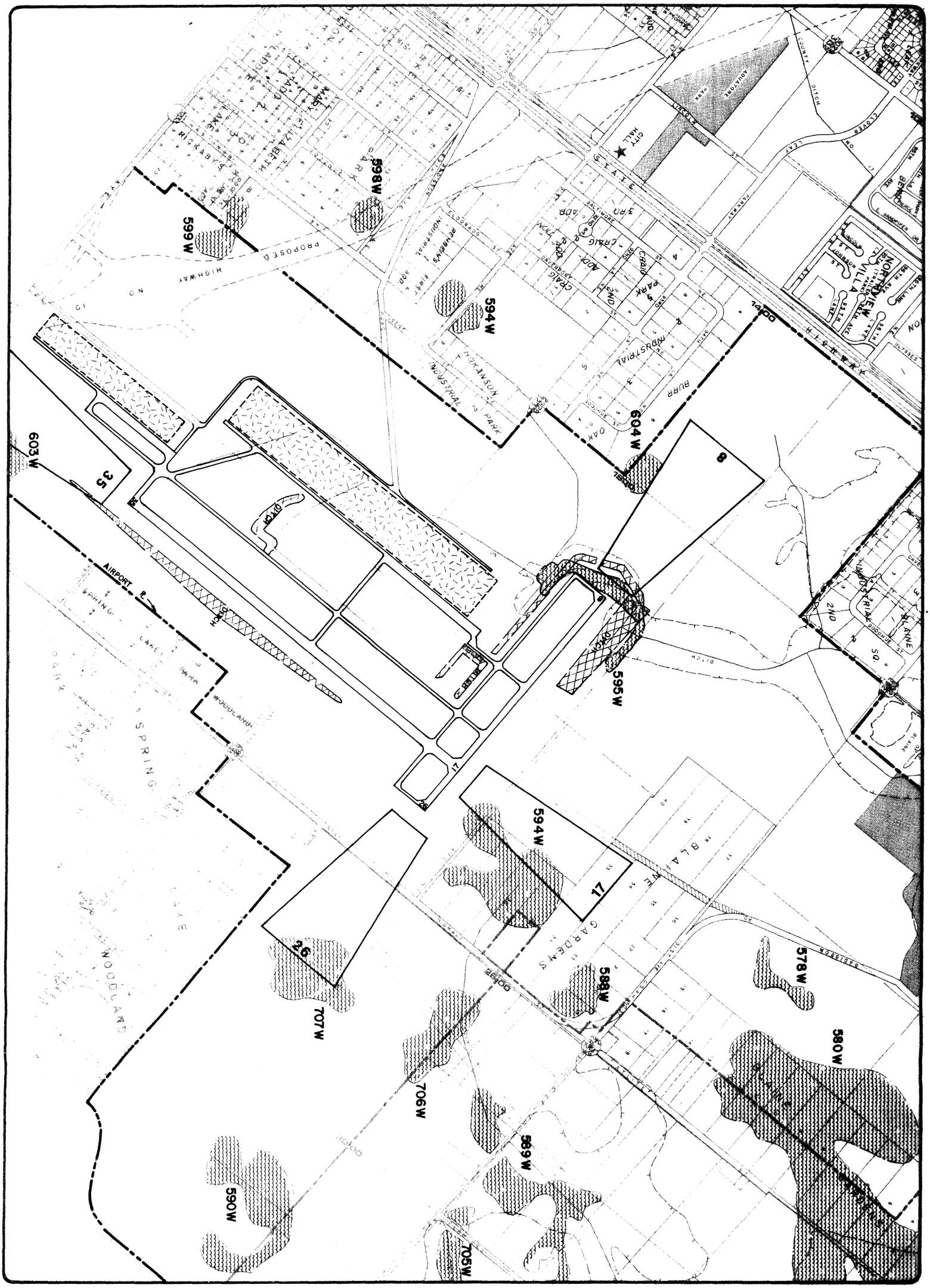
Existing conditions are defined in this EIS/EA as Alternative 1 and depicted on Figure 4-1.

4.7.2 Future No-Build

The future no-build alternative does not include any building area or airfield development. Minor improvements to the airport such as replacement of runway lighting, repaving, repair etc. are assumed to take place with this and all "Future" alternatives. Future no-build conditions are shown as Alternative 2 and also depicted on Figure 4-1.

4.7.3 Building Area Development Only

An alternative was investigated which included development of only the east and west building areas and taxiways to connect those building areas with the existing runway and taxiway system. The proposed east and west building areas encompass 33 acres each. Development of building areas only is defined as Alternative 3 and is depicted in Figure 4-2.

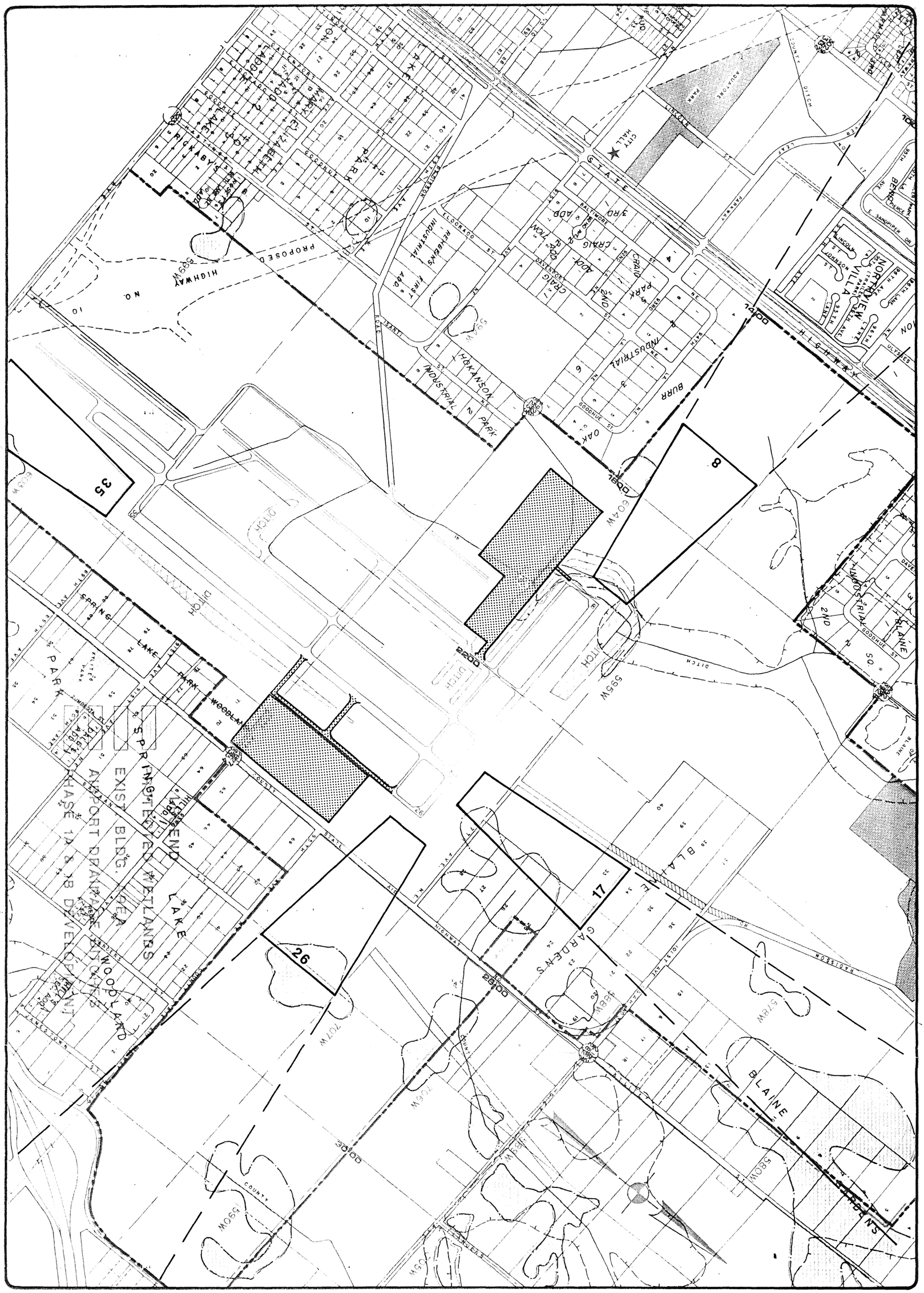


ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

ALTERNATIVES 1 & 2 - EXISTING AND FUTURE NO BUILD

HTA companies

FIGURE 4-1



ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

ALTERNATIVE 3 - DEVELOPMENT OF BUILDING AREAS ONLY

HTA companies

1" = 1000'

FIGURE 4-2

4.7.4 Alternative 4

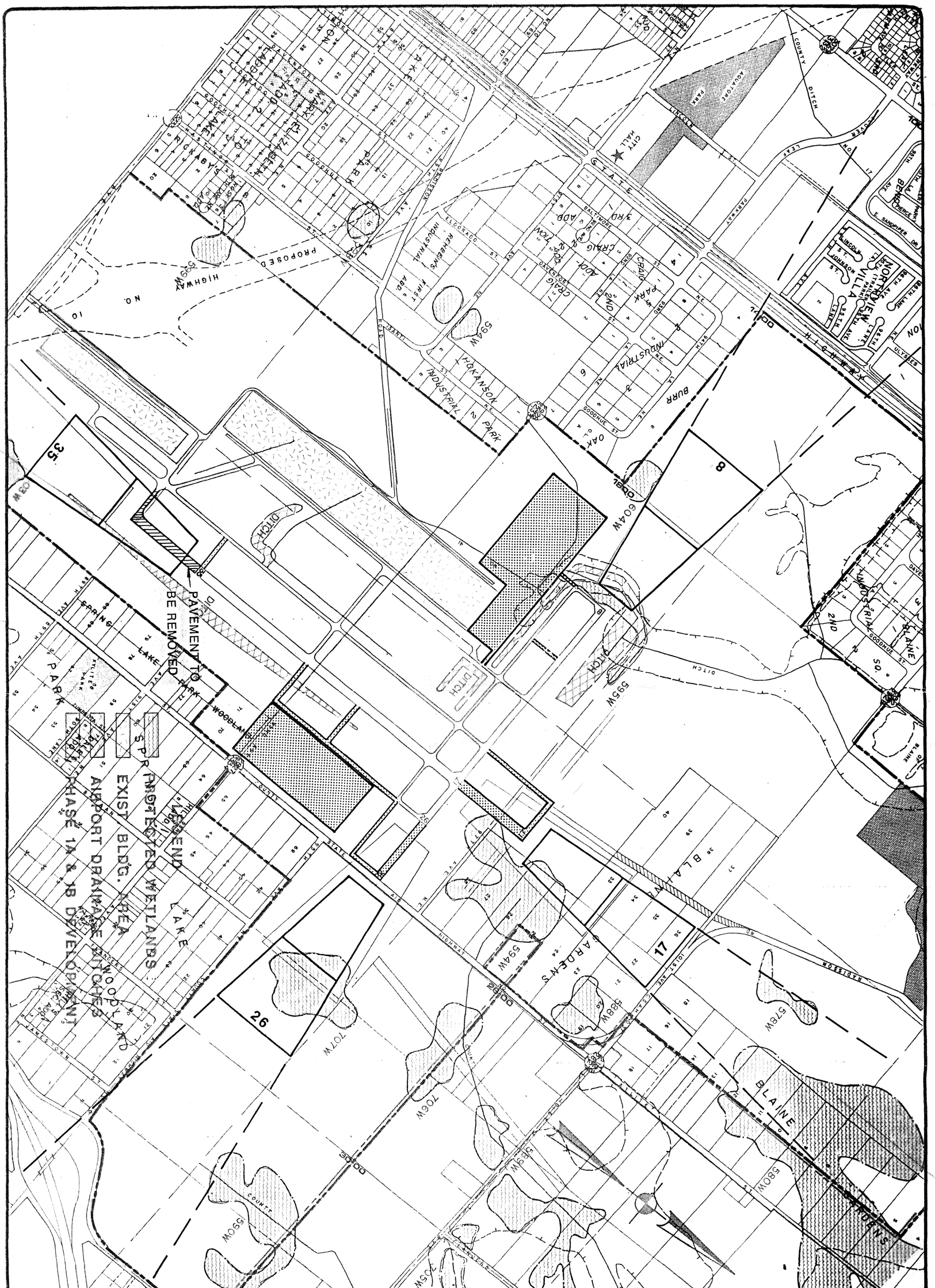
Alternative 4 includes development of the east and west building areas as with Alternative 3, Shifting Runway 17-35 950 feet to the north, removing the stub taxiway from the Runway 17-35 parallel taxiway to the existing Runway 35 end and removing the 950 foot long section of Runway 17-35 pavement between the existing and proposed Runway 35 ends, and constructing a connector taxiway west of the relocated Runway 35 threshold. Runway 8-26 will be extended 800 feet to the east. The portion of Xylite Street within airport property would be abandoned. Alternative 4 is the master plan alternative and is depicted on Figure 4-3.

4.7.5 Alternative 5

Alternative 5 includes development of the east and west building areas as with Alternative 3, shifting Runway 17-35 2,580 feet to the north, removing the stub taxiway pavement between the Runway 17-35 parallel taxiway and existing Runway 35 end, and removing the 2,580 foot long section of Runway 17-35 pavement between the existing and proposed Runway 35 ends, and rerouting a section of 101 Street Avenue N.E. that is within airport property. Runway 8-26 will be extended to 4,000 feet and shifted to the west so the Runway 26 threshold is at the intersection of Runway 17-35 and the new Runway 8 end would be 1,300 feet west of the existing Runway 8 end. Relocated threshold markings would be applied to Runway 8-26 between the existing Runway 26 threshold and Runway 17-35 so that section of pavement could be used as a taxiway. Alternative 5 is depicted on Figure 4-4.

4.7.6 Alternative 6

Alternative 6 includes development of the east and west building areas as with Alternative 3, shifting Runway 17-35 2,580 feet to the north, removing the stub taxiway pavement and Runway 17-35 pavement as with Alternative 5, and rerouting a section of 101st Avenue N.E. that is within airport property, as with Alternative 5, extending Runway 8-26 to 4,000 feet and shifting Runway 8-26 to the east so that the Runway 8 threshold is at the intersection of Runway 17-35 and the new Runway 26 end would be 3,300 feet east of the existing Runway 8 end. Relocated threshold markings would be applied to Runway 8-26 between the existing Runway 8 threshold and Runway 17-35 so that section of pavement could be used as a taxiway. A section of Xylite Street would be abandoned as with Alternative 4. Alternative 6 is depicted on Figure 4-5.



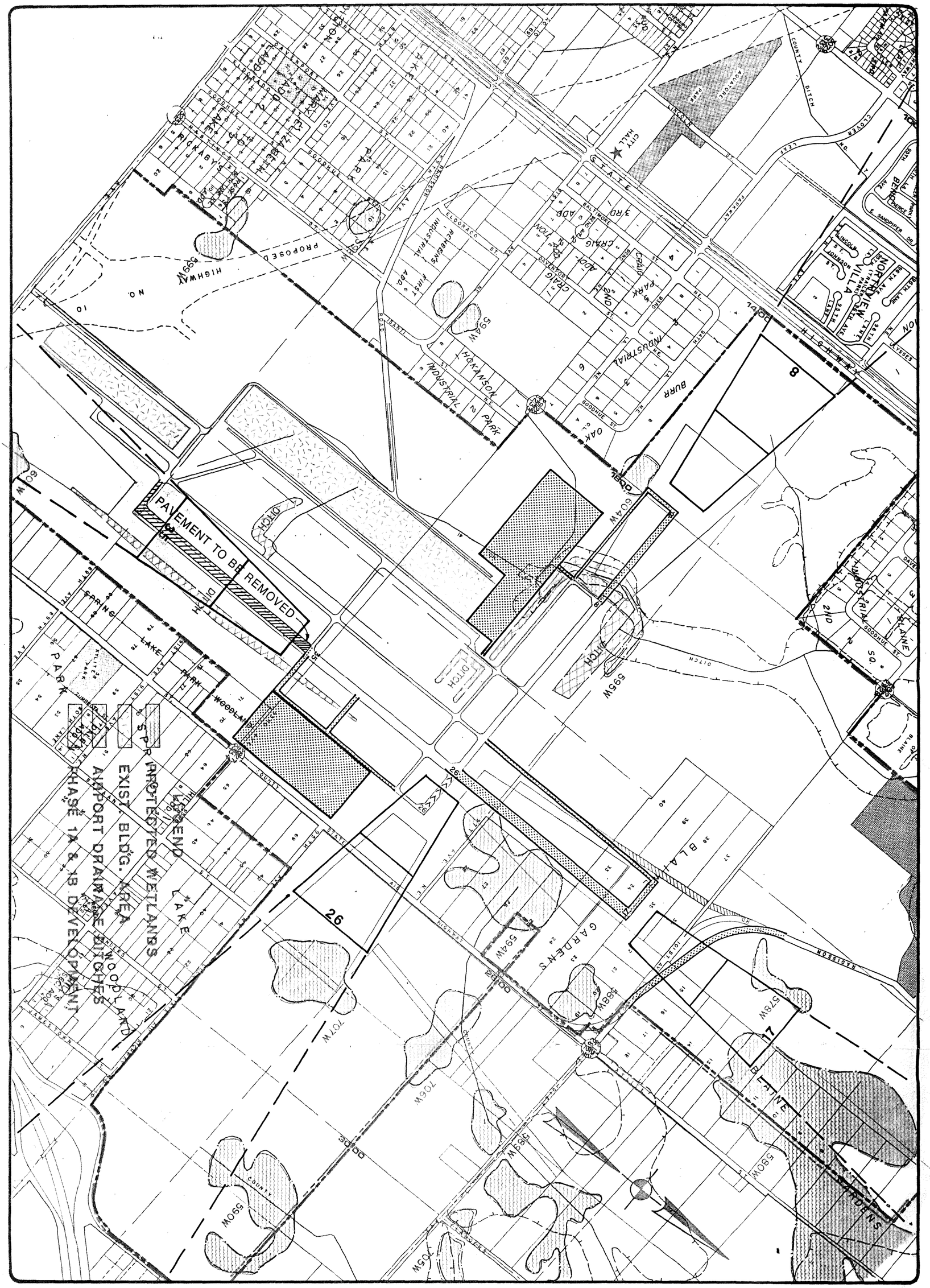
ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

ALTERNATIVE 4 - RUNWAY 17-35 SHIFTED 950' NORTH
RUNWAY 8-26 EXTENDED 800' EAST (MASTER PLAN ALT.)

HTA companies

1" = 1000'

FIGURE 4-3



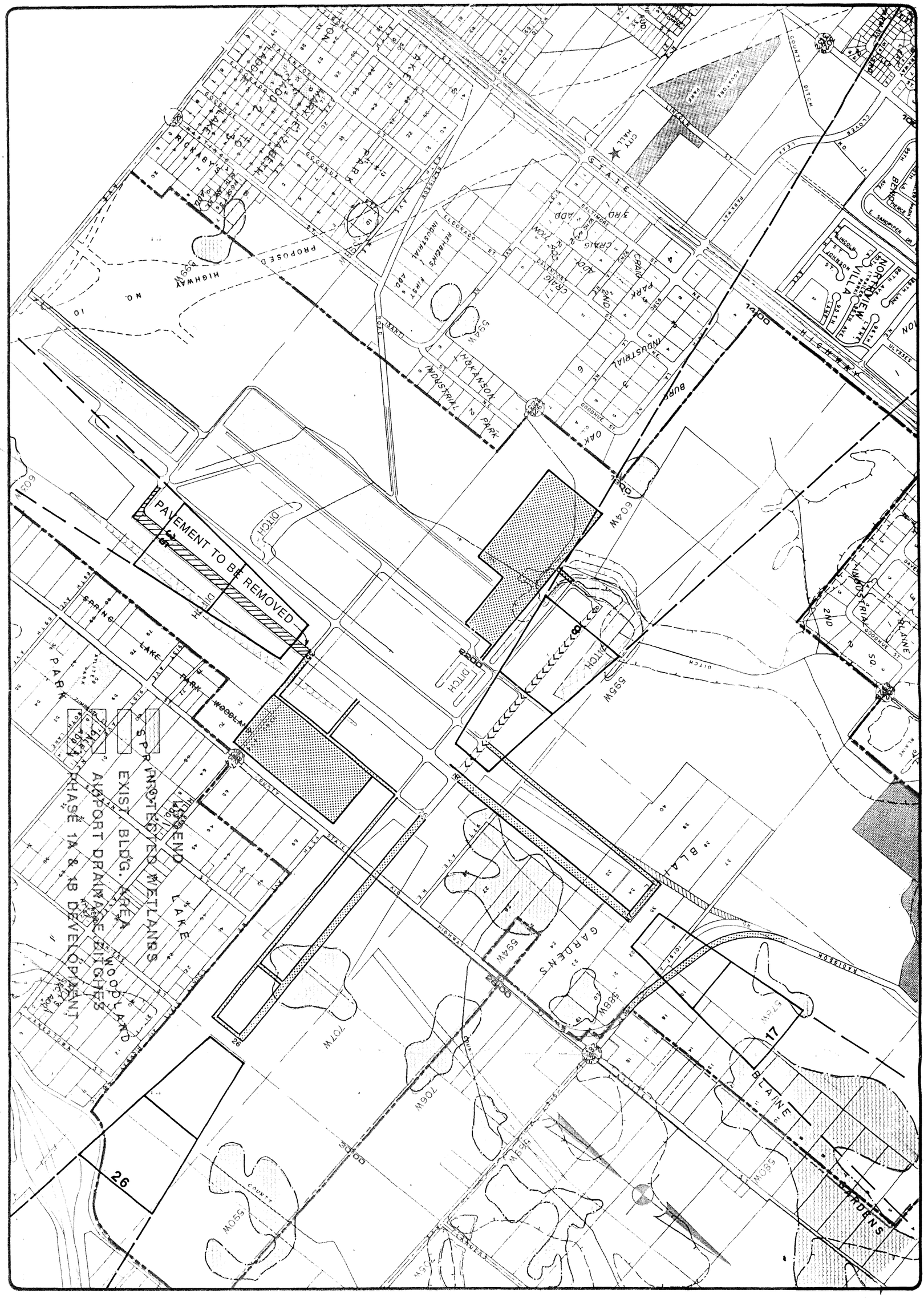
ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

ALTERNATIVE 5 - RUNWAY 17-35 SHIFTED 2580' NORTH RUNWAY 8-26 SHIFTED 1,400' TO THE WEST

HTA companies

1" = 1000'

FIGURE 4-4



ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

ALTERNATIVE 6 - RUNWAY 17-35 SHIFTED 2580' NORTH RUNWAY 8-26 SHIFTED 3,300' EAST

HTA companies

1" = 1000'

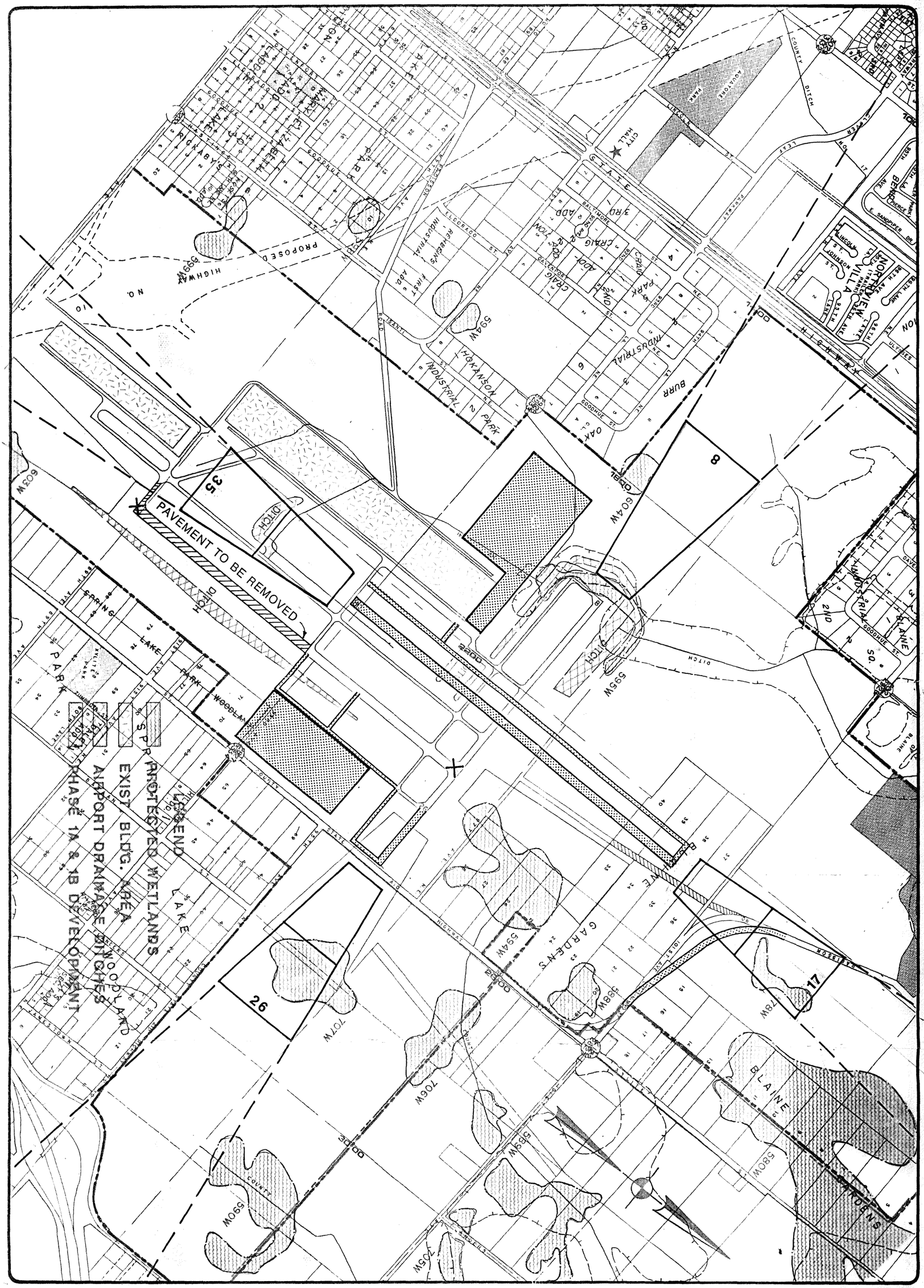
FIGURE 4-5

4.7.7 Alternative 7

Alternative 7 includes development of the east building area as with Alternative 3. The west building area would be the same orientation as with Alternative 3 but located 150 feet further to the south. A 200± foot connector taxiway would be constructed to serve the existing building area. The connector taxiway from the west building area to the Runway 8-26 parallel taxiway is not included in this alternative. Also included in Alternative 7 is construction of a new 4,855 foot Runway 17-35 located 750 feet west and shifted 2,580 feet north of the existing Runway 17-35 and rerouting a section of 101st Avenue N.E. that is within airport property. A new full length parallel taxiway would be constructed 240 feet west of the new Runway 17-35. When construction of the new Runway 17-35 is completed, the Runway 17-35 pavement between the existing Runway 35 end and the connector taxiway to the middle of the existing west building area and the stub taxiway between the Runway 17-35 parallel taxiway and the existing Runway 35 end would be removed, the remaining 2,275 foot seection of the existing Runway 17-35 will be closed by applying yellow "X"s to the runway ends. The yellow "X"s are the FAA recognized symbol denoting a closed runway. It is illegal to use any section of a closed runway as a runway but the closed runway would be used as a taxiway to serve the east building area. Runway 8-26 will be extended 800 feet to the east and a section of Xylite Street abandoned as with Alternative 4. Alternative 7 was developed to determine the environmental effects of an alternative which does not impact protected wetlands. Alternative 7 is depicted on Figure 4-6.

4.7.8 Alternative 8

Alternative 8 includes development of east and west building areas as with Alternative 3, shifting Runway 17-35, 2,580 feet to the north removing the stub taxiway pavement and Runway 17-35 pavement as with Alternative 5, and rerouting a section of 101st Avenue N.E. that is within airport property as with Alternative 5, extending Runway 8-26 to a length of 4,000 feet and abandoning a portion of Xylite Street as with Alternative 4. Alternative 8 is depicted on Figure 4-7.



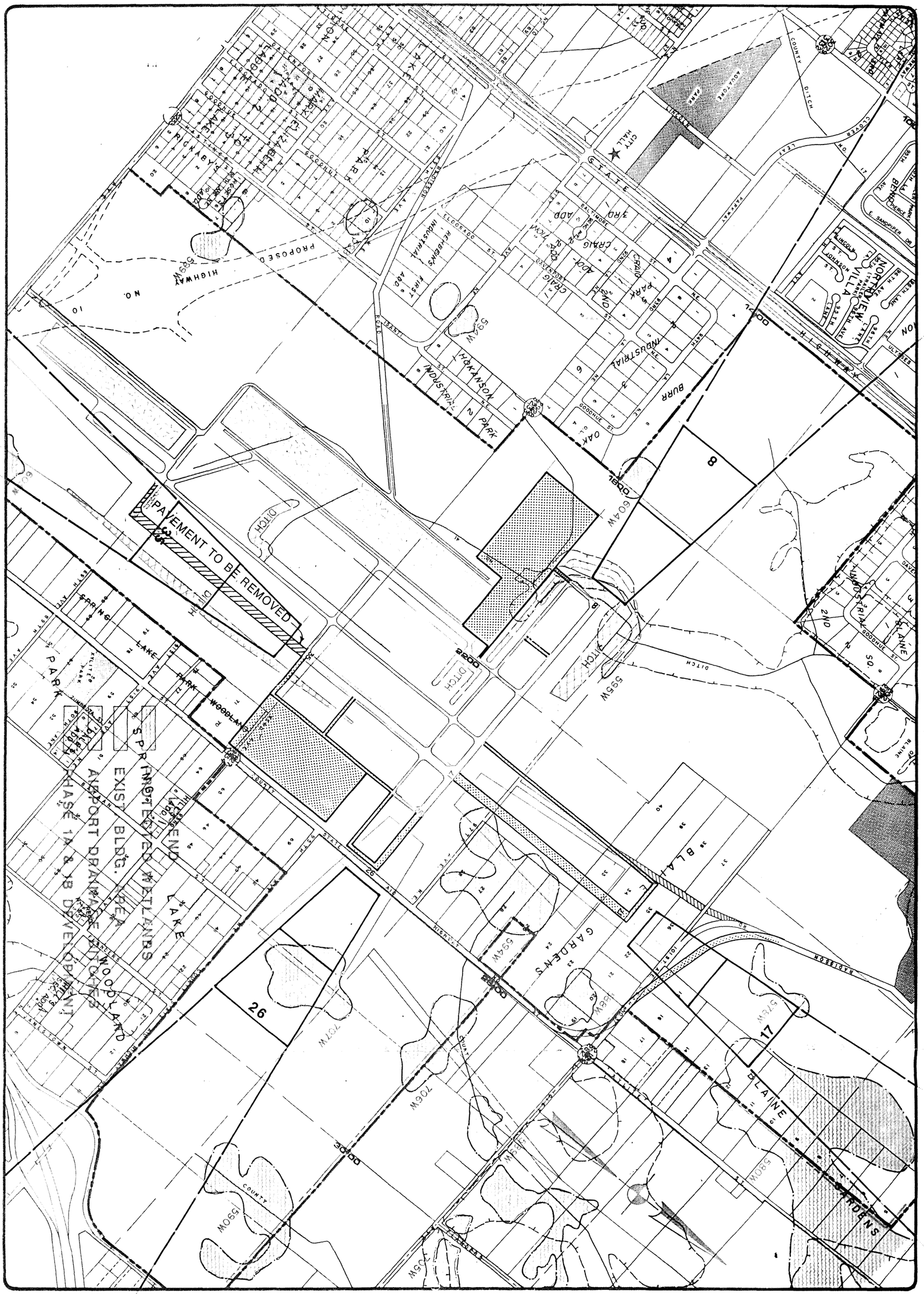
ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

ALTERNATIVE 7 – NEW NORTH–SOUTH RUNWAY 800' EXTENSION TO RUNWAY 8–26

HTA companies

1" = 1000'

FIGURE 4–6



ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

ALTERNATIVE 8 - RUNWAY 17-35 SHIFTED 2580' NORTH
RUNWAY 8-26 EXTENDED 800' EAST

HTA companies

1" = 1000'

FIGURE 4-7

4.8 AVIATION ACTIVITY AND RUNWAY USE CHARACTERISTICS

4.8.1 Introduction

In order to assess the aircraft noise and surface transportation impacts on the Anoka County-Blaine Airport (Janes Field) environs that might result from the construction of the proposed airfield and building area improvements, it is necessary to construct representative models of the present and future aviation activity at the airport. Although Section 1.7 of this EIS/EA includes forecasts of aviation demand, the level of detail provided is insufficient for comprehensive noise impact and surface transportation assessments. In this section, the work undertaken to refine and further detail the forecasts from Section 1.7 is presented.

4.8.2 Aircraft Activity

Forecast figures for annual aviation activity explained in Section 1.7 and shown in Tables 1-11 and 1-13 assume the development of airport facilities (e.g. hangars, apron areas) to accommodate that level of demand. If facilities are not developed sufficient to accommodate that demand, actual aviation activity will be less than that shown in Tables 1-11 and 1-13 as discussed in more detail below.

- Based Aircraft

As discussed in the Anoka County-Blaine Airport (Janes Field) Scoping Decision Document dated April 15, 1985, building area construction will be included in all development alternatives except existing and future no-build alternatives. As such, the number of aircraft based at the airport in all future alternatives except future no-build are assumed to equal the forecasts in Table 1-11; namely, 387 at present, 452 by 1990 and 630 by 2000. According to MAC, the existing terminal area at Janes Field is nearly at capacity in terms of hangar and apron storage capabilities for aircraft. Therefore, any future scenario without development of proposed new building areas implies that the number of based aircraft at the airport in the future will be constrained at a level at which the existing storage areas are saturated. Such a condition would occur when all areas available for aircraft tiedown had been utilized and a somewhat higher density of storage in the hangars existed.

To calculate future numbers of aircraft over the current level 387 based aircraft that could be accommodated with the future no-build alternative, the following assumptions were used:

- The existing hangar capacity at Janes Field equals approximately 260. The total existing hangar capacity could be increased by 20% (52) by aircraft owners sharing private hangars and aircraft more tightly arranged in conventional multi-plane hangars. Consequently, total potential hangar capacity for the future no-build alternative is 312 aircraft.

- Conversations with the Airport Manager revealed there are currently 90 paved aircraft tie-down spaces which are used to capacity. There are also approximately 35-40 based aircraft at the temporary turf tie-down area between the building area and the Runway 17-35 parallel taxiway. Utilizing the existing wingtip-to-wingtip parking configuration, the turf tie-down area could accommodate 150 aircraft. (As aircraft are parked in this area at present, locating additional aircraft in this area is within the concept of future "no-build".) The total, existing tie-down capacity of the airport, both paved and unpaved, is therefore, approximately 240 spaces.

- The total number of based aircraft accommodated with the "no-build" alternative will not be greater than based aircraft projection figures shown in Table 1-11 for years 1990 and 2000.

- Use of the turf tie-down area is temporary and less than desirable due to the wet conditions caused by the high water table. It is assumed that as hangar areas in the proposed building areas become available, aircraft will use the building areas, as there will then be no incentive to use the grass tie-down area.

A total of 552 based aircraft (312 hangared aircraft plus 240 potential tie-downs) can be accommodated by the future "no-build" alternative. However, the based aircraft projection for the future no-build alternative is limited to the 1990 based aircraft forecast of 456.

It was assumed the based aircraft mix distribution for the future no-build alternative for year 1990 will be the same percentage as projected in Table 1-15. The projected numbers of based aircraft types for the future no-build alternative is assumed to be the same for future build shown on Table 1-15. Based aircraft mix figures for the future no-build alternative are shown on Table 4-3.

TABLE 4-3
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
PROJECTED BASED AIRCRAFT MIX (FUTURE NO-BUILD)

Aircraft Type	1990	(%)
SE-P	397	(87.0)
ME-P	44	(9.7)
Turbo-prop	6	(1.4)
Jet	3	(0.7)
Helicopter	6	(1.2)
Total	456	(100.0)

Source: Hoyle, Tanner & Associates, Inc.

- Annual Operations

As with numbers of based aircraft, the level of annual operations to be accommodated at the airport will be contingent upon future development. As discussed in Section 3.0, Project Need and Justification, the airport capacity analysis procedures in FAA Advisory Circular 150/5060-5 indicate the Annual Service Volume (annual operational capacity) of the airport is approximately 200,000-230,000 annual operations for present and Phase 1A and Phase 1B conditions, and 275,000-355,000 annual operations for year 2000 with Phase 2 and Phase 3 development. Peak hour capacity is 77-98 operations with its present airfield configuration and 147-197 operations with Phase 2 and 3 development. Future levels of operations through Phase 1A and Phase 1B and Phase 2 and Phase 3 will be that projected shown on Table 1-13, or the operational capacity of the various alternatives, whichever is lower.

The operational capacity of the airport will have to be increased over existing Phase 1A and Phase 1B conditions to accommodate the level of operations projected for year 2000. Phase 2 and Phase 3 development as generally recommended in the AMP and included in this EIS/EA as described in the Informational Appendix (Appendix 1).

Airfield capacity with Phase 1A and Phase 1B development through 1990 and Phase 2 and Phase 3 development through year 2000 is greater than the level of activity projected for the respective time periods. Therefore, for all alternatives, the level of annual operations at Janes Field will be limited to that projected for the airport as shown in Table 1-13.

- Local/Itinerant Mix

Local operations are performed by aircraft that take-off or land at the same airport and fly in the airport vicinity. Itinerant operations are performed by aircraft which arrive at a different airport from which they departed. The Anoka County-Blaine Airport Master Plan contained an estimate that the local and itinerant share of total operations is approximately 60 percent and 40 percent, respectively. Due to the high level of flight training occurring at the airport (typically local operations) this uneven operational split of aircraft operations is logical and has been kept for all alternatives, build and no-build, discussed in this EIS/EA. See Table 4-4 for the local/itinerant mix for all future alternatives.

TABLE 4-4
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
LOCAL/ITINERANT MIX

		Local (60%)	Itinerant (40%)	Total (100%)
Existing		61,200	40,800	102,000
Future Build	1990	95,400	63,600	159,000
	2000	133,200	88,800	222,000
Future No-Build				
	1990	95,400	63,600	159,000

Source: Hoyle, Tanner & Associates, Inc.

- Annual Operational Mix

The number and percentage share of annual operations by aircraft types for future build alternatives is assumed to be that shown on Table 1-16. The percentage share of annual operations by aircraft type for the future no-build alternative is assumed to be the same distribution as for year 1990 as on Table 1-16 as shown on Table 4-5.

TABLE 4-5
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
ANNUAL OPERATIONAL MIX - FUTURE NO BUILD

Type Aircraft	1990	(%)
SE-P	138,100	86.8%
ME-P	15,400	9.7%
Turboprop	2,200	1.4%
Jet	1,400	0.9%
Helicopter	1,900	1.2%
	159,000	100.0%

Source: Hoyle, Tanner & Associates, Inc.

- Peak Hour Activity

Conversations with Tower personnel revealed that during weekends, which are the peak days of the week, the peak hour for operations is between 11 AM and 12 noon. Activity during this period is typically 80 operations per hour (0.0784% of 102,000 annual operations for 1985). Tower personnel substantiated the assumption that annual operational mix approximately represents operational mix during the peak hour. As the number of aircraft based at the airport increases, both with the future "build" and "no-build" alternatives, the high peaking characteristics during the peak hour (0.0784% of annual operations) can be expected to decrease. The decreasing influence of touch-and-go operations (typically associated with flight training) is due to the national trend for flight training operations which is expected to decline in future years. Future levels of peak hour operations for the "build" and "no-build" alternatives were computed by applying a lower peaking factor (0.06% for 1990 and 0.05% for 2000) to projected annual operations figures from Table 4-4.

The level of peak hour operations for both the build and no-build alternatives is limited by the peak hour operational capacity of the airport. FAA Advisory Circular 150/5060-5 indicates a peak hour capacity in a range up to 100 operations for an airport configuration such as exists at Janes Field at present and through 1990, the operational capacity increases to 147-197 operations with parallel runways to both existing runways 17-35 and 8-26 and a full-time operating air traffic control tower. (Phase 2 and Phase 3 development). As shown on Table 4-6, the peak hour demand will be less than airport capacity for alternatives 1 through 8 through 1990, as well as for full Phase 2 and Phase 3 development through year 2000.

TABLE 4-6
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
PEAK HOUR OPERATIONAL MIX

	EXISTING		FUTURE BUILD			
Type of Aircraft	1985	(%)	1990	(%)	2000	(%)
SE-P	71	89.2%	83	86.8%	95	85.6%
ME-P	7	9.0%	9	9.7%	11	9.9%
Turboprop	*	0.5%	1	1.4%	2	2.0%
Jet	*	0.5%	1	0.9%	1	1.0%
Helicopter	1	0.8%	1	1.2%	2	1.5%
Total	80[A]	100.0%	95	100.0%	111	100.0%

* Less than one.

TABLE 4-6 (cont.)

	FUTURE NO-BUILD	
Type of Aircraft	1990	(%)
SE-P	83	86.8%
ME-P	9	9.7%
Turboprop	1	1.4%
Jet	1	0.9%
Helicopter	1	1.2%
Total	95	100.0%

A/ Due to rounding of 1985 figures for turboprop and jets, the calculated total peak hour activity for 1985 is 80.

Note: All numbers rounded to nearest whole number.

Source: Hoyle, Tanner and Associates, Inc.

4.8.3 Runway Use Characteristics

Runway use is defined as the percentage of time a particular type aircraft would use a given runway. Runway use characteristics are principally used for the calculation of noise contours and determination of noise impacts. At a non-tower controlled airport, the runway used is a function of required runway length, and wind direction.

To determine runway use characteristics relative to winds, it is reasonable to assume that aircraft would use a given runway end the percentage of time when winds greater than 5 knots (winds of 5 knots, or 4 mph, or less are classified as calm winds) favor a particular runway (the preferred runway). It is assumed that calm winds have no effect on runway use. The percentages of time during which all weather winds greater than 5 knots favor Runways 17, 35, 8 or 26 relative to a 10 knot (12 mph) crosswind are taken from the airport's wind rose shown on Figure 4-8 and summarized in Table 4-7.

The total 10.5 knot wind coverage indicated in Figure 4-1 means that approximately 7.62% of the time (100% - 92.38% = 7.62%) aircraft must operate at the airport with excessive crosswinds. The distribution shown in Table 4-5 was assumed to equal 100% to reflect that the calm winds percentage is divided equally among the four runway ends since calm winds have no effect on selection of a preferred runway.

TABLE 4-7
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
PREFERRED RUNWAY USAGE - ALL WEATHER CONDITIONS

Runway	Percent of all Weather Conditions
17	20.05%
35	23.33%
17 & 35 combined	43.38%
8	17.83%
26	20.02%
8 & 26 combined	37.85%
Calms	11.15
Total 10.5 knot (12 mph) wind coverage	92.38%

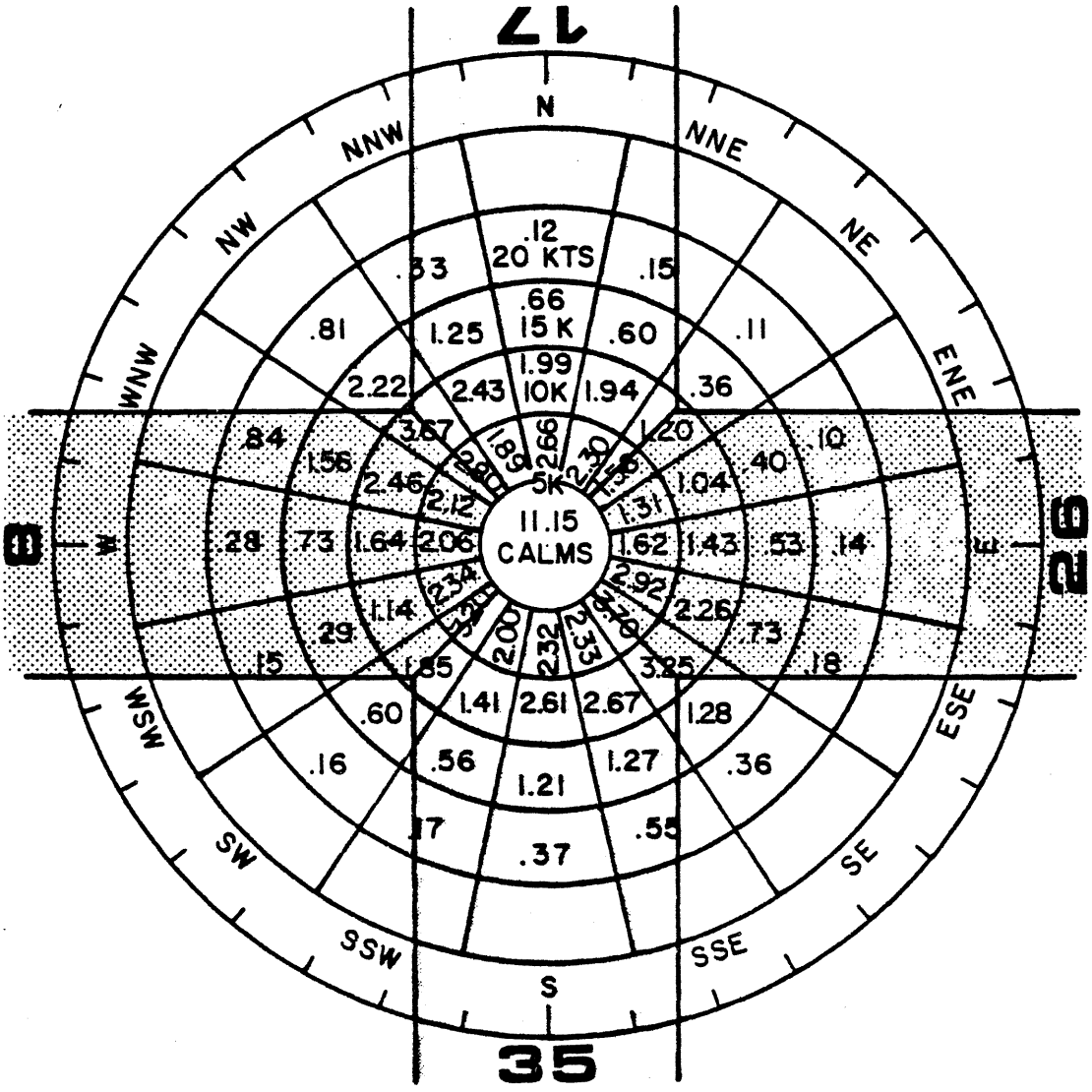
Source: Hoyle, Tanner & Associates, Inc.

For the purposes of this EIS/EA, it was assumed that operations by single engine and multi-engine aircraft will follow the distribution for preferred wind coverage shown in Table 4-8. The distribution of use for higher performance aircraft, because of their higher tolerance for crosswinds and their need for longer runways, has been calculated somewhat differently.

TABLE 4-8
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
PREFERRED RUNWAY OPERATIONS

Runway	Runway End Percent of Total	Runway End Percent of Each Runway
17	24.69	46.23
35	28.72	53.77
17 & 35 combined	53.41	100.00
8	21.95	47.11
26	24.64	52.89
8 & 26 combined	46.59	100.00
Total	100.00	

Source: Hoyle, Tanner & Associates, Inc.



SOURCE: U.S. WEATHER BUREAU ENVIRONMENTAL DATA SERVICE
ASHEVILLE, NC

LOCATION: WOLD CHAMBERLAIN FIELD

PERIOD: 1954-1959

ANOKA COUNTY - BLAINE AIRPORT
(JANES FIELD) EIS/EA

PREFERRED RUNWAY USE

HTA companies

FIGURE
4-8

All jet aircraft are assumed to use Runway 17-35 for existing and for future build and future no-build alternatives. This assumption is based on the premise that jet aircraft prefer to operate from the longer Runway 17-35 and accept a higher crosswind component.

Runway characteristics for turboprop aircraft at the airport were computed using the percentage of wind distribution from Table 4-8, as well as the additional factor of required runway length. Runway length requirements for turboprop aircraft shown in "Business and Commercial Aviation 1985 Planning and Purchasing Handbook" (BCAPPH) were reviewed. The share of turboprop aircraft that can operate from a given runway length according to BCAPPH data is assumed to be representative of the General Aviation fleet capabilities. Based on a review of BCAPPH data, the share of turboprop aircraft that can operate from runway lengths of 3,200', 3,201' - 4,000', and 4,001' - 4,855' was determined. Runway length requirements for turboprop aircraft were relative to accelerate - stop distances according to Federal Aviation Regulations (FAR) Part 135. Accelerate - stop distances are not required for FAR Part 91. However, many Part 91 turboprop operators elect to use accelerate - stop requirements for an extra margin of safety.

Distributions of turboprop aircraft accelerate - stop distances within the runway length categories previously mentioned above are shown on Table 4-9. The number shown in the total column on Table 4-9 is the number of turboprop aircraft from BCAPPH that can operate from a 4,855 foot runway (the maximum possible runway length at Janes Field). The figures in the remaining columns of Table 4-9 reflect the maximum number and percentage share of turboprop aircraft from BCAPPH that can operate from a 4,855 foot runway which could also operate from a Runway 8-26 length of 3,200' (existing) and 4,000' (the proposed project). As shown in Table 4-9, with the master plan alternative 800' extension, there is a significant increase in the ability of Runway 8-26 to accommodate the turboprop aircraft.

For the purposes of this EIS/EA, by multiplying the percentage of time Runway 8-26 is preferred by wind direction (46.59% from Table 4-8) by the percentage of turboprop aircraft that can use Runway 8-26 shown on Table 4-9, the actual share of turboprop aircraft that would use Runway 8-26 has been calculated. The remainder of such operations will use Runway 17-35. The resulting runway use distribution was applied to the annual aircraft operational mix forecast from Table 1-8 ("Build Alternatives") and to Table 4-5 "No Build" alternative to calculate the percent share and number of turboprop operations to use Runway 8-26 and Runway 17-35. Annual turboprop operations on Runway 8-26 and Runway 17-35 were then assigned a specific runway end using the runway end use percentage from Table 4-8.

TABLE 4-9
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
RUNWAY USE DISTRIBUTION-TURBOPROP AIRCRAFT BY RUNWAY LENGTH

	EXISTING AND FUTURE NO-BUILD			PROPOSED PROJECT (FUTURE BUILD)		
	Runway 8-26 3,200'	Runway 17-35 4,855'	Total A/	Runway 8-26 4,000'	Runway 17-35 4,855'	Total A/
Number	3	18	21	18	3	21
Percent	14.3%	87.5%	100.0%	87.5%	14.3%	100.0%

A/ Number of turboprop aircraft from BCAPPH that can operate from a 4,855' runway.

Source: Hoyle, Tanner & Associates, Inc.

The figures for annual operations by turboprop, jet, multi-engine piston, and single-engine piston aircraft by specific runway ends for Alternatives 1 through 7 and full Phase 2 and Phase 3 development are shown in Appendix 2-E.

To determine runway use characteristics for Phase 2 and Phase 3 development, the Consultant applied operations figures shown in Table 1-13 and 4-6 to the two runway use configurations for the two runway system as at Janes Field at present and revised those characteristics to reflect a parallel runway to both Runway 17-35 and Runway 8-26. As described in Section 4.7.8 and depicted in the Informational Appendix (Figure 1.1), runway length for Phase 2 and Phase 3 development at Janes Field is as follows: Runway 17L-35R (3,200'); Runway 17R-35L (4,855'); Runway 8L-26R (3,200'); and Runway 8R-26L (4,000'). To compute Runway use characteristics for full Phase 2 and Phase 3 development, the Consultant made the following assumptions:

- Of single and multi-engine piston aircraft which would use the north-south runways, all touch-and-go and training and most other type operations would be conducted on Runway 17L-35R. A small number of single and multi-engine aircraft would operate from Runway 17R-35L. Use of the north-south runways by single and multi-engine piston aircraft is estimated at Runway 17L-35R (65%) and Runway 17R-35L (35%).

- All jet aircraft and all turboprop aircraft using the north south runways would use Runway 17R-35L as it is assumed jet and turboprop aircraft, given a comparable runway orientation, would use the longest runway possible.

- Use of the east-west runways by single and multi-engine piston aircraft is assumed to be 50% to Runway 8R-26L and 50% to Runway 8L-26R.

- One hundred percent of all turboprop aircraft which would operate from the east-west runways would use Runway 8R-26L as again, it is assumed that turborprop aircraft would operate from the longer runway.

CHAPTER 5

POTENTIAL IMPACTS

5.0 POTENTIAL IMPACTS

This section is a documentation and analysis of the potential environmental impacts of the proposed project and alternatives to the proposed project. This section is arranged into categories according to the type of environmental impacts. Both temporary and long-term impacts are discussed.

The categories of impacts are as follows:

- Aircraft Noise Impacts
- Impacts on Groundwater and Surface Water
- Sewage Disposal Impacts
- Hazardous Waste Impacts
- Impacts on the 100 Year Floodplain
- Impacts on On-Site and Downstream Drainage
- Impacts to Wetlands
- Impacts to Flora and Fauna
- Surface Transportation Impacts
- Social Impacts
- Induced Socio-Economic Impacts
- Erosion

Impacts from Phase 2 and Phase 3 Airport Master Plan development are described in the Informational Appendix. (Appendix 1) The analysis of environmental impact categories required to be assessed in a Federal Environmental Assessment, and their relationship to State Requirements is included in Chapter 6.

5.1 NOISE IMPACTS

5.1.1 Noise Metrics

The effects of aircraft noise on developed areas around the airport for each of the alternatives were analyzed using two principal noise metrics; Ldn and $L_{10}65$. The Day-Night Sound Level (Ldn) is a noise descriptor developed under the auspices of the U.S. Environmental Protection Agency (EPA) for use in describing environmental noise impacts generated by aircraft and other sources. It has been adopted by EPA and it is the index preferred by FAA, which has developed its own program for Ldn calculation. The Ldn noise metric is recognized by the U.S. Department of Housing and Urban Development (HUD) as a proper basis for land use planning around airports. Ldn may also be used for quantifying other noise sources, such as auto traffic, and for comparing noise from those sources to noise generated from airports.

Ldn is a logarithmic average of sound levels in A-weighted decibels (dBA). It is based upon a 24-hour Equivalent Sound Level (Leq) and is weighted to account for increased noise sensitivity between 10:00 p.m. and 7:00 a.m. by applying a 10 dBA penalty to noise events during the nighttime period. The procedure takes into account the following:

- altitude profiles
- thrust/power schedules
- flight track locations
- number of operations on each flight track
- split of operations between daytime and nighttime hours
- runway utilization schedule
- departure procedures
- touch-and-go, and other special operations.

The FAA's Integrated Noise Model (INM), Version 3.8, was utilized for the calculation of Ldn values in this EIS/EA. Locations with the same Ldn level are joined by a line or "contour" representing the particular noise level. Contour values usually range from Ldn 60 or 65 for lightly affected areas, to more than Ldn 75 for heavily affected areas. The FAA, in conjunction with HUD and other federal agencies, has developed land use compatibility criteria for specific Ldn values. For noise analysis work completed in conjunction with Environmental Assessments, FAA Order 5050.4A provides that:

> "If the initial noise analysis indicates that there are no existing or planned noise sensitive areas within the current or projected Ldn 65, or that the cumulative increase in noise levels in such areas within the Ldn 65 does not exceed 1.5 Ldn over that created without the project, no further analysis is necessary and it may be assumed that there would be no significant noise impact."

L_{10} standards were adopted by the Minnesota Pollution Control Agency in 1974 for defining compatible land uses in different noise zones. The MCPA noise levels are specified in terms of maximum permissible hourly "L_{10}" and "L_{50}" values, the dBA levels which are exceeded ten percent (six minutes) and fifty percent (thirty minutes) of each hour. The standard establishes the L_{10}65 and L_{50}60 as the upper limit for residential land uses during all daytime hours (7:00 a.m. - 10:00 p.m.). For nighttime (10:00 p.m. - 7:00 a.m.), the upper limit for residential land uses is decreased 10 dBA to 55 dBA-L_{10} and 50 dBA-L_{50}.

One of the outputs from the FAA Integrated Noise Model (INM) is the cumulative time in minutes during which noise levels exceed 60 and 65 dBA. This is the total accumulation from all aircraft flyovers of times above the 60 and 65 dBA thresholds noise level. Thus the INM computer program can be used to calculate the peak hour duration above 60 and 65 dBA. It should be noted that this is a mathematical adaptation of the way in which the INM computer program was intended to be used. By means of this adaptation it

is possible to take advantage of the highly sophisticated INM program to identify areas where the 65 dBA L_{10} and 60 dBA-L_{50} standards may be exceeded.

The INM program produces the calculated times-above-threshold at an array of grid points specified by the user. Grid points where 65 dBA is exceeded for less than 6 minutes per hour and where 60 dBA is exceeded for less than 30 minutes do not exceed 65 dBA-L_{10} and 60 dBA-L_{50} respectively. These levels are exceeded, however, if the time above 65 dBA is more than 6 minutes per hour or time above 60 dBA is more than 30 minutes per hour respectively. The boundary of the 65 dBA-L_{10} and 60 dBA L_{50} zones are identified by interpolation between respective grid points.

The L_{10} and L_{50} analyses as the existing MPCA metric, are used to determine degree of compliance of noise generators, e.g. automobiles, aircraft and equipment, to State standards and to determine the compatibility of various noise levels with various land uses.

5.1.2 Existing Noise Environment

Before an analysis of the relative noise impacts of each of the eight alternatives was initiated, a noise monitoring program was undertaken to establish general levels of aircraft and non-aircraft noise levels in the vicinity of the airport. The program concentrated on four monitoring locations; two airport locations on each side of Runway 17-35, a site in the middle of Mounds View on the extended centerline of Runway 17-35; and a site just to the north of Mounds View near County Road J. A total of 89 hours of monitoring data was analyzed at these sites. In addition, a total of 12 hours of data was collected at three other sites. The seven monitoring sites, depicted in Figure 5-1, were selected with the assistance of MPCA and MAC staff.

The monitoring program was conducted in the last two weeks of August 1985. The principal data collected were L_{10} and L_{90} values, and typical maximum single-event noise levels, in decibels (dBA). These noise measures are consistent with State noise standards. The L_{10} data, which is the dBA value that is exceeded for six minutes per hour at each site, are all less than the maximum of 65 dBA established by State standards for residential areas.

The L_{90} data are indicative of ambient background noise level at each of the sites, representing a noise level that exists for 54 minutes per hour. This data can be compared to the L_{10} values at each of the sites to generally determine the contribution of aircraft noise. Finally, single-event noise data were collected to provide information on the maximum aircraft noise levels experienced at these sites in the airport vicinity.

Table 5-1 presents the L_{10} and L_{90} data collected at the seven monitoring sites. They indicate that a typical L_{10} level of 55.4 dBA occurs in an area of Mounds View about half of a mile south of County Road J. This figure is well below the State $L_{10}65$ standard. Non-aircraft noise levels of around 41 decibels (L_{90}) are experienced in this area during most of the day. A little further to the north, closer to Runway 17-35, at Site M-18, L_{10} levels of 59.1 decibels were recorded, while non-aircraft noise levels of around 51 decibels were measured, resulting primarily from traffic on County Road J.

Other sites on and around the airprot recorded L_{10} levels in the 51-56 decibel range, with L_{90} values ranging between 33 and 49 decibels. These L_{10} readings further confirm that existing noise levels in the airport vicinity are in compliance with the State $L_{10}65$ standard for residential areas.

The maximum single-event noise levels recorded are presented in Table 5-2. Also provided in this table are average durations above 65 decibels of the single-events recorded. The loudest events (on average) were recorded at Site M-18 (78.5 dBA), with the lowest levels at Site K-20. Levels above 70 dBA will generally be heard over normal speech conversational sound levels. At most of the monitoring sites, noise levels exceeding or close to this level of 70 dBA were recorded. However, these single-event noise levels occurred sporadically throughout the monitoring periods, were not frequent enough to produce the L_{10} values above 65 dBA. Nevertheless, individuals in the areas with noise levels in excess of 70 dBA will be aware of the noise of aircraft overflight above other background noise levels.

TABLE 5-1
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
HOURLY L_{10} AND L_{90} VALUES

Site	Number of Hours Averaged	Hourly L_{10}	Hourly L_{90}
H-18	5	50.8	38.7
J-19	3	55.6	33.4
K-16	30	55.4	45.1
K-19	23	55.7	49.5
K-20	4	52.4	43.2
M-18	24	59.1	50.5
O-18	12	55.4	41.1

Source: Howard Needles Tammen and Bergendoff

TABLE 5-2
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
TYPICAL SINGLE-EVENT NOISE LEVELS AND DURATIONS ABOVE 65 dBA

Site	Number of Single Events Averaged	Average Maximum dBA	Average Duration Above 65 dBA (in seconds)
H-18	7	73.3	13.4
J-19	24	73.8	5.0
K-16	-	-	-
K-19	17	69.4	8.7
K-20	4	67.8	4.0
M-18	55	78.5	14.1
O-18	43	71.6	8.5

Source: Howard Needles Tammen and Bergendoff

5.1.3 Ldn Analyses

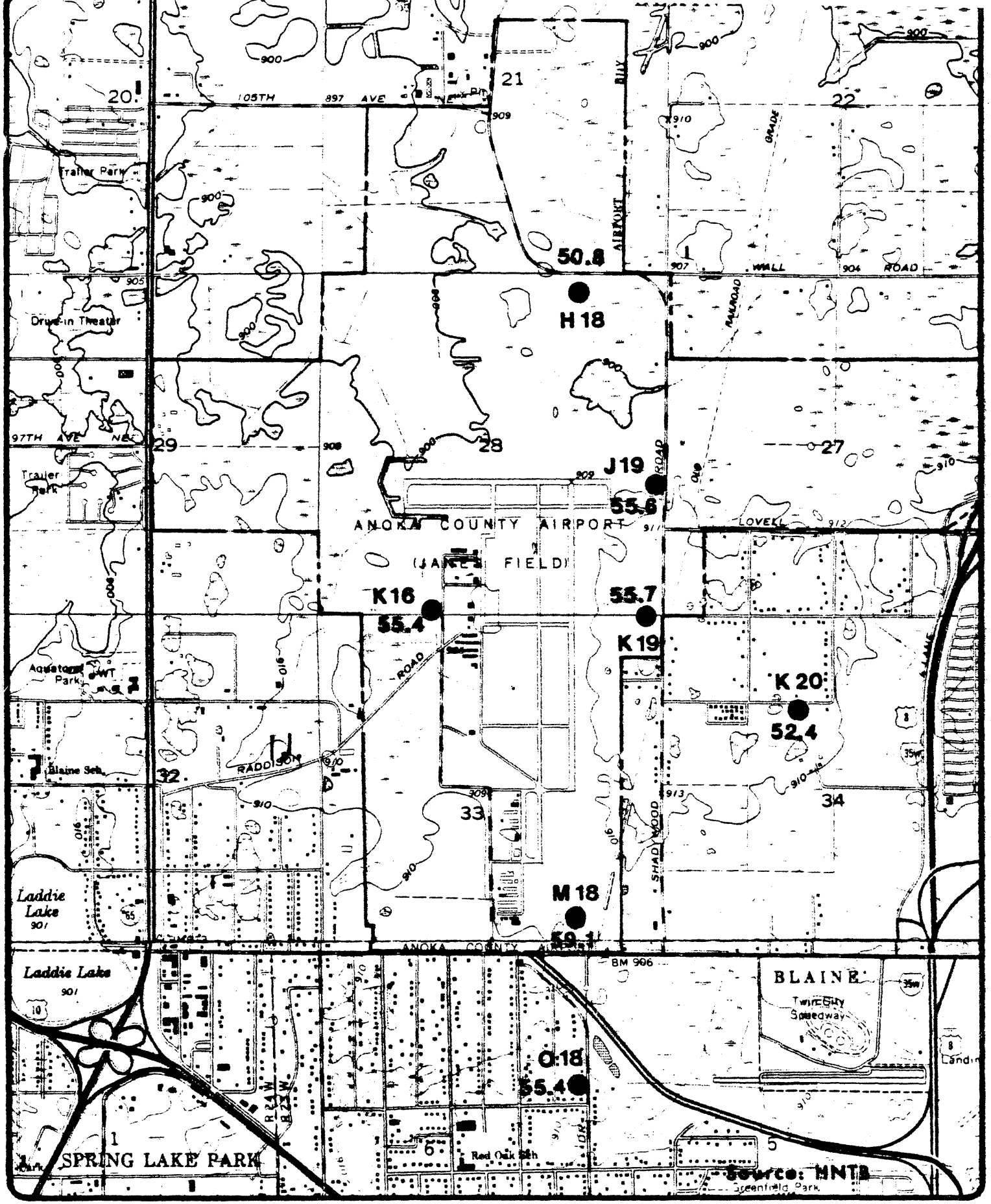
Ldn noise contour sets, including contour levels of Ldn 55, Ldn 65 and Ldn 75, were generated for the eight alternatives analyzed in this EIS/EA and are depicted in Figures 5-2 to 5-9.

A noise level of 55 Ldn is below the threshold of potential significant noise impact (65 Ldn) mentioned in FAA Order 5050.4A. However, a 55 Ldn noise contour was prepared for this EIS/EA to better define limits of noise generation and degree of compatibility of rural and residential land uses surrounding the airport with airport operations.

For 1985, an average daily traffic level of 280 aircraft operations was used for noise contour calculation (Section 4.8), with five percent of the traffic assumed to occur at night (10:00 p.m. - 7:00 a.m.). Average daily traffic in 1990 was projected to be 436 operations (five percent at night).

The assignment of these operations to runway ends is presented in Section 4.8. All turbojet aircraft were assumed to operate from the longer Runway 17-35 for all alternatives.

Aircraft flight tracks were established based on a series of field observations taken at the airport between August 22 and August 25, 1985. The result of the observation was the identification of the areas of concentration of flight tracks, particularly along the rectangular shaped traffic patterns around each runway. Based on the field observations, flight tracks representing the center of gravity of principal tracks were developed, and are presented in Figure 5-10.



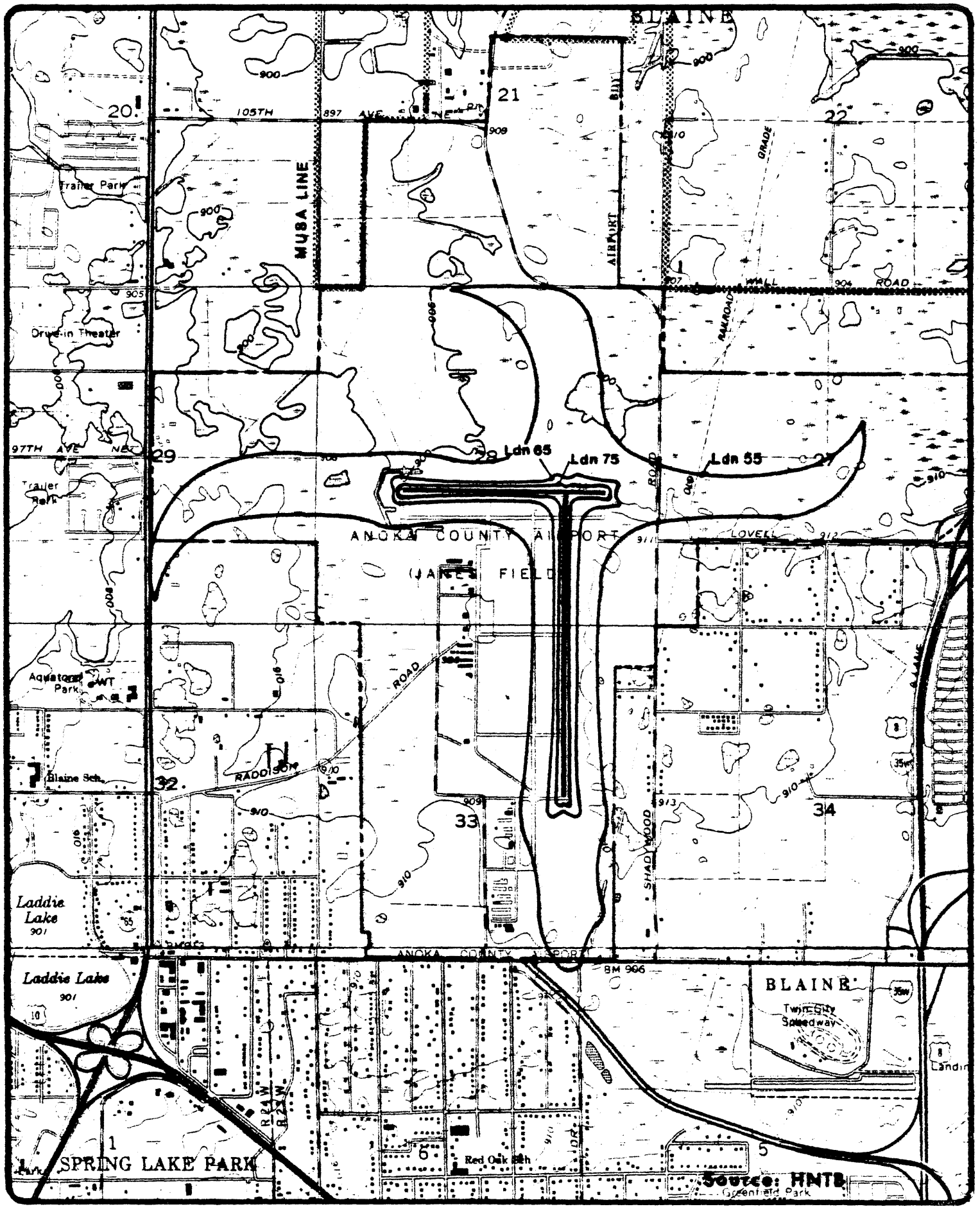
ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA NOISE MONITORING SITES WITH AVERAGE L10 READINGS

HTA companies

Scale: 1"=2000'

N

FIGURE 5-1



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

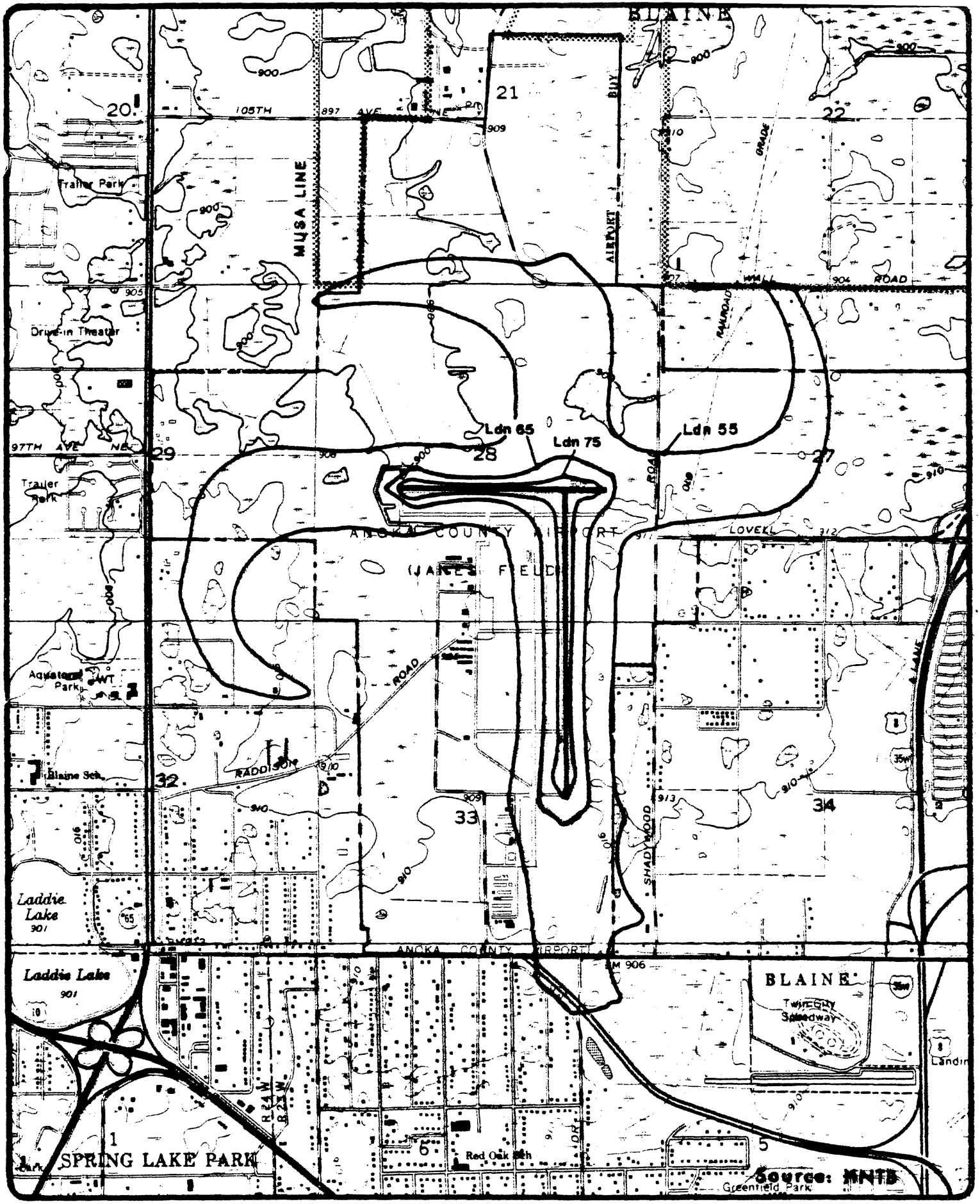
Ldn CONTOURS – ALTERNATIVE 1

HTA companies

Scale: 1"=2000'

N

FIGURE 5-2



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

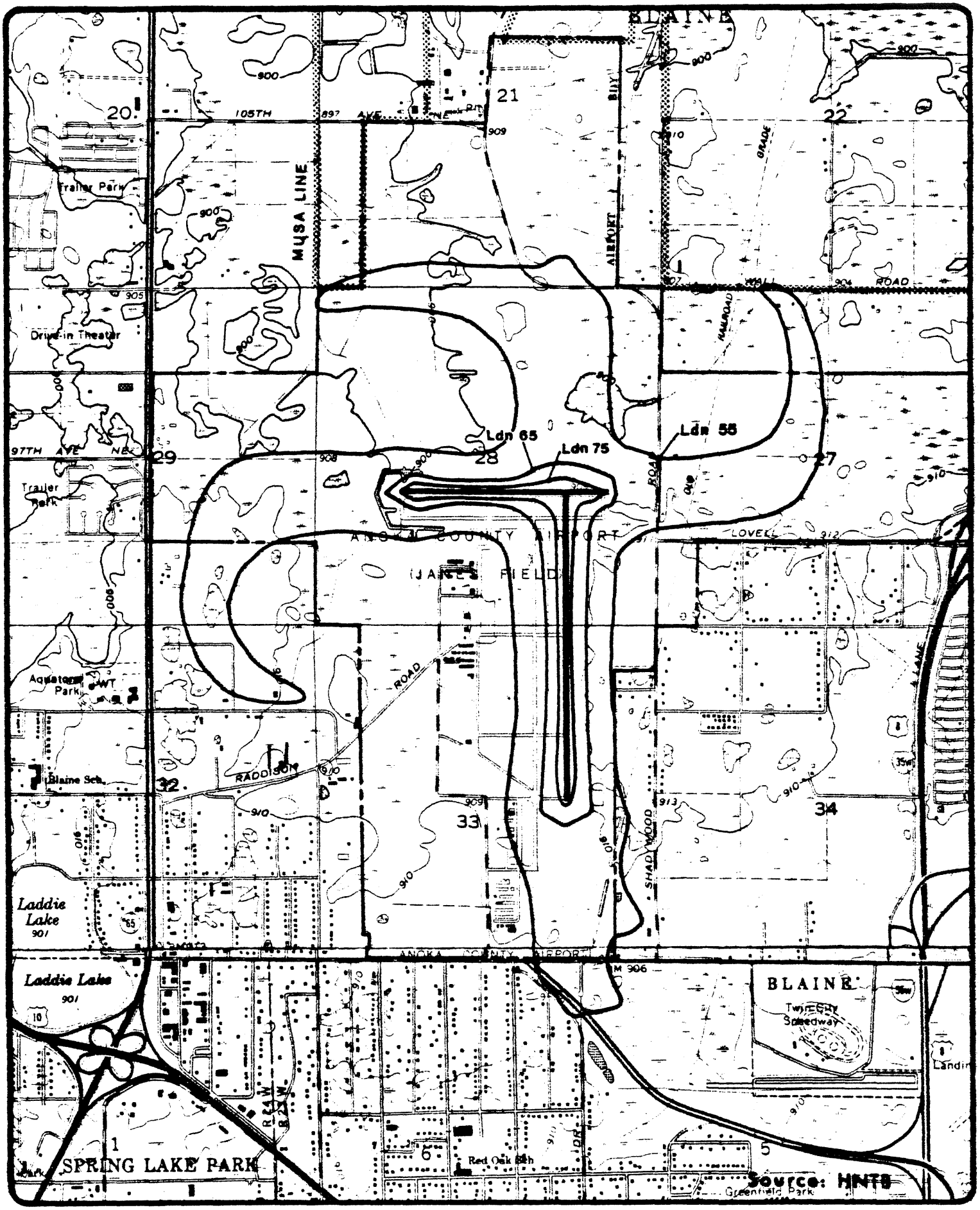
Ldn CONTOURS – ALTERNATIVE 2

HTA companies

Scale: 1"=2000'

N

FIGURE 5-3



ANOKA COUNTY – BLAINE AIRPORT
(JANES FIELD) EIS/EA

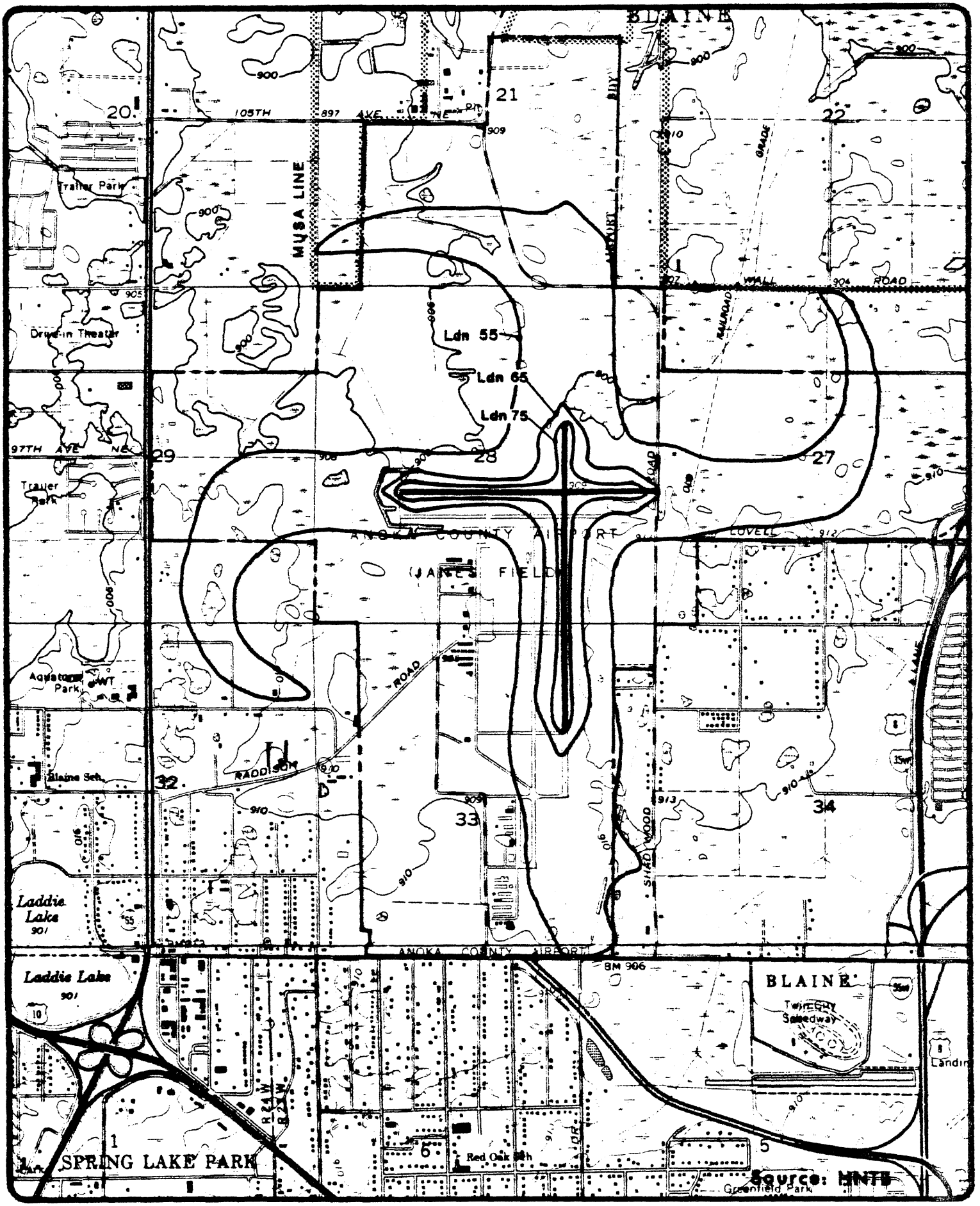
Ldn CONTOURS – ALTERNATIVE 3

HTA companies

Scale: 1"=2000'

N

FIGURE 5-4



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

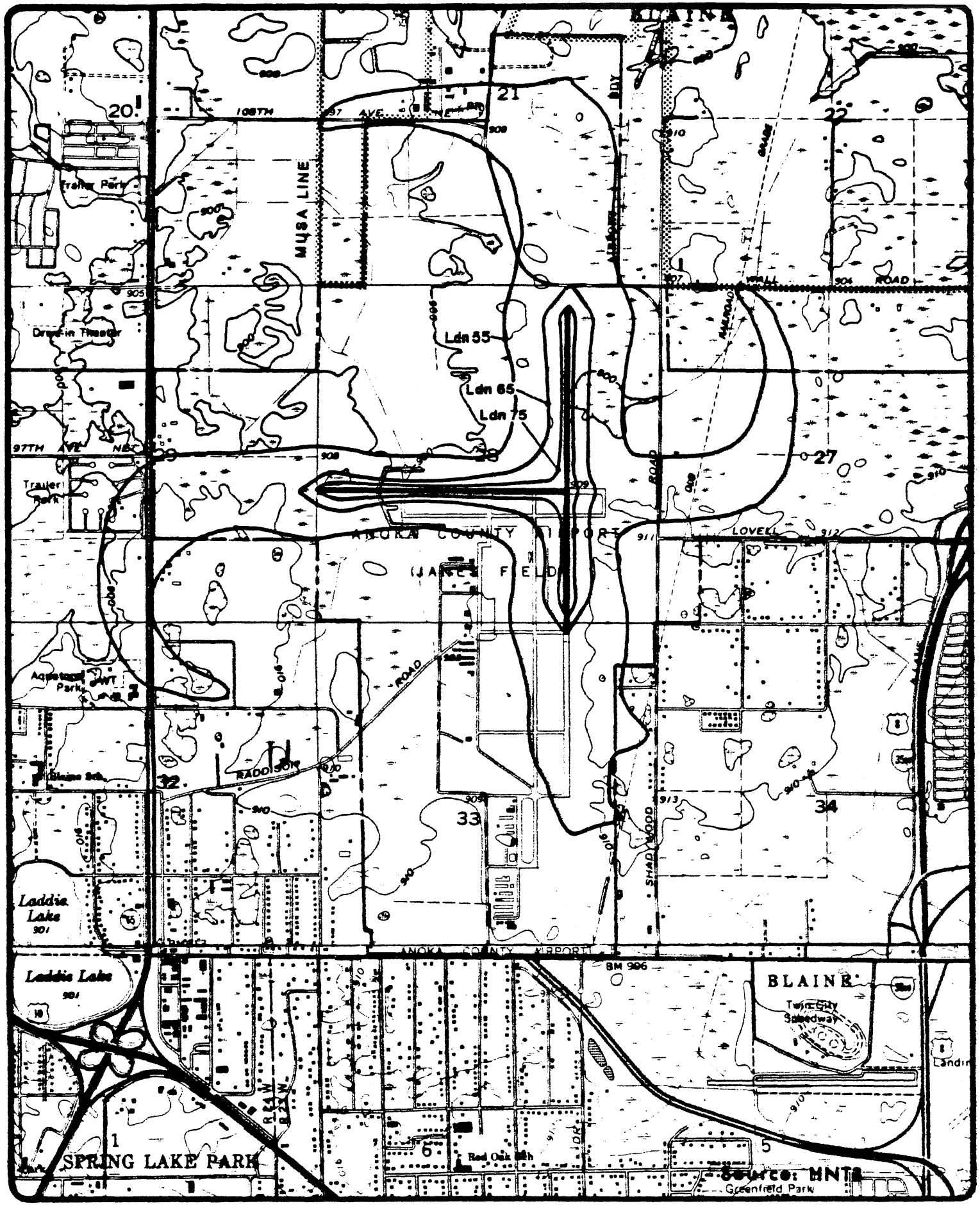
Ldn CONTOURS – ALTERNATIVE 4

HTA companies

Scale: 1"=2000'

N

FIGURE 5-5



ANOKA COUNTY – BLAINE AIRPORT
(JANES FIELD) EIS/EA

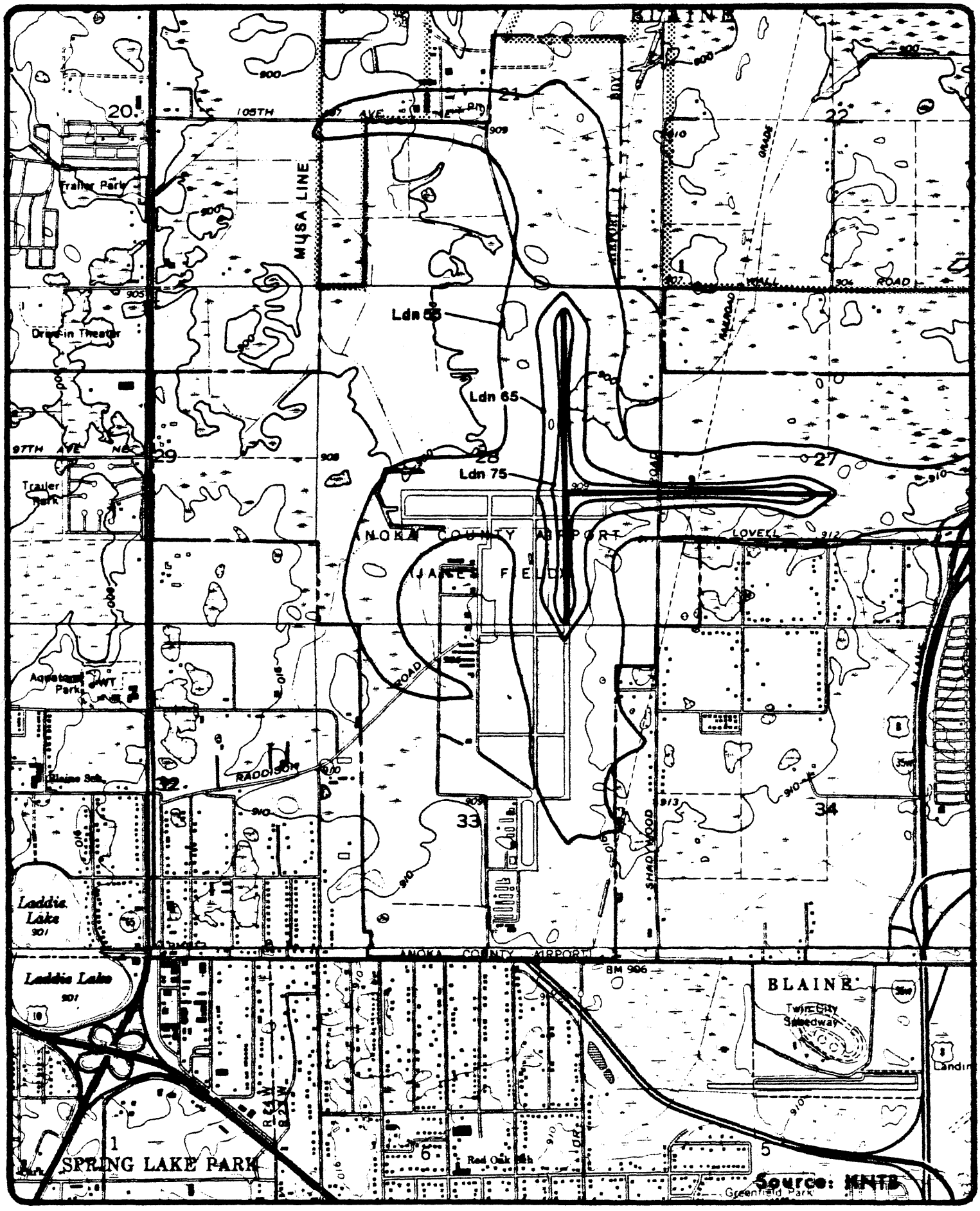
Ldn CONTOURS – ALTERNATIVE 5

HTA companies

Scale: 1"=2000'

N

FIGURE 5-6



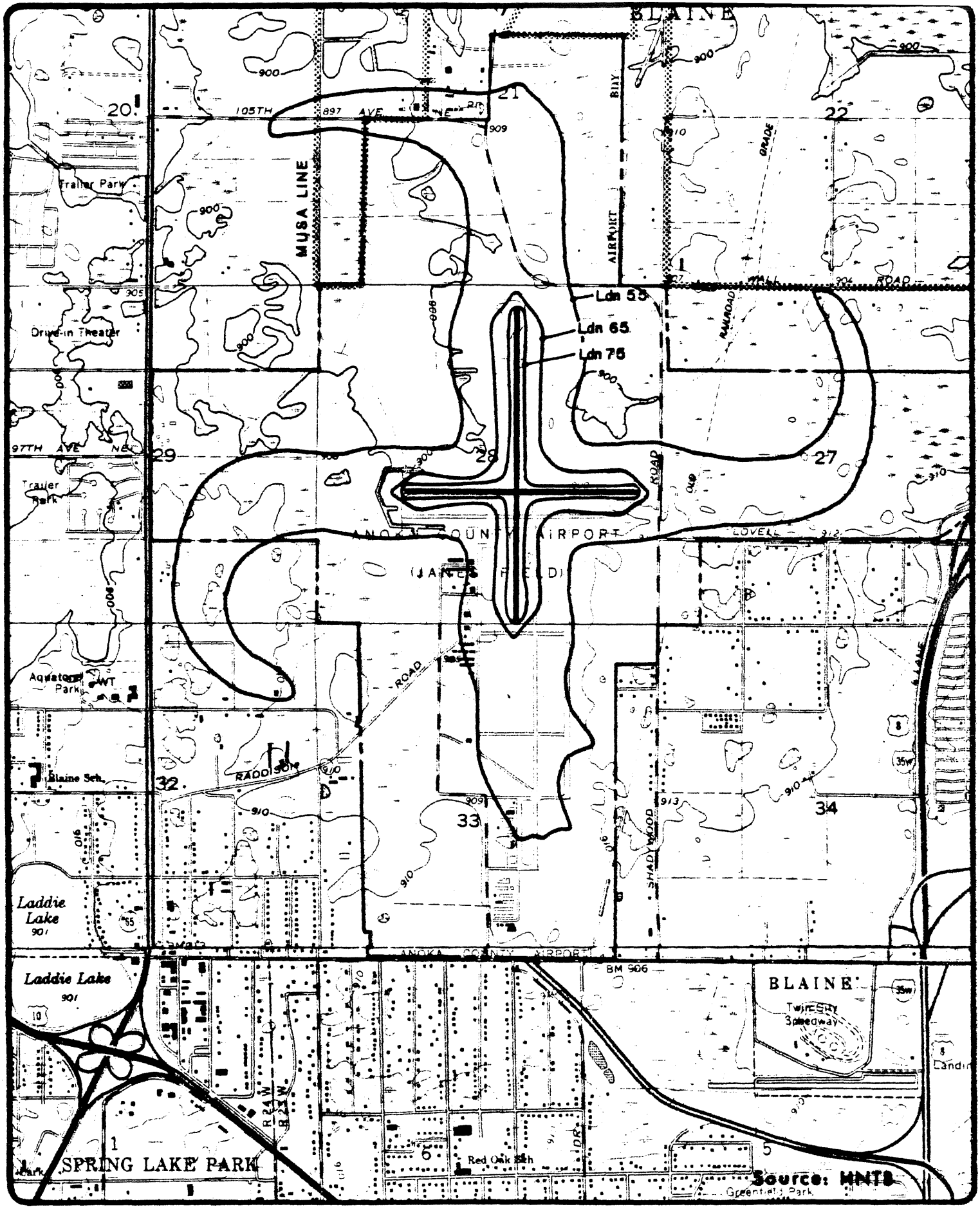
ANOKA COUNTY – BLAINE AIRPORT
(JANES FIELD) EIS/EA

Ldn CONTOURS – ALTERNATIVE 6

HTA companies

Scale: 1"=2000'

FIGURE
5-7



ANOKA COUNTY – BLAINE AIRPORT
(JANES FIELD) EIS/EA

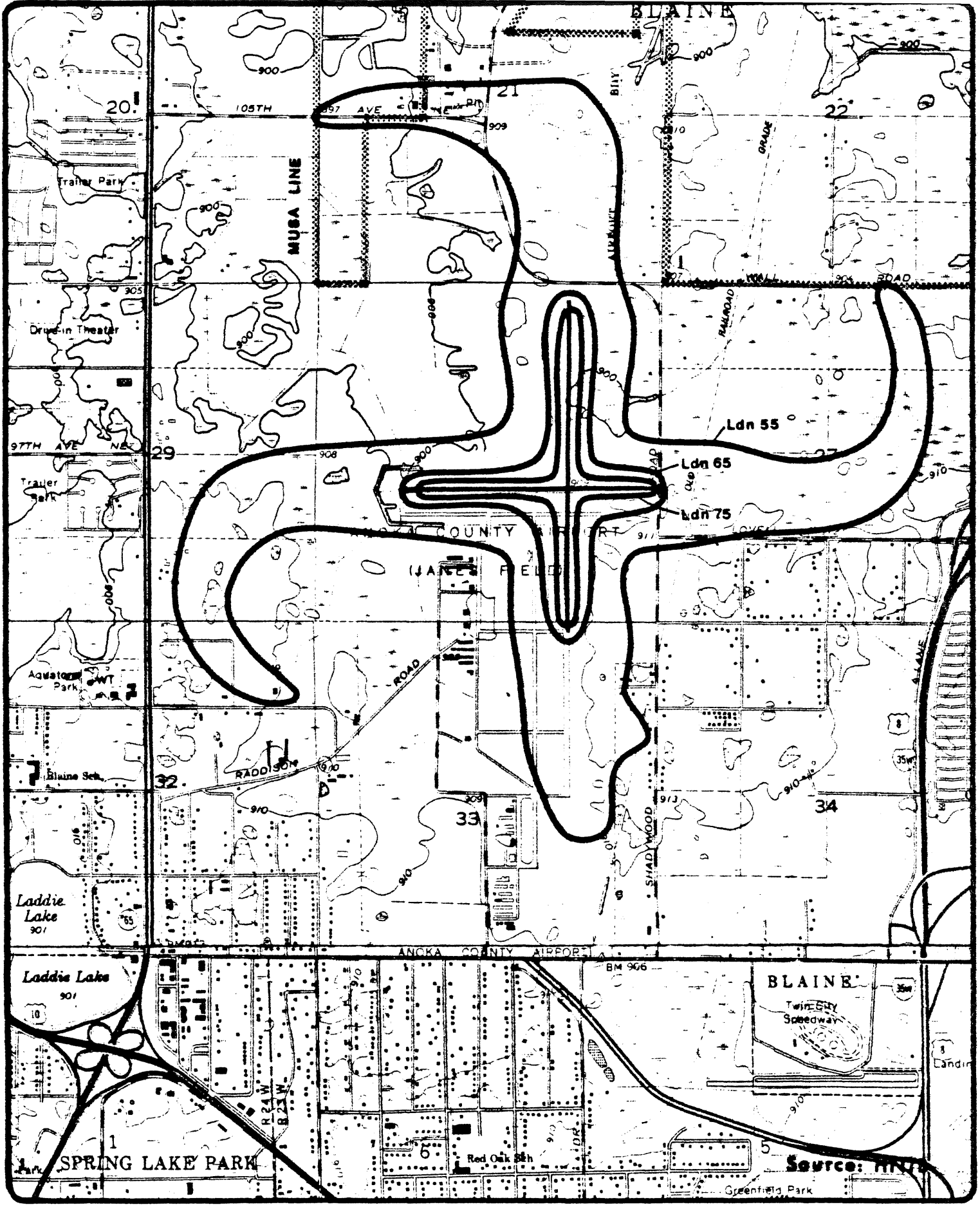
Ldn CONTOURS – ALTERNATIVE 7

HTA companies

Scale: 1"=2000'

N

FIGURE 5-8



ANOKA COUNTY – BLAINE AIRPORT
(JANES FIELD) EIS/EA

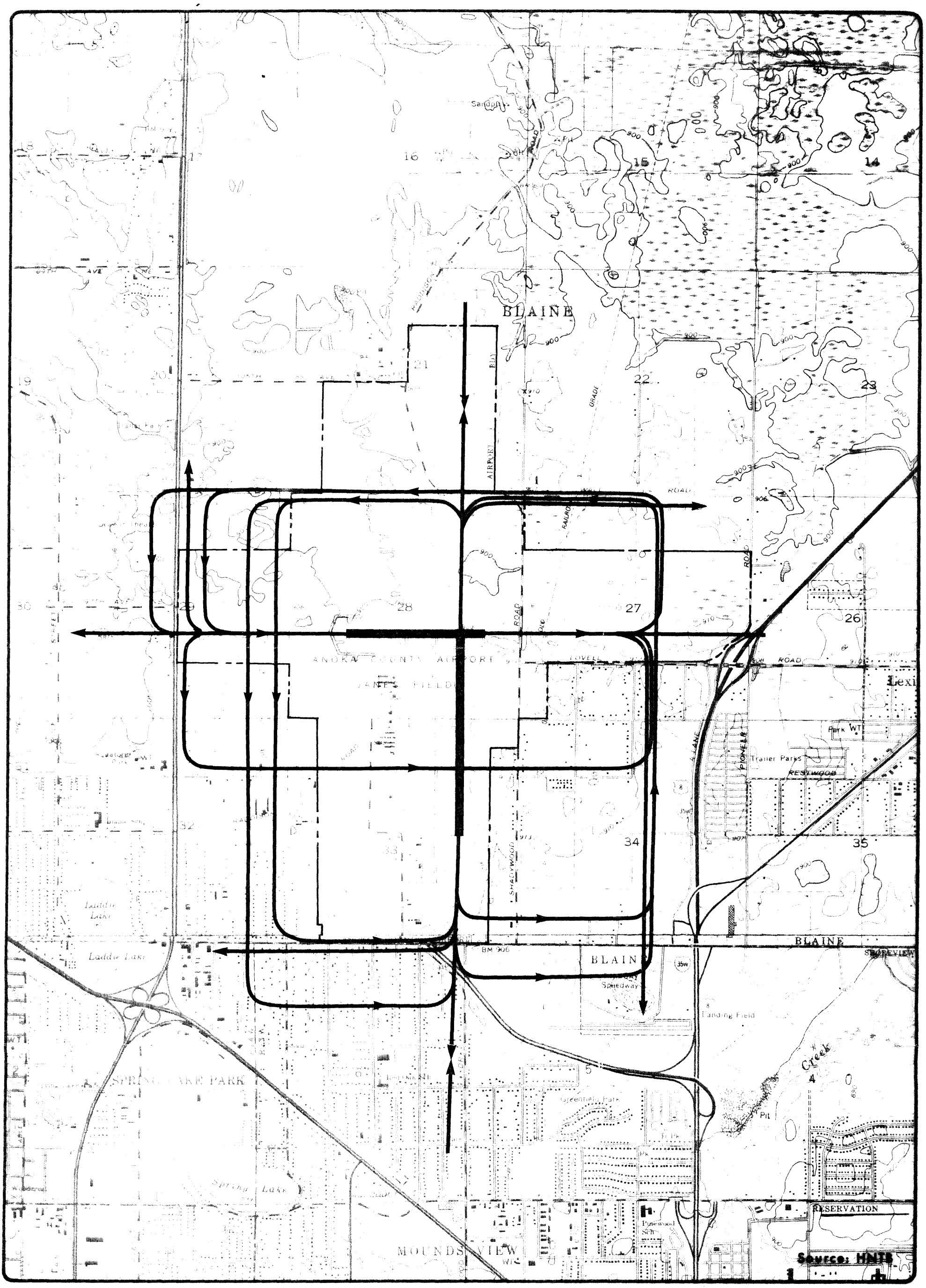
LDN CONTOURS - ALTERNATIVE 8

HTA companies

Scale: 1"=2000'

N

FIGURE 5-9



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

Ldn FLIGHT TRACKS — BASED ON GROUND TRACKINGS

HTA companies

Scale: 1"=2000'

N

FIGURE 5-10

Aircraft were assigned to tracks for purposes of running the noise analysis model based on the field observations and supplementary information provided by the Consultant's staff. All turboprop and turbojet aircraft were assigned to straight-in and straight-out tracks. Single-engine and light twin-engine aircraft departures were assigned to straight-out tracks for ten percent of the time, to right turn tracks for ten percent of the time, and to the standard left turn traffic pattern tracks for 80 percent of the time.

On landing, these light aircraft were assigned to straight-in tracks for ten percent of the time, and to the left traffic pattern for 90 percent of the time.

The takeoff profiles used for modeling aircraft departures were those included in the INM data base, which were developed from manufacturer's specifications. Field observations generally confirmed that these profiles were accurate representations of aircraft departures.

Landing profiles were developed based on a series of field observations taken on August 10th and September 14, 1985. The field observations measured the altitude of aircraft as they crossed County Road J on approach to Runway 35, and as they crossed County Road J (85th Ave. N.E.) on approach to Runway 17. Analysis of the observations revealed an average approach angle of 7.7 degrees, with a standard deviation of 1.7 degrees. Using the low end of the standard deviation as a "worst case" figure, a standard glide angle of 6.0 degrees was used for light aircraft arrivals. A standard 3-degree approach angle was used for turboprop and business jet aircraft.

The resulting Ldn 65 and Ldn 75 contours generated for each of the alternatives are confined to the immediate vicinity of the runways. The Ldn 65 contour for the north-south runway in each of the 1990 scenarios extends only 500-700 feet off the runway end, compared to 200-300 feet in the existing conditions (1985) case. The Ldn 65 contour for the east-west runways in each of the alternatives does not extend beyond the runway ends. The 55 Ldn contour extends past airport boundaries in varying degrees for each alternative.

An analysis of the eight contour sets with respect to affected population reveals that there is no residential population or other noise sensitive uses that would experience noise levels in excess of Ldn 65. None of the alternatives would have an adverse impact on persons in the vicinity of the airport, according to the FAA Ldn Standard.

5.1.4 L_{10} Analysis

$L_{10}65$ contours were generated for the busy hour using INM 3.8 for each of the eight alternatives described in 5.1.2. $L_{10}65$ contours for full Phase 2 and Phase 3 development are as shown in the Informational Appendix. The traffic levels utilized for all cases included 100 hourly operations, an assumed "worst case" situation which included 80 touch-and-go operations and 20 departures. This level of activity may be expected to occur only on very busy weekends during summer months and should not be considered as typcial peak hour. All other input assumptions were the same as those utilized for the Ldn analysis.

A separate $L_{10}65$ contour was calculated for all runway ends, (100 operations per runway) and then combined into a single contour for each alternative. It must be noted that these conditions would never occur simultaneously on all runway ends. The individual contours are presented in Figures 5-11 to 5-18. Cumulative noise contours for full Phase 2 and Phase 3 development are shown in the Informational Appendix.

An analysis of the noise contours was made to determine the number of persons and noise sensitive uses that would be within the $L_{10}65$ contour for each alternative. This analysis is summarized in Table 5-3.

TABLE 5-3

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
AFFECTED POPULATION AND NOISE SENSITIVE USES
WITHIN $L_{10}65$ CONTOURS

Alternative	Number of Persons Within $L_{10}65$	Noise Sensitive Uses Within $L_{10}65$ 1/
1	726	0
2	726	0
3	726	0
4	452	0
5	1,096	0
6	330	0
7	581	0
8	531	0

Note: 1/ Other than residences

Source: Howard Needles Tammen and Bergendoff

The number of persons within the $L_{10}65$ contour for the various alternatives was calculated by counting houses within the $L_{10}65$ contour and assuming 3.3 persons per house. The average 3.3 persons per house factor was obtained from census data as reviewed by the Anoka County Planning Department.

The computed noise data did not identify any points on the airport or in the airport vicinity where noise levels exceeded 60 dBA for 30 minutes or more in the busy hour. Therefore, no 60 dBA-L_{50} contour exists for any of the alternatives and no additional analysis was performed with this standard.

With regard to nightime analysis, nightime activity typically for the entire 10:00 p.m. - 7:00 a.m. period in 1990 is forecast to be approximately 20 operations, for an average of 2.2 operations per hour. Even with the peak hour level of 10 operations at night, no areas in the airport vicinity would be exposed to the $L_{10}55$ or L_{50} 50 noise levels. Therefore, no additional analyses were performed for nighttime operations.

5.2 IMPACT TO GROUNDWATER AND SURFACE WATER

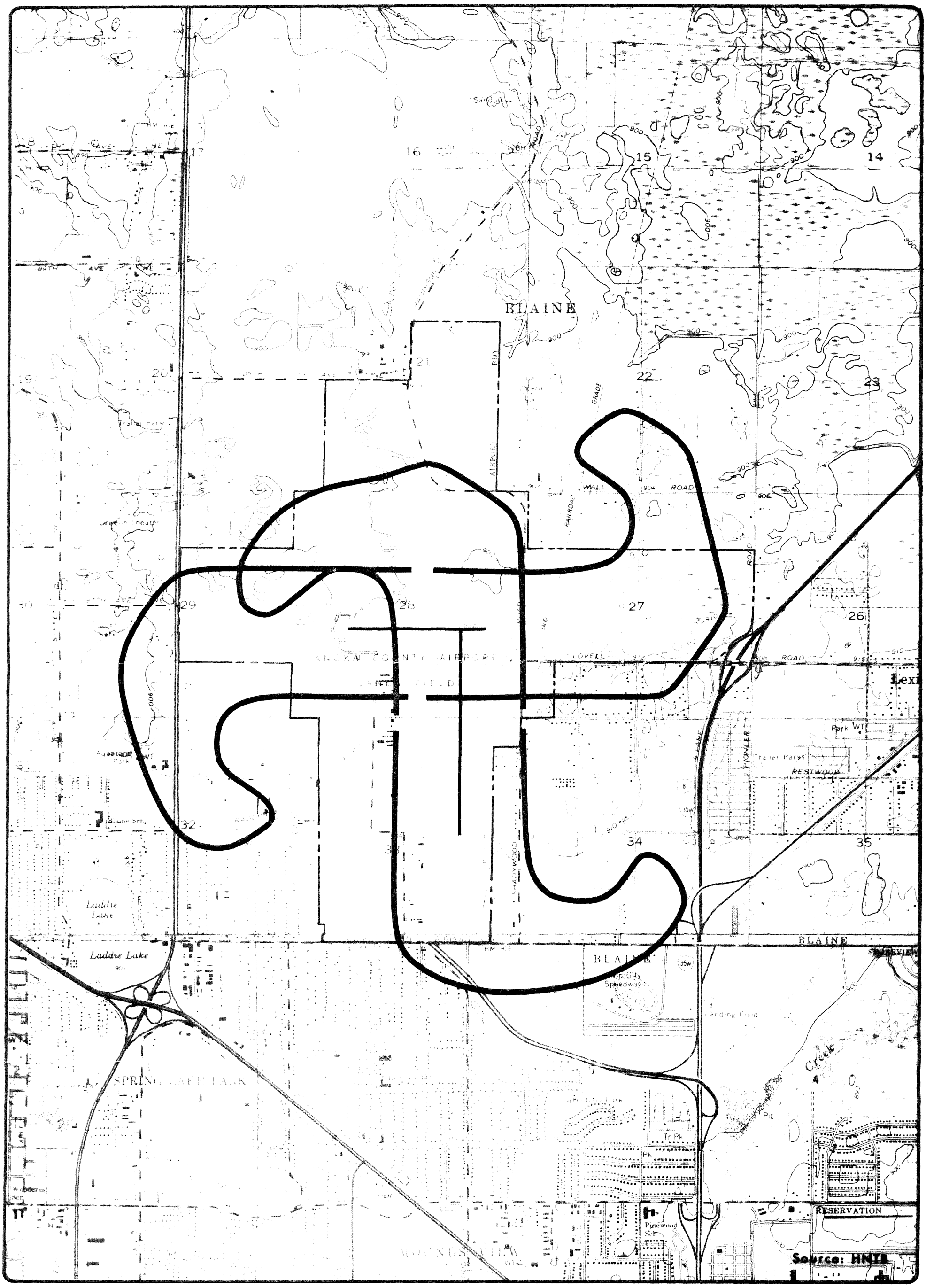
5.2.1 Impact to Groundwater

To determine the potential impact of contaminant spills to the groundwater, six shallow monitoring wells and three deep monitoring wells were installed in the airport vicinity, water levels determined, and aquifer characteristics evaluated. This section describes the hydrogeologic analysis carried out, and the results obtained for this EIS/EA. The details of the monitoring well installations and related field and laboratory activities can be found in Appendix 2G of this EIS/EA.

- Hydrogeologic Background

The bedrock in the Janes Field vicinity is overlain by a relatively thick sequence of glacial drift. These units encountered by wells in the airport vicinity are shown in the geologic cross sections shown in Figures 5-19 and 5-20. These units have been described in detail by Stone (1966). The uppermost unit consists of the Fridley Formation. The upper portion of the unit consists of fine to medium sand, and the lower portion consists of clayey silt. This unit is thought to have been deposited in a lake associated with the development of the Anoka Sand Plain (Cooper, 1935; Stone, 1966). The airport is near the southern limit of the unit which extends to Rice Creek to the south, to Lino Lakes to the east and across the Mississippi River into north Minneapolis to the west (Cooper, 1935; Stone, 1966; Helgesen and Lindholm, 1973; and U.S. Department of Agriculture, 1977). The sand plain into which the Fridley Formation merges extends to the northeast along the Mississippi River to St. Cloud, to the north to northern Isanti County, and to the northeast into Chicago County (Cooper, 1935; Helgesen and Lindholm, 1973; and Lindholm, 1980). The unit is continuous throughout the airport vicinity (Stone, 1966; Barr Engineering Co., 1981; Overtoom, 1983; and MGSCDB). The soil borings installed in the airport vicinity for this EIS/EA indicate that the upper Fridley is 45-1/2 to 48 feet thick and the lower Fridley is 10 to 14 feet thick.

The Fridley is underlain by the Twin City Formation. This is a clayey to silty till predominantly derived from the Grantsburg Sublobe deposited in the Pine City and Bemis Phases of the Wisconsinan Period of glaciation. This till is intermixed with till from stagnant ice remnants of the Superior Lobe deposited in the St. Croix Phase of the Wisconsinan and later incorporated in the Grantsburg Sublobe (Cushing, 1963; Stone, 1966; and Wright, 1973). The borings taken for this EIS/EA indicate that the unit



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

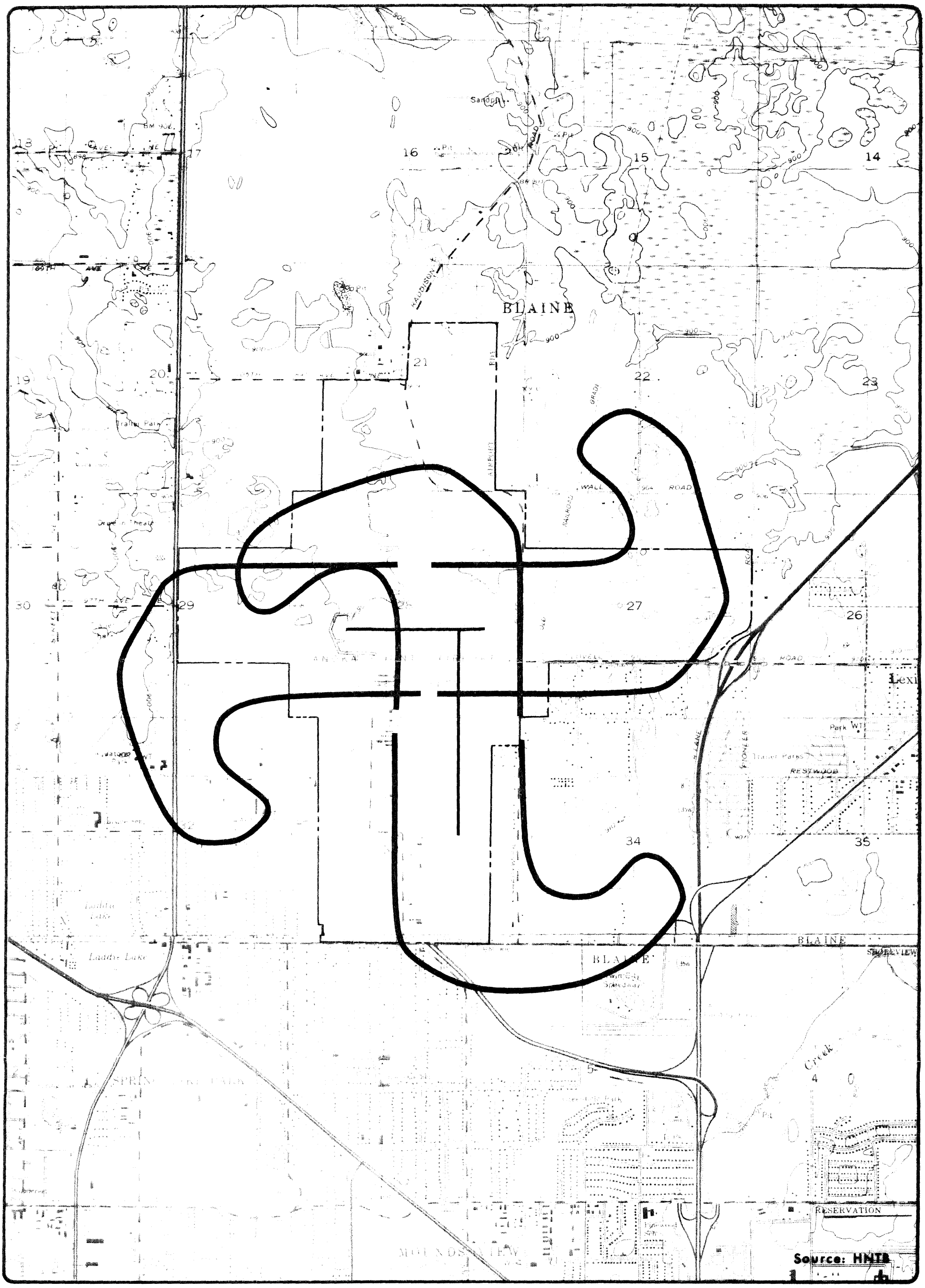
COMPOSITE L10 65 CONTOURS – ALTERNATIVE 1

HTA companies

Scale: 1"=2000'

N

FIGURE 5-11



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

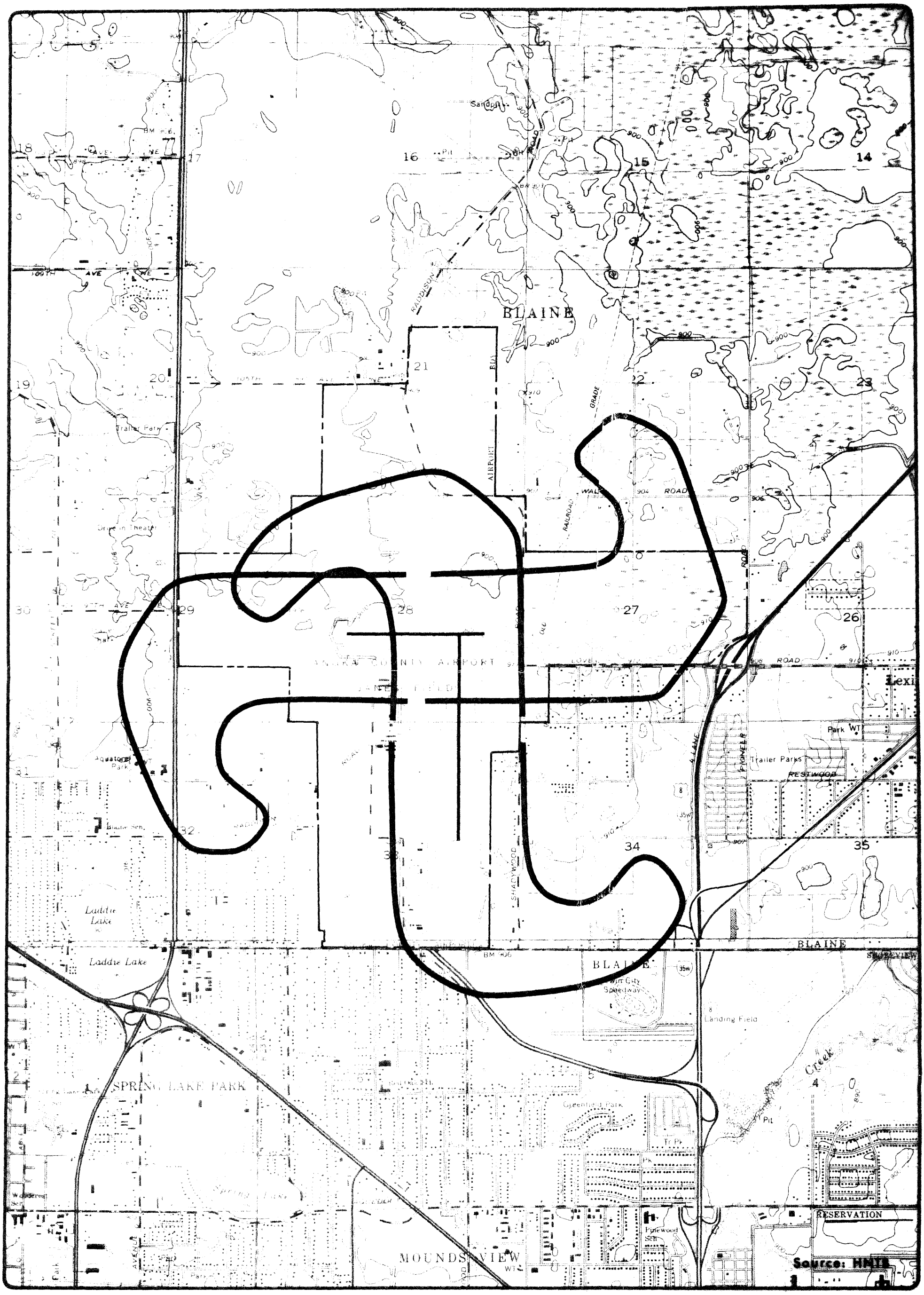
COMPOSITE L10 65 CONTOURS – ALTERNATIVE 2

HTA companies

Scale: 1"=2000'

N

FIGURE 5-12



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

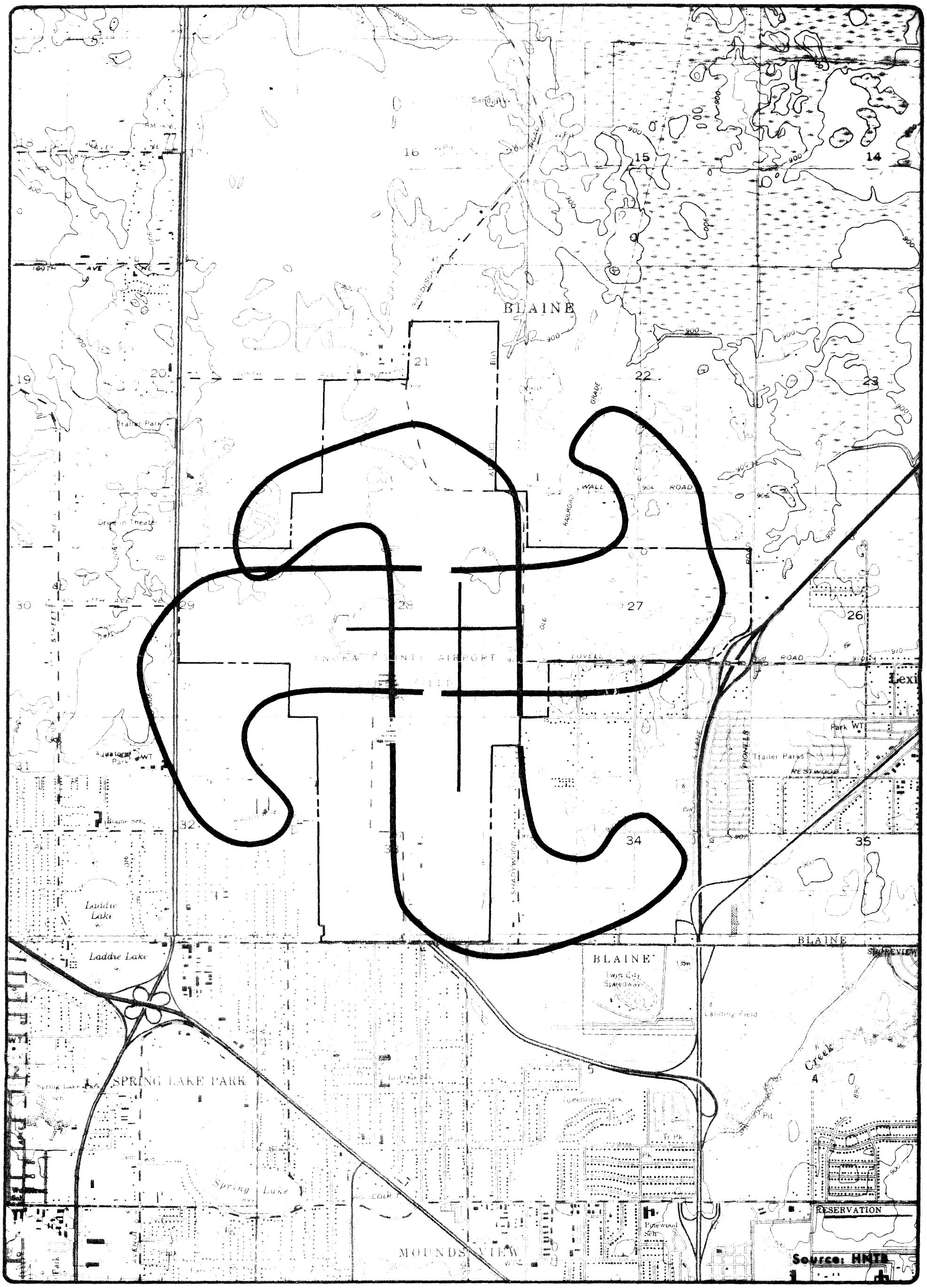
COMPOSITE L1065 CONTOURS – ALTERNATIVE 3

HTA companies

Scale: 1"=2000'

N

FIGURE 5-13



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

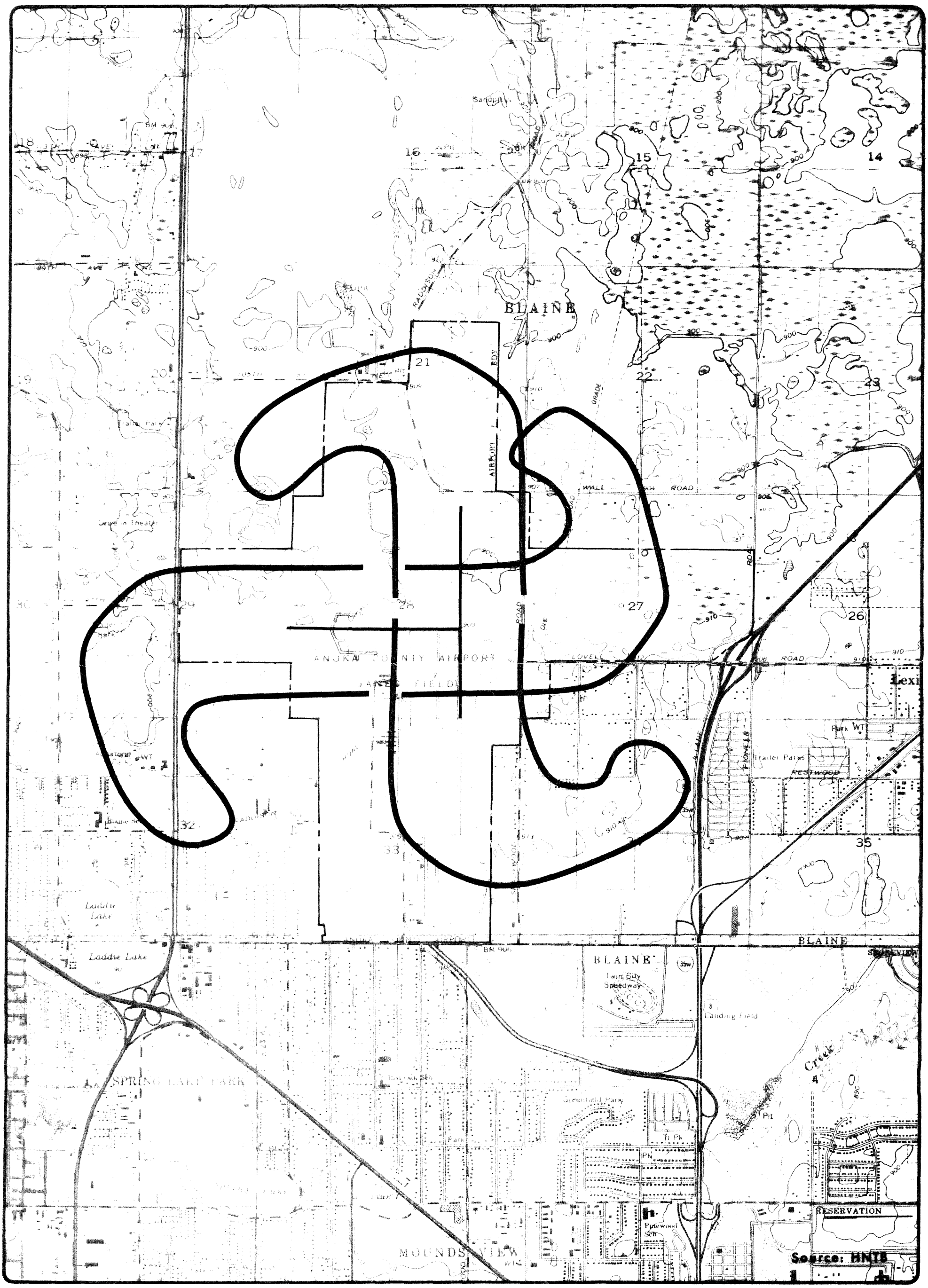
COMPOSITE L$_{10}$65 CONTOURS – ALTERNATIVE 4

HTA companies

Scale: 1"=2000'

N

FIGURE 5-14



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

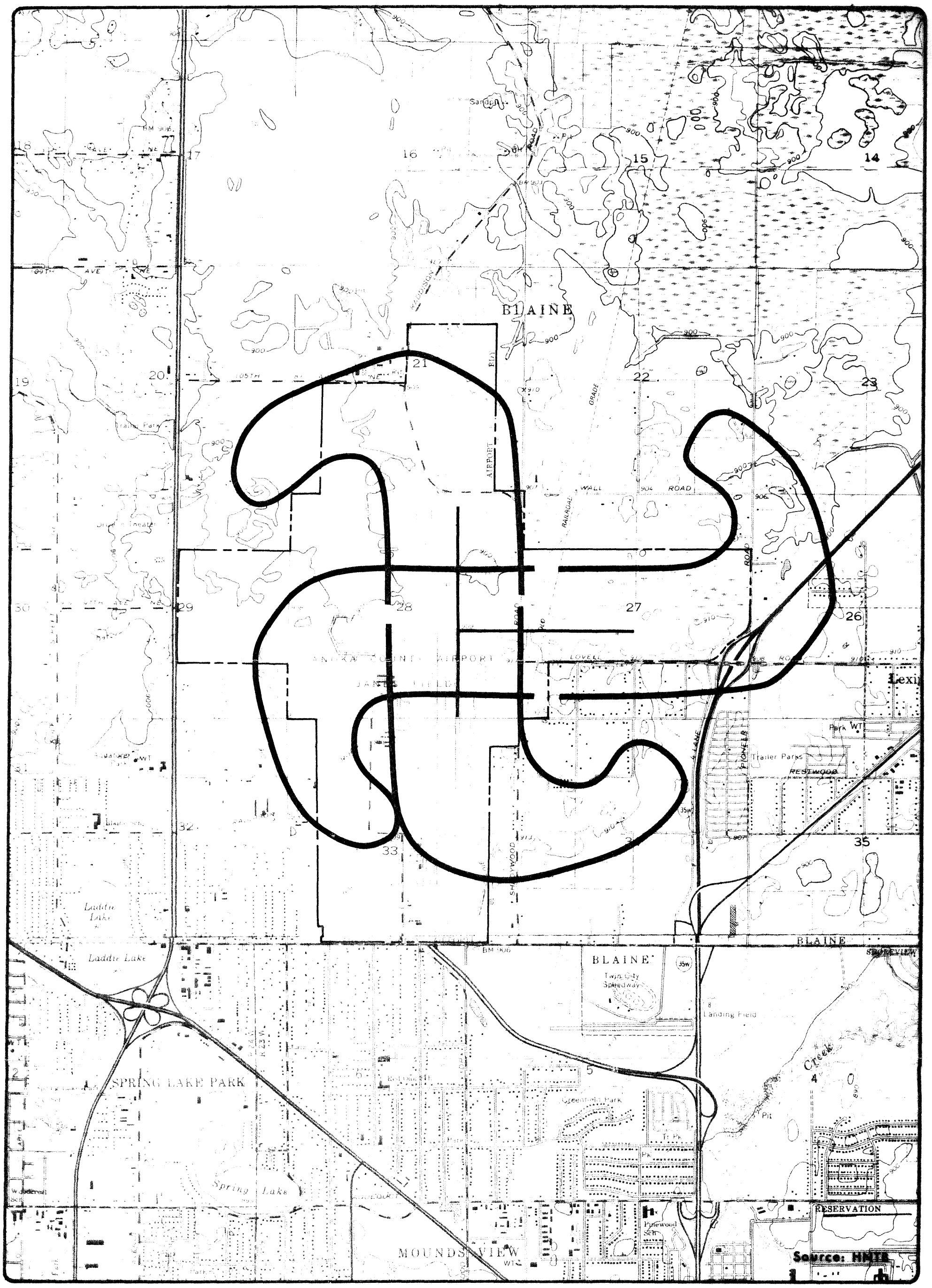
COMPOSITE L$_{10}$65 CONTOURS – ALTERNATIVE 5

HTA companies

Scale: 1"=2000'

N

FIGURE 5-15



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

COMPOSITE L$_{10}$65 CONTOURS – ALTERNATIVE 6

HTA companies

Scale: 1"=2000'

N

FIGURE 5-16

ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

COMPOSITE L$_{10}$65 CONTOURS — ALTERNATIVE 7

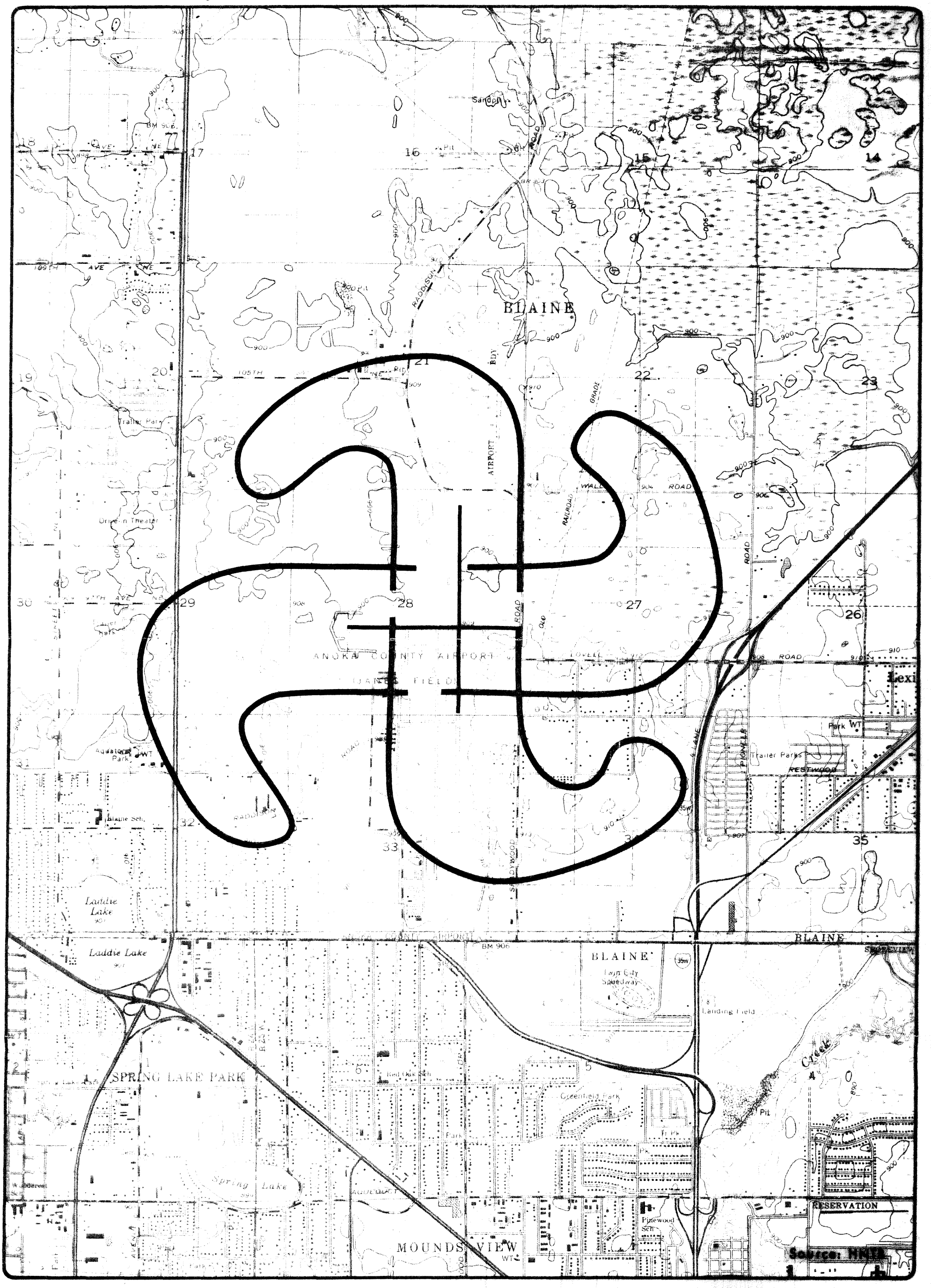
HTA companies

Scale: 1"=2000'

N

FIGURE 5-17

Source: HNTB



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

COMPOSITE L1065 CONTOURS - ALTERNATIVE 8

HTA companies

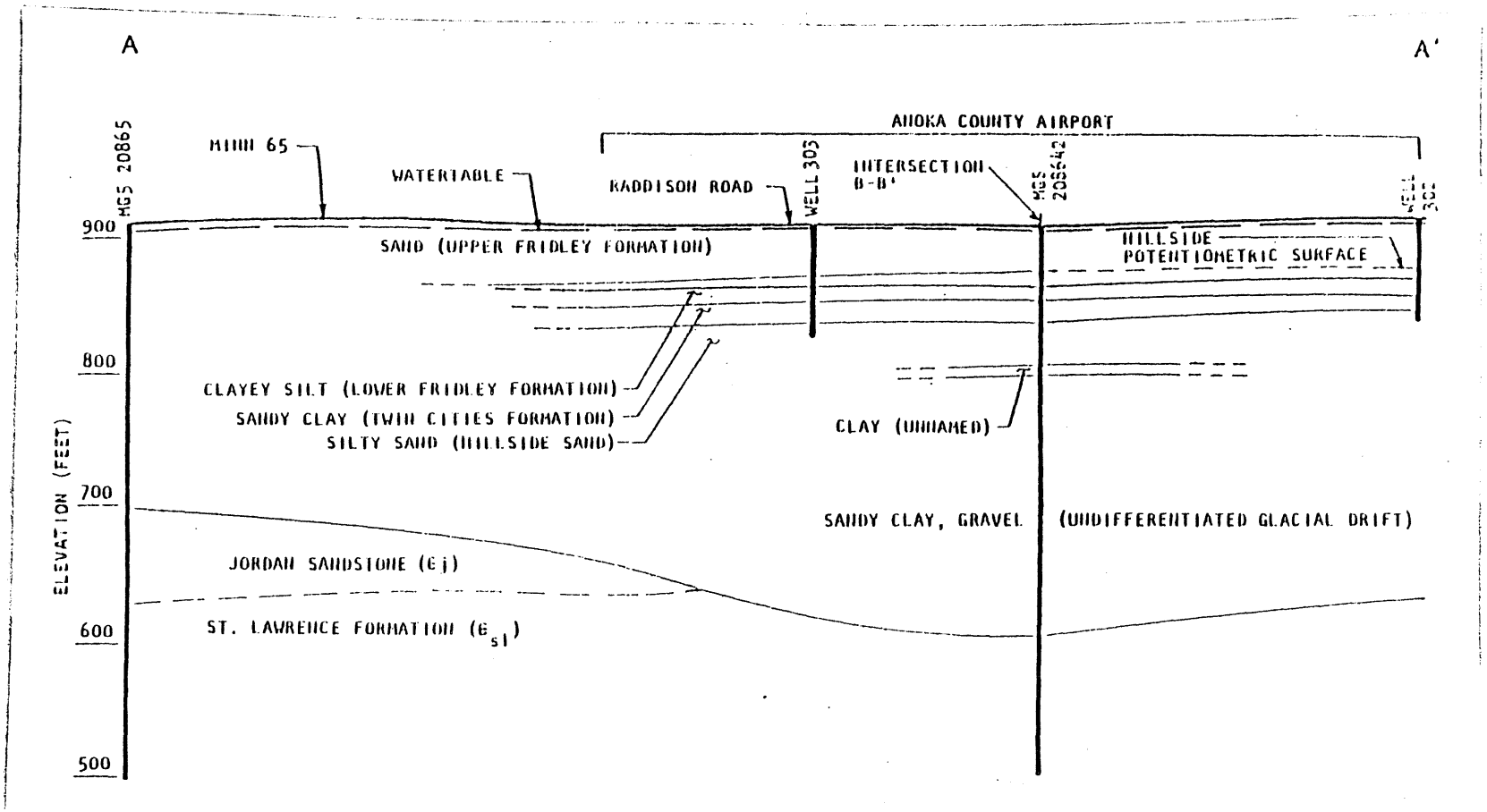
Scale: 1"=2000'

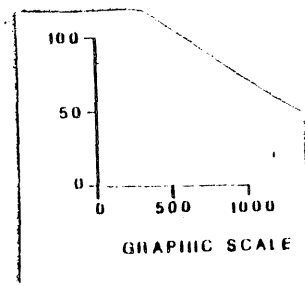
N

FIGURE 5-18

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

GEOLOGIC CROSS SECTION A-A

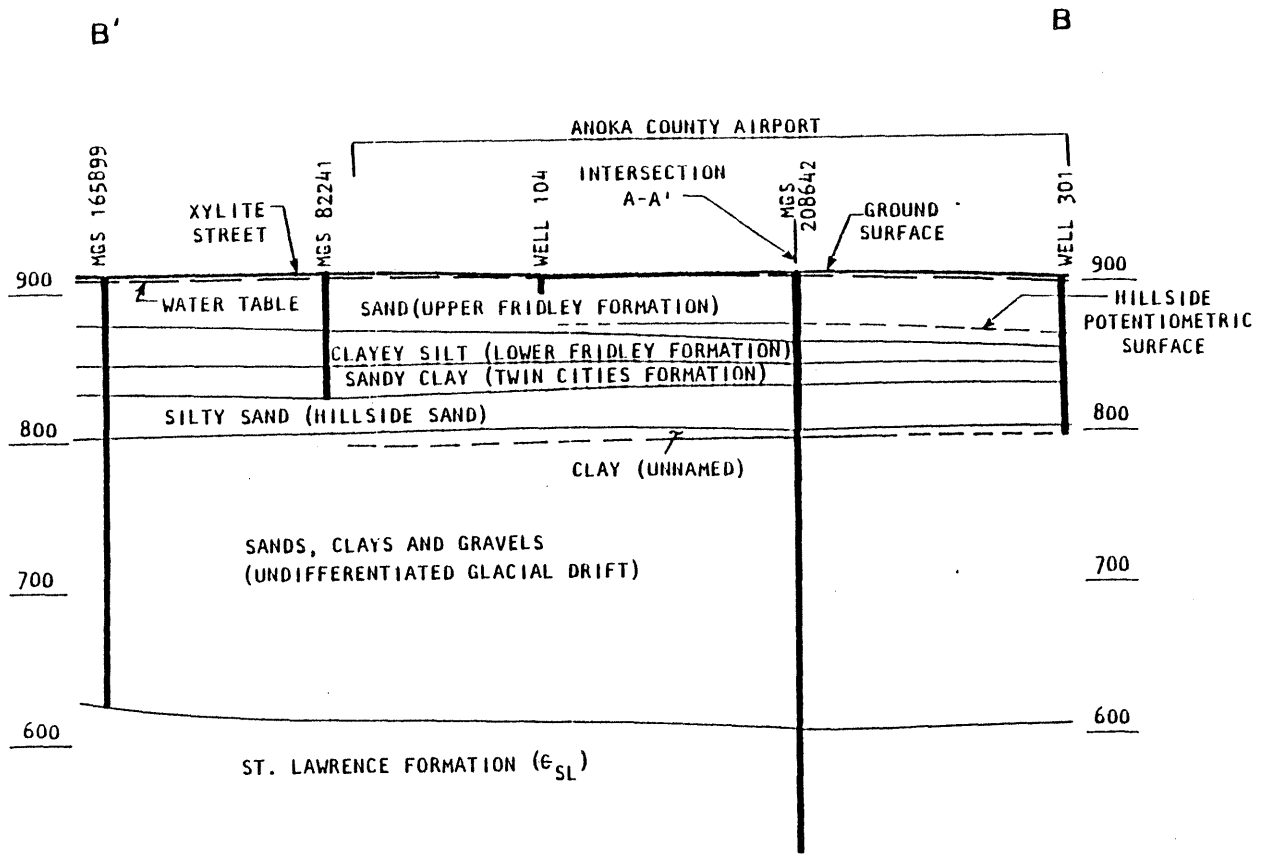


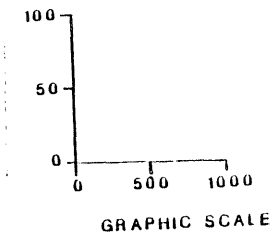


HTA companies

FIGURE 5-19

ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA
GEOLOGIC CROSS SECTION B-B





HTA companies

FIGURE 5-20

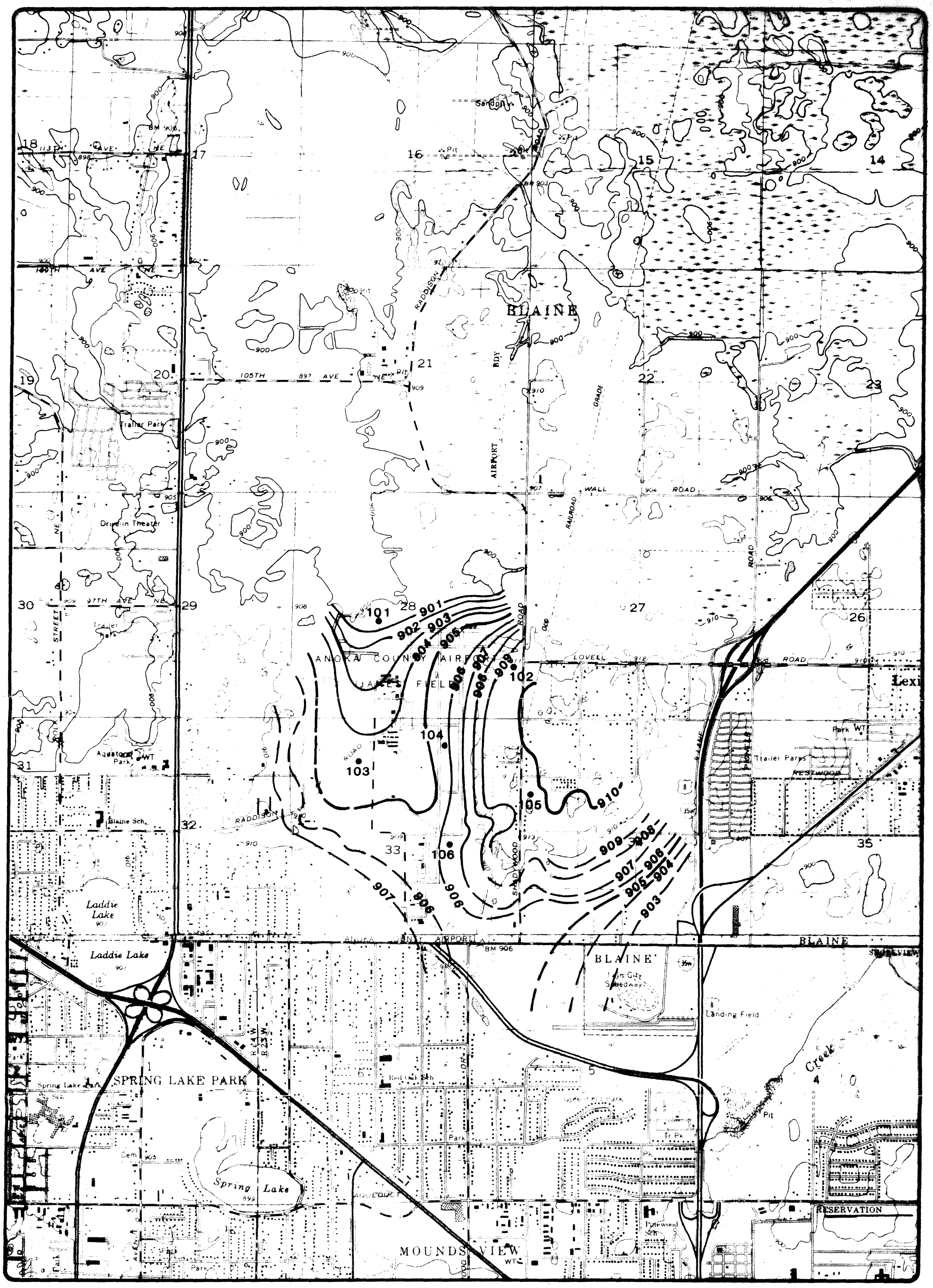
appears to be continuous throughout the airport vicinity and ranges in thickness from 8 to 12-1/2 feet. Together, the thickness of the Twin Cities Till and the lower Fridley range from 18 to 27-1/2 feet. This compares favorably with the well logs closest to the airport, MGS Nos. 208642 and 182241, where the combined thickness of these two fine-grained units range from 22 to 30 feet.

The Twin Cities Formation is underlain by the Hillside Sand. This is generally a medium- to coarse-grained outwash sand which was deposited in part by the retreating Superior Lobe and in part by the advancing Grantsburg Sublobe. It appears to be continuous in the airport vicinity and ranges in thickness from 20 to over 180 feet. This range in thickness is in part due to being overridden by the Grantsburg Sublobe; in addition, it is also locally due to further burial of bedrock valleys (Stone, 1966; Overtoom, 1983; and MGSCDB). While each of the 300-series EIS/EA borings were installed into the Hillside Sand, Boring 301 was installed through the Hillside Sand until the next fine-grained unit was encountered. The total thickness of the sand layer under the Twin Cities Formation at this boring was 26 feet. This compares well with the nearest well log, MGS No. 208642, which indicated 28 feet of silty sand above a clay unit of approximately the same depth as that encountered in 301.

The Hillside Sand is underlain by an unnamed till unit. This till unit is essentially continuous south of the airport (Stone, 1966). Well Log #165899 in the valley underlying the airport indicates 180 feet of till which overlies the Franconia. Well Log #208642 at the airport itself also indicated 198 feet of unconsolidated deposits between the Hillside and the Franconia with 124 feet of clayey layers (MGSCDB). This till thus appears to be continuous in the airport vicinity.

The subcropping bedrock in the airport vicinity generally consists of the St. Lawrence Formation, a dolomitic siltstone unit (Mossler, 1972). On the surface of the St. Lawrence are scattered thin remnants of the overlying Jordan Sandstone. The St. Lawrence is underlain by several other Paleozoic units of the Twin City Basin, several of which are used as the water supply for the nearby municipal wells. The St. Lawrence is defined as a confining bed (Norvitch et al., 1973) and is considered to be a regional aquitard separating the Jordan and overlying aquifers from the underlying aquifers.

Potentiometric head measurements were made in the EIS/EA monitoring wells as summarized in Table 2G.1 in Appendix 2-G. The potentiometric head configuration in the Fridley Formation and Hillside Sand are shown in Figures 5-21 and 5-22 respectively. The Fridley Formation potentiometric map was augmented by previous information on the water table configuration in the general vicinity by Larson Higdem et al (1975) and for the Mounds View



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

● WELL LOCATIONS IN FRIDLEY SAND

——— WATER TABLE CONTOURS (MSL)

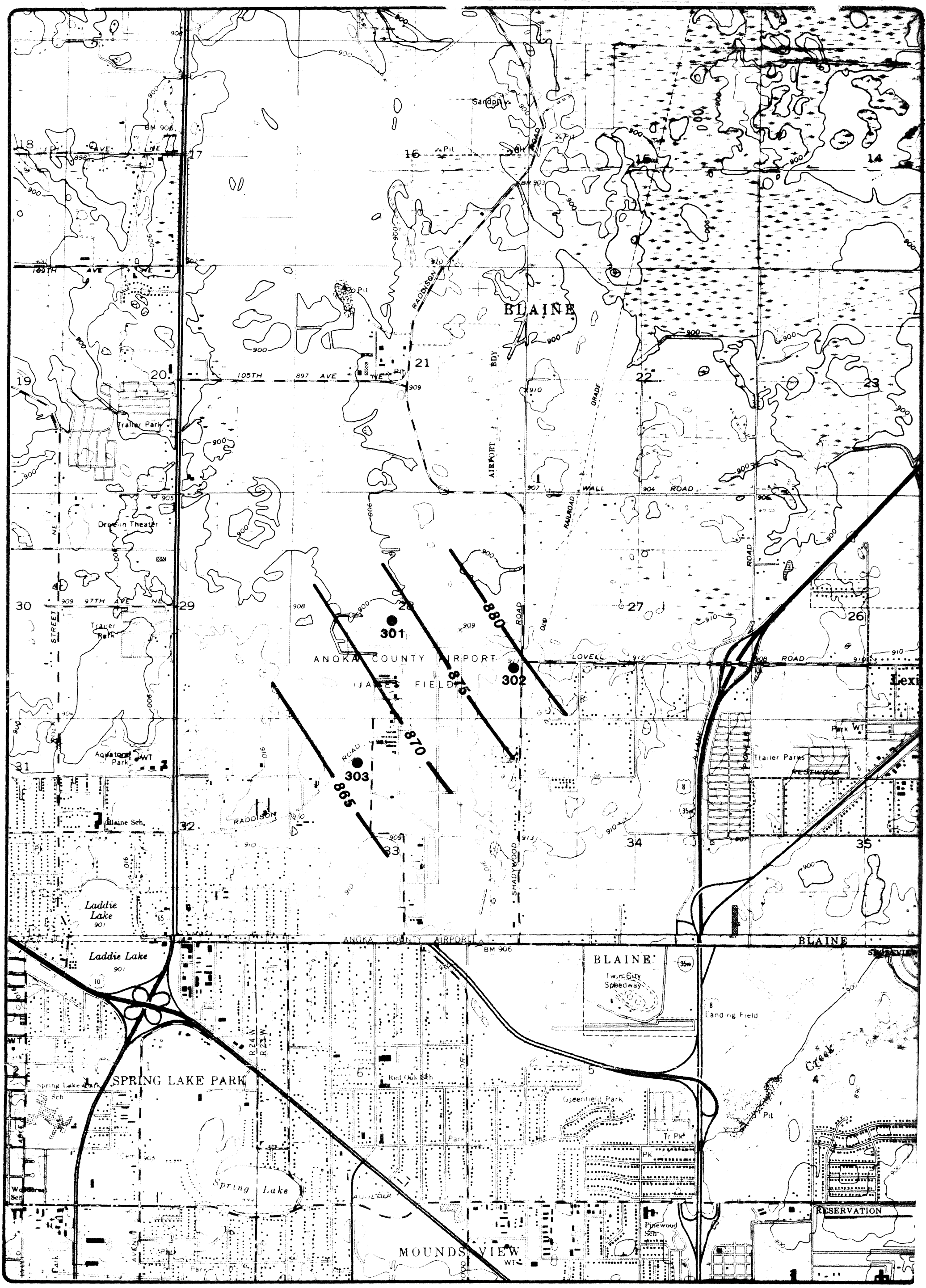
WATER TABLE CONFIGURATION
Fridley Sand

HTA companies

1" = 2000'

N

FIGURE 5-21



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

● MONITORING WELL LOCATIONS

POTENTIOMETRIC SURFACE CONTOURS (MSL)

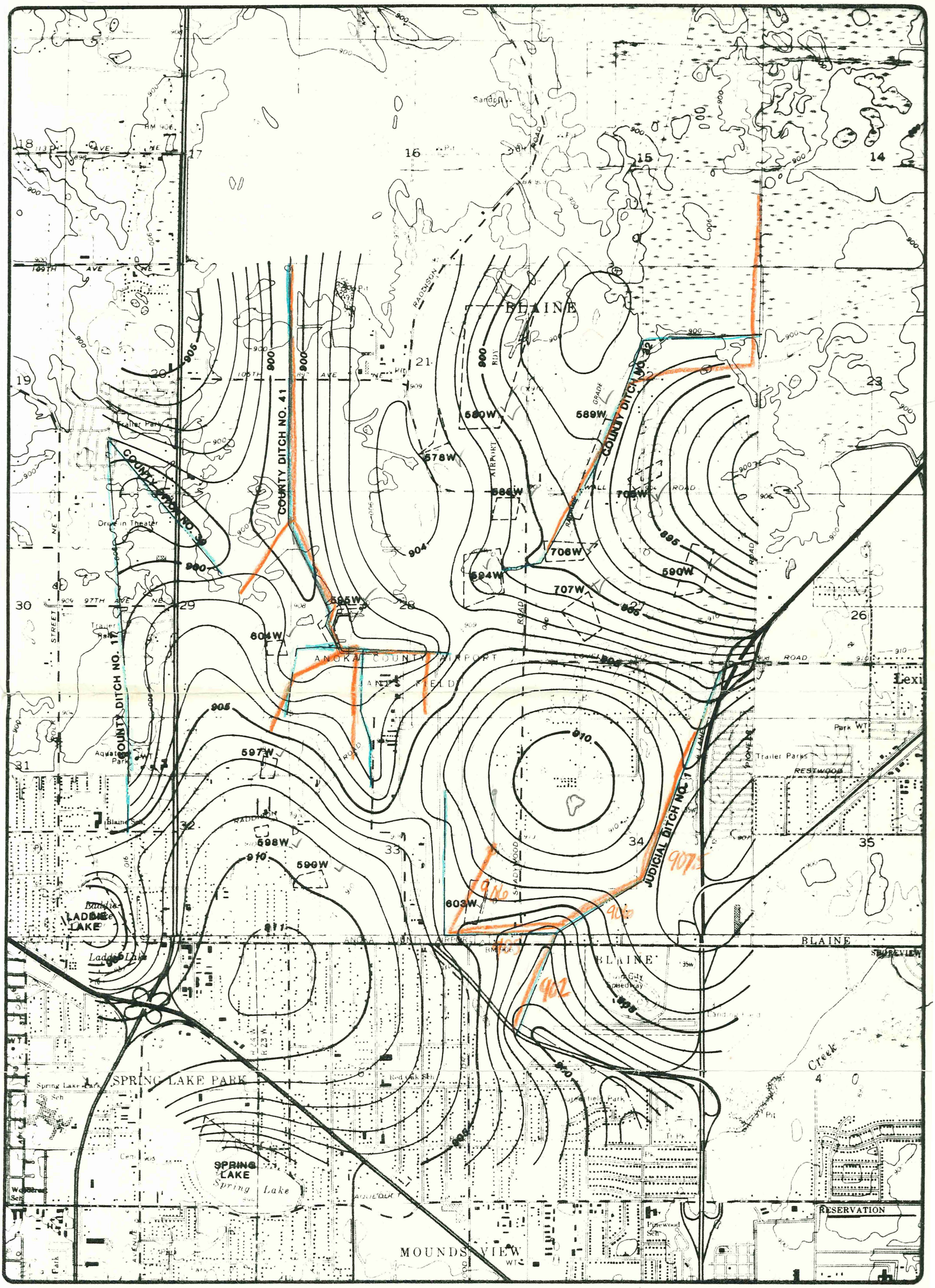
POTENTIOMETRIC SURFACE
Hillside Sand

HTA companies

1" = 2000'

▲ N

FIGURE 5-22



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

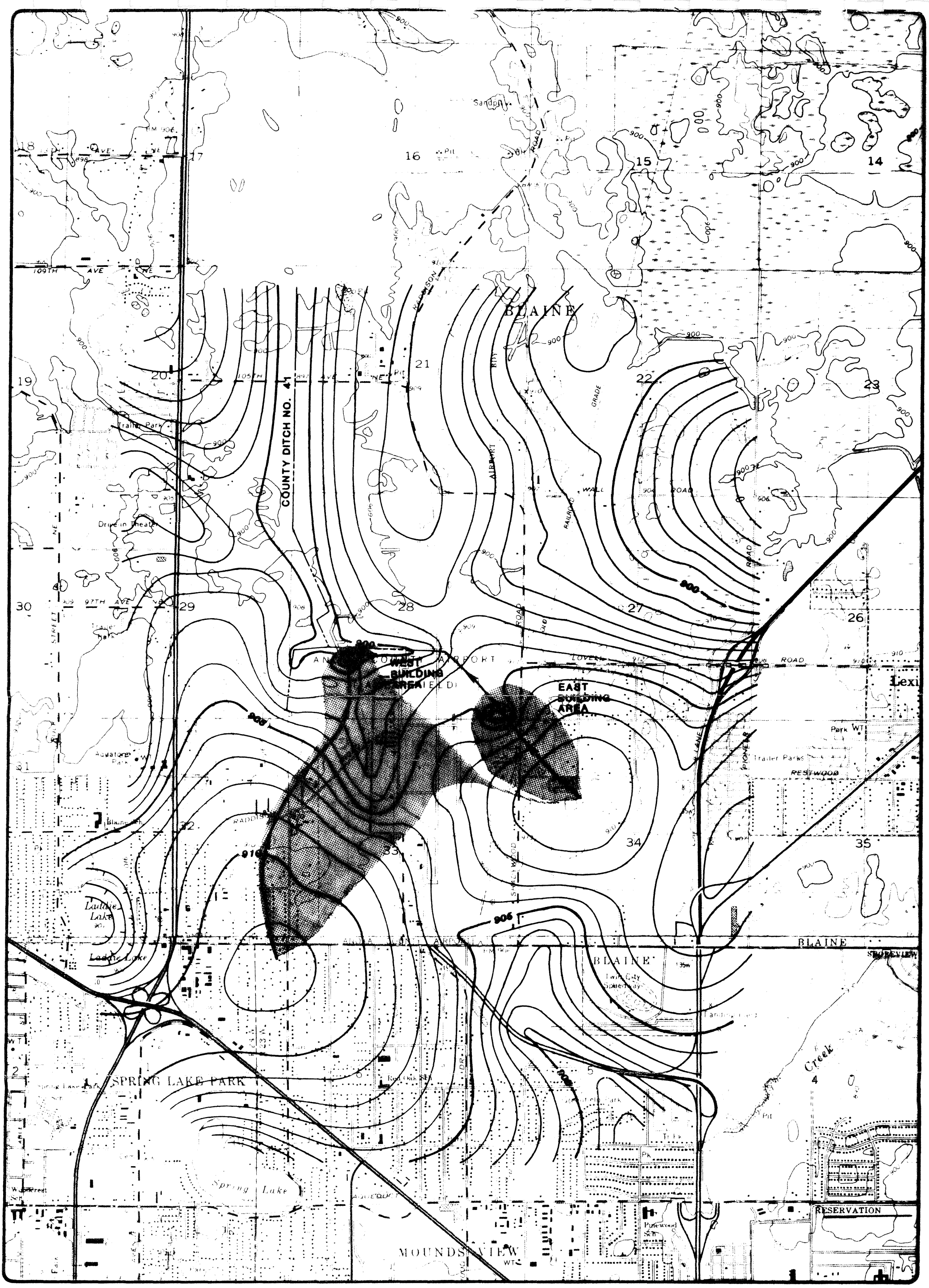
SIMULATED WATER TABLE CONFIGURATION WITHOUT
PHASE 1A AND PHASE 1B FOUNDATION DRAINS

HTA companies

1" = 2000'

N

FIGURE 5-23



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

SIMULATED WATER TABLE CONFIGURATION WITHOUT
PHASE 1A AND PHASE 1B FOUNDATION DRAINS

HTA companies

1" = 2000'

N

FIGURE 5-24

area by Banister, Short, Elliott, Hendrickson, and Associates, Inc. (BSEHA, 1976). This water table configuration indicates that flow in upper Fridley aquifer converges onto the airport site from the west, southwest, and east to the Drainage Ditch No. 41 system on the airport and thereupon flowing to the north to the continuation of Drainage Ditch No. 41 through Wetland 595W.

The 300-series EIS/EA monitoring wells indicate that the general flow direction in the Hillside Sand is to the southwest across the airport. This is consistent with the regional flow pattern for the Hillside Sand and the associated Prairie du Chien-Jordan aquifer, as shown in the Camp Dresser McKee study (CDM, 1985). The potentiometric head in the Hillside was observed to be between 27 to 38 feet lower than that in the upper Fridley indicating a general downward movement of groundwater from the Fridley to the Hillside over the entire airport site.

- Municipal Well Pumpage

The municipalities of Blaine, Mounds View, Spring Lake Park, and Fridley in the Anoka County Blaine Airport (Janes Field) vicinity were contacted for information about the construction and pumpage volumes of their municipal wells. This information was evaluated to identify the aquifers used and the pumpage volumes for 1983, 1984, and to some extent, 1985. This information is summarized on Table 5-4. The locations of municipal wells within 1 1/2 miles of the airport are shown on Figure 2G.1. This information was gathered to identify wells that may potentially be affected by a contaminant spill.

- Hydrogeologic Analysis

To consolidate all of the hydrogeologic information collected for this EIS/EA and to determine the flow of contaminant spills at the proposed building areas, two groundwater models were used. The first model was a single-layer, 2-dimensional analytic element model. This model incorporated the analytic expressions for wells, line sinks/sources, shallowly penetrating areal sinks/sources, and net infiltration as developed by Strack (inpress). This model was used to simulate the water table conditions in Fridley aquifer and its interrelationships with the drainage ditches, lakes, and wetlands in the airport vicinity. The second model used was a cross sectional analytical model for determining the vertical position with distance from a point source using a Dupuit-Forchheimer

TABLE 5-4
ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

MUNICIPAL WATER WELLS

Well #	Location	Aquifer Top/Bottom	PUMPAGE (MILLION GALLONS) 1983	1984	Jan.-Aug. 1985
B1	Blaine	Θj/pΘh	34.75	28.197	34.75
B2	Blaine	Θsl/pΘh	22.19	26.326	10.62
B3	Blaine	Θj/Θig	67.48	122.238	120.86
B4	Blaine	Θj/Θec	73.38	103.731	103.97
B5	Blaine	Θj/pΘh	98.48	76.085	52.53
B6	Blaine	Θf/pΘh	37.443	27.794	8.37
B7	Blaine	Θj/pΘec	158.55	141.276	41.66
B8	Blaine	Θsl/Θf	132.73	174.754	124.18
B9	Blaine	Θsl/Θec	94.61	66.790	33.08
B10	Blaine	Θj/Θf	105.93	172.503	128.26
B11	Blaine	Θsl/pΘh	20.182	37.436	17.18
B12	Blaine	Qgd/Qgd	109.25	65.631	56.06
B13	Blaine	Θsl/Θoc	94.17	92.849	88.73
B14	Blaine	Θf/pΘh	40.168	30.085	14.87
MV1	Mounds View	Θj/pΘh	76.51	83.03	
MV2	Mounds View	Θj/pΘh	17.54	6.74	
MV3	Mounds View	Θj/Θj	76.53	80.37	
MV4	Mounds View	Opc/Θig	0.00	0.00	
MV5	Mounds View	Opc/Θsl	114.47	97.33	
MV6	Mounds View	Opc/Θec	125.08	142.52	
SLP1	Spring Lake Park	?	28.02	64.80	
SLP2	Spring Lake Park	Θj/Θec	23.99	15.39	
SLP3	Spring Lake Park	Opc/pΘh	37.81	8.16	
SLP4	Spring Lake Park	Opc/pΘh	189.20	216.50	

TABLE 5-4 (cont.)

Well #	Location	Aquifer Top/Bottom	PUMPAGE (MILLION GALLONS) 1983	1984	Jan.-Aug. 1985
F1	Fridley	Osp/pϵh		29.17	9.06
F2	Fridley	ϵms/pϵh		62.15	24.23
F3	Fridley	ϵms/pϵh		44.25	8.86
F4	Fridley	ϵms/pϵh		185.47	49.84
F5	Fridley	ϵms/pϵh		104.30	32.15
F6	Fridley	Qgd/Qgd		304.92	149.94
F7	Fridley	Osp/Opc		93.94	54.63
F8	Fridley	Opc/Opc		405.67	308.85
F9	Fridley	Opc/Opc		185.87	151.41
F10	Fridley	Qgd/Qgd		388.77	58.79
F11	Fridley	ϵj/ϵf		159.30	50.26
F12	Fridley	ϵj/ϵj		21.59	7.25
F13	Fridley	Opc/ϵj		11.23	3.33

Qgd	Quaternary Glacial Drift
Osp	Ordovician St. Peter Formation
Opc	Ordovician Prairie du Chien Formation
ϵj	Cambrian Jordan Formation
ϵsl	Cambrian St. Lawrence Formation
ϵf	Cambrian Franconia Formation
ϵig	Cambrian Ironton/Galesville Formation
ϵec	Cambrian Eau Claire Formation
ϵms	Cambrian Mt. Simon Formation
pϵh	Precambrian Hinckely Formation

Source: Barr Engineering Company

flowpath. This was used to assess the likelihood of contaminant migration from the Fridley aquifer through the Twin Cities formation till.

The first model used a net infiltration (i.e., precipitation minus evapotranspiration) rate of 5.5 inches per year; which is the long term average value for the Blaine vicinity. The results of the groundwater simulation with the first model are shown in Figures 5-23 and 5-24. As shown, the simulated water table surface corresponds well to the water table configuration determined from the EIS/EA monitoring well information as shown in Appendix 2G. Comparison of the predicted and measured water table elevations in the EIS/EA monitoring wells shows an error of 1.3 feet. It should be noted that the 900 foot contour of the water table elevation north of the airport largely coincides with a land surface elevation less than 900 feet, as determined by the USGS $7\frac{1}{2}$ minute topographic map for the area. During the 1985 field season for this EIS/EA, this area was under water so that the actual potentiometric surface was approximately 900 feet MSL and in agreement with the calibrated model.

As described in Section 5.4.1, all hazardous materials used or stored on the airport site are under the jurisdiction of the Federal Resource and Conservation and Recovery Act (RCRA) and that contingency plans are required for use of these hazardous materials. An accidental spill in the Phase IA and Phase IB development areas would most likely occur in the building area where aircraft are fueled and serviced. To assess the potential contamination which would result from accidental spills in these areas, the flow model was used to determine the flowpaths from these building areas. Accordingly, foundation drains were added to the model in the north central portion of the west building area and in the southern portion of the east building area using the method described in 5.2.2. The resulting water table configuration is shown in Figure 5-24. At each building area, a localized drawdown of the water table surface was created by the foundation drains. Furthermore, background analytical calculations show that on the order of 95 percent of the groundwater flow across the foundation drain areas is intercepted by the shallow foundation drains. However, hydrologic conditions are expected to vary through time and, while the localized drawdown depression will generally exist around each building area, there will likely be periods of time in which the water table drops to such an extent that the depressions no longer occur.

There are three classes of contaminants by which the hazardous materials currently used at existing airport facilities and potentially used at the proposed airport facilities can be categorized: separate-phase fluids lighter than water, separate-phase fluids denser than water, and dissolved constituents with a result in density equivalent to the ambient density of groundwater. Examples of the first category (floating contaminants) would include the aircraft fuels used at the airport. An example of the second (sinking contaminants) are the organic solvents at undiluted concentrations used for degreasing. Examples of the third category (dissolved contaminants) would be chemical species of all of the above-mentioned contaminants at concentrations which would allow them to be dissolved in the groundwater without an appreciable change in the resulting ambient groundwater density.

Should contaminants in any of these three categories be accidentally spilled in the building areas outside of the drawdown depressions caused by the foundation drains, each category of contaminants would move in response to the groundwater flow pattern and in accordance with its relative density. Groundwater in the Fridley aquifer flowing across the Phase 1A building area would move laterally until it ultimately discharges to County Ditch No. 41 to the west and northwest. Similarly, groundwater in the Fridley aquifer flowing across Phase 1B building area ultimately discharges to County Ditch No. 41 to the north. In both cases, as the groundwater flows laterally, it is recharged periodically by infiltration from the ground surface, and it is being depleted seasonally by evapotranspiration and continuously by leakage through its base into the underlying aquitard composed of the silts and clays of the lower Fridley and glacial till of the Twin Cities formation, ultimately discharging into the Hillside Sand.

Floating contaminants from either building area would move laterally in the direction of the ambient groundwater flow, remaining at the water table surface until they are ultimately discharged to a drainage ditch or its associated wetland. Should the contaminants be discharged to a drainage ditch or stream, they will be much diluted due to the relatively slow transport of groundwater with respect to surface water. They will be further diluted downstream as the stream or ditch joins other streams. Chemicals would be further attenuated by volatilization, adsorption onto ditch or stream sediments, and absorption and/or decomposition by chemical and biochemical processes.

Sinking contaminants would move from their point of introduction into the water table in a direction transverse to the ambient groundwater flow, moving partly in the direction of the ambient groundwater flow and partly sinking downward through the aquifer. The trajectory of this transverse movement would

depend in part on the retardation properties of the contaminants and in part on the density of the contaminants relative to the ambient groundwater. Once reaching the base of the Fridley aquifer, the movement of the contaminant would be determined in part by the lateral flow direction of the ambient groundwater and in part by the topography of the aquifer base. In this manner, sinking contaminants can collect in depressions in the aquifer base. Eventually, these sinking contaminants would migrate downward into the underlying aquitard, its rate of downward movement dependent upon the retardation properties of the contaminant and the hydraulic characteristics of the aquitard.

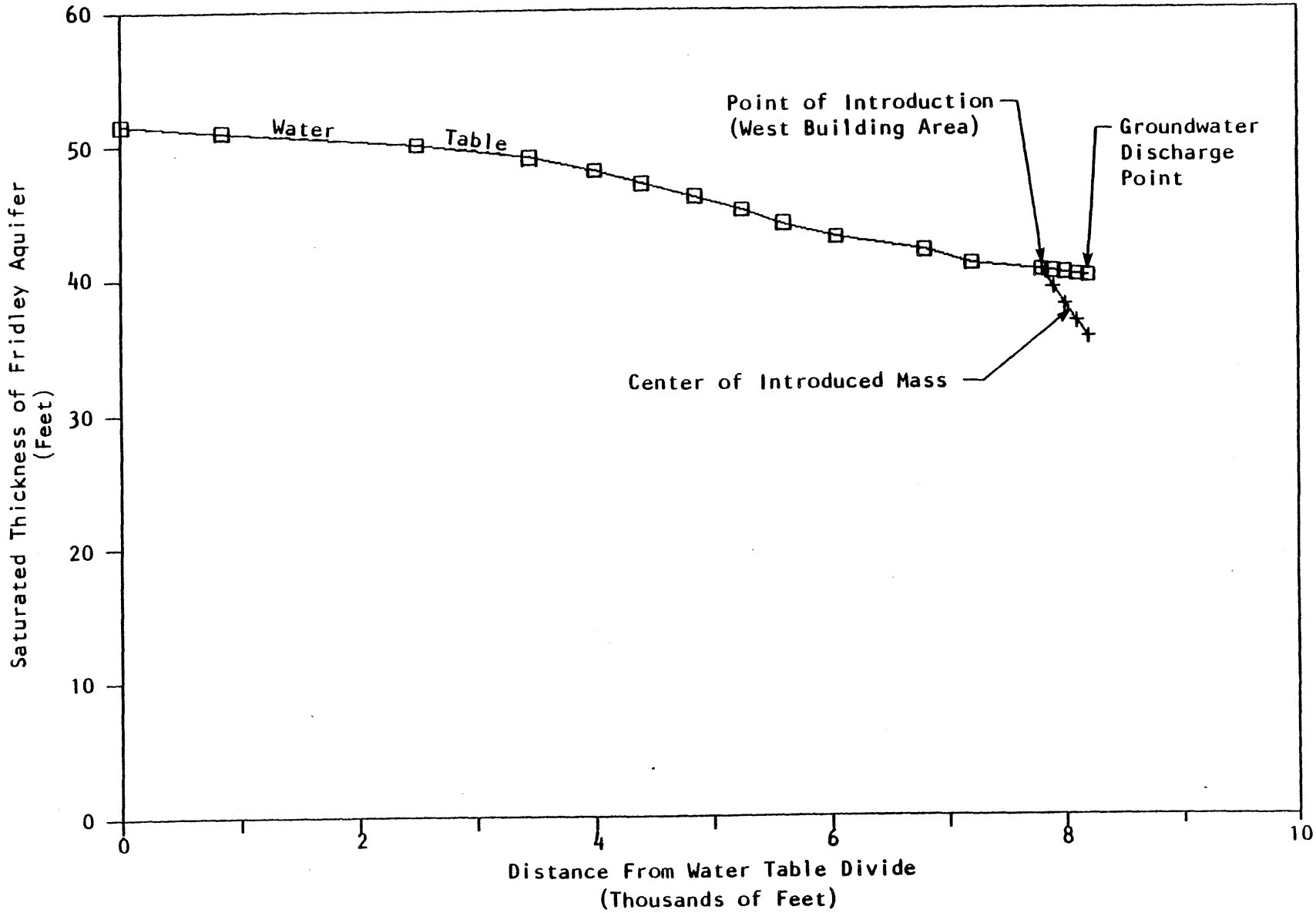
A cross sectional analytical streamline model developed by Strack (1984) was used to evaluate the flow length for dissolved constituents to their point of entry into the underlying aquitard. For this model, the surface infiltration (precipitation minus evapotranspiration) and leakage into the underlying aquitard were determined. The leakage rate was calculated at the three EIS/EA well nests to range from 1.4 to 11 inches per year with an average leakage rate of 5.5 inches per year. This was determined from the head differences at the EIS/EA well nests, the aquitard subunits' thicknesses, and laboratory permeability measurements from aquitard Shelby tube samples from this investigation and from other investigations conducted in the airport vicinity. This value compares well with other values determined in the general vicinity for the aquitard leakage.

The surface infiltration rate during the EIS/EA investigation could only be qualitatively estimated because all of the meteorological data necessary for the calculation have not yet been published. Therefore, the surface infiltration rate was indirectly determined. Banister Short Elliot Hendrickson and Associates, Inc. (1976) determined that during wet years the surface infiltration rate has been on the order of 12 inches per year in Mounds View, directly south of the airport. Calibration of the flow model described earlier with the EIS/EA wetland and monitoring well water levels indicated a net infiltration (precipitation minus evapotranspiration and leakage) rate of 5.5 inches per year. This translates to a surface infiltration rate of 11 inches per year. Comparisons of this year's groundwater levels and lake levels with those measured previously in the general vicinity indicate that this year has been unusually wet and appears to justify this rate; accordingly, this value was used in the cross sectional model. These values were applied for each building area to the central streamline, i.e., the streamline extending from the water table divide through the central portion of the drawdown depressions and through the downgradient stagnation point to the discharge area. The central streamlines are delineated on Figure 5-24. These streamlines are very similar to the streamlines passing through the central portions of the building areas in Figure 5-23 (without foundation drains). The saturated thickness was then determined from Figure 5-23 for the central streamlines in order to examine drought conditions when the drawdown depressions are likely to dissipate.

Figures 5-25 and 5-26 show the results of the streamline tracking model for the east and west building areas, respectively. Each figure shows the configuration of the water table along the central streamline as well as the configuration of the flow path of the center of mass of contaminants introduced at the building area with the same density as the ambient groundwater. As can be seen, the flow path of the center of mass for the east building area drops progressively deeper into the Fridley aquifer until it enters the underlying aquitard about 1,400 feet downgradient of the point of introduction. For the west building area, the flow path is only 4.6 feet below the water table surface when it is intercepted by County Ditch No. 41.

In either case, the center of mass of a floating plume will follow a path above those flow paths shown here, a sinking plume will follow a path above those flow paths shown here, and dispersion mechanisms will cause a plume to spread away from the flow path taken. Therefore, a floating plume from the east building area is expected to discharge to County Ditch No. 41 or, if only slightly less dense than the ambient groundwater, enter the underlying aquitard within 2,500 feet of the ditch. A dissolved plume would enter the underlying aquitard about 1,400 feet downgradient of the east building area, and a sinking plume would enter the underlying aquitard in a lesser distance. For the west building area, floating and dissolved plumes are expected to discharge to County Ditch No. 41, and sinking plumes are expected either to sink into the underlying aquitard or to also be intercepted by the ditch, depending upon its density relative to the ambient groundwater.

The flow path of any plume migrating through the underlying aquitard will depend in part upon its density relative to the ambient groundwater. The information collected in this investigation indicates that the plume would be diluted on the order of 60-fold upon emerging into the lateral flow of the Hillside aquifer, based upon the flow velocities calculated for the underlying aquitard and Hillside Sand; the actual dilution rate will depend upon the retardation mechanisms and concentrations involved. Should a downgradient municipal well intercept this contamination, this already diluted plume will be further diluted by several orders of magnitude. This is because the downgradient municipal wells are principally completed in the Prairie du Chien-Jordan aquifer; the portion of groundwater pumped either directly or indirectly from the Hillside aquifer is minor compared to that pumped from the Prairie du Chien-Jordan aquifer. Therefore, contaminants entering the Hillside are unlikely to cause adverse public health effects; the adverse effects actually experienced will, of course, be dependent upon the contaminant loading rates and mass involved. In any event, should a plume enter the Hillside resulting from a spill at either building area, the results of this EIS/EA along with information of the physical properties of the materials involved can guide in the placement of wells to assess and remedy the situation.



CONFIGURATION OF FLOW PATH FROM EAST BUILDING AREA

ANOKA COUNTY - BLAINE AIRPORT
(JANES FIELD) EIS/EA
CONFIGURATION OF FLOW PATH
FROM EAST BUILDING AREA

HTA companies

NOT TO SCALE

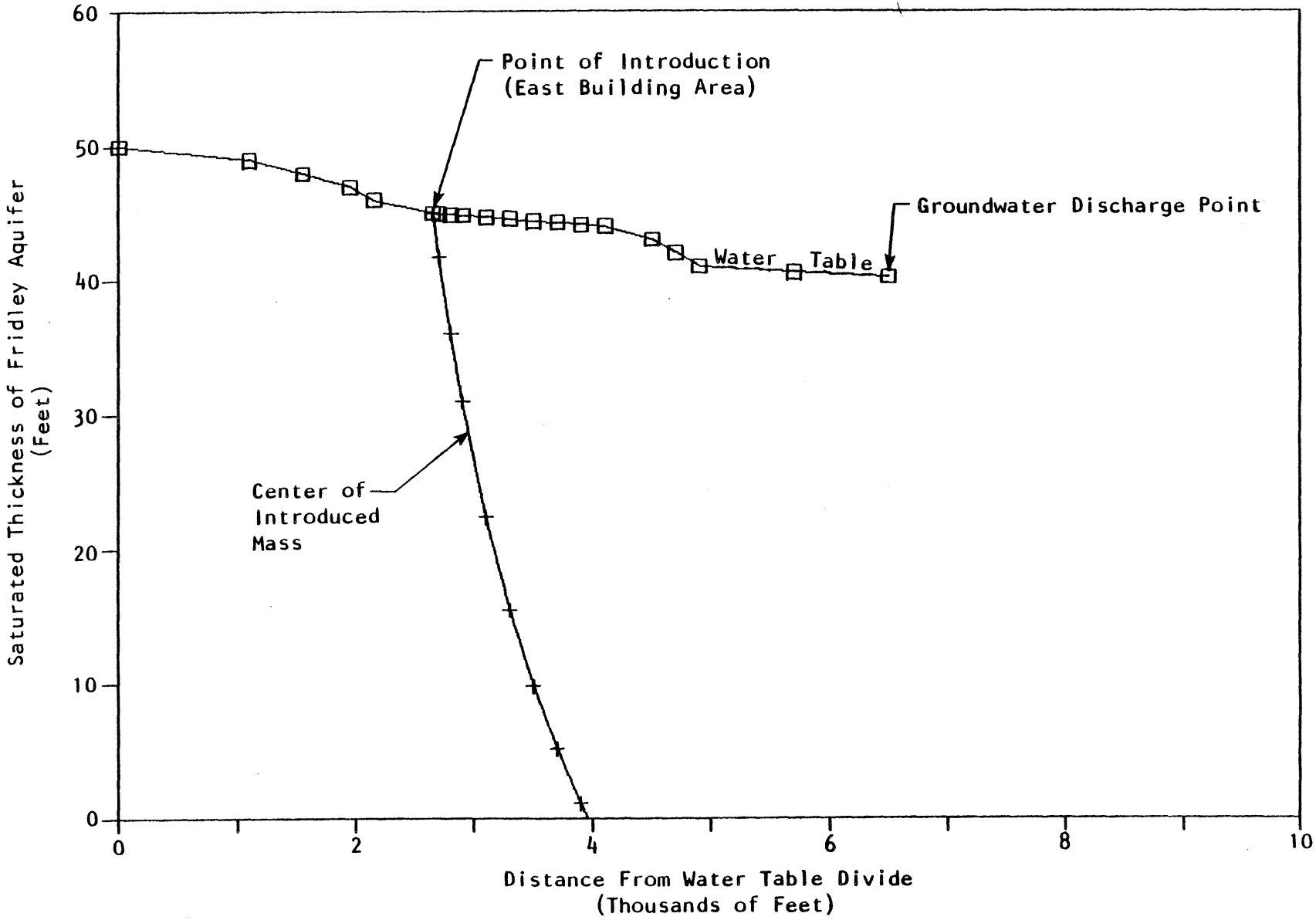
FIGURE
5-25

ANOKA COUNTY - BLAINE AIRPORT
(JANES FIELD) EIS/EA
CONFIGURATION OF FLOW PATH
FROM WEST BUILDING AREA

HTA companies

NOT TO SCALE

FIGURE
5-26



CONFIGURATION OF FLOW PATH FROM WEST BUILDING AREA

- Impact of Foundation Drains on Wetlands

The water table under most of the airport is very close to the ground surface. As a result, foundation drains will be required around the building areas needing foundations. Generally, the foundation drains have the effect of locally lowering the water table. One of the objectives of the computer modeling described in 5.2.1 was to estimate the effects of new foundation drains on local wetlands due to the installation of foundation drains in the Phase 1A and Phase 1B building areas. This section describes the estimated effects obtained from the modeling.

The groundwater intercepted by the foundation drains will likely be conveyed by gravity flow to surface drainage ditches. As such, the drains cannot lower the water table to depths below the surface water elevation in the drainage ditches. The City of Blaine also recommends foundations be set to a depth of 42 inches. Therefore, to fully drain the area underneath the proposed building sites, the foundation drains were modeled to drain the uppermost 48 inches of soil. This corresponds to a foundation drain elevation of 904 feet and 899 feet MSL for the east and west building areas, respectively. Should the ground level of the proposed building areas be raised with fill, as was done with earlier structures, the foundation drain elevations would increase and, the drawdown effects would be less than will be described here.

The computer model specifically incorporates 19 wetlands in the airport vicinity. These selected wetlands are the ones that fall within a one mile radius of either of the two proposed building sites. Among the selected wetlands are the two wetlands (594W and 595W) designated as protected by the MDNR. The selected wetlands were studied to determine if there might be any effect on the rates of groundwater - wetland interchange. Further computations were done to evaluate the change in water level of the two protected wetlands in question.

Most wetlands were found to receive groundwater discharge while a few are indicated to discharge groundwater; these relationships have not been field-verified. Discharges to and from the selected wetlands are in most cases little affected by the foundation drains. On the average, these discharges were found to decrease by less than 2 percent of their simulated pre-Phase I rates. Exceptions are unprotected wetlands 707W, 590W, 597W, and 603W which generally experience 35, 5.0, 5.7, and 7.8 percent increases in discharges from the wetland to the Fridley aquifer. For the protected wetlands, 594W and 595W experience a 3.4 percent decrease and 6.5 percent increase respectively in recharge from groundwater. The latter change is considered as artifact of the model, discussed further below.

Standing water levels were computed in the two protected wetlands. The results are summarized in Table 5-5:

TABLE 5-5
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
CHANGES IN PROTECTED WETLAND ELEVATIONS

Protected Wetland	Wetland Water Elevation, Without Foundation Drains (Feet)	Wetland Water Elevation, With Foundation Drains (Feet)	Change in Standing Water Elevation (Feet)
594W	900.03	899.95	-0.09
595W	900.22	900.14	-0.08

Source: Barr Engineering Co.

The effects of the drains are thus relatively small, causing an estimated water level drop of 0.09 and 0.08 feet, respectively, in the two protected wetlands. However, the water level effects in 595W will likely be dampened, because County Ditch No. 41 that flows through it will be receiving the additional water collected by the foundation drains of the Phase 1A and 1B building areas. This would result in an increase in wetland recharge as was indicated by the model earlier. However, this simulated increase in recharge is attributed to necessary simplifications in the representations of the hydrologic features in the 595W vicinity rather than this additional surface water recharge and is thus considered an artifact of the model. It is concluded that, while the foundation drains do cause drawdown effects on the local wetlands as a result of water table drawdown, the overall effects are relatively small.

- Groundwater Appropriation Permit

One of the purposes of this EIS/EA is to identify groundwater usages that may require state approval. Minnesota regulations dictate that any appropriation of groundwater exceeding 10,000 gallons per day (gpd) requires a groundwater appropriation permit from the Minnesota Department of Natural Resources (DNR). While it was determined in the Scoping EAW that groundwater usage by wells installed in the proposed Phase 1A and 1B building areas would be approximately 5,000 gpd, it had not been determined at that time whether interception of shallow groundwater by foundation drains would also be included in appropriation permit requirements.

For this EIS/EA, it has been determined through discussions with Ms. Hedia Adelsman, Supervisor for the DNR Division of Waters, Water Allocation Unit, that foundation drains would not require an appropriation permit if the groundwater intercepted by the drains is conveyed by non-pumped, gravity flow to a surface water discharge point. Should the intercepted groundwaters require pumping for its eventual discharge, an appropriation permit would then be likely. However, the modeling described previously suggests the gravity flow foundation drains will intercept more than 10,000 gallons per day.

It should also be noted that it is the responsibility of the individual parties which establish buildings and wells in the Phase 1A and Phase 1B building areas to determine if their individual groundwater usage exceeds the threshold quantities which require them to obtain a groundwater appropriation permit. The separate well or pumped foundation drain discharges can be consolidated in a single permit for the party. However, the MAC is responsible only for obtaining groundwater appropriation permits for its own operations.

- Summary

Three unconsolidated units underlying the airport were investigated for the EIS/EA. The surficial unit is the Fridley Formation, the upper portion an alluvial sand 45 1/2 to 48 feet thick and the lower portion a silty to clayey lacustrine deposit 10 to 14 feet thick. This is underlain by the Twin Cities Formation, a clayey to silty till 8 to 12 1/2 feet thick which is underlain by the Hillside Sand, an alluvial sand 20 to over 180 feet thick. This is underlain by other drift or the subcropping bedrock, principally composed of the St. Lawrence Formation, a dolomitic siltstone aquitard.

The water table configuration in the upper Fridley aquifer indicates that groundwater flows from the west, south, and east airport boundaries toward the drainage ditches on the north-central portion of the airport and to the north of the airport. The potentiometric head configuration in the confined Hillside aquifer indicates that the groundwater flow in the Hillside is to the southwest. Groundwater flow through the intervening aquitard composed of the lower Fridley and Twin Cities Formations is downward.

Under normal and wet conditions, the removal of groundwater by the proposed foundation drains in the Phase 1A and Phase 1B building areas creates drawdown depressions which would likely intercept any floating or dissolved contaminants which are accidentally spilled and which reach the water table in their

vicinities. These intercepted contaminants would be discharged to County Ditch No. 41. Any floating or dissolved contaminants which are accidentally spilled during drought conditions when the drawdown depressions might dissipate would likely be intercepted directly by County Ditch 41. Any high-density sinking contaminants would either be intercepted by the foundation drains or ditches or would migrate through the intervening aquitard into the Hillside aquifer where it would be initially diluted about 20-fold upon entry into the Hillside and would thenceforth be diluted further by dispersion mechanisms. If a contaminant in the Hillside is intercepted by a bedrock (Prairie du Chien-Jordan aquifer) well, it would be further diluted several orders of magnitude by groundwater intercepted from these high-transmissivity bedrock aquifers.

The foundation drains were found to generally decrease groundwater recharge to the surrounding wetlands and lakes by less than two percent. Several unprotected wetlands (590W, 597W, 603W, and 707W) were calculated to experience effects of 5.0, 5.7, 7.8, and 35 percent increases, respectively, in discharges from the wetland to the Fridley aquifer. Protected wetlands 594W and 595W were calculated to experience only minor changes (3.4 percent decrease and 6.5 increase, respectively) in their rates of recharge from the Fridley aquifer. Similarly, the foundation drains were found to cause long-term lowering of the water levels in these two wetlands of less than 0.1 feet.

5.2.2 Impact to Surface Water

This section includes determinations of impacts to the quality of surface water caused by the construction of the proposed improvements. Some of these impacts will be temporary, occurring only during the actual construction of improvements, while other impacts will have more lasting effects, although they may be only seasonal in nature.

- Stormwater Runoff to Drainage Ditches

Reference is made to Figure 2-3 which shows the location of the county ditch system in the vicinity of Janes Field. In addition to the county ditches, there is a system of ditches, swales and culverts which diverts stormwater runoff from the airport into the county ditch system. This ditch system is on airport property and is maintained by MAC. Pavement gradients and cross slopes at Janes Field are in the range of 0.5% to 1.5%, based on FAA criteria. There are grassed safety areas on both sides of

the runways and taxiways. The safety area is fairly flat, with a cross slope of 1.5% to 5%. Beyond the safety area, the maximum slope requirement of the embankment increases to 4:1. Typically, there is a grassed swale between the taxiway and runway, parallel to both, at a minimum longitudinal grade. There is evidence of local ponding in many of these infield swales. The infield areas are ultimately drained by a series of culverts passing under the taxiways and runways. Stormwater runoff eventually is routed into the county ditch system.

Stormwater runoff quality is affected slightly by airport operations and maintenance. Contaminants common to the apron and building areas are oil and fuel spills from filling operations and parked aircraft and automobiles. Aircraft must be washed regularly to remove dirt and other foreign material to maximize flight efficiency. Urea is used on runways and taxiways after snowplowing as a de-icer. Sand and salt typically are not used at airports because of the corrosive and damaging effects on aircraft. Additional contaminants to stormwater may include fertilizers, grass clippings and soil erosion.

The harmful effects of the aforementioned contaminants, are lessened by the long meandering rate of stormwater through the grassed swales before entering the county ditches. Oil and fuel drippings washed from runways and taxiways by stormwater are only trace amounts and are absorbed by the grassed infield areas. For large spills at the apron areas, all commercial operators have absorbants on hand to absorb spills. MAC also has absorbants at its maintenance shed at Janes Field. Soil erosion is negligible after the establishment of turf in non-paved areas. Grass clippings decay rapidly and return to the earth.

- Sedimentation Control Structures

Soil erosion and sedimentation occurs during construction due to the disturbance of existing ground cover. Soil is exposed to direct rainfall after it has been stripped of its protective vegetative cover and heavy topsoil. The excavation procedure loosens the soil causing the erosion of fines during rain storms. After construction is complete and turf has been reestablished, erosion will continue to take place during heavy rains on a lesser scale. To minimize the adverse effects of erosion and sedimentation, a variety of structures can be installed during construction for temporary or permanent control.

The temporary sediment control structures include:

Haybales - staked end to end across a swale or small stream or around inlet structures such as catch basins or culverts. They effectively remove floating debris and filter most sediment while allowing runoff to pass fairly easily. Occasional replacement of bales is sometimes necessary.

Diversion ditches - Constructed along the perimeter of large disturbed areas at a construction site and outletted into a sedimentation control structure.

Silt fence - a short fence made of a geotextile fabric backed by a wire mesh or snowfence for strength. The silt fence is typically installed along the toe of slope of an embankment or large areas of sheet runoff.

Permanent sediment control structures are installed during initial construction and left in place for the life of the improvement. These structures include:

Grassed swales - a relatively flat channel stabilized with jute or wood excelsior matting and grass. The flat gradient slows the velocity of the water to laminar flow and allows the precipitation of sediment. The grass also absorbs small quantities of oil, fuel and other contaminants carried by runoff. The grassed swales are free draining and carry water only during storms.

Stone - In ditches with steep profiles where velocities will cause erosion and at pipe outlets to slow velocities to prevent scouring.

Detention ponds - to store stormwater runoff, then release it at a slow rate. The rate of release of the stormwater is controlled by the outlet pipe and can be designed to approximate the same runoff rate downstream as existed before construction. Typically, a large area is required to produce the required storage volume. At Janes Field, the infield areas between the runways and taxiways will provide the required area. The stilling effect during storage of stormwater allows settling of sediment.

- Effects of Rerouting of Stormwater Drainage from Construction

Rerouting drainage from its current course may be necessitated by some of the improvement alternatives described in Section 4.7. Ideally, the path of stormwater runoff should be altered as little as possible. However, it is advantageous to relocate a drainage structure in certain circumstances such as drainage rerouting at Janes Field caused by construction of embankments for runway and taxiway extensions and building area expansion. Relocation of existing drainage ditches is beneficial for the following reasons:

- More cost effective than installing culverts
- Maintenance of excessively long culverts is a problem, especially when constructed under building sites
- Construction of buildings over culverts is difficult without adversely effecting the integrity of the pipe.

In addition to relocating drainage ditches, which are relatively narrow, relocation of a portion of the detention pond at the westerly end of Runway 8-26 will be required for alternatives 3, 4, 5, 6, 7 and 8. Detention ponds to produce the required storage volume are larger in surface area than ditches. The width of the detention pond makes it impractical to install a piping system and cover with embankment for the runway extension. To maintain the existing storage volume of the detention pond, plus additional storage capacity necessitated by airport improvements, the detention pond will have to be relocated beyond the runway and taxiway extension. The existing detention area forms part of the 100 year floodplain and is further discussed in Section 5.5.

As part of the work involved during the development of the west building area, a stub taxiway will connect the building area with the taxiway parallel to Runway 8-26 at the end of the runway. The embankment necessary for this stub taxiway will fill in a small portion of the existing detention pond. A culvert will be installed under the stub to drain the infield area immediately to the east, and between the parallel taxiway and the west building area. This area is 200' x 1,300' and will provide stormwater storage capacity as a mitigative measure to offset the loss of storage caused by the taxiway embankment. Grading in this area will have to be designed to prevent ponded water from encroaching the taxiway safety area.

Construction of the runway extension alternatives will result in the rerouting of natural runoff paths. This relocated stormwater may have to be stored in a small detention area before moving on to the natural drainage path. The intent of the detention area would be to not increase the existing runoff rate to the downstream ditch. Location of additional and relocated detention ponds will be determined during the design phase. It should be noted that an easterly shift of Runway 8-26 would not require the disturbance or relocation of detention pond at the westerly end of the runway. However, an easterly shift of Runway 8-26 will create a depressed area bounded to the north and east by the embankment for the runway extension and Xylite Street. As a result, a culvert will need to be constructed under either the runway or the abandoned section of Xylite Street to permit passage of stormwater to continue to Lateral #2. This culvert will not change the size of the drainage area on airport property discharging into Lateral #2 (see Figure 5-30).

As a result of the rerouting of a portion of 101st Avenue N.E. slightly to the north, (to avoid conflicts with the clear zone), the drainage area discharging into Lateral #2 will increase slightly, by approximately 7 acres. This represents a 2% increase in the area on airport property drained by Lateral #2. The increase in runoff rate is included in Table 5-7. The runoff rate in the drainage area to the north of 101st Avenue N.E. will be diminished by an equal amount. This reduction of runoff will not adversely effect the Protected Wetland 578W just to the north of 101st Avenue N.E. It is also expected that, although the road has been physically moved closer to Protected Water 578W there will be no increase of roadway contaminants to this body of water. It should be understood that presently, only trace amounts of oil and grease are generated from the existing roadway.

The ditches and detention areas may be relocated to an area of different soil type. The existing detention area is in a mucky soil. The relocated ditches and detention areas will most likely be constructed in poorly drained, wet, fine sand. The characteristics of the two soil types are similar with respect to high water table and rapid permeability. Although the soils characteristics may be different, the quality of stormwater runoff will not deteriorate as a result of the relocation of the detention pond from one soil type to another. Native vegetation of the two soils types is similar. The flatter ditch profile caused by the longer, relocated drainage route will slow the velocity of the stormwater runoff, thus reducing the potential for erosion and enchancing the precipitation of sediment.

As indicated in Figure 5-30, titled Existing Drainage Areas, the 2,580' extension of Runway 17-35 to the north would encroach upon Protected Water 594W in two locations. Section 5.7.4 contains discussions on the measures to be taken to mitigate the reduction of wetland area. Runoff from the runway entering the protected water may be rerouted through a diversion swale running parallel to the runway. This swale would control sediment from being introduced into the wetland during construction. After turf is established on the embankment slopes, the swale could remain in place as a permanent method of treating stormwater runoff before entering the wetland from the runway.

- Closed Conduits to Limit Contaminants

Controlling runoff by piping through a closed drainage system is an effective way to reduce deterioration of the quality of groundwater and surface water. Stormwater runoff enters the closed system via catch basin grates or headers. Typically, the material used for closed drainage systems at airports is

reinforced concrete pipe; however, some conditions require ductile iron, steel or corrugated metalpipe. Pipe connections have either mortared joints, neoprene seals or, for the metal pipes, bolted connections. These materials greatly reduce the leaching of any hazardous materials being carried through the pipe by stormwater runoff. The tight joints of the drainage system prevents the infiltration of groundwater and possible draw down of the water table.

Contaminants which are heavier than water, such as silt, sand, etc., settle out of the stormwater into the catch basin sump. The sump is typically specified to be a minimum of three feet deep, which provides storage of sediment and other debris. The sump should be cleaned out as a routine maintenance procedure. The catch basin sump is not 100% effective, however, in removing all heavier-than-water contaminants and the closed conduit system should, therefore, have an additional method of treatment downstream. The grassed swale or detention pond is recommended to slow the runoff velocity sufficiently to permit additional precipitation of sediment.

Many of the contaminants more harmful to water quality, found at airports, are lighter than water. These include oil and fuel spills. Floating contaminants can be removed more readily from a closed drainage system than from open channels, by the installation of a grease trap or hood over the outlet pipe in a catch basin. The inlet of the hood is lower than the invert of the pipe, permitting the passage of water but trapping oil and grease on the water surface. Periodic removal of the floating contaminants from the catch basins is required. An alternate method of removing oil and fuel from stormwater is the oil/water separator. Oil is separated from the water as the contaminated stormwater passes through a coalescer inside a chamber. The oil must be periodically removed from the coalescer.

The areas draining into Lateral #2 and County Ditch #41 will essentially remain unchanged, with the exception of the relocation of 101st Avenue N.E. as the northerly boundary to the Laterial #2 drainage area. Although the 2,580' shift of Runway 17-35 will shed water to the east and west, it is intended to intercept runoff sheeting off the runway to the west and either pipe it under the runway or reroute it around the northerly end of the runway and outlet into the Lateral #2 drainage basin. This will preserve the size of the two watershed areas thus minimizing drastic changes to either basin.

The removal of pavement and subsequent establishment of turf at the south end of Runway 17-35 as a result of the 2,580' northerly shift, will decrease the coefficient of runoff in that area. This change will have the effect of reducing runoff from that area.

- Effects on Downstream Uses of Surface Water

Stormwater runoff leaving airport property will be diverted to either the Coon Creek Watershed Basin to the west, or the Rice Creek Watershed Basin to the east and thereafter flows in a northerly direction. Most of the airport is part of the Forty One District, a subdivision of the Coon Creek Basin. This district is drained by County Ditch #41. The ditch originates at the Anoka County Airport and drains the area west of Runway 17-35. Land use downstream (north) of the airport is described in the City of Blaine Comprehensive Storm Drainage Plan. The report indicates that land immediately to the north of the airport is expected to develop as industrial and commercial areas. Land further downstream within the Forty One District is used for sod and vegetable production. The remainder of the watershed district further downstream is limited to residential development.

The portion of stormwater runoff diverted to the east into the Rice Creek Watershed Basin will be drained through Lateral #2 and County Ditches #53 and #62. The headwater for the Lateral #2 is the large wetland area adjacent to Xylite Street and to the north of Runway end 26. The runoff passes under Xylite Street via an existing 18" corrugated metal pipe. This drainage area is part of the Golden Lake District, a subdivision of the Rice Creek Watershed Basin. The Golden Lake District is relatively undeveloped. A portion of the area is zoned industrial with the remainder zoned residential. As access to the area is via Interstate 35W, significant development is expected.

The county ditch system described above, was originally constructed around the turn of the century, principally for stormwater management and disposal. Although the ditches still function in that capacity, it is possible, and has been suggested in the Blaine Comprehensive Storm Drainage Plan, to utilize the stormwater in the drainage ditches for recreation. It may also be possible to use the stormwater stored in detention ponds for irrigation and fire protection. None of the above uses requires stormwater to be of potable quality. However, the water should be of a quality suitable to promote vegetation and wildlife quality.

It is expected that the water from airport property after being treated as described earlier in this section will be of the same quality as is currently being discharged. There will thus be no adverse effects to the quality of runoff for the anticipated uses downstream.

5.3 Sewage Disposal

5.3.1 Existing and Proposed Practices

Existing practices for wastewater disposal involve the use of watertight holding tanks. Wastewater from the airport facility occupants flows into these tanks and the wastewater is removed by truck on an as-needed basis. The wastewater is then discharged into the wastewater collection system which is operated by the City of Blaine.

Proposed practices include the use of concrete watertight holding tanks. As with the existing practice, no wastewater would be discharged into the ground. All wastes would enter the Metropolitan Wastewater Treatment Plant for treatment and disposal.

5.3.2 Volumes of Sewage

Presently, the estimated water usage at the airport facility by all tenants is 2,000 gallons per day. Generally, a portion of this water does not enter the holding tanks. This water would be used for washing aircraft and vehicles, lawn watering and other uses. Historically, the volume of wastewater is 80% of the water usage. However, for the purposes of this investigation, the estimated wastewater flow for existing conditions was conservatively estimated to equal 100% of water usage, i.e. 2,000 gallons per day.

The projected wastewater flow as described in the Scoping EAW dated February, 1985 is 5,000 gallons per day from future users. A total estimated domestic wastewater flow of 7,000 gallons per day was used to estimate future demands reflecting the sum of existing (2,000 gpd) and future (5,000 gpd) demand levels.

5.3.3 Sewage Disposal Authority

Presently, the City of Blaine has a permitting process which regulates the installation and operation of the holding tanks. As stated in the Scoping EAW, the individual developers will continue to go through the permitting process for holding tanks. The individual tenants will be responsible for pumping the holding tanks for treatment in the municipal facility.

5.3.4 Implications for Sewage Disposal with Sewer and Water Extension to the Airport

If municipal utilities including sewer and water are extended to Janes Field, future sewage disposal at the airport would be accommodated by the municipal sewers. The existing holding tanks could then be abandoned. The wastewater flow would most likely increase. Historically, areas receiving sewers have shown an increase in water usage after sewers have been installed. In addition, infiltration, the entrance of clean groundwater into the sewers, may occur. This increase in flow will increase the hydraulic load to the Metropolitan Wastewater Treatment Facility.

5.4 HAZARDOUS WASTE

5.4.1 Identification of Potential Hazardous Waste Issues

Users of Anoka County-Blaine Airport (Janes Field) were surveyed to determine what hazardous chemicals are used at the airport and the current procedure in use to manage these hazardous materials. Currently, there are eight separate commercial tenants on the airport. These eight commercial tenants include Aircraft Electronics, Aero Flight Service, Inc., Arrowhead Airways, Buldoc Aviation, Cirrus Flight Operations, Thunderbolt Aviation, Skyline Flight, and the University of Minnesota Flight Facility.

Table 5-6 lists these commercial tenants and gives a list of waste management criteria to identify potential hazardous waste use issues. Seven of the eight commercial tenants use solvent degreasers and all of them dispose of the degreasers by offsite removal by a contract hauler. Seven of the eight commercial tenants also generate waste oil which is removed offsite by a contract haulers.

Aircraft are fueled with Avgas at four of the eight commercial tenants, while one of the commercial tenants fuels aircraft with jet fuel. All of this fueling occurs on a paved ramp area and none occurs in unpaved areas. Most of these commercial tenants have a fuel spill plan in effect. One of the tenants uses an in-ground fuel tank. It is not known if there is a leak detection program for this tank. Three of eight commercial tenants paint aircraft on a touch up basis, with the painting materials disposed of in an approved manner. Aircraft are washed by five of the eight commercial tenants with one of the tenants discharging washwater to a holding tank for later collection. Sanitary wastes and floor drainage are collected in holding tanks by six

of the eight commercial tenants. These holding tank wastes are disposed of in an approved manner. At three of the commercial tenants, it appears to be a practice of transient pilots to drain the water trap in the aircraft fuel line by removing the bulb and emptying its contents on the ramp or ground. One of the commercial users commented that the owners of private hangars periodically dump waste oil on the ground.

5.4.2 Existing Disposal Plans

Currently, the waste disposal plan in effect at Janes Field requires that waste degreasers and oil be removed from the airport by contract hauler. The high groundwater table has precluded the use of septic systems and leaching fields for sanitary wastewater disposal. Sanitary wastes, and in many cases, floor drainage, are collected in on-site holding tanks with the contents periodically pumped out and disposed of at a municipal wastewater treatment facility. Fueling occurs on the ramp areas with provisions for spill control.

5.4.3 Impact to Groundwater

Groundwater impact can occur by spillage of degreasers, oil, avgas, jet fuel, paints and paint thinners, if these materials are improperly managed. The current waste management procedures in use at the airport appear to be working fairly well. Two areas where discharges to the groundwater may occur without immediate detection include leakage of fuel from an underground storage tank and leakage of fuel from fuel pipeline transfer systems. Small amounts of avgas and waste oil may be entering the surface and groundwater from the practice of emptying aircraft fuel water traps on the ground, from the floor drain in hangars without floor drain holding tanks and from improper management of fuel and oil in the private hangar area. A portion of the fuel spills are likely to evaporate prior to entering the surface and groundwater. These petroleum products are often trapped in the soil materials by capillary action and are found to migrate slower than groundwater flow.

5.4.4 Recommended Changes to Plans

It is recommended that the following steps be taken to manage hazardous materials at Anoka County-Blaine Airport (Janes Field).

TABLE 5-6

ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

HAZARDOUS WASTE MANAGEMENT-EXISTING COMMERCIAL USE

Waste Management Criteria	Aircraft Electronics	Aero Flight Service, Inc.	Arrowhead Airways	Bolduc Aviation	Cirrus Flight Operations	Thunder-bolt Aviation	Skyline Flite	University of Minnesota Flight Facility
Uses solvent degreasers?	N	Y	Y	Y	Y	Y	Y	Y
Approved disposal of degreasers?	NA	Y	Y	Y	Y	Y	Y	Y
Change oil in aircraft?	Y	Y	Y	Y	Y	Y	?	Y
Approved disposal of waste oil?	Y	Y	Y	Y	Y	Y	?	Y
Fuel aircraft with AVGAS?	N	Y	N	N	Y	?	Y	Y
Fuel aircraft with jet fuel?	N	N	N	N	Y	?	N	N
Ground disposal of aircraft fuel trap contents?	N	Y	Y	N	N	?	Y	?
Fuel aircraft on ramp?	NA	Y	N	N	Y	?	Y	Y
Fuel aircraft on ground?	NA	N	N	N	N	?	N	N
Fuel spill control plan?	NA	?	Y	NA	Y	?	Y	Y
Inground fuel tanks?	N	N	N	N	N	?	Y	?
Inground tank leak detection program?	NA	NA	NA	NA	N	?	?	?
Paint aircraft?	NA	NA	Y	N	N	Y	Y	N
Approved disposal of painting materials?	NA	NA	Y	NA	NA	Y	Y	NA
Wash aircraft?	Y	N	Y	N	Y	N	Y	Y
Holding tank for wash water?	?	NA	?	NA	Y	NA	?	?
Holding tank for sanitary wastes?	Y	Y	?	Y	Y	NA	Y	Y
Holding tank for floor drainage?	Y	Y	N	Y	Y	?	Y	Y
Approved disposal of holding tank wastes?	Y	Y	NA	Y	Y	NA	Y	Y

Y = Yes, N = No, NA = Not Applicable, ? = Unknown

Source: Hoyle, Tanner & Associates, Inc.

- Each commercial tenant of the airport should submit a copy of its hazardous materials management plan to the Metropolitan Airport Commission. This plan should satisfy the requirements of the Federal Resources Conservation and Recovery Act (RCRA) as contained in the code of federal Regulations 40CFR 261 and 262. Each commercial generator of hazardous waste at the airport should submit a copy of the biennial report required under 40CFR 262.41 to the Metropolitan Airport Commission as well as the Environmental Protection Agency.

- The Metropolitan Airport Commission should take steps to assure that tenants of the private hangars are subjected to the same requirements for hazardous materials management as are the commercial tenants of the facility.

- Inground fuel tanks and underground fuel lines should be tested on a regular basis to assure that fuel leakage from these systems does not go undetected.

- Floor drain systems from hangar areas where aircraft maintenance commonly occurs should be equipped with a grease trap oil type separator to collect any fuel or oil spills. This separator should be inspected and cleaned on a regular basis.

- Solvents should only be used in areas where spills may be contained by permanent or temporary containment systems to minimize the possibility of spills into the drainage system.

- The Metropolitan Airport Commission should encourage each generator of hazardous waste at the airport to evaluate the need to use hazardous materials in its operations. In many cases non-hazardous materials may be substituted for hazardous materials, especially for those uses requiring solvents.

As of this writing, the MAC is developing a detailed spills control plan to supplement the spills control plan now in the Anoka County-Blaine Airport Operations Manual.

5.5 IMPACTS ON 100 YEAR FLOODPLAIN

The construction of some of the airport alternative schemes will require filling in a portion of the floodplain areas. This section of the EIS/EA will identify which schemes effect

flooplains, the location and extent of floodplain encroachment, and various possible mitigative measures. Requirements of water management review agencies and their involvement will also be discussed.

5.5.1 Potential for Permanent Loss of Flood Storage Capacity

The greatest potential for loss of flood storage capacity will occur in the northwestern section of the airport. Figure 5-27 indicates the juxtaposition of floodplains for storm events with return periods of 100 and 500 years with the airport improvement alternatives which encroach the floodplains. Figure 5-27 was adapted from the Floodway Boundary Map for the City of Blaine, Minnesota, by the National Flood Insurance Program. Figures 5-28 and 5-29 indicate the profiles of on-site County Ditch #41 and Lateral #2 respectively. The profiles are from the City of Blaine Comprehensive Storm Drainage Plan by Consulting Engineers Diversified, Inc. Construction of any of the alternatives 3, 4, 5, 6, 7 and 8 will require fill in the existing detention area to the west of Runway 8-26. The west building area situated just south of the taxiway parallel to Runway 8-26, will encroach on a small area of the floodplain. A stub taxiway connecting the parallel taxiway with the west building area will reduce flood storage upstream of the stub taxiway. Fill slopes for the building area and stub taxiway will encroach upon approximately 5.5 acres of floodplain for the 100 year storm event. The profile of County Ditch #41, Figure 5-28, indicates a 5 foot depth of water for a 100 year storm event. The resulting loss of storage volume in this area would be 5.5 acres-feet. It should be understood that although the water depth in the ditch is 5 feet for the 100 year storm, the ditch is only 4 feet deep. The ditch banks are topped and the surrounding area, inundated with water becomes the storage area. The ditch cross section, being small in comparison to the floodplain cross section, contributes very little storage capacity. It is assumed that the floodplain will have a water depth of one foot.

The shift of Runway 8-26 and parallel taxiway to the west will cross the existing detention area. The flood storage area just to the south of the parallel taxiway will remain intact, whether the ditch is rerouted around the relocated runway or piped under the runway and taxiway. Storage volume will be reduced between the toe of slopes of the runway and taxiway. The area effected is approximately 4 acres in size. Figure 5-28 indicates a 5 foot depth of water at the location in the existing ditch where the proposed runway shift would be situated. The approximate reduction of storage volume as a result of constructing this alternative would be 4 acre-feet.

ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA
PLAN & PROFILE VIEW OF COUNTY DITCH 41

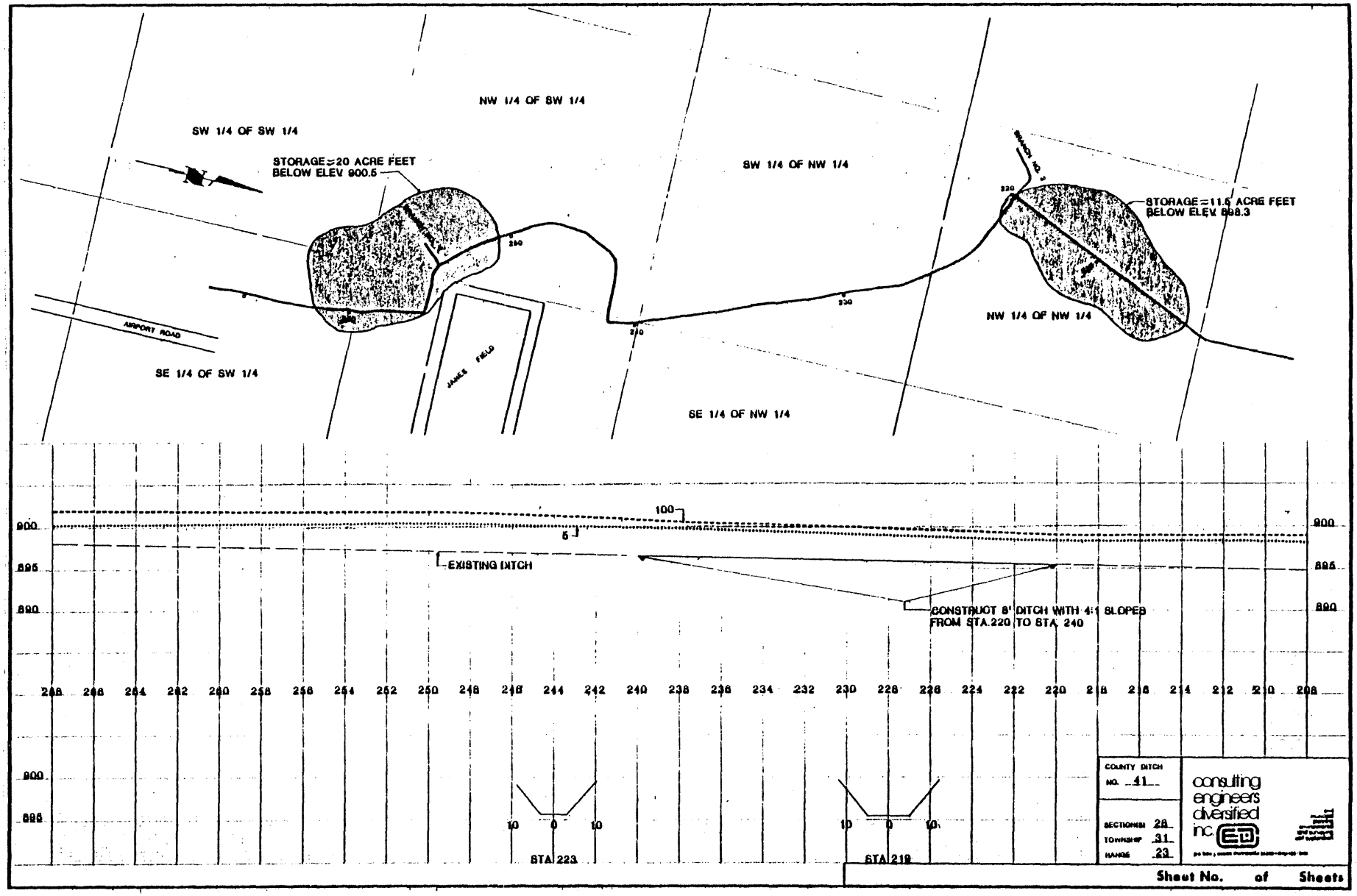
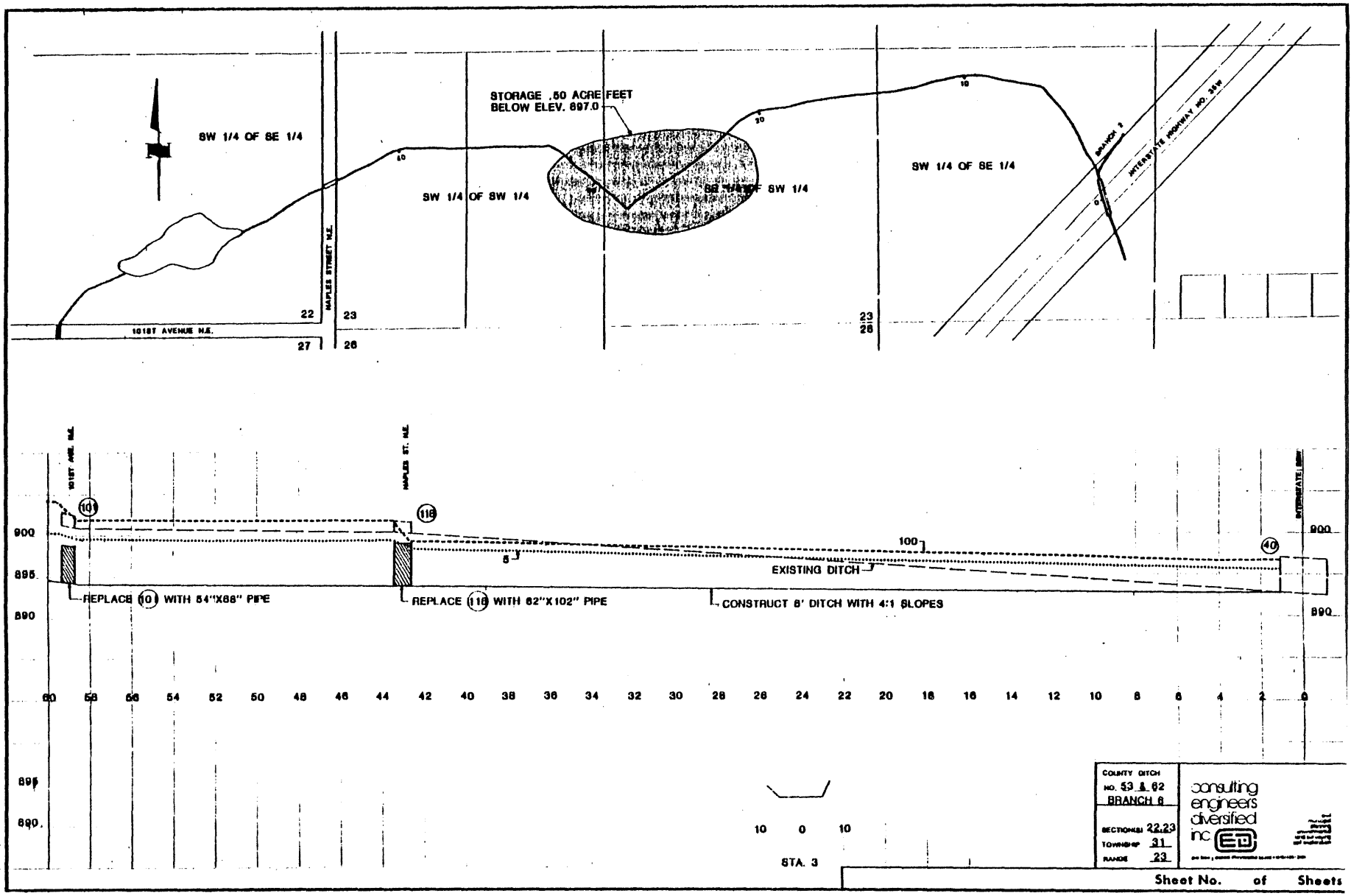


FIGURE 5-28

ANOKA COUNTY - BLAINE AIRPORT
(JANES FIELD) EIS/EA

PLAN & PROFILE VIEW OF LATERAL 2



HTA companies

FIGURE 5-29

The improvement alternative which includes shifting Runway 8-26 to the east will encroach upon 6.5 acres of floodplain storage. It should be realized, however, that no defined channel or ditch is crossed and that the floodplain outlined is for storm event with a return period of 500 years.

Figure 5-29 indicates the flood storage profile for the 5 and 100 year storm events. To the extreme left of the profile is the 101st Avenue, N.E. crossing. To the left of the crossing is the effected storage area which is not clearly shown in its entirety on the profile. Moreover, the 500 year flood profile is not shown at all. However, from available information, it was determined likely that the 500 year flood storage will not be more than 1/4 foot higher than the 100 year flood storage. Further, the elevated roadbed for 101st Avenue will act as a dam, thus creating, in effect, a detention pond to the south of 101st Avenue.

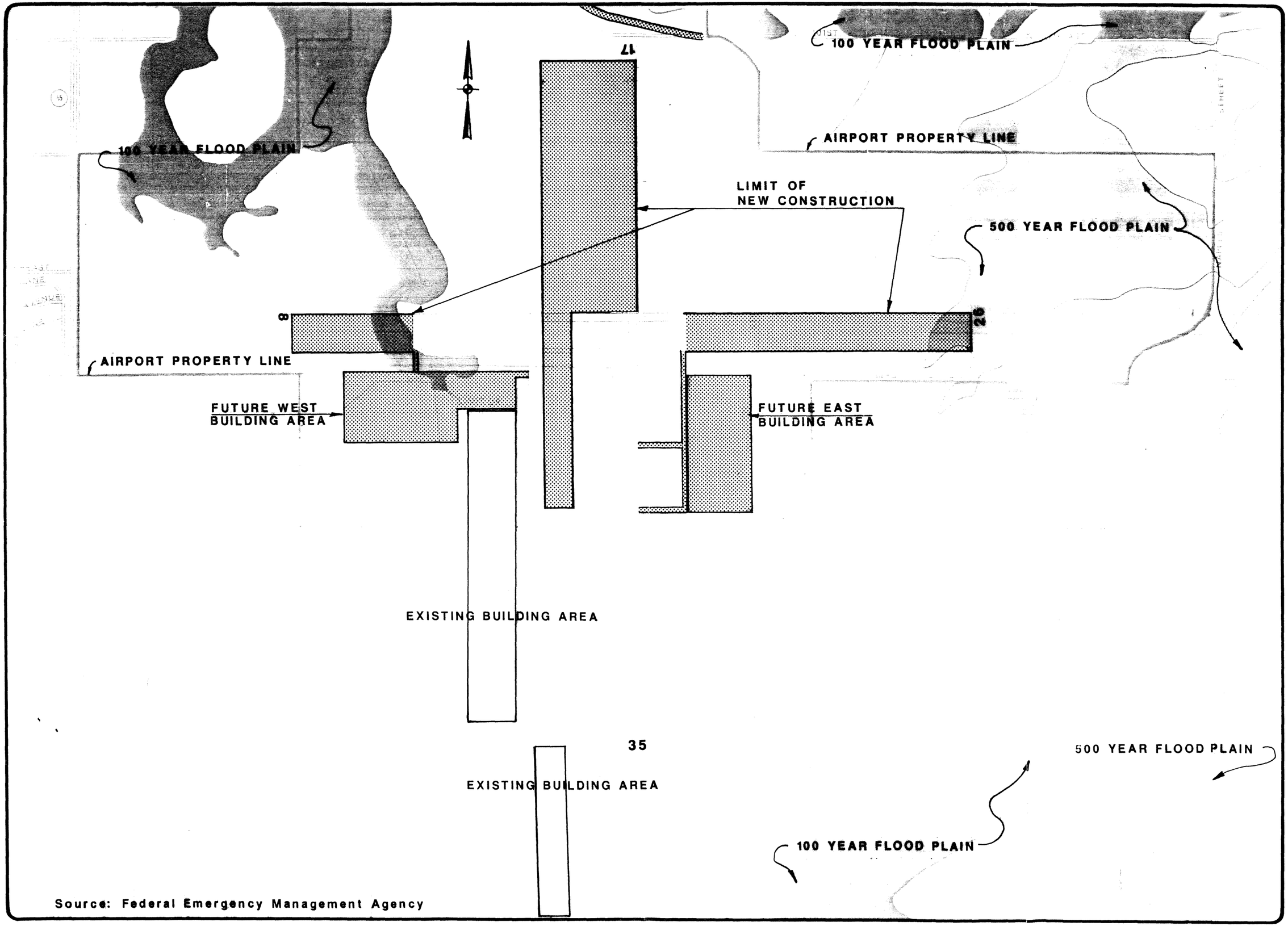
5.5.2 Confirmation of 100 year Floodplain Contour

Resources used to determine the 100 year floodplain contour include the following:

- Floodway Boundary Map for the City of Blaine by the National Floodway Insurance Program.
- City of Blaine Comprehensive Storm Drainage Plan 1975
- 1"=50' scale topographic survey by Toltz, King, Duvall, Anderson & Associates, (TKDA).
- 1"=2000' scale United States Geological Survey (USGS) Map.

The 1"=50' scale topographic survey with one foot contour intervals is by far the most accurate source of data for the floodplain contour. However, the available 50 scale topographic survey does not include the entire airport. Used in conjunction with the available existing ground contours, the 100 year flood profiles were provided as an appendix to the Comprehensive Storm Drainage Plan for the City of Blaine. Although the aerial photograph does not include ground contours, it was helpful in determining locations of small, low, wet areas.

After careful consideration of available information, it was determined that the limits of the 100-year floodplain, as outlined on the 1"=1000' scale National Flood Insurance Program Floodplain Boundary Map, are within the degree of accuracy required by the scope of study for this EIS/EA. A greater degree of accuracy is not warranted as the final profile of airport improvements has not yet been determined.



Source: Federal Emergency Management Agency

ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

CRITICAL FLOODWAYS – ALTERNATIVES 1–8

HTA companies

1"=1000'

FIGURE 5-27

5.5.3 Methods of Obtaining Compensatory Flood Storage

As indicated in Section 5.5.1, improvement alternatives, including a westerly shift of Runway 8-26, will require involvement in County Ditch #41. Below are methods of compensating lost storage volume.

- Relocation of detention areas

As a result of construction embankment for airport improvements, some ponding area will be filled in within large areas of fine sandy soils. It is likely that these soils will be used for the embankments. In that case, borrow areas could be graded in such a manner as to produce addition flood storage capacity. In some of the alternatives relocation or piping of the ditch is required.

- Infield Areas

The construction of many of the original improvements with alternatives 4, 5, 6, 7 and 8 will include parallel and connecting taxiways with the runways. These improvements will create infield areas, each graded away from the paved surfaces toward a low grassed area. The low area will typically be drained through a pipe at the end of the swale under a runway or taxiway. These areas will act as detention ponds, providing additional storage.

- 500 Year Flood Area

In the area to the east of Janes Field where Runway 8-26 encroaches the 500 year floodplain, no additional measures need to be pursued for increasing flood storage. The loss of storage volume caused by construction with respect to the 500 year flood is minimal.

5.5.4 Floodplain Mitigative Measures

Section 5.5.3 contains a description of possible methods to increase flood storage volume. The infield areas will be created

as a result of alternatives 4, 5, 6, 7 and 8 inherent to many of the airfield improvements. Relocation of low areas may also not be feasible if on-site soils are used for embankments. Low areas will be created as a result of borrow excavation. Grading the excavation areas to drain into County Ditch #41 will increase flood storage capacity.

One limitation of using grassed infield areas for flood storage is the safety restrictions by FAA Construction Standards AC 150/5300-4B. Standing water is not permitted within taxiway and runway safety areas. However, the distance between the proposed runways and taxiway is sufficient to construct ponding areas within the infield area and outside of the runway and taxiway safety areas.

Developing an earthwork borrow site into a floodplain would require the regrading and returfing of a larger area than with conventional borrow site excavation.

Selection of the appropriate mitigative measure to floodplain loss will be finalized in the design phase. It is likely, however, that in cases where relocation of County Ditch #41 is required, (Alternatives 3, 4, 5, 6, 7 and 8) fill for the embankment will be obtained from the area of the relocated ditch. Some flood storage capacity in the infield areas will result as a matter of course during construction.

5.5.5 Blaine Requirement for Specific Height above Floodplain

The City of Blaine requires that all future building construction have a first floor elevation a minimum of one foot above the 100 year flood storage. Using the profiles in the Comprehensive Storm Drainage Plan, the minimum flow elevations for the building areas are given below:

Building Area	Minimum First Floor Elevation
East	905
West	903

5.5.6 Work Coordinated with Agencies

Prior to construction of any airport improvements requiring involvement with the county ditch system, wetlands or floodplain permit approval will be needed from the following agencies.

- U.S. Army Corps of Engineers
- Minnesota Department of Natural Resources
- Minnesota Pollution Control Agency
- Coon Creek Watershed District
- Rice Creek Watershed District
- City of Blaine, Conditional Use Permit

5.6 IMPACTS ON ON-SITE AND DOWNSTREAM DRAINAGE

This section includes discussions on impacts to the quantity of surface water runoff caused by the construction of the proposed improvements.

5.6.1 Potential Downstream Drainage Effects

As a result of construction at the airport, the potential exists that the runoff rate of discharge from the airport will increase. The most critical path of discharge will be at County Ditch #41. Runoff from the portion of the airport near the proposed west building area and new construction of Runway 17-35 drains into this ditch. Further compounding the problem, is the fact that the proposed alternatives require filling in a portion of the existing drainage detention areas. However, as indicated in Section 5.5, there are several mitigative measures available, in fact, detention areas will be constructed as a result of excavation required to obtain fill for building areas.

5.6.2 Requirements to Control Rate of Discharge

The rate of surface water runoff will mostly be effected by the change in ground cover. Whereas the area of concern is comprised of flat, grassy areas or wetlands, the post-improvement condition will include areas of paved surfaces and buildings. The rate of runoff of the highly impervious surfaces will increase. Although the volume of runoff does not increase for a particular design storm, the time required for runoff to reach a point downstream decreases. The net effect is that a larger volume of water passes a particular point downstream at the same time. Detention ponds are usually constructed to compensate for this occurrence.
A detention pond can be designed to store runoff upstream in a safe manner and allow water to pass through the downstream water course at the same rate after development as before.

Detention ponds slow the velocity of runoff sufficiently to promote settling of sediment and other materials which would adversely effect the quality of water downstream. (See discussion in Section 5.2.2.)

- Revision to Blaine Comprehensive Storm Drainage Plan

The Comprehensive Storm Drainage Plan for Blaine was prepared to assess storm water control measures. The plan includes recommendations that certain improvements to existing county ditches and culverts be implemented. Improvements at Janes Field recommended in the Comprehensive Storm Drainage Plan and discussed in this EIS/EA will include recommended improvements only to the extent that those improvements are within the work areas of the airport construction and are effected by airport improvements. Improvements at the airport will be designed and constructed such that the county ditches downstream and off airport property will not be adversely effected. As a result of these preventive measures, it is not necessary or warranted to make any changes to the City of Blaine Comprehensive Storm Drainage Plan.

- Project Area and Contributing Runoff

To assess the effects of changes to the rate of surface water runoff, it was necessary to determine the size of the drainage areas and characteristics of the surface, both before and after construction of proposed improvements. Surface runoff in the area of proposed airport improvement alternatives will drain into either of two county ditches, County Ditch #41 or Lateral #2 which drains into the Rice Creek Watershed District. Existing drainage areas are outlined with respect to the airport property lines in Figure 5-30. Also shown on Figure 5-30 are the approximate location of ditches and the discharge point of study.

The rerouting of a section of 101st Avenue N.E. will move the roadway closer to Protected Wetland 578W as shown on Figure 5-30. It may be desirable to route the roadway runoff through a ditch on the north side of the road to collect any roadway contaminants, although the amount of contaminants are expected to be minimal. This runoff can then be collected in a closed drainage system and piped to the south side of the roadway. Here, the runoff would meander through a grassed swale permitting treatment of the water by the sediment settling, and absorption of salts or oil by the surrounding grassed areas. This storm water would eventually recharge wetlands 588W and 594W.

- Details of Design Storms

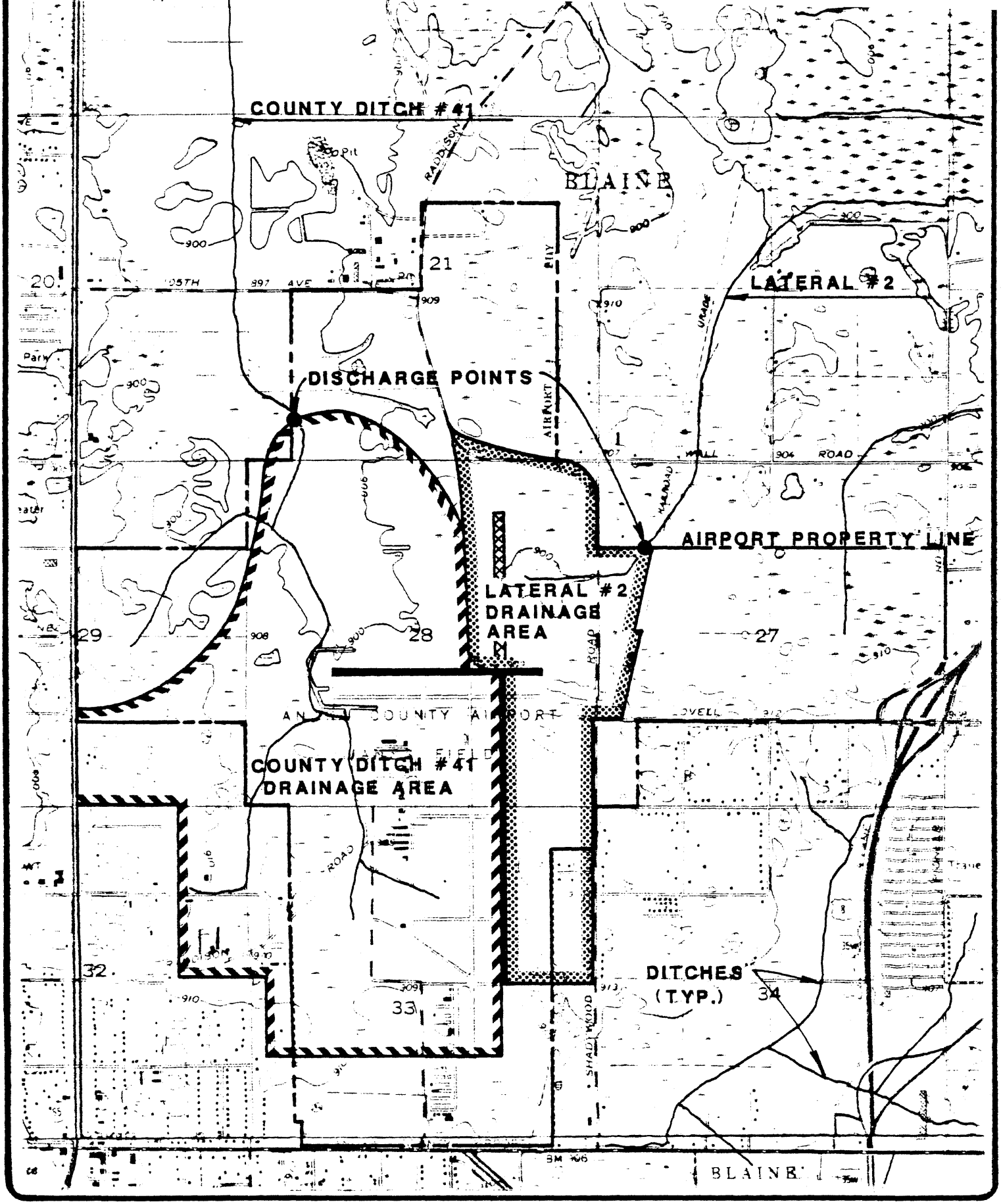
Surface water runoff rates at the airport were determined for both drainage areas for the 5 and 100 year storm event in both the existing and post-development condition. Table 5-7 lists rates of stormwater discharge in cubic feet per second at the point where stormwater runoff leaves airport property through the two county ditches as shown in Figure 5-30. Drainage areas contributing to these discharges are large causing rather long times of concentration. Time of concentration is the time required for precipitation falling at the farthestmost point from the discharge point to travel over land to the discharge point. The critical storm duration equals the time of concentration. Data compiled in Technical Paper #40 by the U.S. Department of Commerce, indicates that as storm duration increases, rainfall intensity decreases. During design of individual improvement alternatives the critical drainage areas for the structure being designed will be much smaller, thus having higher rainfall intensities. In any case, each structure designed for any of the improvement alternatives will be designed for the more critical rainfall intensity.

- Details of Stormwater Control Structures

The stormwater control structures described in Section 5.2.2 for stormwater quality treatment can be designed to also regulate the rate of stormwater discharge. Thus, both water quality is maintained and amount of stormwater runoff is maintained by the same structure. The detention pond is the most suitable structure for controlling runoff quantity.

- Details of Runoff Treatment Facilities

As stated above, treatment of water to preserve water quality is discussed in Section 5.2.2. Essentially, the two principal criteria in designing a stormwater treatment facility is to slow rate of runoff to a velocity which will permit settling of heavy waterbourne particles and provide a means to remove floating debris and contaminants.



ANOKA COUNTY - BLAINE AIRPORT
(JANES FIELD) EIS/EA

EXISTING DRAINAGE AREAS

HTA companies

1"=2000'

N

FIGURE 5-30

TABLE 5-7

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

COMPARISON OF STORMWATER DRAINAGE

CONSTRUCTION AREA	5 Year Storm (cfs)				100 Year Storm (cfs)			
	Discharge Before Construction		Discharge After Construction		Discharge Before Construction		Discharge After Construction	
	County Ditch #41	Lateral #2	County Ditch #41	Lateral #2	County Ditch #41	Lateral #2	County Ditch #41	Lateral #2
East Building Area	127.2	56.9	127.2	78.0	236.1	101.8	236.1	139.5
West Building Area	127.2	56.9	140.5	56.9	236.1	101.8	261.0	101.8
R/W 8-26 800' Extension	127.2	56.9	127.2	58.8	236.1	101.8	236.1	105.2
R/W 17-35 Shift 950' North	127.2	56.9	125.8	58.5	236.1	101.8	233.6	104.7
R/W 17-35 Shift 2500' North	127.2	56.9	123.8	60.4	236.1	101.8	229.9	108.1
R/W 8-26 Shift West (4000' Length)	127.2	56.9	129.2	55.2	236.1	101.8	239.9	98.8
R/W 8-26 Shift East (4000' Length)	127.2	56.9	123.1	64.3	236.1	101.8	228.7	115.1
R/W 17-35 Lateral Shift(4855' Length)	127.2	56.9	127.8	54.9	236.1	101.8	237.4	98.3
Relocation of 101st Avenue N.E.	127.2	56.9	127.2	57.9	236.1	101.8	236.1	103.8

Source: Hoyle, Tanner & Associates, Inc.

- Surface and Sub Soils

The soil types in the airport vicinity depicted in Figure 5-31 and briefly described below are defined in the Soil Survey of Anoka County by the Soil Conservation Service of the U.S. Department of Agriculture.

- IW - Insanti fine sandy loam
  Very poorly drained soil formed in outwash sand, water table is high, contains strata of coarse sand.

- LnA - Lino loamy fine sand
  Surface layer is dark loam fine sand, subsoil is brown, loose fine sand about 3 feet thick, the underlying material is pale-brown fine sand.

- Ma - Markey Muck
  This soil occurs as small bogs with high water table. Because of its poor bearing capacity this soil is unsuitable for urban uses.

- SoA - Soderville fine sand
  This soil is a somewhat poorly drained soil formed in sandy outwash material. The surface layer is roughly 6 inches thick, under laid by fine sand. The water table is moderately high.

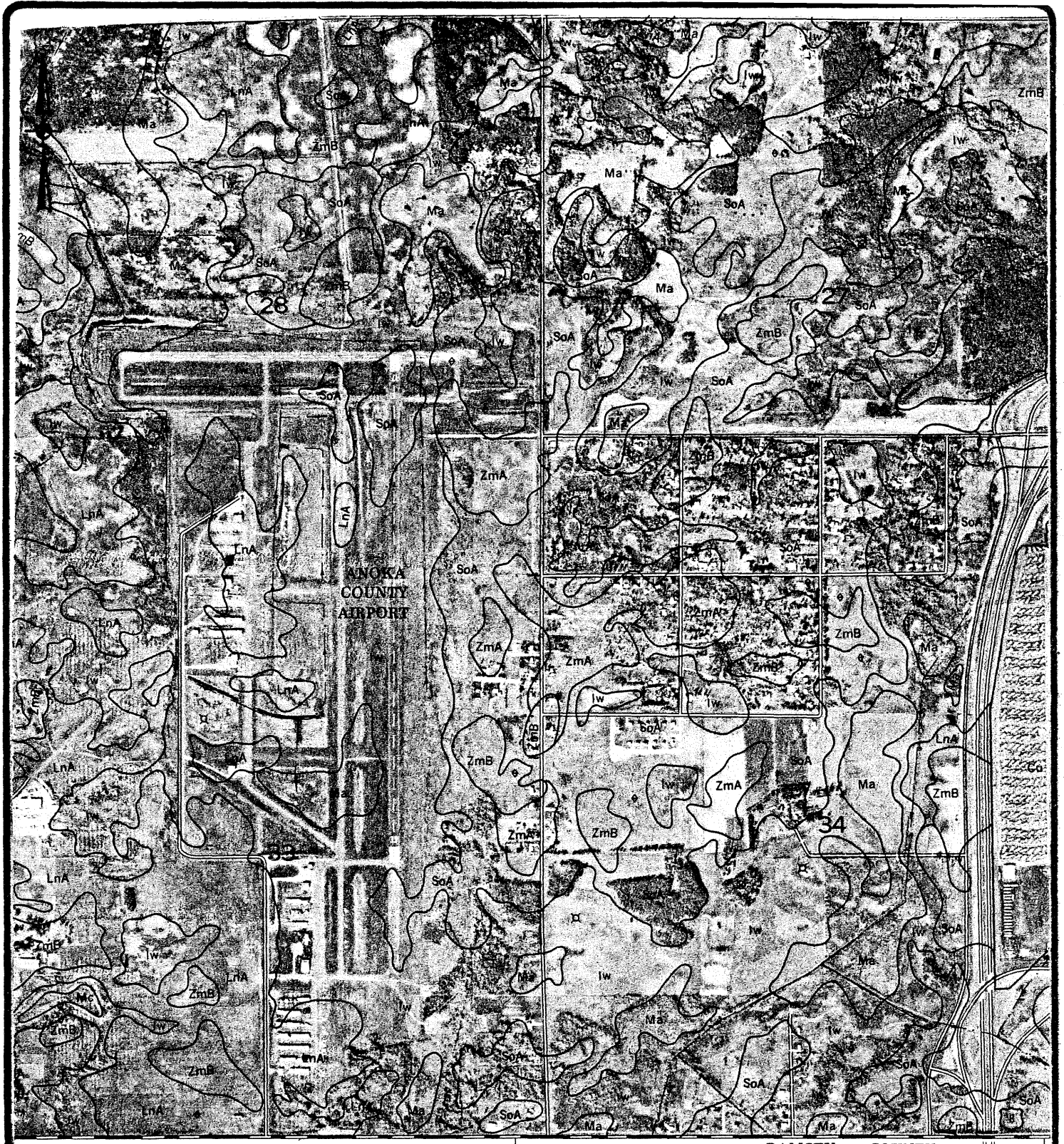
- ZmB - Zimmerman fine sand
  This soil is excessively drained formed in outwash sands. Organic matter content is low.

5.7 IMPACTS TO WETLANDS

5.7.1 Identification and Classification of Wetlands on the Project Site

The entire Anoka County-Blaine Airport (Janes Field) property was field reviewed and all wetlands on the airport were mapped and classified. Wetlands were classified according to Wetlands and Deepwater Habitats of the United States (FWS/OBS Publication 79/31; Cowardin et al., 1979) and Wetlands of the United States (U.S. Fish and Wildlife Service Circular 39; Shaw and Fredine, 1971). Minnesota protected waters were also identified from the Minnesota protected water inventory maps (Department of Natural Resources).

Wetland types found on the airport property are summarized in



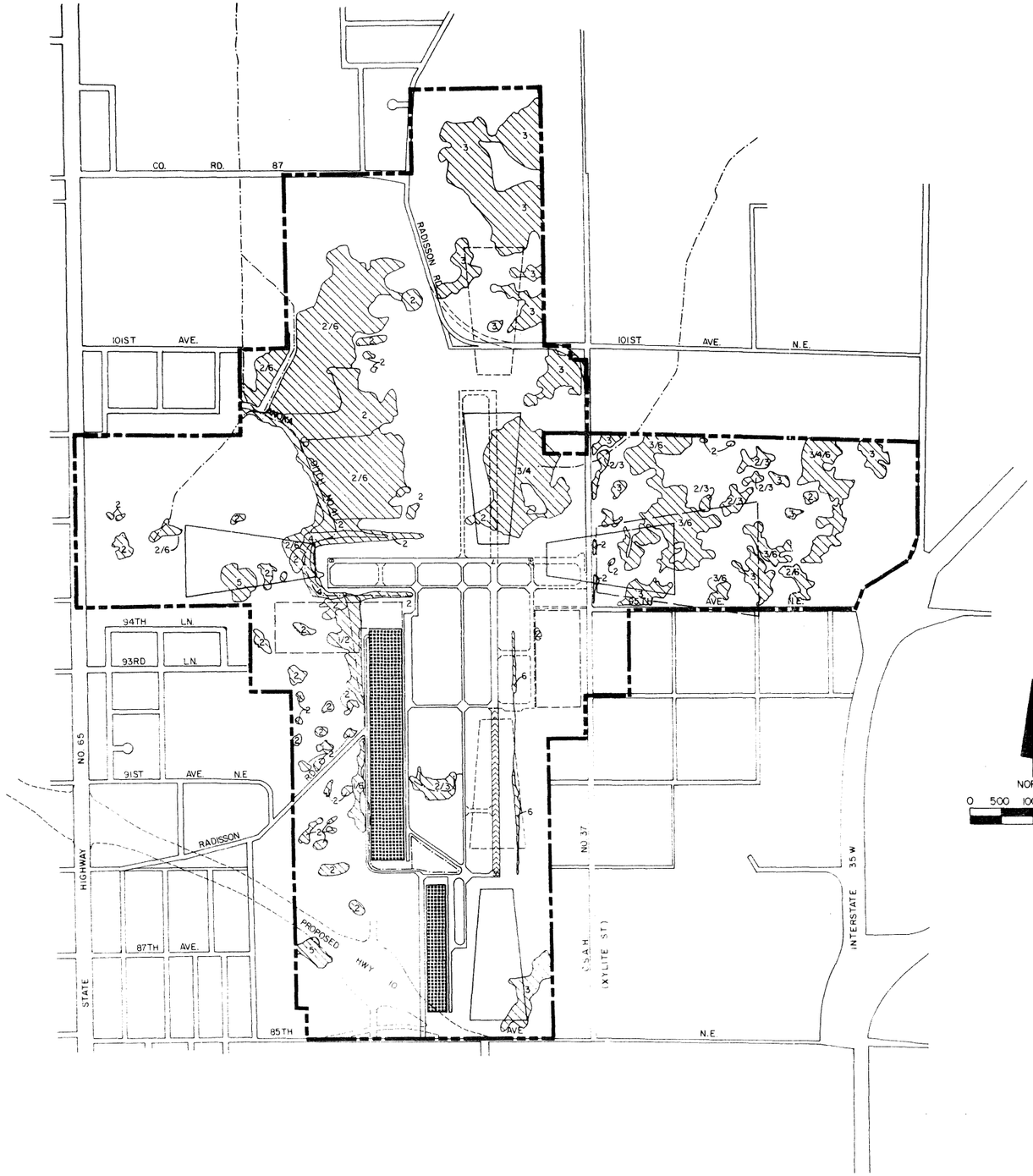
ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

SOIL TYPES AND LOCATIONS

HTA companies

1" = 1320'

FIGURE 5-31



Legend

Wetland Types

1. Lowland Hardwood Forest
2. Wet Meadow
3. Shallow Marsh
4. Deep Marsh
5. Open Water
6. Shrub Swamp

Existing Buildings

Wetlands

SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

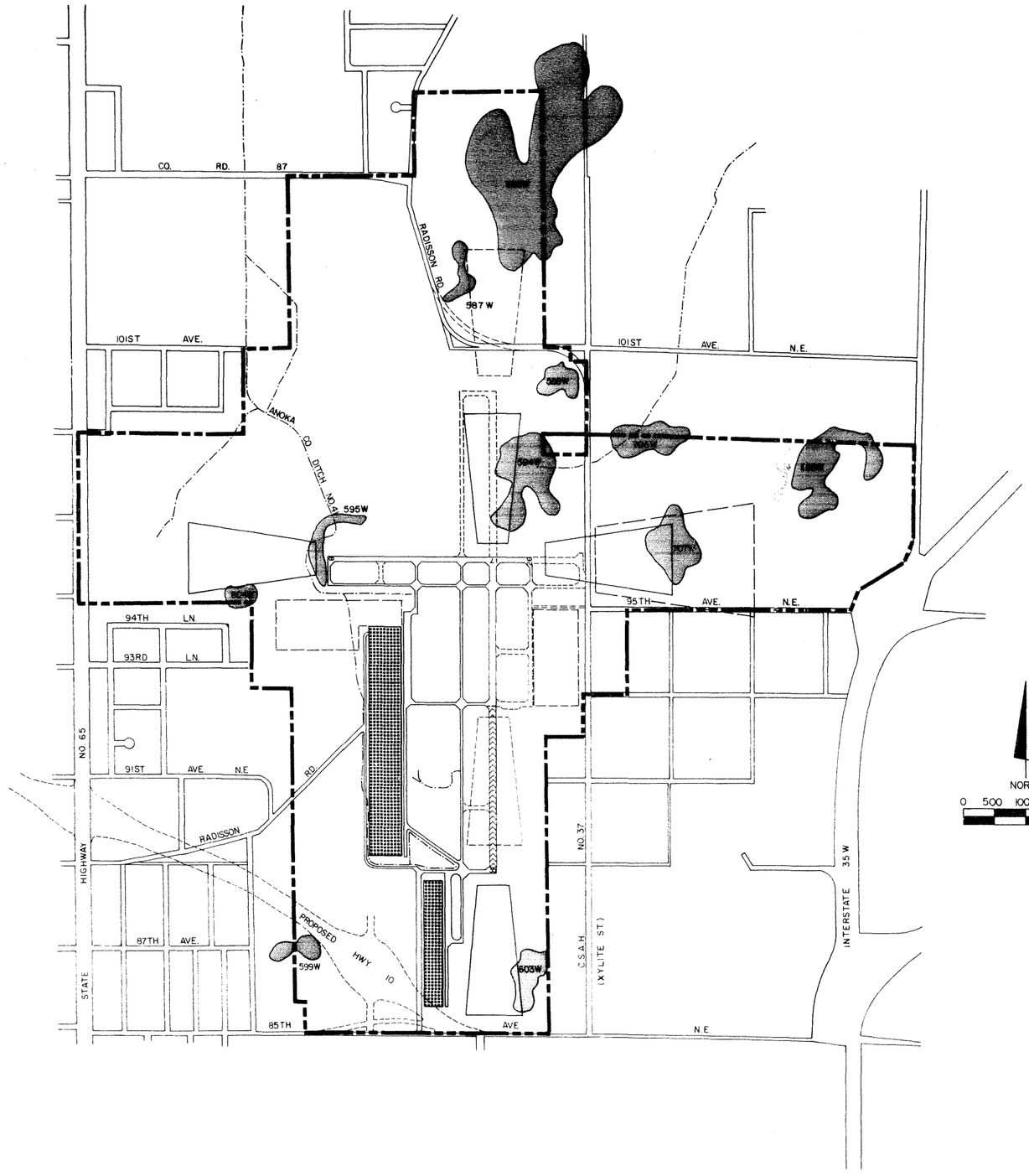
1" = 2000'

FIGURE 5-32

HTA companies

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

WETLANDS OCCURRING ON AIRPORT PROPERTY



Legend

- Existing Buildings
- Protected Waters

SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

1" = 2000'

FIGURE 5-33

HTA companies

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

MINNESOTA PROTECTED WATERS ON THE AIRPORT

Table 5-8. About 397 acres of wetland exist at the airport and comprise about 20.1 percent of the 1,900 acres of airport property. Individual wetland basins are shown in Figure 5-32. Ten of the wetlands at the airport are classified as Minnesota protected waters (Figure 5-33).

5.7.2 Wetland Impacts

With the master plan alternative, wetlands will be affected by construction of both the east and west building areas and the extension of Runway 17-35. Extension of Runway 8-26 will not affect wetlands. The east building area will affect only a .36 acre type 2 wet meadow and, thus, has only minor wetland impacts. The west building area will abut the fringe of Minnesota protected water 595W without affecting it. About 1.36 and 6.52 acres of adjacent Type 2 wet meadow and Type 1/2 lowland hardwoods will be affected, respectively. The extension of Runway 17-35 will require filling of approximately 3.4 acres of type 3/4 wetland in Minnesota protected water 594W; about two acres of adjacent type 2 wetland will also be affected. Wetland impacts by type are summarized in Table 5-9 and illustrated in Figures 5-34, 5-35 and 5-36. On Figure 5-36, wetland impacts as a result of the Runway 17-35 shift are shown for the Master Plan Alternative (Alternative 4) and Alternatives 5, 6 and 8.

The amount of wetland acreage affected provides some indication of the habitat impacts associated with Phase 1A and Phase 1B. However, due to the differing habitat value of the various wetland types affected, acreage may be misleading as an indicator of impacts. In order to most realistically approximate habitat impacts and provide a quantitative basis for mitigation measures, a modified U.S. Fish and Wildlife Service Habitat Evaluation Procedure (HEP) was performed.

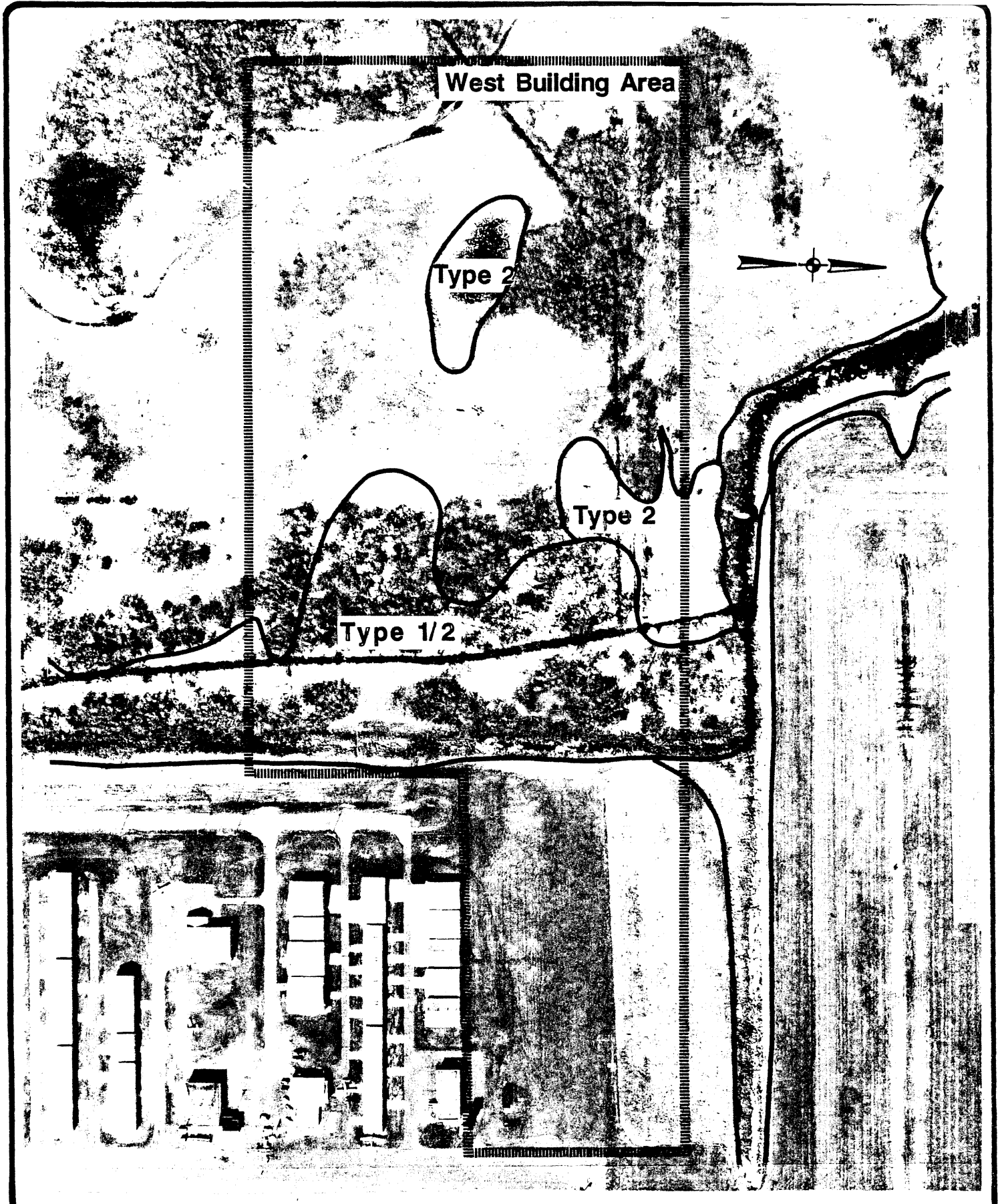
TABLE 5-8
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
WETLAND TYPES OCCURRING ON AIRPORT PROGRAM

Circlar 39	Classification of Wetlands and Deepwater Habitats			Characteristics (description)
Types	Classes		Water Regimes	
1. Seasonally Flooded Basins	PEM 2 -	Emergent Wetland	Temporarily Flooded	The soil is covered with water, or is waterlogged, during variable seasonal periods, but is usually well drained during much of the growing season. Vegetation varies greatly according to the season and duration of flooding. Type 1 wetlands on airport property are typically forested with the box elder, elm and green ash.
	PFO 1 -	Forested Wetland	Intermittently Flooded	
2. Inland Fresh Meadow	PEM 1 -	Emergent Wetland	Saturated	The soil is usually without standing water during most of the growing season but is waterlogged within at least a few inches of its surface. Vegetation includes grasses, sedges, rushes, and various broad-leaved plants. Wild hay is often cut from such areas. Type 2 wetlands on the airport property are primarily vegetated with reed canary grass and sedges.
3. Inland Shallow Fresh Meadows	PEM 1 -	Emergent Wetland	Semipermanently Flooded Seasonally Flooded	The soil is usually waterlogged during the growing season, often covered by as much as six inches or more of water. Vegetation includes grasses, such as cattails, arrowhead, pickerel-weed and smartweeds. Type 3 wetlands on the airport property are vegetated with cattails, three square bulrush and hardstem bulrush.
4. Inland Deep Fresh Marshes	PEM 1 -	Emergent Wetland	Permanently Flooded Intermittently Exposed Semipermanently	The soil is covered with six inches to three feet or more of water during growing season. Vegetation includes cattails, reeds, bulrushes, spikerushes, and wild rice. In open areas pondweeds, naiads, coontails, watermilfoils, duckweed, waterweed, waterlilies, or spatterdock may occur. Type 4 wetlands on the airport property are vegetated with cattails and three square bulrush.
	PAB 3 -	Aquatic Bed		
5. Inland Open Fresh Water	POW,PAB 3 -	Aquatic Bed Unconsolidated Bottom	Permenantly Flooded Intermittently Exposed	Shallow ponds, lakes or reservoirs with less than 10 feet of water and fringed with emergent vegetation, and containing submerged plants including: pondweeds, naiads, wild celery, coontail, muskgrasses, and spatterdocks.
	PUB 3 -			
6. Shrub Swamps	PSS 1 & 5 -	Scrub-Shrub Wetland	All nontidal regimes (except Permanently Flooded)	Soil is usually waterlogged during the growing season and is covered with as much as six inches of water. Vegetation includes alders, willows, buttonbush, dogwoods and swamp-privet. Type 6 wetlands on the airport property are vegetated mainly with willows, red-osier dogwood and alders.

A. Wetlands of the United States; U.S. Fish and Wildlife Service Circular 39; Shaw and Fredine 1971.

B. Wetlands and Deepwater Habitats of the United States; FWS/OBS Publication 79/31; Cowardin et al. 1979.

Source: Barton-Aschman Associates, Inc.



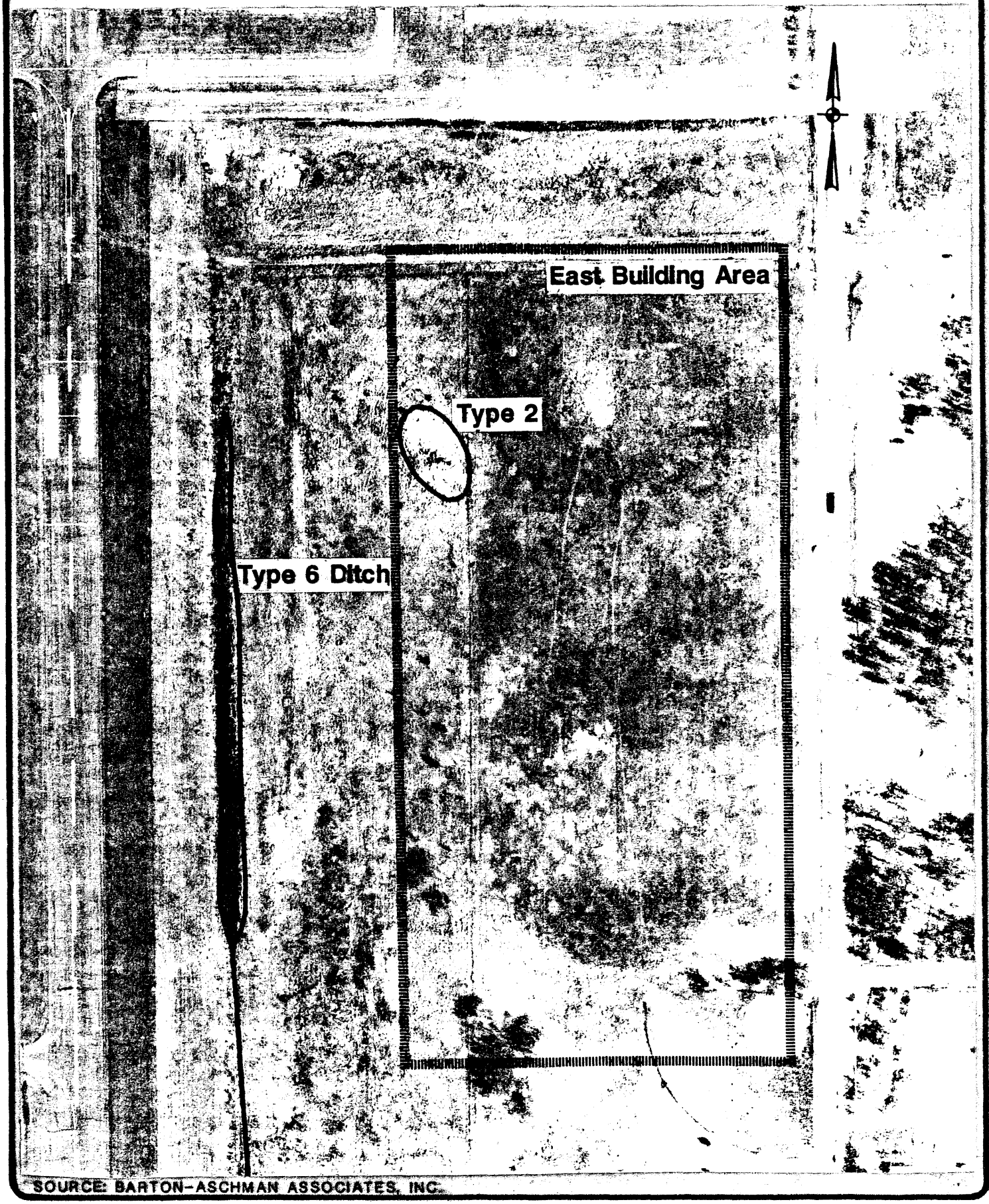
SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA
WETLANDS NEAR THE WEST
BUILDING AREA

HTA companies

1" = 200'

FIGURE
5-34



SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

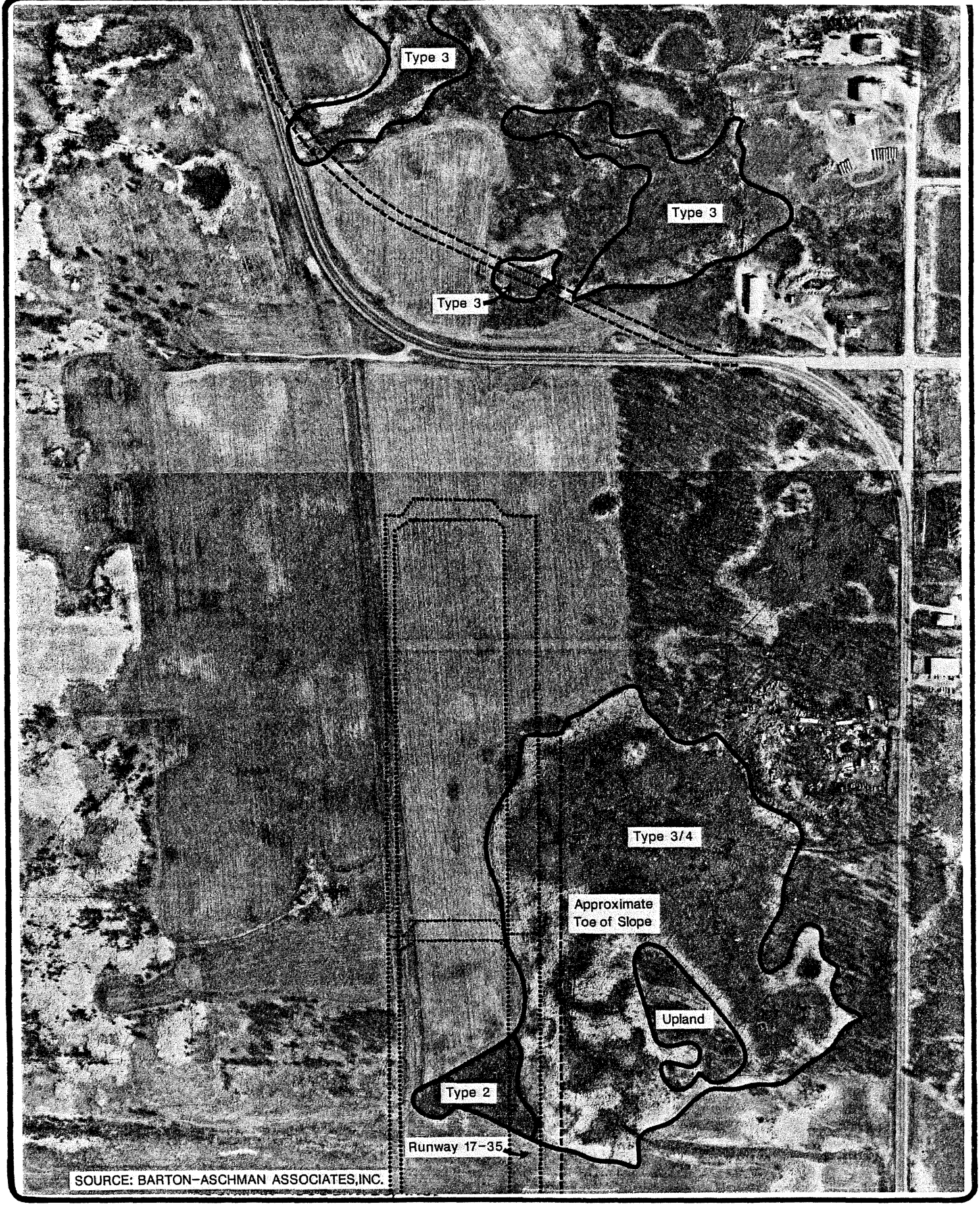
ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA

WETLANDS NEAR THE EAST BUILDING AREA

HTA companies

1" = 200'

FIGURE 5-35



ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA
WETLANDS NEAR PROPOSED
R/W 17-35 SHIFT

HTA companies

1" = 500'

N

FIGURE
5-36

TABLE 5-9
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
IMPACTED WETLAND ACREAGE - MASTER PLAN ALTERNATIVE

Type(s)*	Total Acreage	Acres Lost	Percent
1/2	14.04	6.52	46.4%
2	67.11	3.89	5.8%
2/3	57.97	--	--
2/6	97.28	--	--
3	48.38	--	--
3/4	59.67	3.44	5.8%
3/6	36.03	--	--
4	5.63	--	--
5	7.80	--	--
6	2.10	--	--
Total	397.01	13.85	3.5%

*Wetlands classified according to Wetlands of the United States, U.S. Fish and Wildlife Service Circular 39 (Shaw and Fredine 1971); for cross- reference to Wetlands and Deepwater Habitat of the United States, FWS/OBS Publication 79/31 (Cowardin et al. 1979) see Table 5-10.

Source: Barton-Aschman Associates, Inc.

It should be noted that HEP only quantifies habitat value and that other wetland values such as flood water detention (See Chapter 5.5) are not considered.

The Janes Field HEP was derived from a generic HEP prepared by the U.S. Fish and Wildlife Service for metro area wetlands. This generic HEP was carried out as part of the mitigation banking system developed for Minnesota highway projects.

The generic HEP process was as follows:

1. For each wetland type, evaluation species were selected from 10 guilds to insure that species diversity was considered in the evaluation. Each guild represents a general reproductive or feeding requisite which is common to a group of species, e.g. natural cavities for nesting, shallow water for feeding. The species selected for each wetland type represents the most common or likely species from each guild. If a guild was not present in a given wetland type, no evaluation species were selected.

2. Habitat Suitability Indices (HSI) were determined for each species evaluated for each wetland type. Component HSIs were totaled to reach an overall HSI for basins with more than one wetland type. HSIs indicate habitat quality for a given species. They are reached by considering the food, cover, and reproductive requirements of each species and the suitability of a given unit of habitat to provide those requirements. HSIs range from 0.0 to 1.0, with 1.0 representing ideal habitat for a given species within a given region. When a given guild was missing from a wetland type, an HSI of 0.0 was assumed for that guild in that wetland type.

3. The acreage affected within each basin was determined and multiplied by the HSI for that type to determine the Habitat Units (HUs) lost due to the project. One HU is equivalent to one unit area (acre, hectare) of optimum habitat for a given species within a given geographic region, i.e., HSI = 1.0. The total net change in HUs dictates the extent of compensation needed for impacts to wetland basins.

When a wetland basin affected by the project was composed of several wetland types, a composite HSI was developed using the percentages of the affected area composed of each type. The HSIs used for the Anoka Airport project are shown in Table 5-10.

TABLE 5-10
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
HABITAT SUITABILITY INDICIES (HSIs) FOR WETLAND TYPES[A]

Type[B]	HSI
1	6.7
2	5.3
3	6.9
4	7.6
5	6.3
6	6.5

[A]Source: U.S. Fish and Wildlife Service

[B]Classified according to Wetlands of the United States, U.S. Fish and Wildlife Service Circular 39 (Shaw and Fredine 1971); for cross-reference to Wetlands and Deepwater Habitats of the United States, FWS/OBS Publication 79/31 (Cowardin et al. 1979) see Table 5-8.

Source: Barton-Aschman Associates, Inc.

The results of the HEP performed on the wetlands affected by Master Plan Alternative Phase 1A and Phase 1B development are as shown in Table 5-11. Construction will eliminate 13.85 acres of wetland with a habitat value of 89.2 HUs. Wetlands affected comprise about 3.3 percent of the wetland acreage on the airport property.

In addition to direct encroachment, other potential wetland impacts include:

1. Erosion and sedimentation during construction.

2. Stormwater loading of pollutants, nutrients and sediment during operations.

3. Stormwater related "bounce".

Construction related erosion and sedimentation potentially can damage wetlands by smothering bottom vegetation and invertebrates; such impacts are primarily damaging to "open water" type wetlands (i.e. types 4 and 5). Drier wetland types, particularly types 2 and 3, act as sediment traps usually

with only limited impacts. Erosion and sedimentation are not anticipated to cause significant wetland impacts because:

1. The airport property is very flat and generally has sandy, porous soil; these characteristics result in very low soil erosion potential.

2. Special erosion control measures used during construction will further reduce erosion and sedimentation into wetlands.

Runoff from runways and building areas could carry pollutants into wetlands if allowed to enter untreated. Pollutant impacts are also not anticipated to impact wetlands because the stormwater system which exists at the airport involves a system of shallow ditches and catchment areas which will contain potential spills. The existing system will be enhanced further as described in Section 5.6.

Nutrient pollution (phosphorus and nitrogen) is likewise not expected to be a noticeable problem during either construction or operations. Nutrient pollution, while a common problem in developed urban areas, has not been observed at the airport because of the low density of human activity and small amount of impervious surface. The existing impervious surface comprises 3.4 percent of airport property; after completion of Phase 1A and Phase 1B, 4.7 percent will be impervious. This increase will result in a negligible change in runoff volume and, hence, nutrient pollutant concentration.

TABLE 5-11
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
WETLAND HABITAT UNITS LOST WITH MASTER PLAN ALTERNATIVE

	Wetland Type[A]	Acres Lost	HSI	HUs Lost
Runway 17-35	3/4	3.44	7.25[B]	24.9
	2	1.97	5.3	10.4
West Building Area	1/2	6.52	6.7[C]	43.7
	2	1.56	5.3	8.3
East Building Area	2	0.36	5.3	1.9
Total		13.85		89.2

[A]Classified according to Wetlands of the United States, U.S. Fish and Wildlife Service Circular 39 (Shaw and Fredine 1971); for cross-reference to Wetlands and Deepwater Habitat of the United States, FWS/OBS 79/31 (Cowardin et al. 1979) see Table 5.7.1.1

[B]HUV used is average of HSIs for component wetland types.

[C]HSI for Type 1 wetlands was used because this type dominated the basin.

Source: Barton-Aschman Associates, Inc.

Increases in impervious surface can, in certain cases, cause water levels to rise faster in streams and wetlands following a storm event. This will not occur as a result of the airport expansion because:

1. The increase in impervious surface will be negligible.

2. The airport topography is so flat that a tremendous increase in runoff would be necessary to cause a measurable increase in water levels in any of the on-site wetlands.

5.7.3 Comparison of Alternatives

Development alternatives under consideration are described in Chapter 4.0. The relative wetland acreage impacts of these alternatives are shown in Table 5-12 and Habitat Unit (HU) losses are shown in Table 5-13. Relative wetland acreage impacts and HU losses of Phase 2 and Phase 3 development are discussed in the Informational Appendix. The Master Plan alternative (Phase 1A and Phase 1B) ranks fourth in HUs potentially lost. Of alternatives involving both the east and west building areas and extensions or shifts of both existing runways, it ranks third.

Given the need for expanded building and runway facilities, wetland impacts are unavoidable regardless of the alternative selected. The specific reasons that the anticipated wetland impacts of the preferred alternative are unavoidable are as follows:

West Building Area

A building area anywhere west of the existing main building area will have wetland impacts similar to or greater than those anticipated from the west building area as proposed. If the west building area were modified to be longer and narrower and oriented north-south it would involve more wetland than as shown; also it would require piping of a much longer section of County Ditch 41. Placement of the west building area south of the existing main building area would interfere with future construction of U.S. Highway 10. The proposed location takes advantage of existing space north of the control tower, minimizes involvement with wetlands and County Ditch 41 and is contiguous with the existing main building area.

East Building Area

The east building area has been sited in the only sufficient open space on the east side of the airport. Any shift of the

TABLE 5-12
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
WETLAND ACREAGE IMPACTS

Wetland Acres Impacted by Type

Alternative[A]	1/2	2	2/6	3	3/4	3/6	4	5	Total
1. No-Build Existing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2. No-Build Future	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3. Building Areas Only	6.52	1.72	0.00	0.00	0.00	0.00	0.00	0.00	8.24
4. Master Plan Alternative	6.52	3.89	0.00	0.00	3.44	0.00	0.00	0.00	13.85
5.	6.52	8.05	0.12	0.00	6.33	0.00	1.74	0.75	23.51
6.	6.52	4.37	2.94	4.25	6.33	6.23	0.00	0.00	30.64
7.	6.60	1.68	0.00	0.00	0.00	0.00	0.00	0.00	8.28
8.	6.60	3.89	0.00	0.41	6.40	0.00	0.00	0.00	17.22

[A]For description of alternatives, refer to Chapter 4.0.

Source: Barton-Aschman Associates, Inc.

TABLE 5-13
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
WETLAND HABITAT UNIT LOSSES

Alternative[A]	Habitat Units (HUs) Lost	Impact Rank[B]
1. (No-Build Existing)	0	1 (tie) (least)
2. (No-Build Future)	0	1 (tie) (least)
3. (Building Areas Only)	48.5	3
4. (Preferred Alternative)	89.2	4
5.	133.0	6
6.	201.2	7
7.	48.5	2
8.	113.5	5

[A]For descriptions of alternatives, refer to Chapter 4.0

[B]Ranked from least to most impact

Source: Barton-Aschman Associates, Inc.

area to avoid its very small wetland involvement (.36 of type 2 wet meadow) would place the area undesirably close to surrounding homes. For this reason, it is not feasible to shift the east building from the proposed location.

Runway 17-35

The purpose of shifting Runway 17-35 to the north is to reduce noise impacts upon the residential areas to the south. The only way to fulfill this purpose and avoid Protected Wetland 594W, is to shift the entire runway to the west. This would require construction of an entirely new runway. Pursuit of such an option to avoid the fringe of this wetland is not feasible because of the excessive cost of building a new runway. No additional increase in distance between aircraft operations and residential areas south of the airport would be gained by shifting the Runway 17-35 2,580 feet to the north and 750 feet to the west (Alternative 7), over that gained by only shifting Runway 17-35 2,580 feet to the north (Alternatives 5, 6 and 8). A northerly shift of Runway 17-35 is, at present, the only feasible measure to move air traffic using Runway 17-35 further to the north.

5.7.4 Measures to Minimize Harm

Design measures to minimize harm to the wetlands are extremely limited. As discussed in Section 5.7.3, positioning of building areas and runway improvements are not feasible to reduce wetland impacts. None of the proposed taxiways would affect wetlands and, thus, impacts would not be reduced by shifting the positions of the proposed taxiways.

Side slopes from the building areas will be at least 4:1 (horizontal:vertical) or as steep as feasible without creating stability or safety problems. Little can be done to steepen the longitudinal grade of the new Runway 17-35 construction.

The safety area for Runway 17-35 is 150 feet wide and 300 feet long. Maximum transverse grade on the safety area is ±5%. Maximum longitudinal grade for the safety area is 3%. The side slopes from the edge of the safety area to existing ground will be at least 4:1 or as steep as feasible to minimize any impact to wetlands, while not creating stability or safety problems. The toe of slope of the runway safety area would extend approximately 140 feet either side of Runway 17-35 centerline. The toe of slope of the 80 foot wide taxiway safety area would extend approximately 80-90 feet either side of the proposed Runway 17-35 parallel taxiway centerline, depending on ground elevation.

The wetland impacts for the Runway 8-26 extension were estimated assuming similar runway, taxiway, runway safety area and taxiway safety area longitudinal and transverse slopes as for the new construction for Runway 17-35.

Potential construction measures to minimize harm to wetlands include special erosion and sedimentation control measures and restricted construction limits. Erosion and sedimentation control plans are discussed in detail in Section 5.2.2. In protecting wetlands from sedimentation damage, the critical areas are where the west building area will affect County Ditch 41 and where Runway 17-35 will affect Protected Wetland 594W. Silt fences and hay bale check dams will be used on the perimeter of the building area to minimize sedimentation transport from the site.

The pipe under the building area which will carry County Ditch 41 will not be on the existing ditch alignment. Thus, this pipe can be entirely installed before the ditch is rerouted. This will minimize the period during which water in the ditch will be turbid from disturbance. A temporary settlement basin may also be used to minimize downstream transport of sediment.

Silt fences appear infeasible in part of Protected Wetland 594W because of the density of vegetation. However, the very dense cattails in this wetland serve the same function of a silt fence by limitng the transport of sediment to other parts of the basin. Where possible, silt fence will be used to further minimize turbidity. Upon completion of grading, all disturbed areas adjacent to wetlands will be promptly seeded and mulched. All sediment barriers will be left in place until new vegetation is firmly established. Construction limits will be restricted as much as possible to minimize wetland damage due to machinery movements. Sediment barriers will be used to delineate the edges of construction limits where possible.

On-site wetland replacement is being sought to replace lost habitat as near to the impacted wetlands as possible. Also, if lost HUs are replaced through excavation, the excavated material may possibly be used in constructing runway enmbankments or building areas. Construction will eliminate 13.85 acres of wetlands with habitat value of 89.2 HUs. The number of acres of wetland that must be enhanced or created for mitigation is dependant on the pre-existing habitat value.

Enhancement of wetlands with high HSIs yields a poor net gain in HUs per acre of wetland enhanced. Thus, enhancement of lower value wetlands or creation of wetlands from uplands are more desirable as mitigation measures. Because of the shallow water table and sandy soil on much of the airport property, excavation of upland to create type 4 wetlands appears feasible. A type 4 wetland created on upland to replace 89.2 HUs would need

to be about 11.7 acres. Assuming a site with a water table of two feet, the amount of material which would need to be excavated to create an 18 inch deep marsh on 11.7 acres of upland is 66,066 cubic yards. Using these same assumptions, the amount of material that would need to be excavated to mitigate wetland impact of other alternatives is shown on Table 5-14.

It is likely that the mitigation site which is selected could have an average depth to groundwater of less than two feet and thus the amount of excess material could potentially be reduced.

Numerous sites on the airport would be physically suitable for wetland excavation; however, several other criteria must be considered which narrow the number of potential mitigation locations. Under these criteria, the following types of sites should be avoided for mitigation purposes:

1. Sites which would adversely affect drainage in County Ditch 41 or would potentially cause flooding on adjacent land.

2. Sites within proposed clear zones (to avoid potential aircraft collisions with waterfowl or wading birds).

3. Sites potentially involved in Phases 2 and 3.

4. Sites potentially involved in construction of new U.S. Highway 10.

5. Sites immediately adjacent to off-site residential or commercial developments.

6. Sites with valuable upland vegetation that cannot be avoided during excavation.

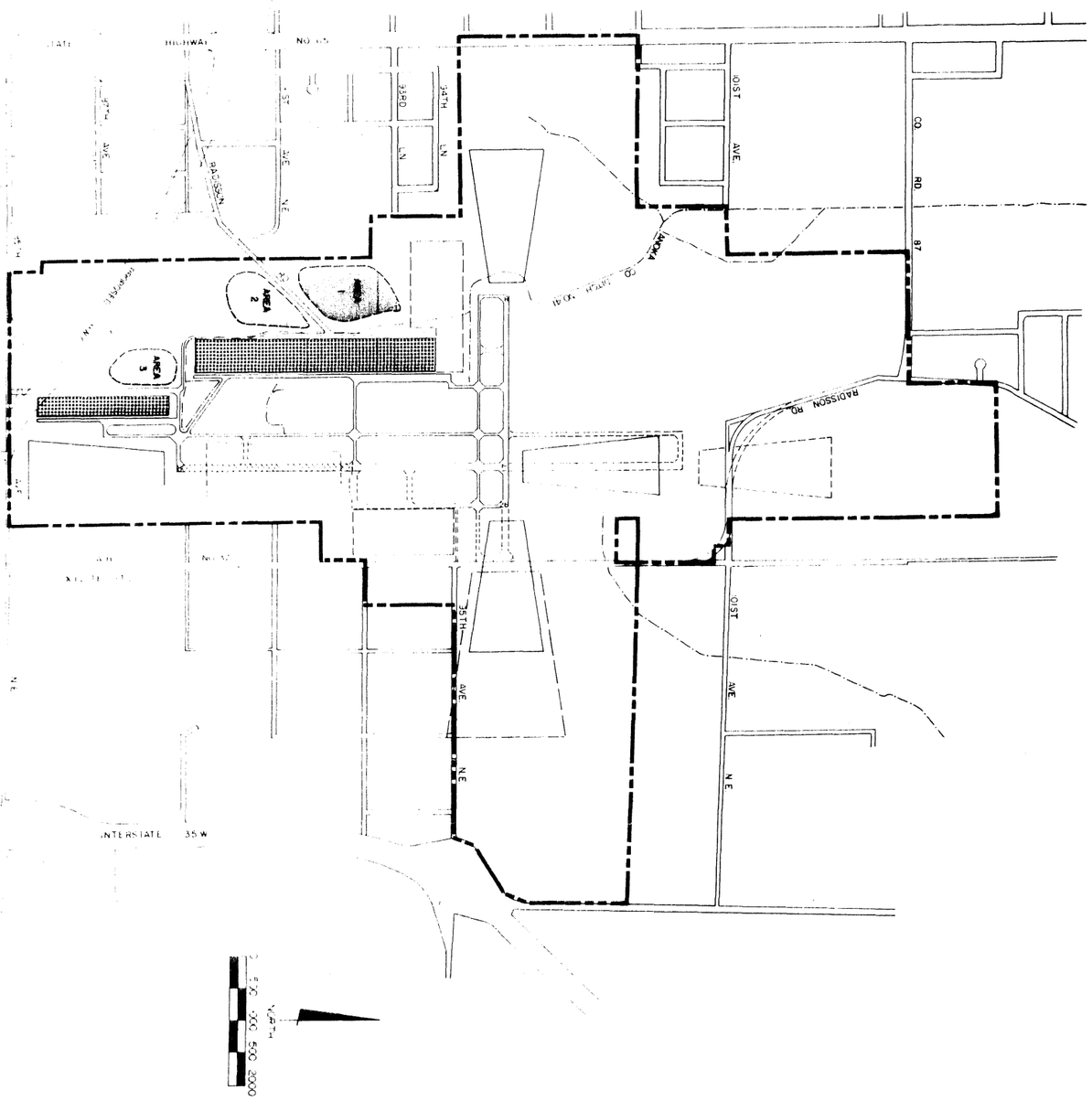
The following types of sites are most desirable for mitigation purposes:

1. Sites with little or no valuable wetland.

2. Sites with relatively shallow groundwater.

3. Sites adjacent to areas where fill will be needed (mainly near the west building area and Runway 17-35).

Based on these criteria, three general areas on the airport property appear most desirable for wetland excavation; these areas are labeled areas 1, 2 and 3 in Figure 5-37. Excavation in any of these areas could be carried out to create variable bottom contours with depths ranging from one to four feet. Basin margins would be gently sloped to create a gradual gradation from shallow to deeper water. The actual location of the basin or basins within the identified areas would be selected to take advantage of adjacent upland habitat. Where possible, any suitable nesting cover that might be adjacent to



SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

POTENTIAL WETLAND MITIGATION AREAS

HTA companies

1" = 2000'

FIGURE 5-37

TABLE 5-14
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
REQUIRED WETLAND MITIGATION, AND EXCAVATION REQUIRED

Alternative	Wetland Mitigation Required (Acres)	Excavation Required (CY)
1	0	0
2	0	0
3	6.9	38,962
4	11.7	66,066
5	17.5	98,817
6	26.5	149,637
7	6.4	36,139
8	14.9	84,135

Source: Barton-Aschman Associates, Inc.

basin locations would be left intact. Excavated organic material from other construction would need to be stockpiled and placed in the basin to provide a fertile substrate for aquatic vegetation.

5.7.5 Coordination

Actual mitigation design will take place during the Final EIS/EA and Preliminary Design stages of the project. Preliminary coordination with the U.S. Fish and Wildlife Service, Minnesota Department of Natural Resources and U.S. Army Corps of Engineers has been undertaken. Continued coordinations will take place to further refine wetland mitigation measures.

5.8 FLORA AND FAUNA

5.8.1 Movements of Resident and Migratory White-Tailed Deer

Proposed Phase 1A and Phase 1B development will affect white-tailed deer habitat and, more importantly, deer movements. To date, deer movements have not caused problems with air traffic at Janes Field despite the abundance of excellent deer habitat on the airport property. The grassland/woodland complex in the west central part of the property serves as an important feeding area and to some extent a bedding area. Several bedding locations have been observed along the edges of aspen and oak woodlots in this area. Deer at the airport seem to prefer beds in brome or bluegrass beneath a canopy of sumac; such areas commonly border woodlots.

The large type 2/6 shrub swamp that dominates the northwestern portion of the property serves as a very important bedding area because: 1) it is relatively inaccessible and receives minimal human use, 2) it has dense stands of willow and red osier dogwood often with a groundlayer of reed canarygrass which provides cover, 3) it has been drained by County Ditch 41 and thus is relatively dry and 4) it lies between important feeding areas to the southwest and to the east.

The north-central portion of the property is leased and used for cropland thus providing a ready food source during the summer, fall and, to some degree, during the winter. During the summer months, these crop fields also serve as cover and bedding areas; and very heavy deer use was observed here during summer field reviews.

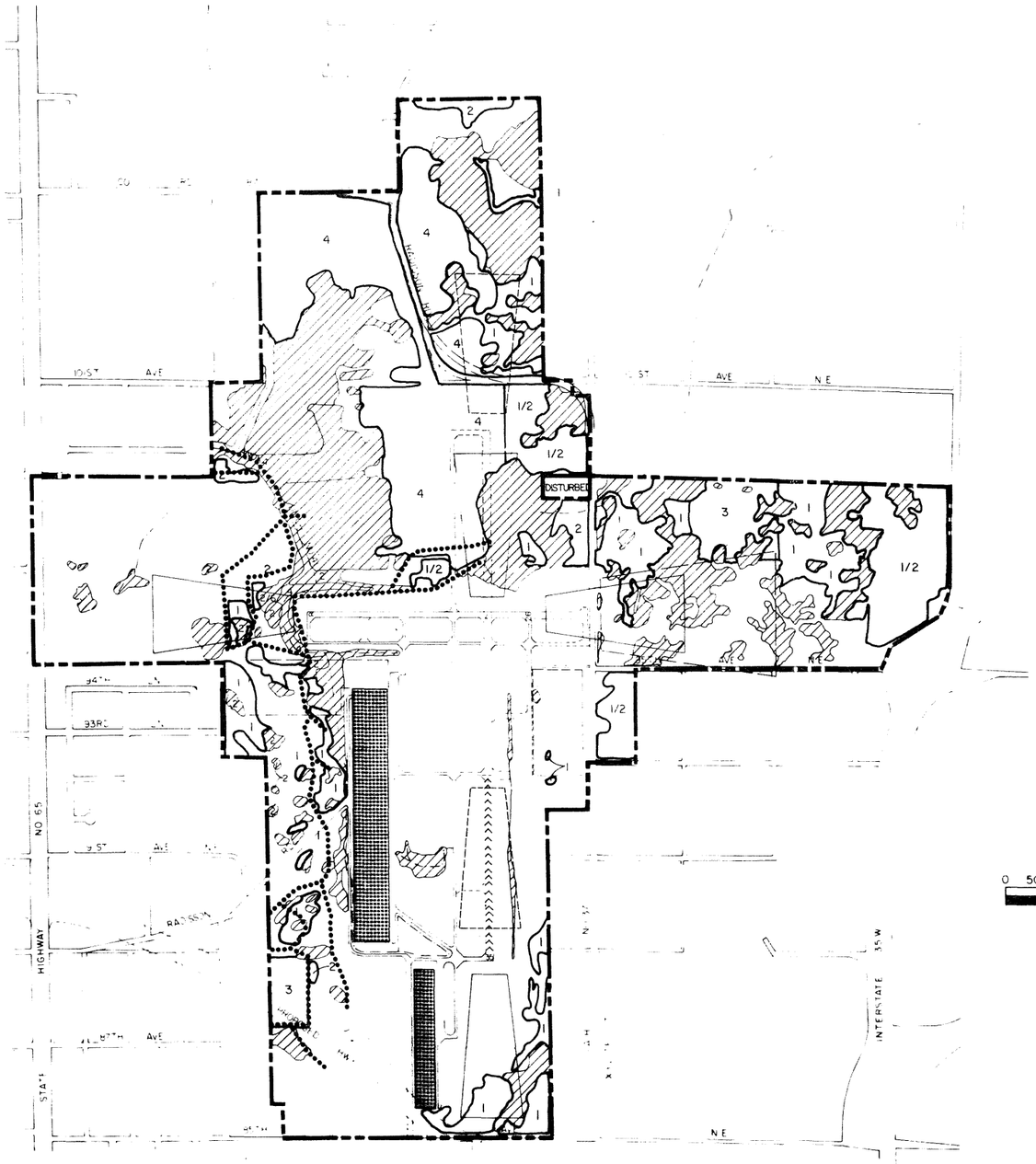
The wetland/woodland/grassland complex of the northeast and east portion of the airport property provides some of the best all-around deer habitat on the site. Cover is abundant, the area is relatively undisturbed and mature oak woods in this area produce a great deal of mast upon which deer feed both in summer and winter.

Deer movements are of particular concern in the area where Runway 17-35 will be extended to the north. A system of well-used deer travel corridors or trails passes through this area to link the cover and bedding areas to the east and west and the cropland food source in between. Intensive field reviews were undertaken and coordinated with the Minnesota DNR Area Wildlife Manager to map out the locations of and destinations linked together by these trails. Established deer trails in this area are shown in Figure 5-38.

The area into which east-west Runway 8-26 will be extended, presently receives minimal deer use because it is monotypic brome and bluegrass. Thus it provides no cover, no bedding areas and minimal food. It is also too open and exposed to provide an attractive travel corridor between cover to the northwest and that to the east. Thus, intensive investigation of deer trails was not carried out in this area. Similarly, the site of east building area was receiving no discernable deer use and was not intensively studied.

Improvement of airport facilities will have a minimal effect on the amount and quality of deer habitat on the airport property. Only the locations of the west building area and the Runway 17-35 shift are receiving continuing deer use; 33 and 12.7 acres of land will be developed in these areas, respectively. The west building area will act to isolate the upland habitat along the west edge of the airport property. However, a sufficient number of existing trails occur between the building area and the commercial developments to the west allow deer movement to continue largely unhampered. Also, by concentrating deer movements farther west, the building area decreases the number of deer crossing into the airport clear zone at the west end of Runway 8-26.

The potential impact of deer movements upon aircraft-deer collisions was the primary focus of the deer habitat and movement investigations. Only one area of concern was identified. The northerly shift of Runway 17-35 will cross an existing deer trail which connects high quality areas of food, cover and bedding habitat. Since deer are traditional in their travel patterns, they may continue to cross this area in the same location even after the runway shift is completed. Presently, Runway 17-35 does not extend north of the edge of Runway 8-26. The existing edge of the safety zone for Runway 8-26 provides a natural, straight-line travel route with no obstructions. Upon



Legend

Upland Types

1. Aspen
2. Oak
3. Pasture
4. Crops
5. Open/Grassland

Existing Buildings

(2) Uplands

Wetlands

Existing Deer Trails

SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

1" = 2000'

FIGURE 5-38

HTA companies

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

EXISTING DEER TRAILS

completion of the extension, this straight-line pathway will be broken only by the runway, its holding apron and a taxiway. Observations from the St. Paul Downtown Airport and the Brainerd Municipal Airport indicate that the runway alone may not be enough of an obstruction to divert deer movements. This is especially true when the deer movements are between two areas of very high quality habitat.

Diversion of deer movements at Janes Field can be carried out in two ways: 1) structural and 2) cultural. Potential deer movement mitigation measures at Janes Field are illustrated in Figure 5-39 and discussed below.

Deer fences are not feasible on much of the airport property because they present a 12 foot immobile obstruction if placed in or near the clear zone. Also, in flat topography they are not overly effective because they must be quite long to significantly restrict deer access to a given area. At Anoka County Blaine Airport (Janes Field) a short section of deer fence may be used in conjunction with the proposed west building area to divert deer movement away from the west end of Runway 8-26. An existing crossing in this area allows deer to enter the clear zone and form the west end of the trail which crosses the area where Runway 17-35 will be shifted to the north. The proposed west building area will combine with the existing building area to form an "L" shaped barrier of hangars. Deer would eventually avoid crossing through such an area. The placement of a short segment of deer fence along the boundary of the new building area would act to reinforce this diversion. Even without the fence, the proposed west building area would act to divert deer movements to the west.

Fencing is not feasible for diverting deer movements around the north end of proposed Runway 17-35 because; 1) such a fence would create an unacceptable obstruction within the airport clear zone, 2) a diversion fostering movement of deer around the north end of 17-35 would also foster movements across 101st Avenue Northeast creating a potential vehicle collision hazard, and 3) the topography through this area is so flat that a very long fence would be needed to keep deer from going around the ends.

Deer presently cross Anoka County Ditch 41 near the northeast corner of the large upland area on the west edges of the property. This crossing lies along the north boundary of the proposed west building area. The ditch is narrow enough at this location to allow deer to cross into the clear zone. Though this portion of the ditch is not proposed for relocation, a minor widening and deepening along the west end of Runway 8-26 would largely prevent deer from crossing in this location during the summer months. Deepening could be done by level ditching techniques without changing the ditch's gradient.

If deer are restricted from entering the clear zone through the above measures, they are less likely to cross the area where Runway 17-35 may be shifted than at present.

East-west deer movements north of Runway 8-26 seem to follow the south edge of the large shrub-swamp into the grove of scrub elm, box elder and oak immediately west of the proposed shift of Runway 17-35 shift. Deer then cross the southern tip of the cultivated field (abandoned in 1985 and presently vegetated in crabgrass) eastward to the large type 3/4 wetland (Protected Water 594W) and its associated oak and aspen woods. This movement takes deer through the center of the area where Runway 17-35 is proposed to be shifted.

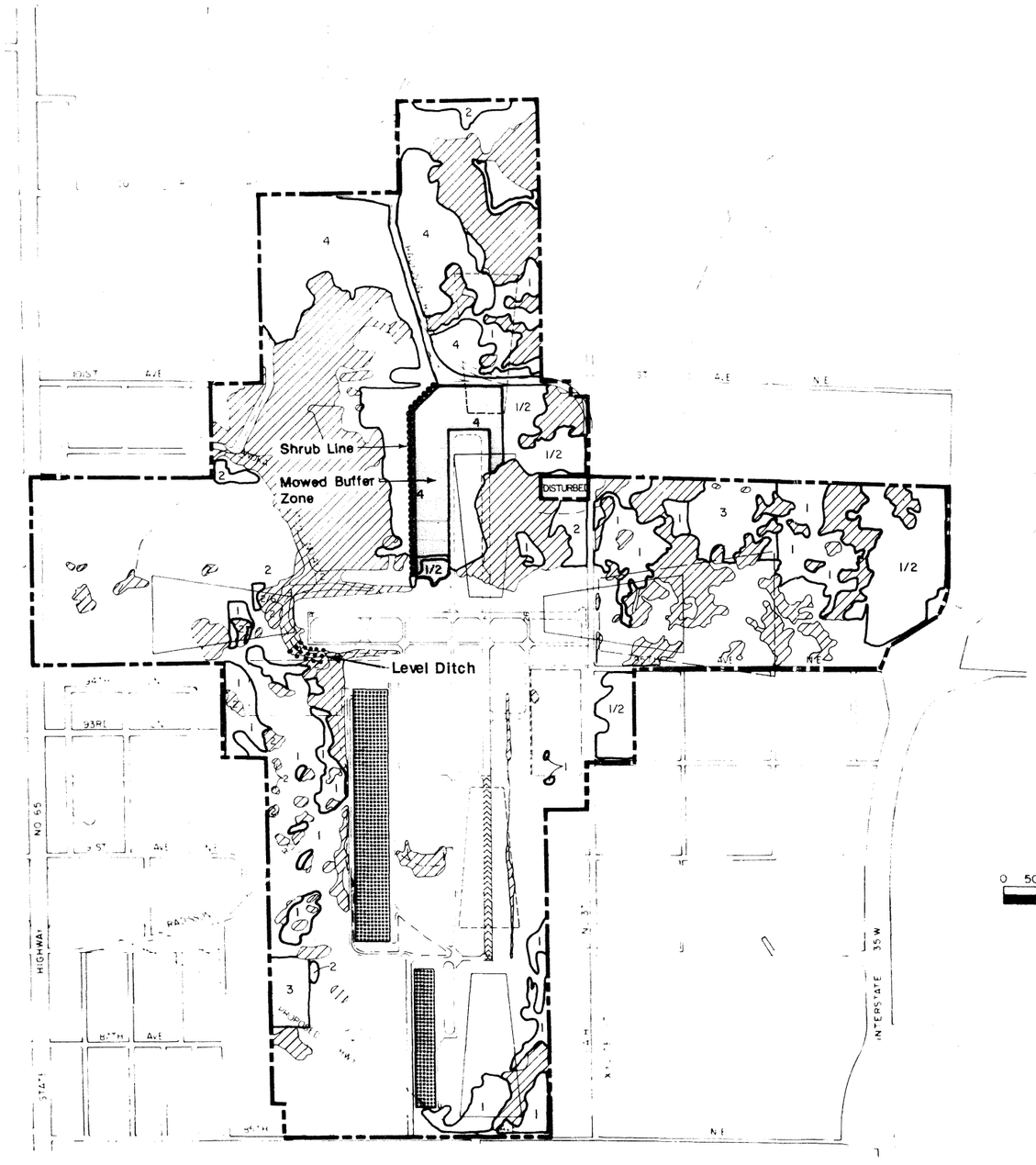
Diversion of deer movements around the north end of Runway 17-35 appears infeasible as the Runway 17-35 shift is relatively long and to divert deer around it would foster deer movements across 101st Avenue N.E. Also, to achieve such a major diversion probably would require fencing which is not feasible for the reasons mentioned earlier.

The most reasonable approach to keeping deer away from Runway 17-35 is to create a large, open buffer zone with vegetation which does not provide food or cover for deer. Since deer prefer the edges of openings for feeding and may be reluctant to cross large open areas, creating the edge of the buffer zone far from the runway may help keep deer from crossing. As shown in Figure 5-39, the monotypic brome or bluegrass generally used for the runway safety zone could be expanded to cover portions of the adjacent lands which presently are used as cropland. On the west side of the areas where Runway 17-35 may be shifted, this buffer zone can be fringed with a line of trees and/or shrubs to foster north-south movements. Beyond the edge of the buffer to the west, cultivation could continue.

It is certain that deer movements will not be completely diverted; the goal of the above measures is to maximize diversion as much as possible without creating barriers that would pose dangers to aircraft. Airport staff may record future observations of deer movements within the runway clear zone during air traffic control operations. Also, any observations or reports from pilots can be recorded. If the above measures fail to sufficiently divert deer movements, additional measures can be developed.

5.8.2 Upland Wildlife Habitat

About 1,503 acres or 79.1 percent of the airport's 1,900 acres are uplands. Of this 1,503 acres, 64 acres are impervious surface and an additional 236 acres are developed (mostly mowed grass) to provide no wildlife habitat. Thus 1,203 acres of upland exists on the airport that has wildlife habitat value. The habitat value of this upland is highly variable. The primary types of upland habitat are:



Legend

Upland Types

1. Aspen
2. Oak
3. Pasture
4. Crops
5. Open/Grassland

Existing Buildings

(2) Uplands

Wetlands

Mowed Buffer Zone

Level Ditch

SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

1" = 2000'

FIGURE 5-39

HTA companies

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

POTENTIAL DEER MOVEMENT MITIGATION MEASURES

- Brome/Bluegrass: monotypic stands of unmowed brome and Kentucky bluegrass.

- Mixed Grassland: mixture of native and European grasses and forbs; dominated by brome, Kentucky bluegrass, showy goldenrod and timothy with scattered areas of indiangrass and big bluestem.

- Aspen: typically wetter stands are dominated by two to six inch diameter aspens, elms and willows with an understory of red canarygrass, sedges, goldenrod, bracken ferns and raspberries. In any acre, aspens, have established small monotypic clones.

- Red and Burr Oak: Stands range from mature oak forest to sparse savannah remnants with scrubby oaks. Understory is commonly dominated by hazel, Virginia creeper, choke cherry, and blackberry.

- Grazed Pasture: two overgrazed pastures exist on the property; these are dominated by common ragweed and showy goldenrod with scattered purple prairie clover, yarrow, big bluestem and Canada thistle.

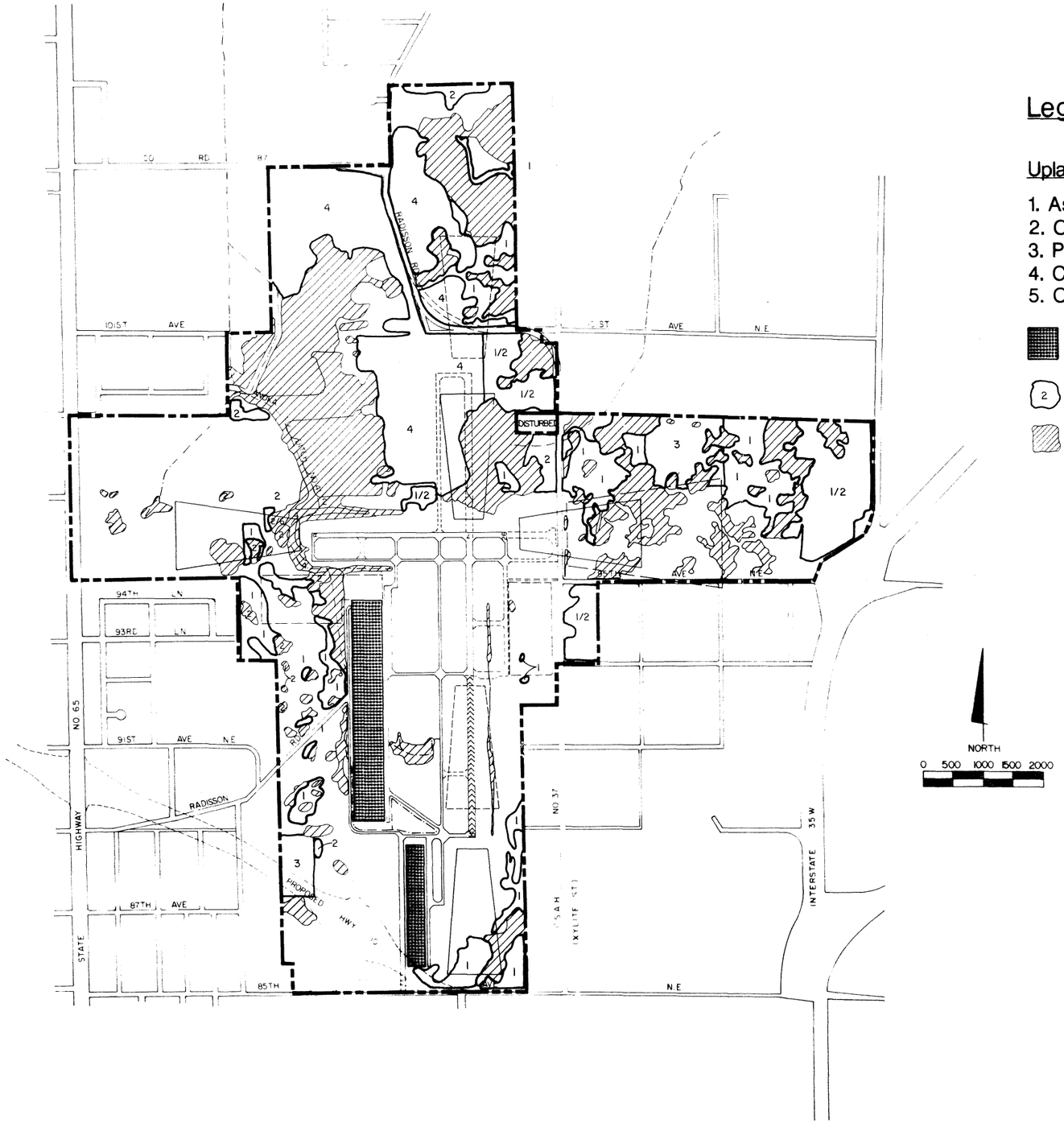
- Cropland: Cultivated land; planted to corn in 1985.

The distribution of upland habitat types on the airport is shown in Figure 5-40.

With alternative 8, the proposed action, the following upland habitat losses would occur:

- West Building Area

Construction of the west building area will eliminate about 8.7 acres of mixed grassland and 5.0 acres of woodland. The grassland is an abandoned pasture which is very sandy and dry with sparse ground cover. The area is dominated by timothy (a European grass) and common ragweed with scattered Virginia creeper, blackberry, sweet cicely, potentilla and yarrow. The woodland is dominated by four to six inch diameter aspen and box elder with very scattered red and burr oaks as the fringes. The woodland has a ground layer of raspberry, blackberry and smooth gooseberry. Much of this woodland was used as a dump in the past and has a large amount of old machinery and a thick layer of broken glass on the forest floor.



Legend

Upland Types

1. Aspen
2. Oak
3. Pasture
4. Crops
5. Open/Grassland

Existing Buildings

Uplands

Wetlands

SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

1" = 2000'

FIGURE 5-40

HTA companies

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

UPLAND WILDLIFE HABITAT

The grassland area receives minimal use by most small mammals due to its sparse ground layer; pocket gophers are the primary small mammal species. Red fox and skunks also use this area. White-tailed deer have several trails which follow the margins of this grassland. The woodland area receives mammalian use primarily from raccoons, skunks and white-tailed deer. Deer were found feeding in this stand in the winter. Raccoons and skunks use the area for feeding and also have dens among the dump debris. Other potential mammalian species include cottontail rabbits, woodchucks, Norway rats, white-footed and deer mice, short-tailed shrews and meadow voles.

Bird species using the woodland area are typical of damp aspen/boxelder associations and include least flycatchers, American redstarts, black-capped chickadees, red-eyed vireos, Nashville and yellow-rumped warblers and white-throated sparrows. The grassland area is used by goldfinches, eastern meadowlarks, mourning doves, grasshopper and savannah sparrows. Great-horned owls and broad-winged hawks also use both areas to hunt small mammals. Construction of the west building area will result in the removal of 13.7 acres of upland habitat used by these species. Some relocation will occur to adjacent uplands; however, as adjacent habitat is probably at or near carrying capacity, a small reduction in the population of these species will occur. As all of these species are common, this reduction is anticipated to have a negligible effect.

- East Building Area

The east building area will lie in a monotypic grassland with minimal wildlife value. Much of this area is very dry and is dominated by timothy, brome, sand lovegrass and sand burr. Pocket gophers are the primary small mammals in this area. Bird species are probably similar to those in the grassland of the west building, area except less abundant. No deer trails or signs were observed; nor were signs of red fox, skunks or other small mammals. Wildlife habitat lost from construction of the east building area is anticipated to be almost non-existent.

- Runway 8-26

The eastern extension of Runway 8-26 will impact an area almost identical to that of the east building area except that more brome grass is found in the area of the former. Wildlife impacts again are expected to be negligible.

- Runway 17-35

Construction of the northerly 950 to 2,580 feet of Runway 17-35 will eliminate about 5.3 to 7.6 acres of brome grass and goldenrod, 3.7 to 66.7 acres of cropland respectively and 0.1 acres of scrub elm, box elder, and oaks (pin and burr). The primary wildlife species affected by the northerly shift of Runway 17-35 will be white-tailed deer which presently have a travel lane that traverses this area; this impact will be mitigated (see Section 5.8.1). The cropland to be impacted was abandoned in 1984 and presently is vegetated by crabgrass which has no wildlife value. The affected grassland area serves primarily as a travel lane for deer, red fox and raccoons. Coyotes have also been observed in the northern portions of the airport property and may use this area also. No important feeding or nesting habitat exists in this grassland area.

The scrubby woodlot that will be affected is good habitat for gray squirrels, cottontail rabbits, white-tailed deer and the smaller mammals discussed for the west building area. Common bird species include ring- necked pheasants, mourning doves, blue jays, common crows and great-horned owls. Due to the small amount of woodland affected, the abundance of nearby mature oak woods and the habitat manipulations discussed in Section 5.8.1, the loss of as a result of the northerly shift ofRunway 17-35 will have minimal habitat impacts.

5.8.3 Movements of Resident and Migratory Great Egrets

During the scoping process, the Minnesota Department of Natural Resources-Hertitage Program personnel were asked to review the airport and its surrounding environs for the presence of rare and/or sensitive species and natural features. The Heritage Program completed its computer search and staff biologist review on January 14, 1985. This review indicated only one record of such species or natural features in the project area; in 1979 a potential nesting colony of Great Egrets was reported in the area of Minnesota Protected Water 580W. Approximately 75-80 Egrets were observed by a private citizen and an estimate of 15-20 nests was made. However, it is unclear whether any nests were actually observed or if the estimate was based only on the concentration and number of birds.

The Minnesota DNR performed field review of the site in 1981 and were unable to locate any birds in the area. An intensive field review of Protected Water 580W was undertaken as part of the EIS/EA process in an attempt to locate any nests that might

occur there. This field review was done on October 8, 1985. The time period for the review was not ideal as birds do not nest at that time and thus, could not help lead investigators to nesting areas.

Though the birds themselves would not be using their nesting areas, egret nests persist from year to year and are easily visible. Great Egrets usually construct their nests in trees six to thirty feet above the ground and most often in the company of other species of herons. A thorough investigation of the area yielded no nests and little lowland forest typical to egret nesting areas. Most of the wooded areas around this wetland were immature aspen and mature oak. In addition to the intensive search of Protected Wetland 580W, the entire airport property was field reviewed for wetlands and wildlife. No egret nesting activity was noted anywhere on the airport.

It is possible that the egret observations in 1979 represented a concentration of feeding birds. Egrets seldom nest in colonies comprised solely of egrets. The fact that the 1979 report of only egret observations suggests that it may not have been a nesting colony that was observed. Egrets commonly congregate in very large, conspicuous groups at prime feeding locations. For several years such a large concentration of egrets has fed in Mother Lake on the Minneapolis-St. Paul International Airport. It is likely that such a concentration is what was observed in 1979. Several egrets were observed feeding at the airport in October 1985; one was seen in wetland 580W and others were in the ditch along County Road J at the south end of the airport.

As no egret nests were found, no impacts to nesting egrets are anticipated as a result of construction and use of any Phase 1A and Phase 1B development alternatives.

5.9 SURFACE TRANSPORTATION IMPACTS

Surface transportation impacts are assessed in this section of the EIS/EA relative to future traffic levels, possible abandonment of a portion of Xylite Street, possible rerouting of a portion of 101st Avenue NE, and the effect on highway capacity and adequacy of service of the roadway system in the vicinity of Janes Field. Impacts as a result of Phase 2 and Phase 3 development are included in the Informational Appendix.

5.9.1 Existing Traffic

Anoka County and Minnesota Department of Transportation officials provided historic and current 24 hour traffic data for the road system near the airport. New peak hour traffic counts were undertaken to form the basis for accurate trip generation correlations and forecasts of future traffic volumes.

The current peak hour volumes at the two entrances to the airport are shown in Figure 5-41.

The airport facilities are estimated to generate a total of 176 vehicles per hour, the peak hour occurring during the evening. Of the 176 peak hour vehicle movements, 76 vehicles per hour are inbound and 100 vehicles per hour are outbound. Roughly two-thirds of the peak hour trips are at the Radisson Road access from TH 65. This pattern is expected to continue even though TH 10 is scheduled for upgrading within two years and a full interchange is to be provided at the south entrance at a later time.

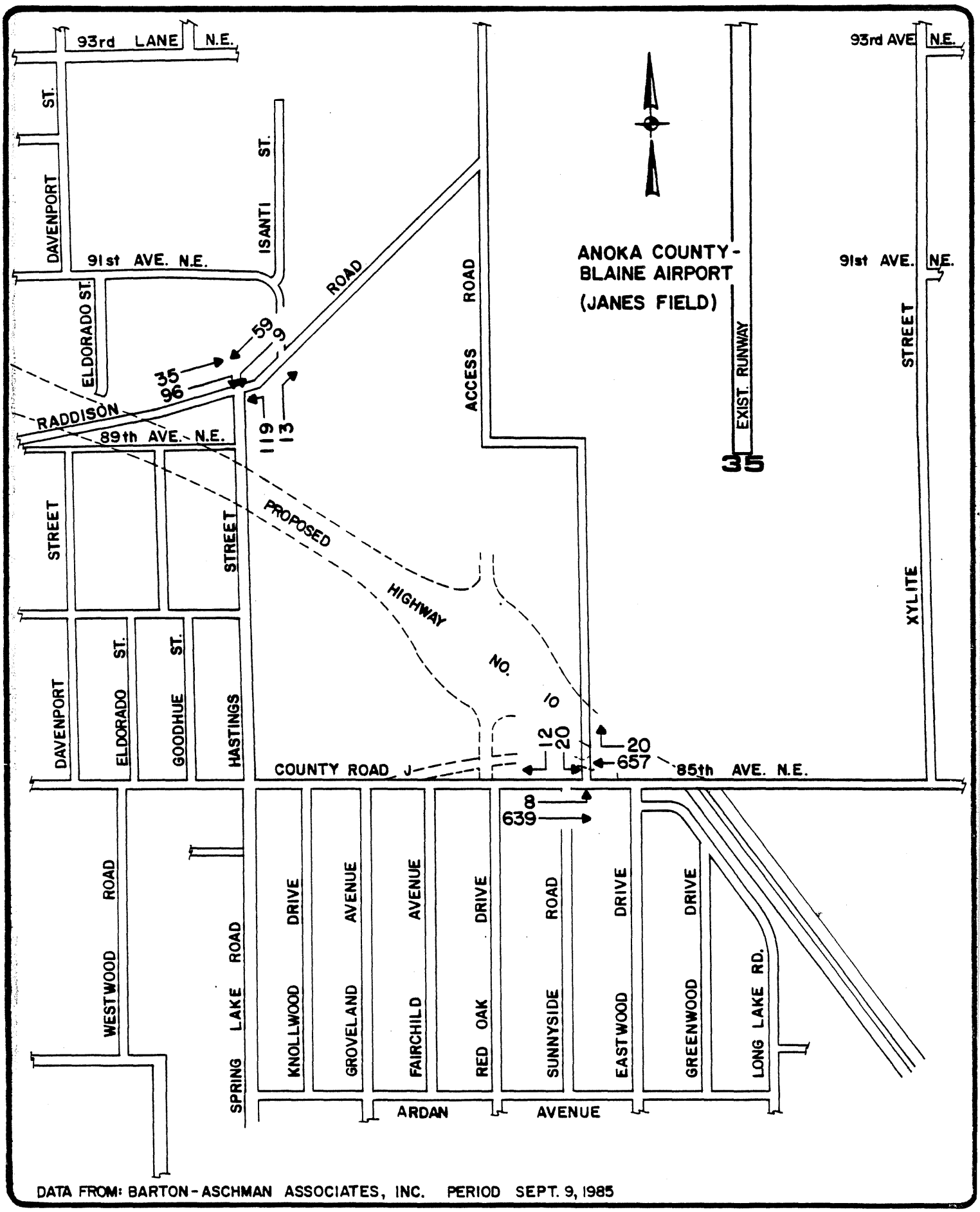
5.9.2 Capacity Analysis

The projected traffic volume and intersection capacities at the two entrances were analyzed and are summarized in Figures 5-42, 5-43, 5-44 and 5-45 and in Appendix 2I.

No significant traffic capacity deficiencies of the airport entrance road system were noted, even though major highways connect to both airport entrance roads.

Airport users generate a very low level of traffic during the weekday afternoon which is when the peak hour for through routes adjacent to the airport occur. The weekday peak hour will control design needs due to the high traffic volumes on the through routes adjacent to the airport, even though the peak hour for airport generated vehicular traffic occurs during the weekends.

A desirable feature of the airport generated vehicular traffic pattern at Janes Field is that it has very low peaks. That is, the number of vehicles entering or leaving the airport is reasonably constant for several hours per day rather than high for a single hour or two.



DATA FROM: BARTON-ASCHMAN ASSOCIATES, INC. PERIOD SEPT. 9, 1985

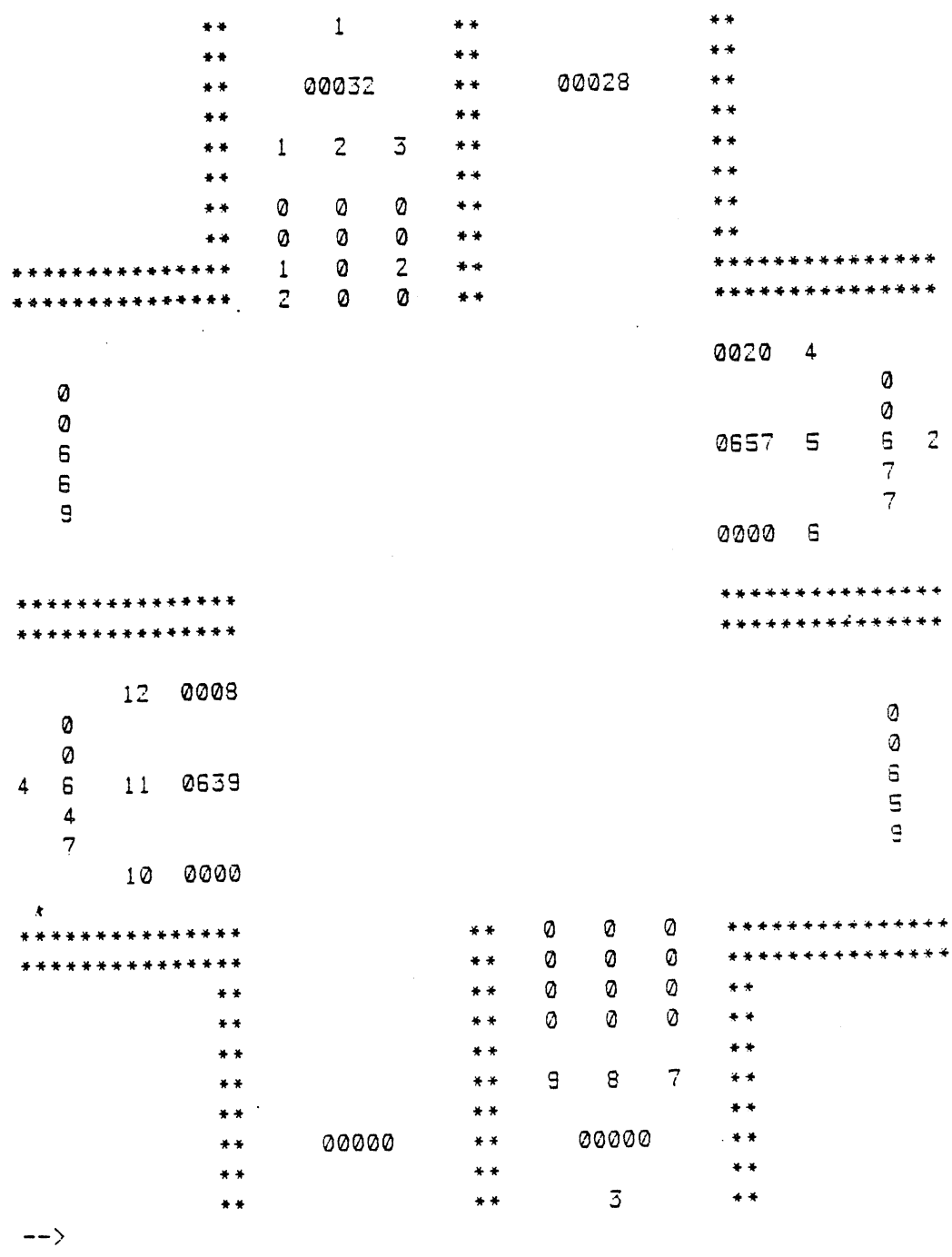
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

AFTERNOON P.M. PEAK HOUR COUNT

HTA companies

1"=1,000'

FIGURE 5-41



SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA
1985 P.M. PEAK HOUR TRAFFIC CAPACITY
COUNTY ROAD "J" + AIRPORT ACCESS ROAD

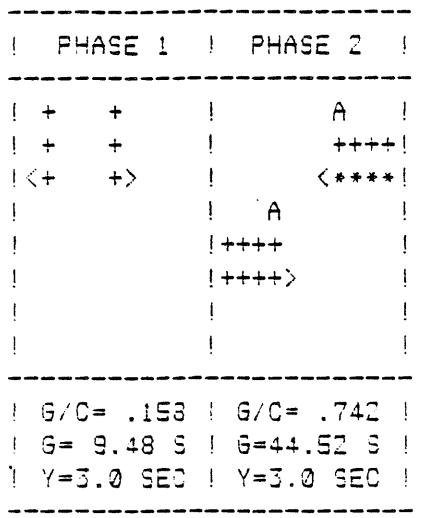
HTA companies

FIGURE
5-42

SIGNAL/TEAPAC - CAPACITY ANALYSIS WORKSHEET

BASIC CONDITIONS:
METRO POPLTN 2000000
METRO LOCATN OUTLNG DEGREE OF SATURATION .41

SEQUENCE 11



C= 60 SEC G= 54.0 SEC = 90.0% Y= 6.0 SEC = 10.0% PED= 0.0 SEC = 0.0%

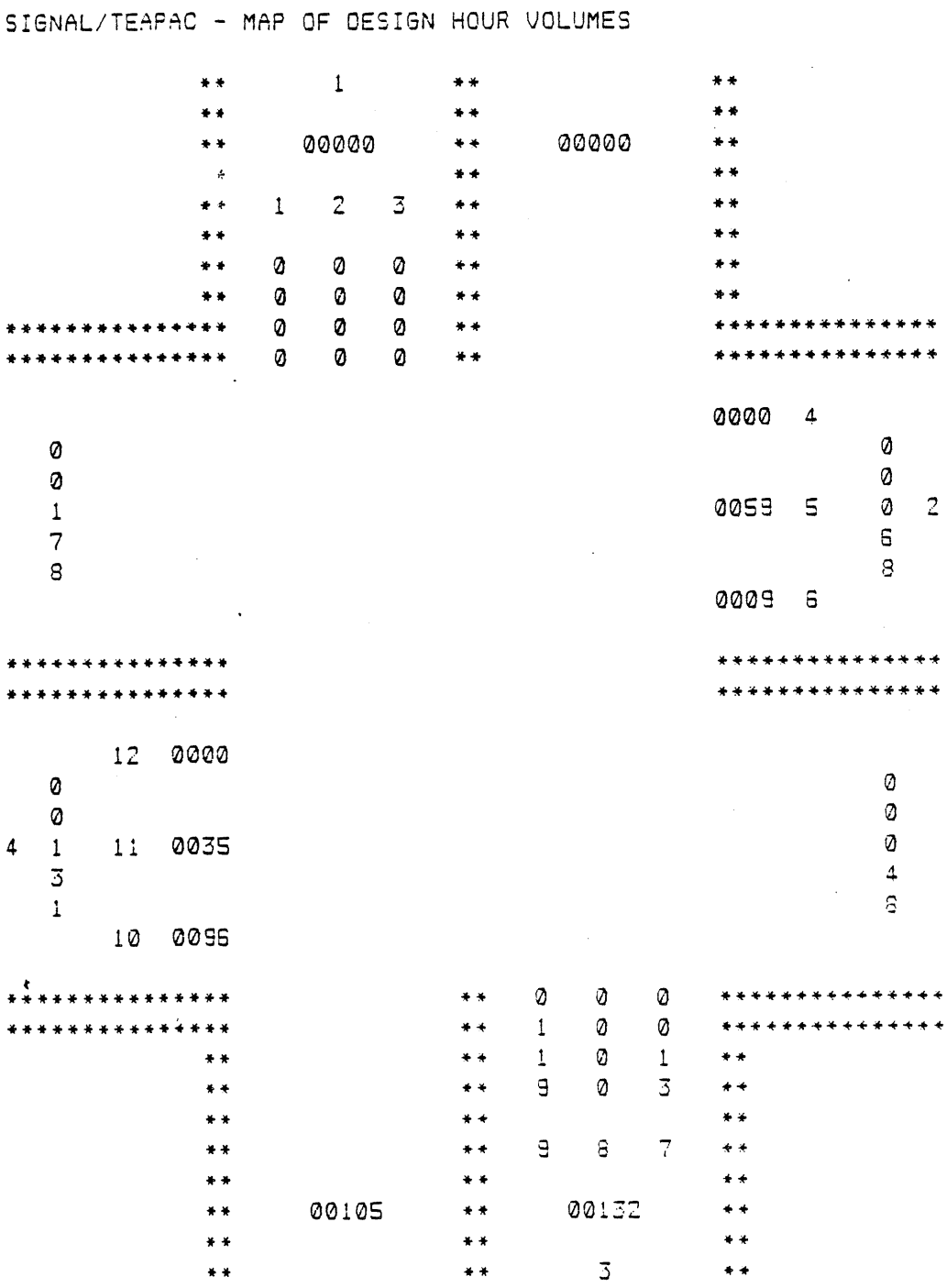
MOVMNT	WDTH /LNS	CHT REF	G/C REQD	G/C USED	SRVC VOLUME C (VPH)	SRVC VOLUME E	DHV	L S	MAXIMUM QUEUE
APPROACH N PHF= .90 TK= 3% RT= 37.5% LT= 62.5% NO BUS STOP									
LT+TH+RT	12/1	4	.04	.16	126	156	32	*A	25 FEET
APPROACH E PHF= .90 TK= 3% RT= 3.0% LT= 0.0% NO BUS STOP									
TH+RT	12/1	4	.39	.74	1283	1590	677	*A	148 FEET
APPROACH W PHF= .90 TK= 3% RT= 0.0% LT= 1.2% NO BUS STOP									
LT+TH	12/1	4	.36	.74	1316	1630	647	A	141 FEET

SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA
1985 P.M. PEAK HOUR TRAFFIC CAPACITY
COUNTY ROAD "J" + AIRPORT ACCESS ROAD

HTA companies

FIGURE
5-43



SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA
1985 P.M. PEAK HOUR TRAFFIC CAPACITY
RADISSON ROAD + ACCESS TO AIRPORT

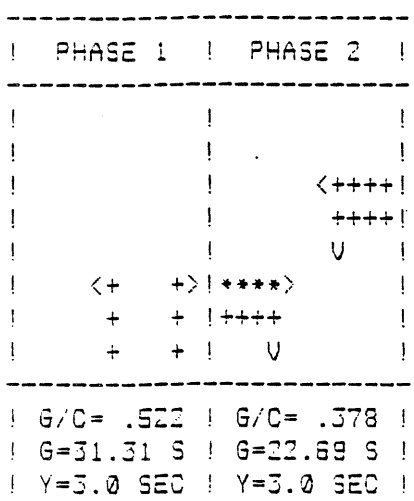
HTA companies

FIGURE
5-44

SIGNAL/TEAPAC - CAPACITY ANALYSIS WORKSHEET

BASIC CONDITIONS:
  METRO POPLTN 2000000
  METRO LOCATN OUTLNG   DEGREE OF SATURATION .20

SEQUENCE 11



C= 60 SEC G= 54.0 SEC = 90.0% Y= 6.0 SEC = 10.0% PED= 0.0 SEC = 0.0%

MOVMNT	WDTH /LNS	CHT REF	G/C REQD	G/C USED	SRVC VOLUME C (VPH)	SRVC VOLUME E	DHV	L S	MAXIMUM QUEUE
APPROACH E PHF= .90 TK= 5% RT= 0.0% LT= 13.2% NO BUS STOP									
LT-TH	12/1	4	.05	.38	486	602	68	A	36 FEET
APPROACH S PHF= .90 TK= 5% RT= 9.8% LT= 90.2% NO BUS STOP									
LT-TH+RT	12/1	4	.14	.52	482	598	132	*A	54 FEET
APPROACH W PHF= .90 TK= 5% RT= 73.3% LT= 0.0% NO BUS STOP									
TH+RT	12/1	4	.10	.38	479	593	131	*A	69 FEET

SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA
1985 P.M. PEAK HOUR TRAFFIC CAPACITY
RADISSON ROAD + ACCESS TO AIRPORT

HTA companies

FIGURE
5-45

5.9.3 Trip Generation Correlations

To project future trips, correlations must be made between the existing conditions and observed trips. Inputs provided by the Metropolitan Airports Commission are summarized in Tables 5-15, 5-16 and 5-17.

TABLE 5-15
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
AIRCRAFT HANGARED AT ANOKA COUNTY AIRPORT (NUMBER OF AIRCRAFT)

Year	Build Alternative	Percent Increase	No-Build Alternative	Percent Increase
1985	387	N/A	387	N/A
1990	452	16.8	456	17.8
2000	630	62.8	552	42.6

Source: Barton Aschman Associates, Inc.

TABLE 5-16
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
ANNUAL AIRCRAFT OPERATIONS AT ANOKA COUNTY AIRPORTS

Year	Build Alternative	Percent Increase Over 1985	No-Build Alternative	Percent Increase Over 1985
1985	102,000	N/A	102,000	N/A
1990	159,000	55.9	159,000	55.9
2000	222,000	118	193,000	89.2

Source: Barton Aschman Associates, Inc.

TABLE 5-17
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
PEAK HOUR AIRCRAFT OPERATIONS AT ANOKA COUNTY AIRPORT

Year	Build Alternative	Percent Increase Over 1985	No-Build Alternative	Percent Increase Over 1985
1985	80	N/A	80	N/A
1990	95	18.8	95	18.8
2000	97	21.3	97	21.3

Source: Barton Aschman Associates, Inc.

The differences in level of resultant aircraft activity between the existing and future no-build and future build alternatives are rather minimal insofar as peak hour trip generation is concerned. The number of aircraft movements is constant during peak hour due to the operational constraints at the airport rather than the size of the adjacent roadway facilities or the potential demand for movements.

The future Build option will generate more trips per day than the Future No-Build option but will not affect peak hour trips due to the airport's operational controls; peak hour trips will simply spread over more hours of the day.

A most pertinent correlation is peak hour vehicular trips to peak hour aircraft operations. Assuming the rate of increased peak hour vehicle trips would parallel peak hour operations, peak hour vehicle trips should increase approximately 19% between 1985 and 1990.

To provide a worst case analysis for purposes of this EIS/EA, the projected growth in peak hour vehicle trips was approximately doubled from 19 percent to 40 percent through 1990. The rationale for the assumed higher growth rates is to project a rate that is between the growth rate of the number of aircraft based at the airport (17 to 18 percent by the year 1990) and the annual operations increase (56 percent by 1990). Though there may not be a significant change in the peak hour take-offs and landings, mostly training flights, vehicular activity at the airport will be more closely related to the greater number of based aircraft and the probable resultant increases in employment and services required for the additional aircraft. It is also prudent to provide an additional factor in the traffic projections to be certain the new road system capacity will be adequate for an extended period.

5.9.4 Airport Trip Generation Summary

The estimated 1985 and 1990 trip generation totals for the weekday P.M. peak or design hours are summarized in Table 5-18.

TABLE 5-18
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
ANOKA AIRPORT TRIP GENERATION

Year	P.M. Peak Hour Trips (VPH)			Daily Trips (VPD)
	In	Out	Total	
1985	76	100	176	1,760
1990	107	140	247	2,470

Source: Barton-Aschman Associates, Inc.

The values in Table 5-18 reflect an assumption of 40 percent trip growth from 1985 to 1990, and reflect the assumption that peak hour trips will be about 10 percent of the daily trips. The assumed peaking characteristic of 10 percent is only slightly lower than the observed 1985 percentage of 10.2 percent. The number of peak hour traffic movements are such that the assumed higher trip generation values will likely not require any significant increases in access road expenditures.

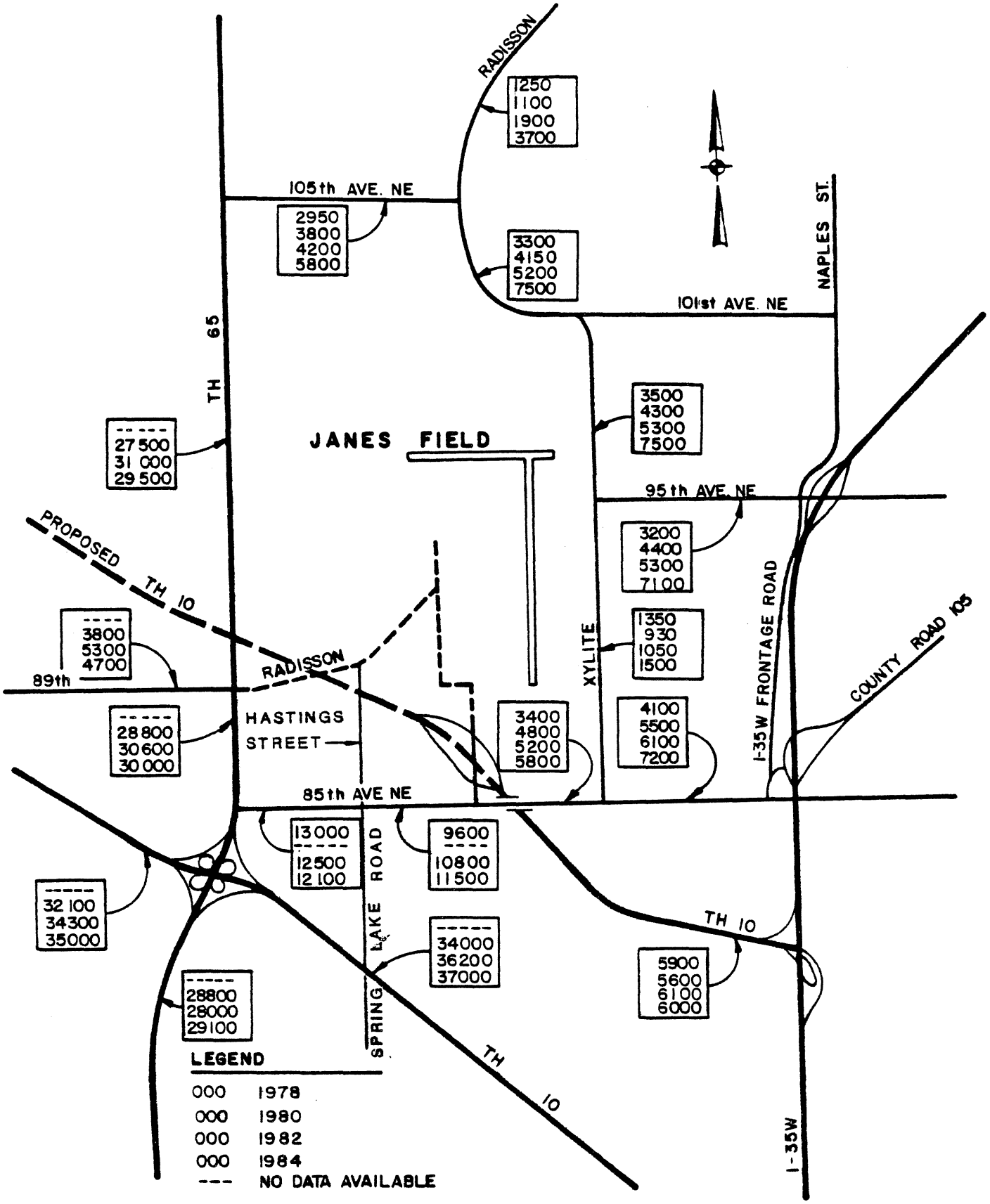
5.9.5 Area Road Net Volumes

Daily traffic volume data on roadways in the airport vicinity were available in two year intervals from 1978 through 1984. These data were used to estimate the 1985 and 1990 trips in the area.

It is very desirable that the time period covered by the count inventory (1978-1984 or six years) is the same as the proposed forecast interval of six years to 1990.

For the year 2000, regional traffic forecasts were used since there will be major freeway and trunk highway changes which will have a major impact on the traffic routings in this area. A critical assumption is that new TH 10 south of the airport will not be in full operation before 1990. If some upgrading of the present TH 10 roadways near the airport are made, they should improve traffic flow and capacity but not the basic routing or growth of traffic in this area.

The inventory traffic data are shown in Figure 5-46. Note that the pattern of change has been that of consistent increases on all routes with a slow rate of change on TH 10 and TH 65 and a more rapid rate of growth on roads north and northeast of the airport.



SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA DAILY TRAFFIC INVENTORY 1978-1984 ADT	HTA companies	1" = 3,000' FIGURE 5-46

5.9.6 Traffic Forecasts

Extrapolation of the 1978, 1980, 1982 and 1984 counts was used to estimate the 1985 and 1990 arterial volumes. There are no major facility developments which would cause the present growth trends to change dramatically through 1990.

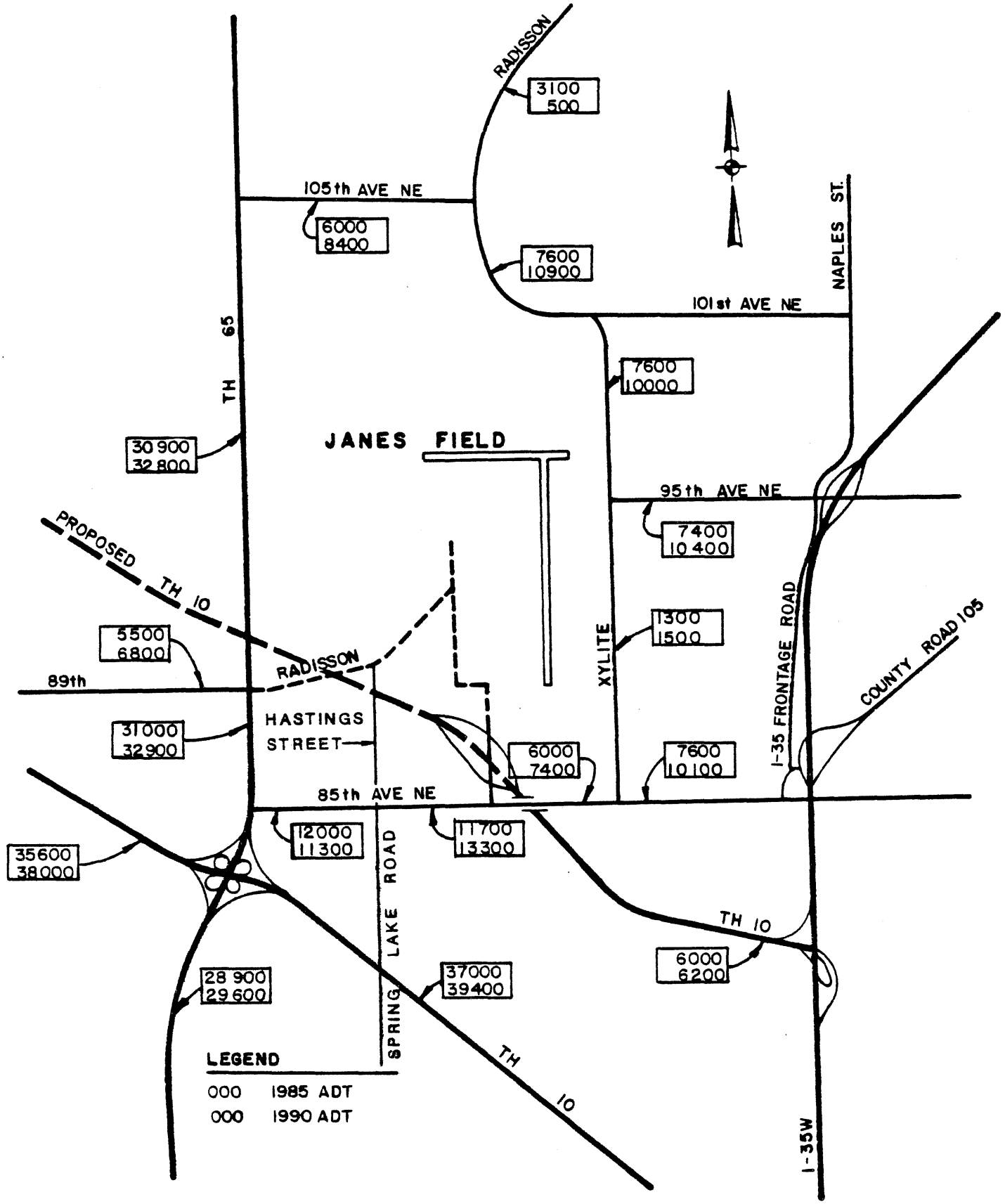
The figures for daily traffic volumes for 1985 and 1990 are shown in Figure 5-47. Year 2000 figures for daily traffic are shown in Figure 1.4 in the Information Appendix. Figures for daily traffic volumes on 89th Street and on TH 65 at Radisson Road were used to develop a 1985 to 1990 growth factor to be applied to the 1985 peak hour intersection volumes so that capacity checks can be made.

5.9.7 Observations on Surface Transportation Impacts

The most important routing changes caused by proposed airport development which would close Xylite Street between 95th Avenue N.E. and 101st Avenue N.E. is the projected use of Radisson Road and 95th Avenue east of the airport.

Currently, drivers originating northeast of the airport are travelling southbound on Radisson Road to Xylite Street then to 95th Avenue to reach the I-35W interchange. Similarly, drivers from the TH 65 area travel east on 105th Avenue N.E. to Radisson Road to Xylite Street to 95th Avenue N.E. and thence easterly to the I-35W interchange.

After TH 10 and the Northtown are built, southbound 105th Avenue N.E. traffic will travel to the west to TH 65 and south to the interchange of New TH 10 and TH 65 and south on TH 10. This traffic will not be affected by the closure of Xylite Street. The southbound traffic from Radisson Road presently splits at 105th Avenue N.E. with two-thirds of traffic moving west to the TH 65 interchange and about one-third continuing via Xylite Street and 95th Avenue to I-35W. This traffic will be impacted by the closure of Xylite Street and by rerouting a portion of 101st Avenue N.E. The closure will affect about 2,500 vehicles per day. This is only 1/3 of the approximately 7,500 vehicles per day now using the route; and is a level of traffic which can be accommodated by a two-lane road. The traffic volume affected by the abandonment of Xylite Street is sufficient, however, to justify a paved alternate route. The most feasible alternate route would be east on 101st Avenue N.E. from Xylite Street, then south on Naples Street.



SOURCE: BARTON-ASCHMAN ASSOCIATES, INC.

ANOKA COUNTY-BLAINE AIRPORT
(JANES FIELD) EIS/EA

DAILY TRAFFIC FORECASTS -1985 + 1990 ADT

HTA companies

1" = 3,000'

FIGURE
5-47

The alternate route (101st Avenue N.E. east of Xylite Street, and Naples Street) needs to be paved and some of the present geometrics altered. A solution would be to redesign the intersection of 101st Avenue N.E. and Naples Street to favor traffic movement on 101st Avenue N.E.

If the changes described above are undertaken, the closure of Xylite Street would not cause unreasonable inconvenience for its users. The alternate route is only 1,400' longer than the present route to the I-35W interchange at 95th Avenue N.E.

Alternatives 5, 6, 7 and 8 include rerouting of a section of 101st Avenue N.E. as described in Section 4. The curve on Radisson Road and 101st Avenue N.E. north of the airport would "flatter" than at present (6.4° curve with 900 foot radius vs. 8.2° curve with 700 foot radius). The reverse curve created at the airport boundary by rerouting a section 101st Avenue N.E., will not negatively affect future traffic flows north of the airport.

The airport is expected to generate about 3,600 trips per day and 300 trips per hour or 13% and 11%, respectively, of the totals for the area.

The proposed closure of Xylite Street between 101st Avenue N.E. and 95th Avenue N.E. will require some paving and intersection revisions. It should affect only about 2,500 trips per day. Extra travel time and/or distance is minimal (approximately 1,440 feet).

5.9.8 Conclusions on Traffic Capacity

The estimated P.M. peak hour volumes for 1990 and 2000 at the airport entrances are shown on Figures 5-42, 5-43, 5-44 and 5-45. Capacity analyses were made for the four cases. No significant capacity deficiencies were noted. The analyses results are included in Appendix 2I.

The improvement of the airport has a nominal effect on traffic increases in the area. The airport, as a large open area, will actually help to mitigate the growth of daily trip generation in the region as it will maintain a land use in a large area which generates much fewer trips than other potential land uses such as residential development.

The airport expansion will not require any additional new arterial construction. Its access will be enhanced by the construction already planned by the state and the county. The proposed airport development will not require earlier construction of the proposed arterial projects.

The regional socioeconomic forecast for zone 490, which is the airport area, projects traffic levels much greater than those generated by the airport. The 1970 and year 2000 development forecasts are shown in Table 5-19.

TABLE 5-19
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA

ZONE 490; SOCIOECONOMIC INDICATORS

Item	1970 Inventory	2000 Forecast
Households	600	2,300
Employment	493	3,000
Population	2,020	7,000
Daily Trips		
Origins		13,722
Destinations		13,714
Peak Hour Trips		
Origins		1,350
Destinations		1,392

Source: Barton-Aschman Associates, Inc.

5.10 SOCIAL IMPACTS

As defined in FAA Order 5050.4A para 47 e. (3), the principal social impacts to be considered in an EA are those associated with relocation or other community disruption which may be caused by the proposed action. More specifically, as described in FAA Order 5050.4A, social impacts may include relocation of persons or businesses, alteration of surface transportation patterns, division or disruption of established communities, disruption of orderly planned development or creation of an appreciable change in employment.

For the purposes of this EIS/EA and as provided in the Scoping Decision Document dated April 15, 1985, the analysis of social impacts includes:

- FAA and MnDOT approach surfaces in relation to existing and planned land uses.
- Compatibility of the proposed action with Comprehensive Plans of Blaine and surrounding cities.
- Use of the airport and Xylite Street abandonment relative to community access and emergency vehicle response.

- Possible acquisition of lands beneath the Runway 26 clear zone, relative to use of those lands and surrounding properties.

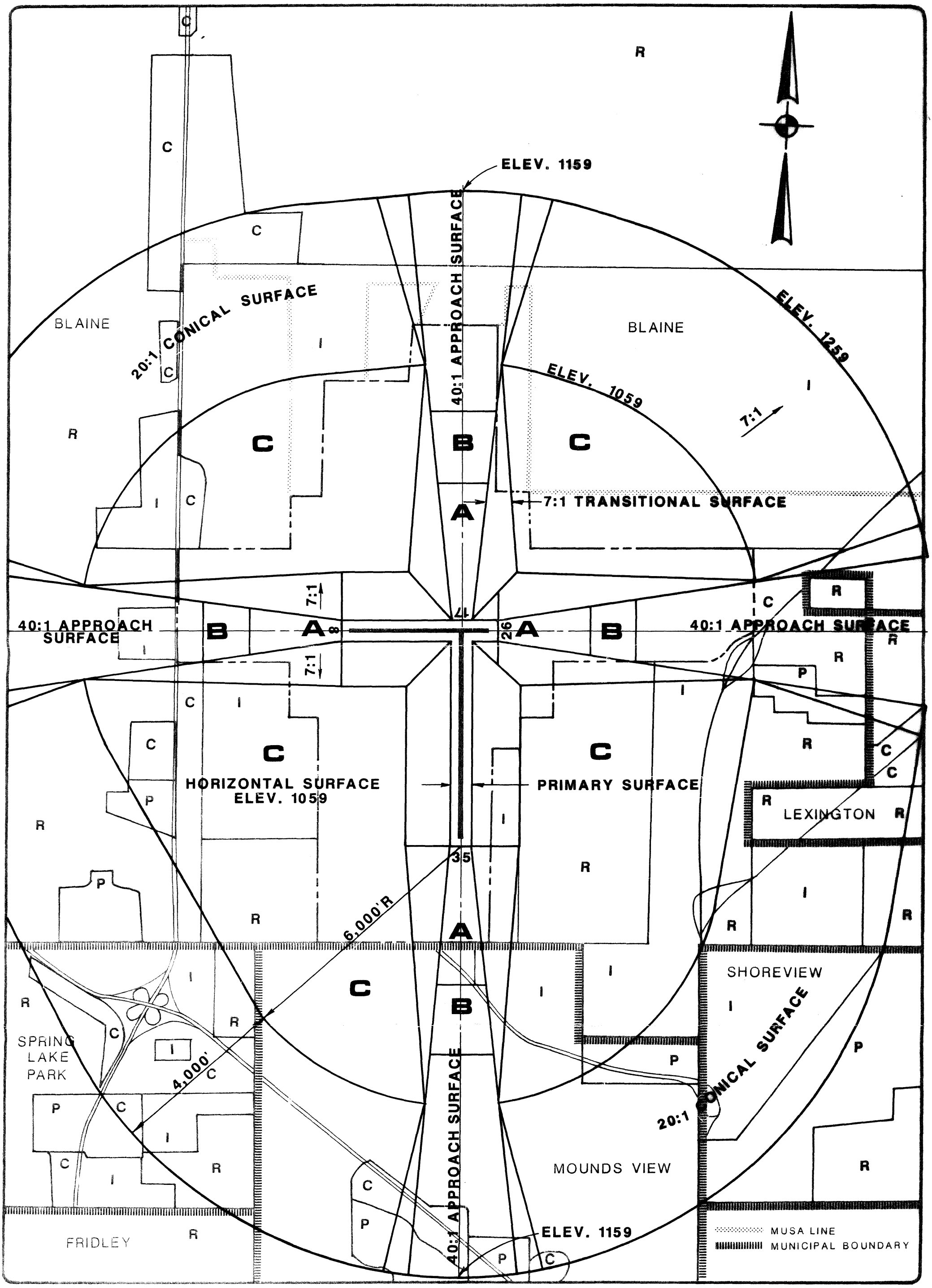
5.10.1 Approach Surfaces in Relation to Existing and Planned Land Uses

As was discussed in Section 2.3.2, there are no provisions for airport zoning in the City of Blaine Zoning Ordinance although MCAR S 1.3016 does require any person or governmental body having airport zoning power under MS S 360.061 to 360.074 to adopt airport zoning ordinances. The Airport Safety Zones required by 14 MCAR S 1.3016 are however, included in the City of Blaine Comprehensive Plan. As discussed in Section 2.3.2 of this EIS/EA, airport safety zones coincide with the airport imaginary surfaces prescribed by the FAA and by MnDOT.

The imaginary surfaces specified in 14 MCAR S 3.3015 and the Airport Safety Zones specified in 14 MCAR S 3.3016 which apply to the existing airport are shown on Figure 5-48. At present, Land Use Safety Zones A and B for all runways, except Runway 35, are within existing airport property. Both Safety Zone A and Safety Zone B for Runway 17 extend into Mounds View. As described in Section 2.3.2, no buildings, temporary structures or exposed powerlines should be located in Zone A. Also, each use within Zone B should be on a site of not less than 3 acres and population density should be limited to 15 persons per acre. There are existing uses which conflict with these requirements in both Land Use Zones that extend into Mounds View.

Shifting Runway 17-35 to the north at least 950 feet (Alternative 4) will place Land Use Safety Zone A for Runway 35 wholly within airport property. If Runway 17-35 were shifted 2,580 feet to the north, (Alternatives 5, 6, 7 and 8) Runway 17 Land Use Zone B would also be wholly within airport property. The maximum easterly shift of Runway 8-26 (Alternate 6) will still keep Runway 26 Land Use Zone A on airport property except at the intersection of Interstate 35W and 95th Ave., N.E. Runway 26 Land Use Zone B will extend approximately 1,000 feet east of the I-35W and 95th Ave., N.E. intersection. The maximum westerly shift of Runway 8-26 (Alternative 5) will place the Runway 8 Land Use Zone A approximately 200 feet west of State Highway 65.

A northerly shift of Runway 17-35 will locate airport operations farther away from Mounds View while maintaining compatibility with land uses north of the airport. The maximum easterly shift of Runway 8-26 (Alternative 6) will result in Land Use Zone B extending over residential areas in Lexington and Blaine immediately east of I-35W. The maximum westerly shift of Runway 8-26 (Alternative 5) will cause Land Use Zone A to extend over the



ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

MINNESOTA DOT LAND USE SAFETY ZONES AND IMAGINARY SURFACES

HTA companies

1"=2000'

FIGURE 5-48

trailer park west of State Highway 65. Alternatives 5, 6, 7 and 8 result in Land Use Safety Zones A and B to Runway 35 being wholly within airport property thereby increasing compatibility with residential areas in Mounds View. However, alternatives 7 and 8 will also maintain the Land Use Safety Zone A to Runways 8 and 26 within airport property, thereby being compatible with residential areas east and west of the airport as well as north and south.

Surrounding land uses should not create obstructions to airport approach surfaces. Imaginary approach surfaces applicable to Janes Field were discussed in Section 4.6. MnDOT approach surfaces applicable to Janes Field incline at a slope of 40:1 (horizontal:vertical). FAA standards incline at a slope of 20:1. With a given approach slope, the farther away a runway end is located from the airport property line, the higher the approach surface would be over that property line and the less height restrictions would be placed on off-airport land uses in that area. Both MnDOT and FAA approach surfaces for the various development alternatives for Runway 17-35 and Runway 8-26 are shown on Figures 5-49 and 5-50, respectively.

Clearance of the MnDOT 40:1 approach surface over the southern airport boundary by County Road J is presently 58 feet and would increase to 123 feet with a 2,580 foot northerly shift of Runway 17-35. Clearance of the MnDOT approach surface over the northern airport boundary north of Radisson Road is 173 feet at present and would decrease to 109 feet with a 2,580 foot northerly shift of Runway 17-35.

Clearance of the MnDOT approach surface over the western airport boundary by State Highway 65 is 90 feet at present and would vary between 55 and 138 feet depending on the east-west shift of Runway 8-26. Clearance of the MnDOT approach surface over the eastern airport boundary by I-35W is 148 feet at present and would vary between 66 and 175 feet depending on the extension and east-west shift of Runway 8-26. Clearance of the MnDOT approach surfaces over airport boundaries for Phase 2 and Phase 3 development are shown in the Informational Appendix.

The Consultant reviewed zoning ordinances of municipalities surrounding the airport to determine maximum allowed heights of structures. The maximum height of structures specified in the zoning ordinances is between 30 and 45 feet, with exceptions in some ordinances for uses such as belfries, chimneys, cooling towers, flag poles, water towers and t.v. antennas. No development alternative will result in the MnDOT or FAA approach surfaces having so little clearance over surrounding land uses that existing and planned land use practices as specified in the Zoning Ordinances cannot be continued. However, Alternatives 5 (1,400 foot shift of Runway 8-26 to the west) and Alternative 6, (3,300 foot shift of Runway 8-26 to the east) may preclude some of the uses permitted by exception as discussed above, e.g., chimneys, belfries, flag poles, etc. in areas west and east of the airport, respectively.

ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

CLEARANCE OF IMAGINARY SURFACES OVER AIRPORT PROPERTY-RUNWAY 17–35

HTA companies

HORIZ.	1" = 2000'
VERT.	1" = 200'

FIGURE 5-49

ANOKA COUNTY – BLAINE AIRPORT (JANES FIELD) EIS/EA

CLEARANCE OF IMAGINARY SURFACES
OVER AIRPORT PROPERTY-RUNWAY 8–26

HTA companies

HORIZ. 1"= 2000'
VERT. 1"= 200'

FIGURE 5-50

ALTERNATIVE 6

ALTERNATIVE 5

ALTERNATIVE 4

ALTERNATIVES 1,2&3

The clearances described above illustrate that actual land uses north, east, south and west of the airport are controlled more by municipal height zoning ordinances than by approach surface clearance requirements.

5.10.2 Compatibility of Development Alternatives with Comprehensive Plans in the Airport Vicinity

The existing local and metropolitan area zoning and land use plans were discussed in Section 2.3 and generalized land use in the airport area depicted in Figure 2-7. The compatibility of the proposed airport development with comprehensive land use plans has been assessed relative to the following impact areas:

- Noise
- Compensatory Flood Storage Requirements
- Drainage Requirements
- Surface Transportation Impacts
- City of Blaine Planning Concerns
- Required Airport Approach Surfaces

- Noise

The impacts of airport generated noise levels were discussed in Section 5.1. As discussed in Section 5.1.3, the Ldn 65 noise contour for all development alternatives is within airport boundaries. Areas outside of airport boundaries would be subjected to noise levels less than 65 Ldn. In fact, the 55 Ldn noise contour for Alternatives 1, 3, 4, 7 and 8, although extending off airport property, does not extend over any residential areas. The 55 Ldn noise contour for Alternatives 2, 5 and 6 does extend over residential areas south, west and east of the airport, respectively. As presented in Section 5.1.3, there is no residential population or other noise sensitive uses that would experience noise levels 65 Ldn. The Metropolitan Council Aviation Policy #9, appended to this EIS/EA in Appendix 2B, lists guidelines for determining compatibility with "Minor" airports. As shown in Appendix 2B, areas within aircraft noise levels of 60-65 Ldn are labeled Noise Exposure Zone C and areas within noise levels of 55 to 60 Ldn are labeled Noise Exposure Zone D. Residential uses are typically the most sensitive of all land uses. As shown in Appendix 2B, residential uses in Noise Exposure Zone D are shown as conditionally to previsionally acceptable. However, according to Policy No. 9, Noise Exposure Zone D applies only to areas located outside the

Metropolitan Urban Service Area (MUSA) designated in the Metropolitan Council Metropolitan Development Guide. Noise Exposure Zone D does not apply in the urban area as explained in Policy No. 9:

> "In fact in the urban environment aircraft noise "between 55 and 60 Ldn" blends into the daytime noise environment where normal day to day activity involves greater than 60 dBA noise levels."

Janes Field is located within, but at the edge of the MUSA line. There are rural areas scattered within this northern portion of the MUSA. Noise levels between 55 and 60 Ldn generated by the airport may or may not be masked by ambient noise levels from day to day activities in the scattered rural areas within the MUSA boundary. Noise levels of 55 Ldn, where the 55 Ldn noise contour extends over rural areas outside the MUSA boundary are compatible with Noise Exposure Zone D. Noise levels of 55 to 60 Ldn are compatible with land uses within the MUSA boundary per Policy No. 9.

As presented in Section 5.1.4, noise impacts to areas surrounding the airport were determined using the State standard noise metric of L_{10}. Chapter 7010 Section .0410 of the MPCA Air Quality Division Noise Pollution Control (NPC) Rules stipulate maximum noise levels according to the Noise Area Classification System (NAC). (See Appendix 2H) The MPCA provides that in NAC-1, where residential uses are allowed, the maximum noise levels allowed are $L_{10}65$ during the day and $L_{10}55$ during nighttime. The City of Mounds View had adopted Chapter 7010 Sections .0100 through .0400 in Section 40.04 Subdivision N or Ordinance No. 352 - Mounds View Zoning Code. Alternatives 1,2 and 3 result in the $L_{10}65$ noise contour extending into the residential area south of T.H.10 in Mounds View. All alternatives result in existing and planned residential areas east and/or west of Runway 8-26 being within the $L_{10}65$ contour. Alternatives 4, 5, 6, 7 and 8 result in the $L_{10}65$ contour being shifted from the residential area south of T.H.10 to the existing and planned industrial area north of T.H.10. Industrial areas are included in NPC Rules as NAC-2 or NAC-3, both compatible with noise levels of $L_{10}65$. As shown on Table 5-1, all future build alternatives which include airfield development except Alternative 6, decrease the number of persons within the $L_{10}65$ contour.

From the standpoint of noise, the master plan alternative (Alternative 4) and Alternatives 6, 7 and 8 all result in a decrease in noise levels to existing and planned residential and other noise sensitive areas and will thus increase the compatibility of Janes Field with local and metro area comprehensive noise plans in the airport area.

- Compensatory Flood Storage Requirements

Compensatory flood storage required as a result of proposed airport development is discussed in Section 5.5.4. All compensatory flood storage will be provided on airport property and will thus not impact existing or planned land uses in the airport vicinity.

- Drainage Requirements

With construction of detention ponds on airport property, rates of surface runoff to the local or county ditch system will not increase, will not require changes to the county ditch system off airport property and will thus not affect existing or planned land uses in the airport vicinity.

- Surface Transportation Impacts

Ad discussed in Section 5.9, proposed airport development will not require the construction of any new roads. However, 101st Ave., N.E. and Naples Street should be improved to accommodate traffic flows between Radisson Road and I-35W, 95th Ave., N.E. and County Road J rerouted by the abandonment of a portion of Xylite Street. The areas abutting 101st Ave., N.E. and Naples Street is zoned and planned industrial and commercial use. Increased traffic flows caused by the abandonment of Xylite Street will not impact the existing or planned industrial or commercial use of these areas. Alternatives 5, 6, 7 and 8 include shifting Runway 17-35 2,580 feet to the north requiring relocation of 101st Avenue N.E. which is within airport property. Due to the low speed limit on this section of 101st Avenue N.E., the additional turns proposed, for the road to clear the MnDOT 40:1 approach surface, will cause no detrimental impact to surface transportation. In fact, this road will be improved by decreasing its degree of curve north of the airport.

- City of Blaine Development Plans

As discussed in Section 2.3.2, the City of Blaine Comprehensive Plan includes discussions on Janes Field and its impact on existing and future planning issues. (See page 2-22 of this EIS/EA) This section will include discussions of the four issues.

- The location of Janes Field has presented a problem for Blaine city planners because the city cannot develop growth patterns as easily in an east-west direction. However, there are other factors with greater impact on the planning process than the airport. For example, the existence of the airport does not preclude the extension of municipal services (e.g., water and sewer) to parts of the city separated by the airport.

- The airport geographically divides the city into two general areas; east and west of Radisson Road and Xylite Street. As mentioned in the above paragraph, the airport is not a barrier to extension of any services.

- The airport, due to its location precludes direct (straight line) access via 95th Avenue N.E. between Highway 65 west of the airport and Lexington Avenue east of the airport. 101st Avenue N.E. between Xylite Street and Naples Street is proposed to be paved concurrent with abandonment of a section of Xylite Street. A 5,400 foot extension to 101st Avenue N.E. at its intersection with Naples Street, with an overpass over I-35W, would provide direct access between Highway 65 and Lexington Avenue via 105th Avenue N.E., Radisson Road and 101st Avenue N.E., a distance of 3.9 miles. The length of a direct route via 95th Avenue N.E. between Highway 65 and Lexington Avenue would be 3.5 miles, only 0.4 miles shorter than as could be possible via Radisson Road.

- The MUSA line has been revised in the Metropolitan Development and Instrument Framework of the Metropolitan Development Guide. Extension of water and sewer lines north of the MUSA line is, currently, in compliance with the provisions of the Metropolitan Council Development Guide. Extension of water and sewer service in Blaine is not, therefore, physically precluded by the existence of Janes Field. Negotiations between the two governing agencies, the City of Blaine and MAC, could devise a means of providing access for extension of water and sewer systems across the airport. Such agreements would address the planning issues concerning the City of Blaine. Consequently, in this issue and all other issues, the proposed development of the airport does not conflict with the City of Blaine Comprehensive Plan adopted March 11, 1982.

- Required Airport Approach Surfaces

Airport approach and imaginary surfaces for proposed development are discussed in Section 5.10.1. The change in airport approach surfaces required for various alternatives will not significantly impact existing or planned future land uses of off-airport property.

5.10.3 Community Access and Emergency Vehicle Response

As discussed in Section 5.9.3, improvement of Janes Field will have a minimal effect on increases in traffic volumes in the vicinity. Existing and future traffic volumes, including airport traffic, will not require any arterial construction other than that already planned by MnDOT and County Governments. Construction of T.H.-10 south of the airport was proposed and will be constructed, to increase capacity to accommodate northwesterly and southeasterly flowing vehicular traffic. The existing T.H.-10 has many stop lights and intersections with direct access from driveways which decreases capacity. The proposed T.H.-10 will ultimately have limited access and will eventually be constructed to interstate standards. Once operational, T.H.-10 will draw traffic from areas north and northeast of the airport. Community access in areas southwest and northwest of Janes Field is adequate at present and will be improved when the T.H.-10 relocation is operational. Community access and emergency vehicle response relative to areas east, northeast and north of the airport will be discussed in the following paragraphs.

- Community Access

Implementation of Alternatives 4, 6, 7, and 8 will require the portion of Xylite Street north of 95th Ave., N.E. within airport property to be abandoned. (For the purposes of the EIS/EA, the portion of Xylite Street north of 95th Ave., N.E. will be called North Xylite Street, and the portion of Xylite Street south of 95 Ave., N.E. will be called South Xylite Street.) Traffic on North Xylite Street, estimated at 7,600 ADT at present and projected to increase to 10,000 ADT by 1990, is predominantly flowing between Radisson Road and 101st Ave., N.E. and I-35W via 95th Ave. N.E. A small portion, approximately 500-700 vehicles per day (7-9%), of the traffic on North Xylite Street, is through traffic traveling between County Road J and 101st Ave., N.E.

If a portion of North Xylite Street were abandoned, the traffic flows described above would have to be rerouted. Between Xylite Street and Naples Street, 101st Ave., N.E. is a gravel road with a graded surface 42 feet wide. Naples Road is paved. Southbound traffic on North Xylite Street could be rerouted to 95th Avenue N.E. via 101st Avenue N.E. and Naples Street. If North Xylite Street traffic is rerouted in this fashion, the gravel portion of 101st Avenue N.E. between Xylite Street and Naples Street should be paved to a two lane width. The geometrics of the 101st Avenue N.E. and Naples Street intersection should be improved to favor 101st Avenue N.E. traffic. Rerouting traffic on North Xylite Street, as described, would result in an additional trip length for the 91-93% of North Xylite Street traffic travelling between Radisson Road and I-35W of 1,440 feet, or 0.27 miles.

Additional trip length for the 7-9% of North Xylite Street traffic which is through traffic from County Road J to 101st Avenue N.E., would be 8,480 feet or 1.60 miles. The impact of a 0.27 mile increase in trip length for vehicles travelling between Radisson Road and I-35W is insignificant. The number of through traffic vehicles per day from South Xylite Street to North Xylite Street to 101st Avenue N.E. impacted by an additional 1.60 miles in trip length (500-700 vehicles per day at present) is not substantial. Furthermore, at an average speed of 30-35 m.p.h., an additional 1.60 miles in trip length will result in an additional trip time of only 2.7 - 3.2 minutes.

Impacts to community access can also occur relative to businesses in the area such as whether or not a change in surface transportation patterns will negatively affect the level of trade that businesses in the area can conduct. There are a number of businesses located on Xylite Street either near 95th Avenue N.E., or near 101st Avenue N.E. as shown on Table 5-20.

Although access would be rerouted with the abandonment of a portion of Xylite Street, businesses listed on Table 5-20 numbered 7 through 12 on North Xylite Street would maintain good access with I-35W. Access to I-35W from businesses numbered 1 through 6 would not be impacted by the abandonment of a portion of Xylite Street. In fact access to I-35W from businesses numbered 1 through 6 would actually improve as there would be no traffic southbound on Xylite Street to 95 Ave. N.E. to interfere with traffic from businesses northbound on Xylite Street to 95th Avenue. Due to the existing and proposed low levels of through traffic on Xylite Street which would realize only a 2.7 to 3.2 minute increase in trip time between 101st Avenue N.E. and 95th Avenue N.E., it is expected that traffic flows to businesses on Xylite Street would not be significantly affected by the abandonment of a portion of Xylite Street as proposed.

Traffic from the airport west building area first proceeds on the existing airport access road before leaving the airport property. Access patterns on the west side of the airport would not change as a result of proposed airport development. The access point of the east building area to South Xylite Street would be planned to avoid the intersection of Xylite Street and 95th Avenue N.E. and enter South Xylite St. south of the intersection approximately midway along the east building area. This would eliminate the need for a stoplight or stop sign at the Xylite Street and 95th Avenue N.E. intersection. In summary, traffic patterns would not be significantly changed on the east side of the airport with the development of the proposed east building area. Increased traffic generated from Janes Field and abandonment of a portion of Xylite Street will have minimal impact to community access.

TABLE 5-20
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
BUSINESSES LOCATED ON XYLITE STREET

Near 95th Avenue N.E. (South Xylite St.)	South of 101st Ave. N.E. (North Xylite St.)
1. North Suburban Gas Company	7. A salvage yard
2. Custom Manufacturing and Engineering	8. D.J.'s Body Shop
	9. Sacon, Inc.
3. Corvette Specialities	10. Nordale Corp.
4. Toms Automotive	11. Power Leg Company
5. Complete Automative	12. Brighton Sand Blasting
6. R.J. Fabrication	

Notes: Businesses numbers 3 through 6 are located in a single concrete building.

Businesses 8 through 12 are located in the same cluster of buildings east of Xylite Street and just south of 101st Avenue N.E.

Source: Barton-Aschman Associates, Inc.
Hoyle, Tanner & Associates, Inc.

As mentioned previously, rerouting a portion of 101st Avenue N.E. as required with Alternatives 5, 6, 7 and 8, will improve the access between 105th Avenue N.E. and North Xylite Street. The degree of curve in Radisson Road an 101st Avenue N.E. north of the airport would be reduced. Also the trip length between 105th Avenue N.E. and North Xylite Street would be reduced slightly from 2.12 miles to 2.05 miles.

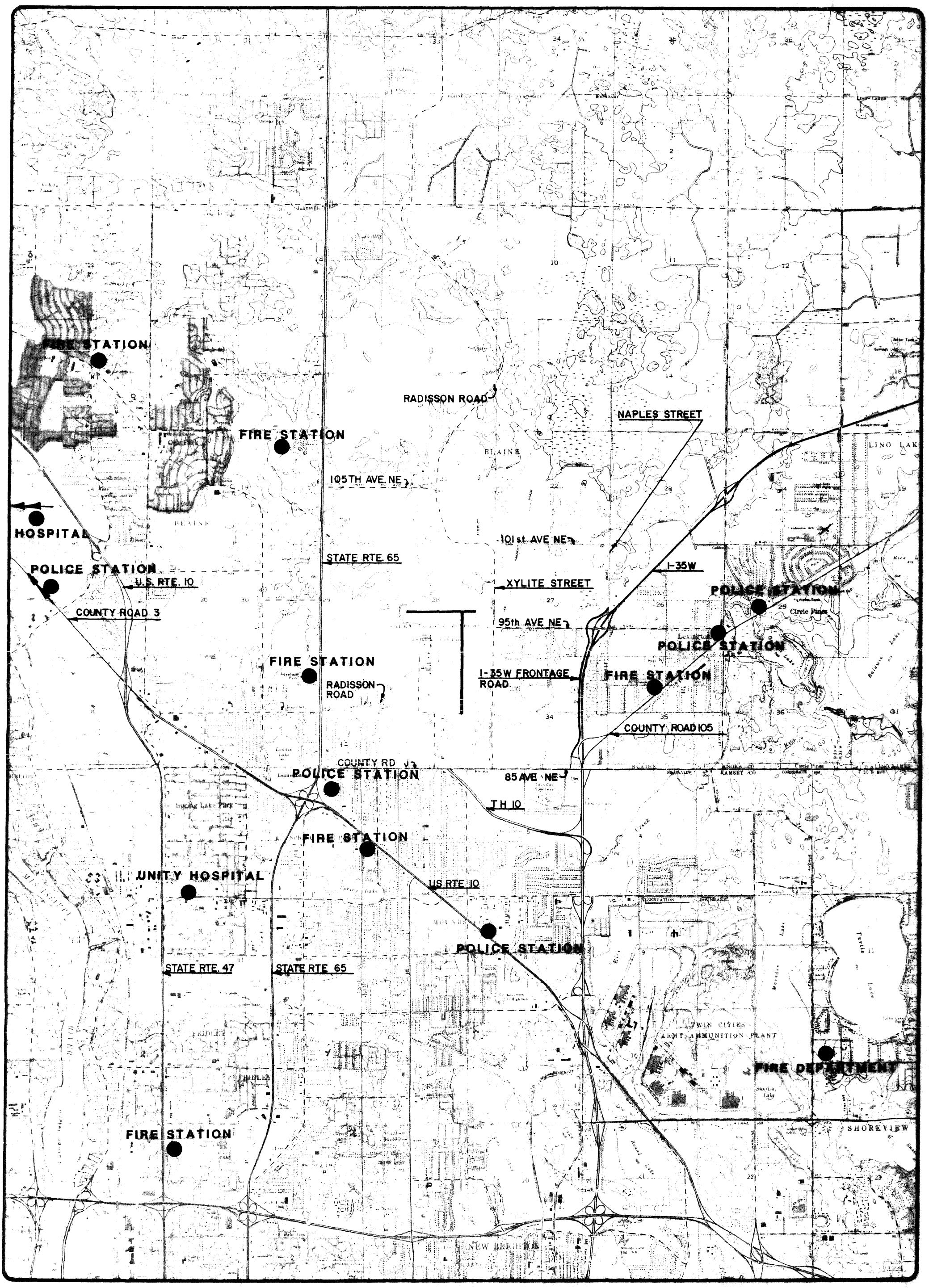
- Emergency Vehicle Response

During the Scoping EAW review process, concerns were raised about the effects of abandoning a portion of Xylite Street on response time of emergency vehicles to areas east and northeast of the airport. The location of police stations, fire stations and hospitals in the vicinity of the airport is depicted on Figure 5-51.

To serve the areas east, northeast, north and west of the airport, emergency vehicles from Mounds View, Spring Lake Park and Fridley must first travel on County Road J (85th Avenue N.E.) before turning north on Xylite Street, the I-35W frontage road or I-35W. T.H. 10 precludes north or northeast bound traffic from travelling directly to Xylite Street or the frontage road. Abandoning a section of Xylite Street, as proposed, would require north or northeast bound emergency vehicles south or southeast of the airport to turn north on the frontage road rather than on Xylite Street from County Road J to serve areas north of the airport. This would require an additional trip length of only 1900 feet (0.36 miles). The frontage road west of I-35W is in good condition and would provide a suitable alternate route to Xylite Street.

Emergency vehicles south of the airport near I-35W would likely travel on I-35W northbound and exit at 95th Avenue N.E. to serve areas south of 95th Avenue N.E. or turn north onto the frontage road to serve areas in the vicinity of 101st Avenue N.E. Emergency vehicles exiting I-35W would not be affected by the proposed abandonment of a portion of Xylite Street.

Emergency vehicles based northwest of the airport would serve areas east of the airport via 105th Avenue N.E., Radisson Road, 101st Avenue N.E. and Naples Street. Rerouting of a portion of 101st Avenue N.E. will slightly descrease trip length to Naples Street by 0.07 miles. There would be no additional trip length for these vehicles to areas north of 101st Avenue N.E. There would, however, be an additional trip length of .80 to 1.60 miles and trip time of 1.60 to 3.2 minutes for these vehicles to serve areas east of Janes Field and South of 95th Avenue N.E. respectively.



ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA

LOCATIONS OF FIRE STATIONS, POLICE STATIONS, AND HOSPITALS

HTA companies

1"=4000'

N

FIGURE 5-51

From the discussion above, it can be summarized that if 101st Avenue N.E. between Xylite Street and Naples Street is paved to improve access on the east side of the airport, the proposed abandonment of a portion of Xylite Street will not result in any significant impact to emergency vehicle response.

5.10.4 Acquisition of Lands Beneath Phase 2 and Phase 3 Runway 26 Clear Zone

As discussed in Chapter 1, proposed long term Phase 2 and Phase 3 development at Janes Field includes implementing a precision approach procedure to Runway 26 and constructing a runway 700 feet north of, and parallel to the existing Runway 8-26. With implementation of the precision approach procedure, the inner width of the Runway 26 clear zone will widen to 1,000 feet. Both the clear zone to the parallel runway and a portion of the clear zone required for the precision approach procedure to Runway 26, would extend over property not presently owned by MAC.

The clear zone is the most critical portion of the runway approach surface and should be kept free of obstructions and to insure incompatible land uses don't develop in the future. The optimum situation is for an airport operator to own all lands beneath runway clear zones in fee simple.

The 3.34 acre parcel east of Xylite Street extending southward from the north airport property line would not technically have to be acquired until the precision approach procedure to Runway 26 is implemented or the parallel runway is constructed.

However, due to rising land costs and the possibility of acquisition by an entity other than MAC, purchase of this parcel has been included in Phase 1A and Phase 1B development.

The parcel described above, as determined by City of Blaine officials is presently owned by David L. Wieberg. The parcel is part of the old railroad grade right of way oriented in a north northeast - south southeast direction crossing the eastern portion of the airport. The 3.34 acre Wieberg property is bounded to the north by properties jointly owned by Mr. Wieberg and other parties. Access from the 3.34 acre parcel and the remainder of the Wieberg property to the north is, and will continue to be, from 101st Ave., N.E. and North Xylite Street. Acquisition of the 3.34 acre parcel will not affect access to the remainder of the Wieberg property or other properties east of Xylite Street. During Phase 1A and Phase 1B, following acquisition by MAC, no change will take place to the 3.34 acre parcel. If Phase 2 and Phase 3 development occurs, some trees in the 3.34 acre parcel may have to be cleared so as not to obstruct the

precision approach to Runway 8-26 or the approach to the parallel runway to the north. Thus, acquisition of the 3.34 acre parcel by MAC will not impact access to the remainder of the property or surrounding properties. Further, the planned uses by MAC of the 3.34 acre parcel will not affect use of surrounding properties.

5.11 INDUCED SOCIO-ECONOMIC IMPACTS

5.11.1 Introduction

Due to their deferred, diverse, and diffused nature, secondary or induced socio-economic impacts are very difficult to establish precisely. The prediction of induced impacts are generally dependent upon a sequence of interrelated actions which may be influenced by other decisions and actions. Therefore, any effort to quantify the induced sociological impacts would be highly speculative. Hence, the probable induced impacts will be discussed in a qualitative and objective manner.

Generally, the induced socio-economic impacts of an airport development project are analyzed in terms of shifts in the patterns of population movement and growth, public service demands, changes in business and economic activity, and changes in social opportunities and quality of life. In addition, the relationship to the regional and local development goals and policies are analyzed. The induced impacts that might occur from the construction of the proposed new airfield and building area facilities at Janes Field in terms of these variables are discussed below. It should be noted that the secondary natural environmental impacts (e.g. water quality, drainage, air, wildlife) are analyzed in those respective sections. Similarly, the potential induced social impacts related to noise are discussed under Sections 5.1, Noise Impacts and Section 5.10 Social Impacts.

5.11.2 Urban Regional Development

The proposed Phase 1A and Phase 1B airfield improvements at Janes Field have not been proposed to increase the operational capacity, but to improve the compatibility of the airport with surrounding land uses, particularly residential areas south of the airport. Hence, no shifts in the patterns of population movement and growth is expected.

Similarly, no demand for new housing, roads and major utilities will be generated by existing or future users of the airport. There are, however, road and utility improvements planned by municipal, regional, state and federal officials in the vicinity of the airport, e.g. extension of water and sewer service and relocation of a portion of T.H.10, but these improvements were not planned, and are not required, for airport users. The proposed Phase 1A and Phase 1B improvements follow the guidelines of the Metropolitan Council's Development Framework for maximum development of the existing airport facilities and controlling encroachment in the Rural Service Areas. The aim of this policy, as discussed earlier is to discourage urban sprawl and preclude unwarranted investments in new public facilities.

As the existing maximum useable runway length of 4,855 feet will not be increased, the type of airport user that can or will use the airport in the future will not be different from the present type of airport user, i.e. the absence of an increase in maximum runway length available will offer no inducement to commercial airlines or users of large business aircraft to use the airport who cannot use the airport at present. Construction of the proposed east and west building areas will allow somewhat increased levels of based and transient aircraft to use Janes Field as there would be more area for aircraft parking. However, the type of airport user will not significantly change from that at present, although the relative share of specific airport users in relation to the total airport users may change, e.g. a larger share of corporate and business aircraft share of total.

The system role of the airport, and resultant type of airport user accommodated, will not change to that of Holman Field, an Intermediate Airport. Janes Field is 27 miles from the Minneapolis city center where Holman Field is only 7 miles from the city center. Therefore, Janes Field cannot be expected to generate a level of corporate and business investment in plant and equipment and the resultant requirement for employee housing and increased services evident in the area to the south around Wold-Chamberlain Field and Holman Field.

However, additional building areas at Janes Field can be expected to attract some small industries with their own aircraft to the area which do not require to be in proximity to the Minneapolis city center. There can also be expected some increased demand for businesses that wish to locate in the Janes Field vicinity due to the availability of increased aircraft parking and hangar area. However, such an increase in the Janes Field vicinity with its related increase in demand for employee housing and municipal services and facilities, will be minimal.

5.11.3 Employment and Economic Benefits

Induced economic impacts, particularly that of employment levels, occur generally over the long term. There will, however, be secondary short-term impacts on employment levels during the construction period. The proposed construction in the building areas and airfield will result in increased short-term jobs in the construction industry. For the long-term, some additional jobs will be created by industries which locate to the area and place increased demands directly on the airport for aviation related services, such as aircraft fueling, aircraft sales, aircraft charter, flight instruction, aircraft maintenance, etc. Income generated from both short-term and long-term employment will act as a positive multiplier (by being respent many times in the area) to the local and regional economy.

5.11.4 Sociological Benefits

The Twin Cities provides its residents with a high quality of life. The "quality of life" is a good balance of ready access to recreational, remote and quiet rural areas, while having good access to both the nation and world via the Minneapolis-St. Paul International Airport (Wold-Chamberlain Field), the Downtown St. Paul Airport (Holman Field) and the supporting system of general aviation airports. The importance of Janes Field in support of this system was documented in Chapter 3.

By being able to accommodate additional general aviation traffic, Janes Field will enable Wold-Chamberlain Field and Holman Field to serve future increased levels of air carrier and major corporate passengers more efficiently. Hence, the proposed improvements will "induce" more efficient air service for the region's residents.

The quality of life in the Janes Field area is also enhanced by the improvement of the airport compatibility with the rural and residential areas surrounding it. To this end, the master plan alternative includes shifting Runway 17-35 950 feet north to create a corresponding shift in north-south aircraft operations at the airport towards the north, away from residential areas south of the airport. Extending Runway 8-26 to 4,000 feet will attract aircraft presently using Runway 17-35 which require a runway length of more than 3,200 feet (length of Runway 8-26 at present), but could operate from a 4,000 foot long runway. As discussed in Section 5.1, proposed airfield development will actually decrease the number of persons impacted by a given noise level.

As discussed in Sections 5.9 and 5.10.3, construction of proposed building areas and abandonment of Xylite Street will have minimal impact on the level of auto traffic and no requirement for new roads in the vicinity of Janes Field. Rerouting a portion of 101st Avenue N.E. required with alternatives 5, 6, 7 and 8 will improve the east-west road system north of the airport.

The sociological benefits of the proposed project are increased quality of Air Carrier, corporate, business and General Aviation air service in the Metropolitan Area, particularly the north and northwest sections, while improving quality of life in residential areas around the airport, particularly residential areas to the south.

5.12 EROSION

Section 5.2 includes discussion on the effects of airport improvement alternatives on erosion. As with any civil project, protection against erosion not only maintains high water quality standards, vegetative growth and aesthetic value but it also protects the structural integrity of the embankment where the construction improvements are made.

5.12.1 Potential for Erosion During Construction

There will be a potential for erosion during the construction process. Any time the natural ground cover is disturbed, erosion will take place to some degree. In the case of airport construction, large areas are stripped of the vegetative cover and the loam is stockpiled. During the construction of the embankment, the stockpiled loam may erode unless protective measures are taken. Methods of minimizing erosion are described in Section 5.2.2.

5.12.2 Addition of Impervious Surfaces

No areas will be changed from pervious to impervious. For determination of surface runoff in Section 5.6.1, 100% of proposed building area are assumed to be impervious. Total additional impervious areas for the Phase 1A and Phase 1B alternatives are shown on Table 5-21. Surface area cover after construction will consist largely of grassed areas but will have significant areas which are impervious, either paved or with

buildings. The impervious surfaces of the pavement or building areas will protect the underlying material from erosion. However, if the stormwater runoff is channelized and allowed to run onto an unprotected surface, erosion may result. It is the intent in the design phase to provide for the collection of stormwater which has been channelized on impervious surfaces before it reaches grassed areas. There will be some runoff from paved surfaces. However, this runoff will be unconcentrated, sheet flow moving at a slow rate. The danger of erosion is then slight.

5.12.3 Erosion Control Plans

During the design phase, a well detailed scheme to prevent erosion, both during and after construction, will be developed. This plan will incorporate the various engineering techniques, described in Section 5.2.2 as appropriate.

TABLE 5-21
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
ADDITIONAL IMPERVIOUS AREAS (ACRES)

Alternative	Runways and Taxiways	Building Areas	Total
1			0
2			0
3	2.8[A/]	66.4	69.2
4	8.6[A/]	66.4	75.0
5	9.6[A/]	66.4	76.0
6	15.1[A/]	66.4	81.5
7	14.8[A/]	66.4	81.2
8	8.1[A/]	66.4	74.5

[A/] Includes removal of Runway 35 and stub taxiway pavement as described in Section 4.7.

Source: Hoyle, Tanner & Associates, Inc.

CHAPTER 6

FEDERAL ENVIRONMENTAL ASSESSMENT

6.0 FEDERAL ENVIRONMENTAL ASSESSMENT

As outlined in Section 1.2, this document serves as both a State Environmental Impact Statement and a Federal Environmental Assessment. Many of the Federal EA requirements and environmental impact categories are assessed in other sections of this document, while others were assessed in the Scoping Environmental Assessment Worksheet for Janes Field dated February, 1985. The remaining categories are assessed under this section. The purpose of this section is to assist the Federal review of what is primarily a State document. Table 6-1 shows the content requirements for a Federal Environmental Assessment, and where those requirements are addressed in this EIS/EA. As stated in FAA Order 5050.4A Section 6.1 includes discussion on Federal EA requirements discussed in other sections of this EIS/EA. Section 6.2 includes discussion on Federal EA requirements included in the Scoping EAW. Section 6.3 includes discussion and analyses of Federal EA requirements not included in the Scoping EAW or other sections of this EIS/EA.

6.1 FEDERAL EA REQUIREMENTS INCLUDED IN OTHER SECTIONS OF THE STUDY

Federal EA requirements addressed in previous sections of this EIS/EA are included in the list on Table 6-1 and are not repeated in this section.

6.2 FEDERAL EA REQUIREMENTS AND ENVIRONMENTAL IMPACT CATEGORIES INCLUDED IN THE SCOPING EAW

The subsections which are included in Table 6-1 are Federal Environmental Assessment impact categories discussed in the Scoping EAW for Janes Field dated February, 1985. They are summarized below. A copy of the Scoping EAW is included in Appendix 2A of this EIS/EA.

6.2.1 Air Quality

There will be no detrimental impacts to air quality by implementing any of the proposed alternatives at Anoka County-Blaine Airport (Janes Field) as supported by the fact that:

- EPA has withdrawn or modified emission standards for GA aircraft.

TABLE 6-1
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
LOCATION OF FEDERAL EA REQUIRED ANALYSES IN THIS EIS/EA

Federal EA Requirements	Chapter	Where Located
Purpose and Need	3.0	Purpose and Need of the Proposed Action
Alternatives	4.0	Initial Definition and Evaluation of Alternatives
	7.0	Direct, Indirect or Beneficial Effects
	8.0	Preferred Alternative
Affected Environment	1.0	Introduction and Background
	2.0	Project Description and Setting
Environmental Consequences		
• Noise	5.1	Noise Impacts
• Compatible Land Use	5.10.2	Compatibility of Development Alternatives with Comprehensive Plans in the Airport Vicinity
• Social Impacts	5.10	Social Impacts
• Induced Socio-economic Impacts	5.11	Induced Socio-economic Impacts
• Air Quality	1.3.1	Permits Required
	Appendix 2A - Scoping EAW Section 24a	
• Water Quality	5.2.1	Impact to Groundwater
	5.2.2	Impact to Surface Water
• DOT Section 4(f)	6.3.1	DOT Acts, Section 4(f) Lands
• Historic, Architectural, & Cultural Resources	6.2.2	Historic, Architectural, Archaeological & Cultural Resources
• Biotic Communities (including flora and fauna)	5.8	Flora and Fauna
	Appendix 2A - Scoping EAW Section 26	
• Endangered and Threatened Species of Flora and Fauna	6.2.3	Endangered and Threatened Species of Flora and Fauna
	Appendix 2A - Socping EAW Section 26b	
• Wetlands	5.7	Impacts to Wetlands
• Floodplains	5.5	Impacts to 100 Year Floodplain
	5.2.1	Impact to Groundwater
	5.2.2	Impact to Surface Water
	5.4	Hazardous Waste
	Appendix 2A - Scoping EAW Section 18b	
• Coastal Zone Management Program	6.3.2	Coastal Zone Management Program
• Coastal Barriers	6.3.3	Coastal Barriers
• Wild and Scenic Rivers	6.3.4	Wild and Scenic Rivers
• Farmland	6.2.4	Farmland
• Energy Supply and Natural Resources	6.2.5	Impacts on Energy Supply and Natural Resources
• Light Emissions	6.3.5	Light Emissions Impacts
• Solid Waste Impact	6.3.6	Solid Waste Impact
• Construction Impacts	6.3.7	Construction Impacts
• Environmental Consequences - Other Impacts	10.0	Environmental Consequences and Other Considerations
• List of Preparers	Appendix 2L - List of Preparers	
• Appendices	Appendix 1 - Informational Appendix - Long Term Development	
	Appendix 2 - General Appendices	
	Appendix 2A - Citizen Involvement	
• Public Hearing	Appendix 2B-2I - Background Data	
	Appendix 2J - Correspondence with Reviewing Agencies	
	Appendix 2A - Citizen Involvement	

Source: Hoyle, Tanner & Associates, Inc.

- Results of a Box Model air quality analysis method performed for the Anoka County-Blaine Airport Master Plan substantiated the insignificant and temporary nature of aircraft pollutants. Even with the quantities measured under worst case conditions, aircraft projected emissions were well below allowable state limits.

- The existing and future levels and types of aircraft passengers and numbers of auto parking spaces are such that an indirect source permit will not be required (6 MCAR S 4.4314D and 4.4314C respectively).

- Dust generated during construction will be temporary, mitigated and confined to airport property. Dust will not be generated from use of the airport after construction.

- None of the alternatives will result in the generation of any odors.

6.2.2 Historic, Architectural, Archaeological or Cultural Resources

Two federal laws apply to impacts under this category: The National Historic Preservation Act of 1966 which deals with properties included or eligible for inclusion in the National Register of Historic Places, and the Archaeological and Historic Preservation Act of 1974 which provides for survey, recovery and preservation of archaeological data that may be lost or destroyed due to a federally funded project.

The State Historic Preservation Officer of the Minnesota Historical Society concluded there are no cataloged archaeological sites at the airport, nor is it likely there are any sites of historic importance. The nearest National Register Listing is the Cassius M. Locke house (Banfill Tavern) in Fridley, approximately 3.5 miles from Anoka County-Blaine Airport. None of the noise contours of the development alternatives will impact this historic site. See documenting letter in Appendix 2J.

6.2.3 Endangered and Threatened Species of Flora and Fauna

Section 7 of the Endangered Species Act Amendments of 1978 dictates that any federally authorized or funded activity cannot jeopardize the existence or habitat of any endangered or threa-

tened species. On the state level, the MDNR Area Wildlife Manager for Anoka, Washington and Ramsey Counties stated it is unlikely that the airport environs contain endangered species. This position was confirmed by the Heritage Program computer data base search and staff scientists at MDNR. See Appendix 2 of the Scoping EAW. The one entry was a Great Egret colony. Although of interest to MDNR as a colonial water bird, the Great Egret is not considered threatened or endangered. See Section 5.8.3 of this EIS/EA for a discussion of the impact of airport alternatives upon movements of resident and migratory Great Egrets.

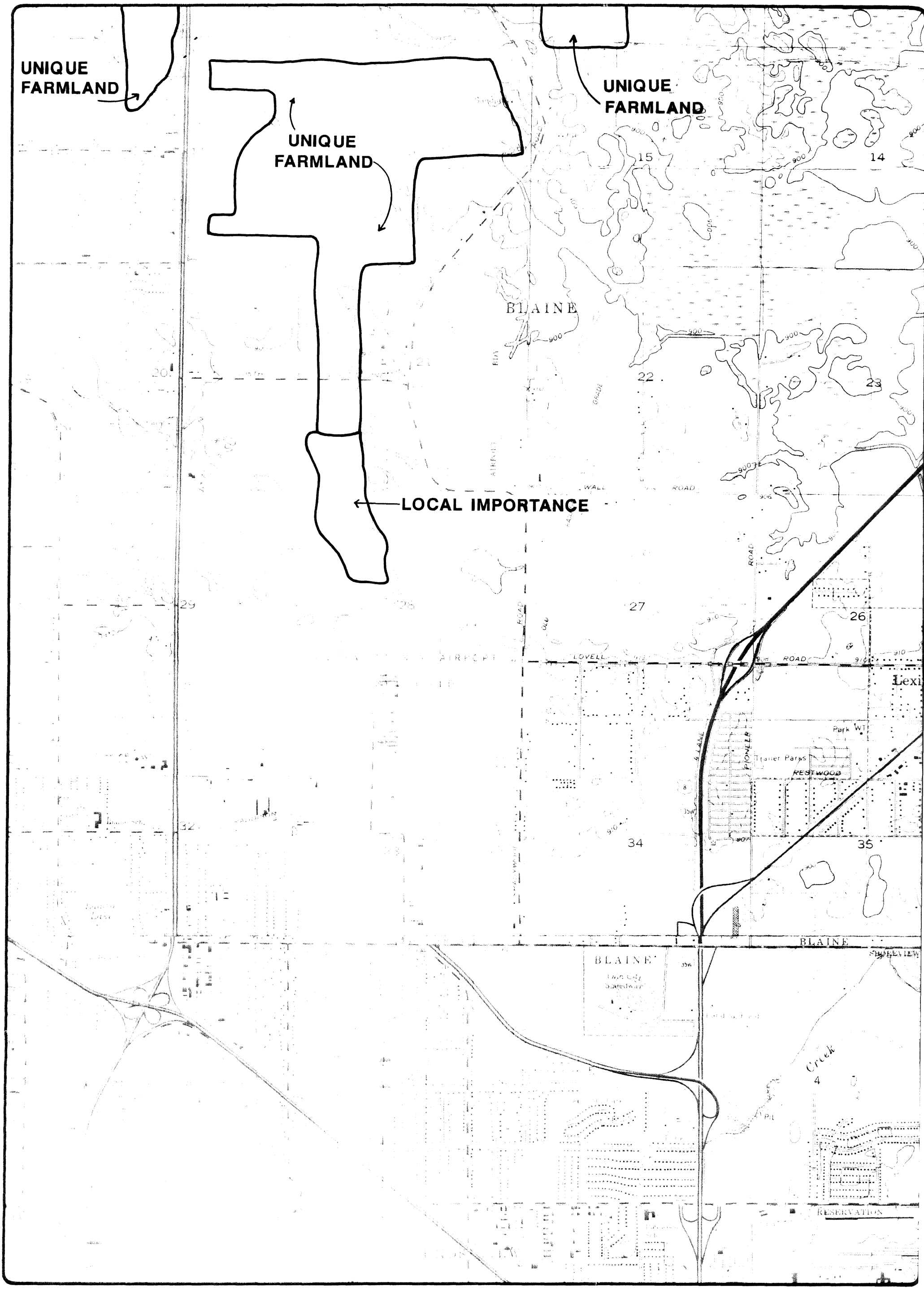
On the federal level, information requested from the Regional Director of the U.S. Fish and Wildlife Service yielded no findings of threatened or endangered species. See Appendix 2J for their documenting letter. Therefore, there are no impacts to endangered or threatened species of wildlife from implementation of any of the development alternatives for Anoka County-Blaine Airport. (Janes Field)

6.2.4 Farmland

As documented in the Scoping EAW, the soil types in the project areas are not listed as unique or prime farmland. Prime farmland as defined by the Farmland Protection Policy Act (FPPA) of 1982 "is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, without intolerable soil erosion as determined by the Secretary" of Agriculture. Unique farmland as defined by the FPPA is "land other than prime farmland that is used for production of specific high value food and fiber crops, as determined by the Secretary" of Agriculture. Officials on all levels of government were contacted to ensure that every jurisdiction could certify that farmland would not be impacted by the development alternatives. Blaine does not participate in the Metropolitan Agriculture Preserves Program. See Appendix 2J for documenting letters. See also Figure 5-31 for a map of soil types in the airport vicinity.

The only farmland documented is a small area of Rifle Mucky peat soil on airport property north of Runway end 8. See Figure 6-1. According to the USDA Soil Conservation Service, this farmland is of local importance and could have the potential to be unique farmland if adequately drained.

However, since 11% of the county is made up of these soils, some already drained and in production, it is unlikely this area will ever be officially designated as farmland of unique significance. This area is not now farmed and because of increasing urbanization, probably will never be designated farmland, even if Blaine opts to participate in the State's Agricultural Preserve Act.



ANOKA COUNTY - BLAINE AIRPORT (JANES FIELD) EIS/EA
PRIME OR UNIQUE FARMLAND OR FARMLAND OF LOCAL IMPORTANCE

HTA companies

1"=2,000'

N

FIGURE 6-1

The only crops grown at the airport are hay and feed corn on land north of Runway end 17. Therefore, no prime or unique farmland of local or statewide importance will be impacted by Phase 1A or Phase 1B development alternatives at Anoka County-Blaine Airport (Janes Field).

6.2.5 Impact on Energy Supply and Natural Resources

This section discusses the potential impact on energy resources and natural resources that would result from the proposed project. The following primary areas were investigated:

- electric energy to be used for runway lighting
- fuel for aircraft
- commitment of on-site resources
- construction materials

- Lighting

The net increase in lighting at Janes Field will be for the 800 foot extension to Runway 8-26 and additional flood and hangar lighting in the proposed building area. Approximately 10 additional MIRLS and 12 MITLS will be required for the runway extension. Each MIRL and MITL is 45 watts representing a minimal increase in electrical power usage. A specific layout for the proposed building areas has not as yet been determined. However, most of the buildings in the east and west building areas are expected to be individual or "T" hangars which usually require only one light and possibly an electric door opener. Also located in the proposed building areas, will be a number of FBO hangars requiring electrical power for lighting of hangars and offices, door openers, tools such as welding equipment and test equipment. The increase in electrical power requirements for the proposed east and west building areas will be minimal. No changes in electrical service to the airport will be required except for extending electrical power to the new construction on Runway 17-35, the Runway 8-26 extension and the proposed building areas.

- Fuel for Aircraft

There will be increased consumption of aviation fuel by aircraft using Janes Field due to the increased number of aircraft opera-

tions anticipated in the future. Annual operations are projected to increase approximately 56% from 1985 levels of 102,000 to 1990 levels of 159,000. Assuming aircraft fuel used will approximately parallel the increase in annual operations, aviation fuel is also expected to increase 56%. Such an increase will not overburden the supply system for aviation fuel in the Metro Area as a whole.

- Commitment of Natural Resources

There are no known deposits of energy or natural resources under the project site. Approximately 40,000 cubic yards of soils unsuitable for construction and an additional 367,000 cubic yards of existing soils will have to be removed from project areas. Approximately 389,500 cubic yards of crushed aggregate fill and 106,400 square yards of aggregate base material will have to be obtained off-site for the proposed airfield and building area development. Approximately 66,100 cubic yards of existing soil will have to be removed for wetland mitigation. Earthwork quantities for alternatives to the master plan alternative are shown in Table 6-3. Removal of unsuitable soils and fill of crushed aggregate in the quantities mentioned does not represent an irreversible commitment of natural resources.

- Construction Materials

It is anticipated that the majority of other materials (i.e. gravel and paving materials) required for the airfield and apron portions of the proposed project will be obtained from plants within the State of Minnesota in general, but primarily in the Twin Cities area. Similarly, materials for structures in the proposed building areas will be procured within the region and State. It is not anticipated that the procurement of any materials for the proposed project will have an adverse impact on the natural resources of the State of Minnesota.

In summary, there will be no irreversible or irreplaceable commitment of natural resources or energy sources as a result of the proposed action.

6.3 FEDERAL REQUIREMENTS NOT DISCUSSED ELSEWHERE IN STUDY

6.3.1 DOT Act, Section 4(f) Lands

Section 4(f) of the Department of Transportation Act 1966, states that approval will not be given to projects which require the use or closing of any publicly owned land whether national, state or local used for a public park, recreation area, historic site, wildlife or waterfowl refuge unless there is no feasible and prudent alternative to use of such land and such program includes all possible planning to minimize harm. Parks and recreation areas are shown on Figure 2-6.

None of the alternatives for Janes Field will require closing or use of any publicly owned land other than airport owned land. The Soccer Complex and relocated Airport Park in Blaine do not fall under 4(f) designation because the property is owned by MAC, a transportation agency, and is leased to the City of Blaine. In addition, HUD does not currently manage or have any properties in the area applicable to Section 4(f). See the HUD letter in Appendix 2J. Moreover, future noise levels near publically owned land will not exceed noise levels of 55 Ldn. According to FAA guidelines, parks and recreational activities are acceptable land uses within the Ldn 55 to 65 noise exposure range. None of the various parks or nature centers within the area even fall within the airport noise contours, (See Figure 2-6). Consequently, there are no 4(f) lands which will be significantly impacted by aircraft noise.

6.3.2 Coastal Zone Management Program

Although Minnesota participates in the Coastal Zone Program, the state has neither completed nor adopted this program for the coastal waters, specifically the North Shore of Lake Superior. As there is neither an official coastal zone program in effect, and Anoka County-Blaine Airport would not be impacted if there were such a program, a potential impact to a future coastal zone program is non-existent. See documenting letter in Appendix 2J.

6.3.3 Coastal Barriers

As stated in Section 47.3.(14) of FAA Order 5050.4A, the Coastal Barriers Act of 1982 PL 97-348 applies to areas on the shores of the Atlantic Ocean and Gulf of Mexico. Therefore the proposed project at Janes Field causes no impact to coastal barriers.

6.3.4 Wild and Scenic Rivers

According to the Minnesota Department of Natural Resources, the Rum River is the only designated wild and scenic river in Anoka County. This river is located more than 8 miles west of Janes Field and forms its own watershed which drains into the Mississippi River at Anoka. Proposed alternatives for Janes Field will not result in any impact on the Rum River or its watershed.

6.3.5 Light Emissions Impacts

Airport light emissions can be expected to occur from easily defined and limited sources. Airport lighting and visual aids serve to provide a framework of reference to pilots during day and night operations. It is important to airport night operations, in particular, that no harsh or glaring source of light interfere with a pilot's perception of the runway environment. As a result, the intensity of light emissions from airport lighting and visual aid systems is carefully controlled.

The typical components generally found in airport lighting systems consist of a rotating beacon, runway and taxiway edge lights, and a lighted wind direction indicator. Typical airport visual aids would include Runway End Identifier Lights (REILs), Visual Approach Slope Indicator (VASIs), or more recently Precision Approach Path Indicator (PAPI) lights and an Approach Light System (ALS).

- Airport Rotating Beacon

An airport rotating beacon is installed to aid a pilot in visually locating the airport after dark. All rotating beacons project a beam of light in two directions, 180 degrees apart, through optical lenses. For lighted, civil use airports, the signal is projected by one green and one clear lens. A mechanism rotates the beacon at six revolutions per minute to produce alternating clear and green flashes of light.

The rotating beacon at Janes Field is located 1,200 feet west of Runway 35. The beacon is mounted at an elevation of approximately 960 feet above MSL, or 55 feet AGL on a tower.

Light emitted from this rotating beacon does not have any significant impact on any homes or businesses in the vicinity of the beacon and will not change as a result of the proposed development projects.

- Runway and Taxiway Edge Lights

Runway and Taxiway Edge Lights are used to outline usable operational areas of airports during periods of darkness and low visibility weather conditions. There are various levels of intensities that are used for runway and taxiway edge lights depending on the specific application. These levels, with their common abbreviations, are noted below:

Runways

- LIRL - low intensity runway lights
- MIRL - medium intensity runway lights
- HIRL - high intensity runway lights

Taxiways

- LITL - low intensity taxiway lights
- MITL - medium intensity taxiway lights

The use of particular edge lights is usally based on the operational needs of the airport in accordance with the following guidelines.

Runways

- LIRL - for use on runways at visual flight (VFR) airports having no planned approach procedures
- MIRL - for use on runways having a nonprecision instrument flight rule (IFR) procedure for either circling or straight-in approaches
- HIRL - for use on runways having precision IFR approach procedures and for runways utilizing runway visual range (RVR)

Taxiways

- LITL - for use on taxiways and aprons where LIRL is used on the runways
- MITL - for use on airport taxiways and aprons using either MIRL or HIRL on the runways

At Janes Field, presently, Runway 17-35 and Runway 8-26 have medium intensity runway lights. The intensity of the lights will not change during the Phase 1A and Phase 1B developments.

Because of the relatively low intensity of each lamp and the controlled direction of emission, as well as the large amount of buffer airport land surrounding the runways, there will not be

any impact from any present or future airfield lighting configuration at Janes Field.

- Lighted Wind Cone

A lighted wind cone consists of a 36-inch diameter, 12 foot long orange colored fabric wind cone, mounted on a support assembly that is in turn mounted on a vertical shaft assembly at a height of 16 feet over the ground surface. The wind cone assembly is free to swivel about the vertical shaft to indicate the true direction of the wind when velocities in excess of three miles per hour are attained. Four, 200 watt lamps, shaded to preclude light emission above the horizontal plane, are mounted above the vertical shaft assembly to provide four foot-candles of illumination on the wind cone at night. The facility will not change during the Phase 1A and Phase 1B development.

As the level of emission is low and the direction of emission is controlled below the horizontal plane, there will not be any impact from the lighted wind cone.

- Approach Light Systems

As discussed in Section 1.1, an approach lighting system is not proposed until Phase 2 or Phase 3 in connection with the installation of a precision instrument approach system. As such, the impact of an approach lighting system will be discussed in the Informational Appendix.

- Runway End Identifier Lights (REIL)

The REILs function is to provide the pilot with an early and positive visual identification of the approach end of the runway. The system consists of a pair of synchronized white flashing lights situated on each side of the runway landing threshold facing the approaching aircraft. The units are located in line with the threshold lights approximately 40 feet off the edge of pavement. The beam axis of each unit is oriented 15 degrees outward from a line parallel to the runway centerline and inclined at an angle of 10 degrees above the horizontal. The REILs are intended for day and night VFR use and may be placed on the same runway end as the VASI system.

REILs are presently installed on Runway 35. The Runway 35 REILs would be relocated to the north concurrent with shifting of the Runway 35 threshold farther away from residential areas south of the airport. Because of this relocation and the inclination of the beam 10 degrees above horizontal, no impact on surrounding areas will be experienced from these lights.

- Visual Approach Slope Indicator (VASI) or Precision Approach Path Indicator (PAPI)

VASIs or PAPIs are designed to provide visual approach slope or descent guidance information for both day and night operations during VFR weather conditions. The light units are usually placed on the left side of the runway on approach. PAPIs are proposed for Runway ends 17 and 35. The VASIs are designed to project a split beam of light having a white upper segment and a red lower segment. Pilots making an "on course" approach will see a red bar over a white bar. On a "high" approach, both light bars appear white, while on a "low" approach, both light bars appear red. PAPI's are designed to show not only if the pilot is above or below the glide path, but the degree to which he is above or below the glide path. PAPI's are also readily recognized from the air as is the visual glide slope indicator. PAPI's consist of four light stations usually located on the left side of the runway. Each light station consists of multi-lamp units which show a red or white light depending on how close the pilot is to the desired flight path.

Light emissions from the VASIs or PAPIs will not result in the impact of any significant light on any residential or commercial areas as they are discrete, low intensity sources focused upwards along the aircraft approach paths.

- Summary

The analysis of the lighting facilities that are presently installed or proposed to be installed at Janes Field indicates that no significant impact from any light emissions will occur. The conditions required for safe night airport operations preclude any glaring or hazardous light emissions from disrupting a pilot's perception of the visual aids that define the runway environment which serves to benefit the airport neighbors as well.

Any new airport lighting during Phase 1A and Phase 1B development except for PAPIs to Runway 17-35, will be more of what already

has existed for many years at Janes Field or replacement of worn out or damaged equipment.

6.3.6 Solid Waste Impact

As documented in the EAW, generation of solid waste from the airport is estimated to reach a level of approximately 70 pounds/day or approximately 0.14 cubic yards of municipal waste per day. Most operations would pay for private collection service. This minimal amount of solid waste will not add significantly to the waste disposal volume of area refuse disposal systems, existing or planned.

There are currently no open landfills in Blaine which could create a bird hazard for aircraft. County solid waste officials, in an effort to phase out landfills in Anoka County, are considering sites for a Refuse-Derived Fuel (RDF) facility. One of the proposed locations is on the northwest border of the airport. As this type of facility is totally enclosed with negative air pressure, no dust, vapor or bird problems are anticipated from the facility that would effect the airport.

6.3.7 Construction Impacts

This section discusses the short term adverse impacts that will occur during the construction period. Also, those measures that will be taken to mitigate these impacts are presented. Mitigating measures will be incorporated in any plans and specifications for construction of any projects at the airport.

The length of the construction period is difficult to determine, lacking detailed engineering design and development plans for the proposed action. It can be projected, however, that the first stage of construction will probably be conducted over two construction seasons. Earthwork quantities for areas of development comprising various alternatives are shown on Table 6-2.

Based on a preliminary review of the project area, the only excavated material that could be used for fill in load bearing areas would be from the east building area. Excavated material may be used as fill in non-load bearing areas such between runway and taxiway safety areas and existing ground. For the purposes of this EIS/EA, it was assumed that no excavated material except the 50,000 cy from the east building area could be used for granular fill requirements. It after more detailed field survey

TABLE 6-2
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
EARTHWORK QUANTITIES (EXCLUDING WETLAND, DRAINAGE DITCH, AND FLOODPLAIN)

CONSTRUCTION AREA	(1) MUCK REMOVAL CY	(2) GENERAL EXCAVATION CY	(3) TOTAL EXCAVATION CY	(4) GRANULAR FILL REQUIRED CY	(5) GRANULAR FILL FILL AVAILABLE FROM EXCAVATION CY	(6) UNUSEABLE EXCAVATION REMAINING CY	(7) BORROW REQUIRED FROM OFF-SITE CY	(8) AGGREGATE BASE REQUIRED SY	(9) BITUMINOUS PAVEMENT T	ASSOCIATED ALTERNATIVE
East Building Area	0	120,000	120,000	120,000	50,000	70,000	70,000	36,000	4,600	Alt. 3,4,5,6,7 & 8
West Building Area	40,000	95,000	135,000	180,000	0	135,000	180,000	33,000	4,000	Alt. 3,4,5,6 & 8
West Building Area	30,000	82,000	112,000	156,000	0	112,000	156,000	31,000	3,900	Alt. 7
R/W 8-26 800' Extension East (4,000' Length)	0	72,000	72,000	49,000	0	72,000	49,000	18,200	2,700	Alt. 4, 7 & 8
R/W 17-35 950' Shift North (4,855' Length)	0	80,000	80,000	90,500	0	80,000	90,500	19,200	3,400	Alt. 4
R/W 17-35 2,580' Shift North (4,855' Length)	0	150,000	150,000	200,000	0	150,000	200,000	69,000	7,600	Alt. 5, 6 & 8
R/W 8-26 1,400' Shift West (4,000' Length)	0	48,000	48,000	96,000	0	48,000	96,000	26,000	4,000	Alt. 5
R/W 8-26 3,300' Shift West (4,000' Length)	0	148,000	148,000	210,000	0	148,000	210,000	61,000	9,500	Alt. 6
R/W 17-35 750' Shift West 2,580' Shift North (4,855' Length)	0	175,000	175,000	245,000	0	175,000	245,000	88,000	14,000	Alt. 7
Rerouting a section of 101st Ave N.E.	0	6,500	6,500	13,000	0	6,500	13,000	9,800	1,200	Alt. 5, 6, 7 & 8

Notes: Column (3) = (1) + (2)
Column (4) = From engineers estimates
Column (5) From engineers estimates
Column (6) = (3) - (5)
Column (7) = (4) - (5)
Column (8) From engineers estimates
Column (9) From engineers estimates

Source: Engineering estimates by TKDA
Compiled by Hoyle, Tanner & Associates, Inc.

and engineering analyses more than 50,000 cy of excavated material could be used for fill, then amounts for spoils and borrow from off-site, (columns (9) and (10) respectively on Table 6-3, may be reduced accordingly.

As shown on Table 6-3, there are separate quantities for wetland mitigation, relocating County Ditch 41 and 100 year floodplain mitigation due to the fact that these three events will take place on different areas of the airport and cannot be combined e.g. wetland mitigation in an area where the excavated area could serve as compensatory storage volume for the 100 year floodplain.

Earthwork quantities for each alternative as shown on Table 6-3 were completed by adding appropriate items for each alternative from Table 6-2. A summary of construction, engineering and contingency and total development costs for each alternative are shown on Table 6-4.

As shown on Table 6-4, the least expensive future build alternative is Alternative 3 which only includes construction of the east and west building areas. Alternative 4 (shifting Runway 17-35 950 feet to the north and extending Runway 8-26 800 feet to the east), is the second least expensive option as there is minimal new runway construction, either for Runway 17-35 or for Runway 8-26. Of the alternatives which inlude shifting Runway 17-35 2,580 feet to the north, Alternative 8 is the least expensive, due principally to the comparative minimal new construction on Runway 8-26.

TABLE 6-3
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
EARTHWORK QUANTITIES FOR ALTERNATIVES

Alternative	(1) Muck Removal CY	(2) General Excavation CY	(3) Wetland Mitigation CY	(4) Relocating County Ditch #41 CY	(5) 100 Year Floodplain Mitigation CY	(6) Total Excavation CY	(7) Granular Fill CY	(8) Granular Fill Avail. From Excav. CY	(9) Spoils CY	(10) Borrow From Off-Site CY	(11) Aggregate Base SY	(12) Bituminous Pavement T
Alter. 1	0	0	0	0	0	0	0	0	0	0	0	0
Alter. 2	0	0	0	0	0	0	0	0	0	0	0	0
Alter. 3	40,000	21,500	39,000	11,600	8,900	314,500	300,000	50,000	264,500	250,000	69,000	8,600
Alter. 4	40,000	36,700	66,100	11,600	8,900	493,600	439,500	50,000	443,600	389,500	106,400	14,700
Alter. 5	40,000	419,500	98,800	11,600	15,300	585,200	609,000	50,000	535,200	559,000	173,800	21,400
Alter. 6	40,000	519,500	49,600	11,600	8,900	729,600	723,000	50,000	679,600	673,000	200,800	26,900
Alter. 7	30,000	455,500	36,100	11,600	8,900	542,100	583,000	50,000	492,100	533,000	183,000	26,400
Alter. 8	40,000	443,500	84,100	11,600	8,900	588,100	562,000	50,000	538,100	512,000	166,000	20,100

Notes: Column (3) See Table 5-14
Column (4) Assuming routing County Ditch 41 around the west building area and culverting County Ditch 41 under Runway 8 end where needed (Alternative 5)
Column (5) Acres-feet from Section 5. x 43560 = cubic feet /27 = cubic yards
Column (6) = (1) + (2) + (3) + (4) + (5)
Column (9) = (6) - (8)
Column (10) = (7) - (8)

Source: Wetland Mitigation data from Barton-Aschman Associates
County Ditch 41 and Floodplain information from Hoyle, Tanner & Associates, Inc.
All other data from TKDA
Compiled by Hoyle, Tanner & Associates, Inc.

TABLE 6-4
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
DEVELOPMENT COSTS-ALTERNATIVES 1 THROUGH 8

Alternative	Construction Costs	20% Engrng. and Contingency	Total Cost	Ranking of Total Cost
Alternative 1	0	0	0	
Alternative 2	0	0	0	1 (Least Expensive)
Alternative 3	2,042,500	408,500	2,451,000	2
Alternative 4	3,318,700	663,700	3,982,400	3
Alternative 5	4,822,200	964,400	5,786,600	6
Alternative 6	5,228,300	1,045,700	6,274,000	7 (Most Expensive)
Alternative 7	4,424,500	884,900	5,309,400	5
Alternative 8	4,286,800	857,400	5,144,200	4

Notes: Costs above reflect excavation costs for wetland mitigation, relocation of a section of County Ditch 41 and Floodplain mitigation ($2.50/cy) were added to development costs shown in Appendix 2K.

Source: Hoyle, Tanner & Associates, Inc.

- Air Quality

The only effect upon air quality will result from the operation of normal construction equipment. Potential air pollutants consist of gasoline and diesel engine emissions, asphaltic fumes and generation of dust during construction operations. The anticipated impacts from construction activities are expected to be insignificant in amount and short term in nature.

It is expected that the amount of airborne dust can be controlled by the application of water and calcium chloride. The exact method of dust control would depend on the weather conditions and soil conditions experienced at the time.

The exhaust fumes generated by construction equipment can be assumed as a minimal impact upon the quality of the air as they represent a very small amount relative to the total pollutants generated by automobiles in the regional area. The area of construction is expected to be so localized, with so few pieces of construction equipment, the resultant amount of generated pollutants would hardly be noticeable. Operators of asphalt concrete plants and portland cement plants are required to operate their facilities in accordance with MPCA Rules. Other suppliers of construction materials whose facilities are located in Minnesota must also operate under similar rules.

- Noise

Noise will be generated by the normal operation of construction equipment at the proposed project site. The proposed project is located adjacent to Industrial and Commercial zones, which would normally allow the use of the area for a contractor's or municipal public works development yard. The center of the proposed construction activity is located approximately one-half mile from the nearest residential area, with the nearest portion located no closer than 500 feet away.

While there is noise generated by construction-type trucks, traveling back and forth between a project site and source of material, this should not be significant regarding the proposed action. This is based upon three factors:

- It is anticipated the majority of fill required will be hydraulically placed, and
- Construction vehicles will utilize existing roads already travelled by heavy tractor-trailers, etc.
- No residential streets in the vicinity of Janes Field will be utilized except for County Road J and a portion of Xylite Street.

It is anticipated that all construction operations will be conducted during daylight working hours and that there will be no construction noise generated during nighttime hours.

It is anticipated that due to the types of structures (hangars, offices, etc.) in the proposed building areas, the need for piling would be unlikely. It should be noted that there is no evidence of ledge to be excavated and, therefore, no noise or vibrations from blasting activity is anticipated.

- Water Quality

The impact upon water quality was addressed in Section 5.2.2 - Impact to Surface Water.

A considerable amount of earth will be needed for the construction of the new runway, taxiways, and the raised building area. Preliminary estimates indicate a volume of about 314,500 to 729,600 cubic yards of excavation required for project construction, wetland mitigation, rerouting County Ditch 41 and compensatory storage for the 100 year floodplain, which must be disposed of on site or hauled off-site and 250,000 to 673,000 cubic yards of fill material to be obtained off-site. Proper measures to control sedimentation and erosion during construction as described in Section 5.2.2 will be sufficient to maintain surface water quality.

- Flora and Fauna

It is possible that during construction the habitat of some animals in the vicinity of the airport will be temporarily disrupted by this activity. Specific impacts and mitigation measures relative to impacts to flora and fauna are discussed in Section 5.8.

- Access

It is anticipated that most construction materials required for the proposed project will be obtained from sources in the Twin Cities Area. It will be stipulated that haul routes in the airport vicinity be set forth in construction contracts and that all trucks to and from the site be required to meet all applicable local, state and Federal weight load limits. Deliveries will be made during normal working hours to minimize truck noise annoyances.

- Disposal

It is anticipated that refuse resulting from the construction activity will be disposed of at approved disposal sites in compliance with all existing regulations, ordinances, policies, etc.

- Actions to Minimize Unavoidable Adverse Effects of Construction

Certain measures will have to be employed to mitigate adverse environmental impacts upon the site and adjacent areas. Specific instruction as to structural and vegetative soil stabilization practices required on-site will be included in the contracts. Water quality control plans will be prepared to minimize stream turbidity where appropriate. Pollution by fluids, oils, wastewater and other materials will be controlled by adequate control measures.

During site evaluation and project design, sufficient information will be collected to provide effective solutions to erosion and sediment control problems. For example, the kinds of on-site protective measures that may be needed during some construction activities will be determined in part by the following:

Erosion potential of the exposed soils.
Type and location of the construction activity.
Extent of exposed soils.
Expected frequency and intensity of rain and windstorms.
Length steepness, and surface roughness of exposed soil slopes.
Water infiltration capacity of soil profile.
Chemical, physical and biological nature of subsurface soils.
Size and density of woodland, thickets, marshes, and forest contiguous to construction sites.
Extent of dust and fire hazards.
Extent of impervious surface disrupted.

In addition to the actions mentioned in this section, mitigating measures have also been discussed in the sections of this EIS/EA dealing with the specific impact areas (Chapter 5).

CHAPTER 7

DIRECT, INDIRECT OR BENEFICIAL EFFECTS

7.0 DIRECT, INDIRECT OR BENEFICIAL EFFECTS

This section of the EIS/EA contains a summarization of the direct, indirect, adverse or beneficial impacts of alternatives 1 through 8 by quantifying their relationship to the impacts and capacity levels discussed in Chapters 1 through 6 and presented below.

7.1 Based Aircraft Capacity

The numbers of based aircraft listed below are the approximate number of based aircraft that could be based at the airport with implementation of each alternative.

Alternative	1	390	5	456
	2	456	6	456
	3	456	7	456
	4	456	8	456

7.2 Number of Persons Within the $L_{10}65$ Noise Contour

Alternative	1	726	5	1096
	2	726	6	330
	3	726	7	581
	4	452	8	531

7.3 Impacts to Groundwater

Appropriation of groundwater (gallons/day).

Alternative	1	2000	5	5000
	2	2000	6	5000
	3	5000	7	5000
	4	5000	8	5000

7.4 Change in Wetland Elevation Caused by Foundation Drains

Alternative 2 does not include construction of building areas, therefore, resulting in no change in wetland elevation caused by

foundation drains. Alternatives 3 through 8 all include building area construction causing a decrease in elevation of protected wetlands 594W and 595W of -0.09 feet and -0.08 feet respectively, as discussed in Section 5.2.1.

7.5 Impact to Surface Water Quality

Alternative 1 No detention ponds to help keep contaminants from entering the County ditch system
2 Same as Alternative 1
3 Detention ponds provided for new building areas
4 Same as #3 with additional detention ponds for airfield development
5 Same as #4
6 Same as #4
7 Same as #4
8 Same as #4

7.6 Hazardous Wastes

Recommendations for improvement of waste handling procedures are contained in Section 5.4. All future alternatives, build or no-build are assumed to have implemented waste management procedures and will thus have the same impact.

7.7 Amount of 100 Year Floodplain Replacement Required (Acres-Feet)

Alternative	1	0	5	9.5
	2	0	6	5.5
	3	5.5	7	5.5
	4	5.5	8	5.5

7.8 Rates of Surface Water Runoff

The rates of surface water runoff to discharge points on County Ditch 41 and Lateral No. 2 off airport property are shown in this section.

Runoff to County Ditch 41 (cubic ft./second)					Runoff to Lateral No. 2				
Alternative	1	127.2	5	139.1	Alternative	1	56.9	5	80.8
	2	127.2	6	133.0		2	56.9	6	89.9
	3	140.5	7	141.1		3	78.0	7	78.9
	4	139.1	8	137.1		4	81.5	8	84.4

7.9 Amount of Wetlands Encroachment (Acres)

Alternative	1	0	5	23.51
	2	0	6	30.64
	3	8.24	7	8.28
	4	13.85	8	17.22

7.10 Habitat Lost

Habitat Units (HU) Lost				
Alternative	1	0	5	133.0
	2	0	6	201.2
	3	52.8	7	48.5
	4	89.2	8	113.5

7.11 Will Deer Trails Have to Be Relocated

Alternative	1	No	5	Yes
	2	No	6	Yes
	3	Yes	7	Yes
	4	Yes	8	Yes

7.12 Number of Deer Trails Required to be Rerouted

Alternative	1	0	5	6
	2	0	6	3
	3	2	7	3
	4	3	8	3

7.13 Abandonment of Xylite Street

Alternative	1	No	5	No
	2	No	6	Yes
	3	No	7	Yes
	4	Yes	8	Yes

7.14 Rerouting a Section of 101st Ave N.E.

Alternative				
	1	No	5	Yes
	2	No	6	Yes
	3	No	7	Yes
	4	No	8	Yes

7.15 Height of 40:1 MnDOT Runway Approach Surfaces over North, East, South and West Airport Property Lines

Alternative	North	East	South	West
1	173'	148'	115'	90'
2	173'	148'	115'	90
3	173'	148'	115'	90'
4	148'	130'	81'	90'
5	109'	175'	123'	55'
6	109'	66'	123'	138'
7	109'	130'	123'	90'
8	109'	130'	123'	90'

7.16 Distance MnDOT Safety Zone A Extends into Residential Areas South and West of Airport Property

South of Airport Property				
Alternative	1	700'	5	0
	2	700'	6	0
	3	700'	7	0
	4	0'	8	0

West of Airport Property				
Alternative	1	0	5	20
	2	0	6	0
	3	0	7	0
	4	0	8	0

7.17 Net Earthwork

Alternative	Spoils CY	Borrow From Off-Site CY	Base Material SY	Bituminous Pavement T
1	0	0	0	0
2	0	0	0	0
3	264,500	250,000	69,000	8,600
4	443,600	389,500	106,400	14,700
5	535,200	559,000	173,800	21,400
6	679,600	673,000	200,800	26,900
7	492,100	533,000	183,000	26,400
8	538,100	512,000	166,000	20,100

7.18 Development Costs

Alternative	Construction Costs	20% Engr. & Contingency	Total
1	0	0	0
2	0	0	0
3	2,042,500	408,500	2,451,000
4	3,318,700	663,700	3,982,400
5	4,822,200	964,400	5,786,600
6	5,228,300	1,045,700	6,274,000
7	4,424,500	884,900	5,309,400
8	4,286,800	857,400	5,144,200

7.19 Socioeconomic

With Alternative 1, some aircraft based at Janes Field must park on the grassed area between the building area and I-35W. Existing hangar storage may be increased by 20%. There is no airport that can adequately serve the existing aviation needs of the north and northwest areas of the Metropolitan Area. With Alternative 2, additional based aircraft would have to park on the grassed area between the existing building area and Runway 17-35. Light industry would not be enticed to use Janes Field as there would not be adequate storage facilities.

Alternatives 3 through 8 all include building area development providing suitable building areas for storage of additional based aircraft. The additional building areas also provide area for additional Fixed Based Operator (FBO's) to serve Janes Field. The growth of FBO's now at the airport will require additional employees, who in turn will spend more money in the local businesses, for fuel, clothes, food, etc.

Development of building areas at Janes Field (Alternatives 3, 4, 5, 6, 7 and 8) will also result in substantial benefit to the Metropolitan Area as a whole. As discussed in Chapters 3 and 4, of this EIS/EA, development of additional building areas at Janes Field is required to relieve Wold-Chamberlain Field and Holman Field of GA traffic so these airports can serve air carrier and corporate users as provided in the Aviation Chapter Update of the Metropolitan Development Guide.

CHAPTER 8

PREFERRED ALTERNATIVE

8.0 PREFERRED ALTERNATIVE

Chapters 5, 6 and 7 of this EIS/EA included discussions of the potential impacts of eight airport development alternatives. This section will, in matrix form, include a comparison of the impacts analysed for all future alternatives in Chapter 5 and summarized in Chapter 7.0. The matrix, Table 8-1, was constructed by listing those environmental impact categories which vary for two or more future alternatives, e.g. amount of compensatory flood storage required varies depending on the location of development. Each future alternative was ranked according to degree of impact relative to each environmental impact category. If the degree of impact is the same for two or more alternatives, those two or more alternatives received the same rank. Alternatives were ranked from 1 (least impact) to a maximum of 7 (most impact).

The rankings for each alternative were added to quantify the relative impact of each alternative to the others. These results are then further analyzed to identify the preferred alternative. Alternative 2, Future No-Build, has the lowest score (least impact) of all future alternatives. However, Alternative 2 was withdrawn from further consideration as its implementation would not satisfy the project need stated in Chapter 3, a key part of which was to reduce off-airport noise exposure. Alternative 3, construction of building areas only, received the next lowest score of 46. However, Alternative 3 was not chosen as it also does not provide for decreasing aircraft noise levels in residential areas around the airport.

The master plan alternative (Alternative 4) received the third lowest score of 55, but does not provide for maximum compatibility of airport operations with surrounding land uses, in this case, the least number of persons within the L_{10} 65 contour. The least number of persons within the L_{10} 65 contour south of the airport is achieved by shifting Runway 17-35 2,580 feet to the north and shifting Runway 8-26 3,300 feet to the east (Alternative 6.) However, Alternative 6 requires the most wetland mitigation, results in the most habitat units lost, results in the highest quantities of spoils, and borrow required from off-site, and has the highest construction cost ($6.27 million). Alternative 5 would require less wetland mitigation, result in less spoils and off-site borrow, and has a lower construction cost ($5.79 million) than Alternative 6, but impacts the most persons (1096 persons within the L_{10} 65 noise contour.)

Alternatives 7 and 8 result in less people within the L_{10} 65 noise contour, require less wetland area mitigation, result in less habitat loss and result in less spoils and off-site borrow. Loss of wetland area, habitat value and increases in surface water turn-off can be suitably mitigated through mitigation procedures described previously in Chapters 5 and 6.

TABLE 8-1
ANOKA COUNTY-BLAINE AIRPORT (JANES FIELD) EIS/EA
COMPARISON OF FUTURE DEVELOPMENT ALTERNATIVES

	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8
Number of persons within the $L_{10}65$ noise contour	5	5	2	6	1	4	3
Amount of Groundwater Appropriated	1	2	2	2	2	2	2
Change in Wetland Elevation caused by Foundation Drains	1	2	2	2	2	2	2
Impact to Surface Water Quality	2	1	1	1	1	1	1
Amounts of Compensatory Flood Storage Required	1	2	2	3	2	2	2
Amount of Surface Water Discharge to County Ditch #41	1	5	4	4	2	6	3
Amount of Surface Water Discharge to Lateral #2	1	2	5	4	7	3	6
Amount of Wetland Encroachment	1	2	4	6	7	2	5
Habitat Units Lost	1	3	4	6	7	2	5
Number of Deer Trails Impacted	1	2	3	4	3	3	3
Xylite Street Required to be Closed 1 = No 2 = Yes	1	1	2	1	2	2	2
Rerouting a section of 101st Ave N.E. Required 1 = No 2 = Yes	1	1	1	2	2	2	2
Clearance of MnDOT Approach Surfaces over Airport Property							
Highest Clearance = 1 North	1	1	2	3	3	3	3
East	2	2	3	1	4	3	3
South	2	2	3	1	1	1	1
West	2	2	2	3	1	2	2
Distance of MnDOT Land Use Safety Zone A from Residential Areas South and West of Airport Property							
South	3	3	2	1	1	1	1
Lowest Distance = 1 West	2	2	2	3	1	2	2
Amount of Spoils	1	2	3	5	7	4	6
Amount of Off-Site Borrow	1	2	3	6	7	5	4
Development Cost	1	2	3	6	7	5	4
	32	46	55	70	70	58	62

Source: Hoyle, Tanner & Associates, Inc.

Thus, the remaining variables from Table 8-1 which can be used to select Alternative 7 vs. Alternative 8 as the preferred alternative, are number of persons within the L_{10} 65 contour, spoils quantities, off-site borrow quantity and development cost. Alternatives 7 and 8 result in 581 and 531 persons within the L_{10} 65 contour respectively. Alternative 8 results in a higher spoils quantity but lower off-site borrow quantity than Alternative 7 and is less expensive, $5.14 million vs. $5.31 million for Alternative 7.

Based on the comparative analyses discussed above, Alternative 8 was selected as the preferred alternative.

CHAPTER 9

IMPACTS OF PREFERRED ALTERNATIVE AND MITIGATION MEASURES

9.0 IMPACTS OF PREFERRED ALTERNATIVE AND MITIGATION MEASURES

This section is a listing and description of impacts as a result of implementation of the proposed alternative, with a listing and description of appropriate mitigation measures required.

9.1 IMPACTS

9.1.1 Noise Impact

The 55 Ldn noise contour extends off airport property. However, as discussed in Sections 5.1.3 and 5.1.4, noise levels are compatible with land uses surrounding the airport both in areas encompassed by the MUSA line and rural areas to the north. Approximately 531 persons would be located within the $L_{10}65$ contour with proposed development which is less than the 726 persons within the $L_{10}65$ contour at present. L_{10} noise levels generated by implementation of the preferred alternative are compatible or are lower than Municipal and State noise standards. Therefore, there is no significant noise impact from implementation of the preferred alternative.

9.1.2 Impact to Groundwater

Under normal and wet conditions, removal of groundwater by the proposed foundation drain building areas creates drawdown depressions which will likely intercept floating or dissolved contaminants which are accidentally spilled and may reach the water table. During drought conditions, any accidentally spilled floating or dissolved contaminants will be intercepted by County Ditch 41. However, with detention ponds these contaminants will be held instead of entering County Ditch 41. High density sinking contaminants would be intercepted by the foundation drains, county ditches or the Hillside Sand Aquifer. The high density contaminants which may possibly enter the Hillside Sand will be diluted 20 fold and further diluted if entering the Prairie Du-Chier-Jordan Aquifer. Therefore, due to the dispersion mechanisms of soils in the area of the airport, any contaminants reaching the groundwater will be diluted sufficiently to cause no significant impact to water quality.

Foundation drains for the proposed Phase 1A and Phase 1B building areas will have minimal if any impact on the water level in protected wetlands: a 0.09 foot decrease in Wetland 594W and 0.08 foot decrease in Wetland 595W.

9.1.3 Impact to Surface Water

With turfing of exposed areas and proper construction of detention ponds, and drainage swales to the north of the rerouted section of 101st Ave N.E., the quality of surface water runoff should improve and rates of surface water runoff to County Ditch 41 and Lateral No. 2 will not increase.

9.1.4 Sewage Disposal

The development of Phase 1A and Phase 1B building areas will not require public wastewater disposal facilities. However, public sewers could be extended across airport property to serve other areas of Blaine and at that time building areas on the airport would probably be connected to the sewers.

9.1.5 Hazardous Waste

The procedures for handling hazardous wastes are adequate at this time but could be improved as described in Section 9.2.2.

9.1.6 Loss of Flood Storage Volume

Construction of the west building area and associated taxiways will encroach upon 5.5 acres-feet of existing 100 year floodplain storage. Mitigation measures described in Section 9.2.3 will result in no net decrease in 100 year flood storage volume.

9.1.7 Impacts on On-Site and Downstream Drainage

Due to construction of Phase 1A and Phase 1B improvements, rate of surface water runoff to County Ditch 41 and Lateral No. 2 at the airport property line will increase from 127.2 to 137.1 CFS

and from 56.9 to 84.4 CFS respectively. However, with the use of detention ponds, the rate of surface water runoff to County Ditch 41 and Lateral No. 2 will not increase over existing conditions.

9.1.8 Impacts to Wetlands

Construction of Phase 1A and Phase 1B improvements, specifically new construction on Runway 17-35, the west building area and the east building area will result in the loss of 17.22 acres of wetland of which 6.52 acres is type 1/2; 3.89 acres type 2; and 6.40 acres type 3/4; with a total of 113.5 habitat units. Mitigation measures to retain wetland acreage but more importantly, habitat units are described in Section 9.2.5.

9.1.9 Movements of Resident and Migratory White-Tailed Deer

Phase 1A and Phase 1B improvements will impact these trails used by white-tailed deer. In the the west building area and new construction for Runway 17-35, creation of new deer trails and buffer areas and construction of deer barriers as described in Section 9.2.5 will both help keep deer from the airfield while maintaining access for migrating deer between areas west of the existing building area and protected wetland 594W.

9.1.10 Upland Wildlife Habitat

Construction of the west building area will result in the removal of 17.22 acres of upland wildlife habitat. Some species will relocate to adjacent uplands and a small reduction in the population of some species may occur. As the species prevalent to the area of the west building area are common to the airport area, this reduction of population of species will have a negligible effect. Construction of the east building area will result in almost no loss of wildlife habitat. The new construction on Runway 17-35 will also result in minimal loss of wildlife habitat.

9.1.11 Movements of Resident and Migratory Great Egrets

As no Great Egrets were found, there will be no impacts to nesting or migratory Great Egrets.

9.1.12 Surface Transportation Impacts

The projected levels of traffic generated at Janes Field contribute little to the traffic flows on the roadways in the airport vicinity. No existing capacity problems were noted. Abandonment of a section of Xylite Street will have minor impacts to traffic flows. Traffic between Radisson Road and County Road J will be rerouted from Xylite Street along 101st Ave., N.E. south on Naples Street to I-35W, an additional trip length of 1,400 feet or east on 95th Ave. N.E. to Xylite Street to County Road J, an additional trip length of 8,480 feet. Improvements to 101st Avenue N.E. as discussed in Section 9.2.7 are required to provide an adequate alternate route for through traffic between Radisson Road and Xylite Street. Rerouting a section of 101st Ave will improve the road geometry and slightly decrease road length between Highway 65 and Xylite Street.

9.1.13 Approach Surfaces in Relation to Existing and Planned Land Uses

Shifting of Runway 17-35 2,580 feet to the north of the Runway 8-26 800' easterly extension to Runway 8-26 will result in MNDOT approach surfaces causing no more impact to off-airport land uses than existing municipal zoning ordinances. The proposed project will also result in MNDOT Land Use Zone A to all runways being within airport property.

9.1.14 Compatibility with Comprehensive Plans in the Airport Vicinity

The 40 dBA noise levels generated by the airport are lower than MPCA and municipal noise level standards. The Ldn noise levels generated by the airport are compatible with Noise Exposure Zone D designation as specified in Policy No. 9 of the Aviation Chapter Update of the Metropolitan Development Guide. The compensatory flood storage and drainage facilities required for the proposed action will cause no change to land uses upstream or downstream of the airport. Changes in vehicular traffic flows by increased use of the airport and abandonment of Xylite Street and rerouting a section of 101st Ave N.E., will not cause any impact to land uses in the area. Janes Field, although geographically splitting the east and west sections of Blaine, does not in any other way impede development as prescribed in the City of Blaine Comprehensive Plan.

9.1.15 Community Access

The abandonment of a portion of Xylite Street will result in additional trip time between Radisson Road and County Road J of 2.7 - 3.2 minutes. This would not cause significant access impact to businesses on Xylite Street either north or south of 95th Ave. N.E. Rerouting a section of 101st Ave will improve road geometry, reduce travel time and thus improve access between T.H. 65 and Xylite Street.

9.1.16 Emergency Vehicle Response

The existence of T.H. 10 between I-35W and County Road J is in effect a barrier between emergency facilities south and southwest of Janes Field. Emergency vehicles from facilities south and southwest of Janes Field travelling to areas east and north of the airport must travel on County Road J before turning north onto Xylite Street. Abandonment of a portion of Xylite Street will require emergency vehicles from areas south and southwest of Janes Field travelling to areas east of Janes Field to turn north onto the I-35W Frontage Road instead of Xylite Street, an additional trip length of only 1900 feet.

9.1.17 Acquisition of Lands Beneath the Phase 2 and Phase 3 Runway 26 Clear Zone

With implementation of a precision instrument approach procedure to Runway 26 in Phase 2 or Phase 3, the Runway 26 clear zone will be "widened". Acquisition of the 3.34 acre parcel of land beneath the Phase 2 or Phase 3 Runway 26 clear zone will not cause a change of land uses or result in obstructing access from existing roadways to surrounding property parcels in the area.

9.1.18 Induced Socio-Economic Impacts

Implementation of proposed Phase 1A and Phase 1B improvements at Janes Field will not require the construction of any new public facilities other than those already planned. The type of airport uses will not change in the future. Construction of building areas at the airport can be expected to attract some small businesses who would use the airfield.

Additional jobs will be credited at Janes Field, both short-term during construction and long-term as additional aviation services

will be required. By relieving Wold-Chamberlain Field and Holman Field of General Aviation traffic, the two airports will be better able to fulfill their intended role of accommodating Air Carrier and corporate users.

9.1.19 Erosion

Proposed Phase 1A and Phase 1B improvements will result in 74.7 acres of additional impervious area over that currently at Janes Field. However, due to the relatively flat terrain at the airport, use of detention ponds and turfing of disturbed areas will cause slight, if any, erosion at the airport.

9.1.20 Air Quality

The proposed project will have minimal, if any, impact on air quality in the area. During construction, procedures should be implemented to minimize dust and odors.

9.1.21 Historic, Architectural, Archeological, or Cultural Resources

The proposed project will not impact any historic, architectural, archeological or cultural resources.

9.1.22 Endangered or Threatened Species of Flora and Fauna

The proposed project will not impact any endangered or threatened species of flora and fauna.

9.1.23 Farmland

The proposed project will not impact any prime and unique farmland or farmland of local significance.

9.1.24 Energy Supply and Natural Resources

The proposed project will have no significant impact on electrical energy, fuel, on-site resources, construction materials or any other energy source or natural resources.

9.1.25 DOT Section 4(f) Lands

The proposed project will not result in the taking or alteration of any DOT Section 4(f) Lands.

9.1.26 Coastal Zone Management Program

The Coastal Zone Management Program is not applicable to the State of Minnesota.

9.1.27 Coastal Barriers

Coastal barriers pertain to the Gulf and Atlantic states and are not applicable to the State of Minnesota.

9.1.28 Wild and Scenic Rivers

The proposed project will not impact any Wild and Scenic River.

9.1.29 Light Emissions

The proposed project will not result in any light emissions impacts and actually will position the existing Runway 35 Runway End identifier lights further from residential areas in Mounds View.

9.1.30 Solid Waste Impact

Additional solid waste generated at Janes Field as a result of the proposed project will not impact existing solid waste facilities. Janes Field will also not be impacted by any solid waste facilities in the area.

9.1.31 Construction Impacts

With MPCA and local governments coordination, construction of the proposed project will not significantly impact areas surrounding the airport or lands within airport boundaries. Dust control measures will minimize generation of dust. Noise during construction will not impact residences in the area because earth needed for construction will be obtained on site. Proper measures to control sedimentation during and after construction will be sufficient to maintain water quality. Impact to existing species of flora and fauna will be minimal. Access to the project site will be via roads passing through existing commercial and industrial areas which minimize impact to residential areas.

9.2 MITIGATION MEASURES

Those measures that could reasonably eliminate or minimize adverse environmental, economic, employment or sociological effects of the preferred alternative were identified and discussed under each potential impact category discussed previously in Chapter 5.0. In addition to the short-term mitigation measures described in Section 6.3.5, Construction Impacts, measures to minimize long-term adverse impacts are discussed in this chapter. This summation includes any adverse impacts which cannot be avoided and the ameliorative actions to be taken.

9.2.1 Impact to Surface Water

Although there would not be any adverse impact upon water quality as a result of the proposed alternative, mitigating measures to control accidental spills, such as fuel spills during normal aircraft operation, will be taken. These controls, more fully discussed in Section 5.2.2, include a spills control plan prepared concurrently with this EIS/EA, grassed swales leading to

drainage ditches to filter surface water runoff before it reaches the county ditches, detention ponds to limit the rate of surface water runoff to county ditches, temporary sedimentation control measures including haybales, diversion ditches, silt fences, and permanent sedimentation control structures including grassed swales and stone lined ditches.

9.2.2 Hazardous Waste

Although the existing program for management of hazardous and other types of waste at Janes Field appears to be adequate, a number of changes were recommended as specifically described in Section 5.4. In summary, recommended changes include the requirement that each commercial tenant submit a copy of its waste management program which would satisfy 40 CFR 261 and 262, steps to ensure that individual tenants adhere to the same management standards as commercial tenants, inspection and testing of fuel tanks and fuel lines, procedures to control spills and delegation of specific areas in which solvents may be used.

9.2.3 Impacts on 100 Year Floodplain

Construction of the west building area will require replacement of 5.5 acres-feet of the 100 year floodplain storage area. Methods of obtaining compensatory flood storage area include relocation of detention areas by borrow excavation. Fill for the sides of relocated drainage ditches can be obtained from ditch excavation.

9.2.4 Impacts on On-Site and Downstream Drainage

The rate of surface water runoff will increase as grassed areas are changed to impervious areas. Detention ponds will be used to maintain the rate of surface water runoff to existing rates. Detention ponds will also promote settling of sediment and other materials which may affect the quality of water downstream.

9.2.5 Impacts to Wetlands and Habitat Areas

With the preferred alternative, 17.22 acres of wetlands with a

value of 113.5 habitat units will be encroached upon and must be replaced. Mitigation measures include erosion and sedimentation control devices to protect wetlands during construction, with such devices remaining in place after construction until new vegetation is firmly established. On-site wetland replacement will be accomplished by excavation in selected areas to obtain borrow required for fill material in airfield and building area development. Excess excavated material will be stored on the airport or hauled off the airport and stored elsewhere.

Excavation for wetland replacement should take place in areas with little or no existing valuable wetland, relatively shallow groundwater and in proximity to areas where fill is needed. Excavated organic material from other construction would be stockpiled and placed in wetland basins to provide a fertile base for the growth of aquatic vegetation.

9.2.6 Deer Movement Areas

Construction of the west building area and of Runway 17-35 north of Runway 8-26 will encroach upon existing deer trails south of the Runway 8 end and between Protected Wetlands 595W and 594W. A section of deer fence could be used to divert deer from the Runway 8 end and from the west building area. Widening and deepening of a portion of County Ditch 41 will prevent deer from crossing the area between the west building and the Runway 17-35 parallel taxiway. Planting of specific plant species will assist in relocating deer movements. Modifying cropping practices and creating a large open buffer zone west of Runway 17-35 will help keep deer from crossing both Runway 17-35 and 101st Ave N.E. A level ditch oriented in a north-south direction east of the proposed Runway 17-35 shift should keep deer from entering the airfield.

9.2.7 Surface Transportation Impacts

The abandonment of the portion of Xylite Street north of 95th Ave. N.E. within airport property is required for the 800 foot easterly extension to Runway 8-26. To provide suitable alternate access between Radisson Road and 101st Ave. N.E. and 95th Ave. N.E., a section of 101st Ave. N.E. between Xylite Street and Naples Street should be paved. Additionally, the 101st Ave. N.E. and Naples Street intersection should be reconfigured to favor 101st. Ave. N.E. traffic.

9.2.8 Construction Impacts

Certain measures will need to be employed to mitigate adverse environmental impacts upon the site and adjacent areas. Specific instruction as to structural and vegetative soil stabilization practices required on-site will be included in the contract specifications. Water quality control plans will be prepared to minimize stream turbidity where appropriate. Pollution by fluids, oils, wastewater and other materials will be controlled by adequate measures.

During site evaluation and project design, sufficient information will be collected to provide effective solutions to erosion and sediment control problems. For example, the kinds of on-site protective measures that may be needed during some construction activities will be determined in part by the following:

- Erosion potential of the exposed soils.
- Type and location of the construction activity.
- Extent of exposed soils.
- Expected frequency and intensity of rain and windstorms.
- Length, steepness, and surface roughness of exposed soil slopes.
- Water infiltration capacity of soil profile.
- Chemical, physical and biological nature of subsurface soils.
- Size and density of woodland, thickets, marshes, and forest contiguous to construction sites.
- Extent of dust and fire hazards.
- Extent of impervious surface disrupted.

In addition to the actions mentioned in this section, mitigating measures have also been discussed in the sections of this EIS/EA dealing with the specific impact areas (Chapter 5).

CHAPTER 10

ENVIRONMENTAL CONSEQUENCES AND OTHER CONSIDERATIONS

10.0 ENVIRONMENTAL CONSEQUENCES AND OTHER CONSIDERATIONS

To the extent not covered in Sections 5 through 9, this section of the EIS/EA includes discussion as required by FAA Order 5050.4A, para 47(f) on the following items: possible conflicts between the proposed action and the objectives of Federal, State and Local land use plans policies and controls; any inconsistency of the proposed action with an approved State or local plan and laws; means to mitigate adverse environmental impacts not previously addressed; and the degree of controversy of the proposed action on environmental grounds; positive impact of the proposed alternative; and the relationship between short-term uses of man's environment and maintenance and enhancement of long-term productivity.

10.1 CONFLICTS BETWEEN THE PROPOSED ACTION AND FEDERAL, STATE, REGIONAL AND LOCAL LAND USE PLANS

Local, State and Federal land use plans were described in Section 2.3. The relationship, consistency or inconsistency of development alternatives with area land use plans is discussed in Sections 5.10.1 Approach Surfaces in Relation to Existing and Planned Land Uses, 5.10.2 Compatibility of Development Alternatives with Comprehensive Plans in the Airport Vicinity, 5.10.3 Community Access and Emergency Vehicle Response and 5.10.4 Acquisition of Lands Beneath Phase 2 and Phase 3 Runway 26 Clear Zone. The proposed action actually improves the consistency of the airport with local, state and Federal land use plans and policies, by decreasing the future number of residents within the $L_{10}65$ noise contour, relocating approach surfaces away from residential areas, conforming with Local and State noise standards, acquiring property beneath the Phase 2 and Phase 3 Runway 26L and 26R clear zones. However, abandonment of Xylite Street caused by the proposed Runway 8-26 extension will increase trip time between 101st Avenue N.E. and County Road J. The resultant additional trip time is not sufficient to create any significant impact to local vehicular traffic patterns or incompatibility with land use plans for the area.

10.2 INCONSISTENCY OF THE PROPOSED ACTION WITH APPROVED STATE, REGIONAL OR LOCAL PLANS AND LAWS

The proposed project, with implementation of mitigation procedures described in Chapter 9, and the permitting process described in Section 1.3.1, will be consistent with all approved Federal, State, Regional, and Local plans.

10.3 MEANS TO MITIGATE ADVERSE ENVIRONMENTAL IMPACTS NOT PREVIOUSLY ADDRESSED

Plans to mitigate those environmental impacts which require mitigation are discussed in Chapter 9. Additional mitigation measures may be required through the permitting process described in Section 1.3.1 which will have to be satisfactorily completed before construction.

10.4 DEGREE OF CONTROVERSY OF THE PROPOSED ACTION ON ENVIRONMENTAL GROUNDS

Appendix A of the Anoka County-Blaine Airport Master Plan completed in 1984 contained a Community Attitude Survey, the data for which was obtained by community structure analysis and survey of community leaders in the Janes Field area. There have been a number of legal actions and many newspaper articles concerning Janes Field since completion of the AMP. Review of these sources show that the airport, remaining "as-is" or developed, is highly controversial. A review of the Community Attitude Survey shows that controversy at that time centered in part on the possibility of Janes Field becoming an Intermediate Airport, that large jets would be able to depart at Janes Field with the airport developed as an Intermediate Airport, that increased use of the airport will cause problems with vehicular traffic congestion, increased noise levels, decrease in the quality of life, safety, flooding and drainage impacts, air quality impacts and groundwater impacts.

Controversy regarding the airport was later evidenced by a petition from area residents, pursuant to 6 MCAR S 3.021 through 6 MCAR S 3.056 on March 20, 1984, to the Minnesota Environmental Quality Board requesting that a State Environmental Impact Statement be undertaken for projects proposed in the AMP at the airport.

However, as discussed and presented in previous sections of the EIS/EA, there will be no significant impacts as a result of proposed Phase 1A and Phase 1B development. It is expected that the very existence of Janes Field will continue to be controversial, whether or not proposed development projects are undertaken.

10.5 POSITIVE IMPACTS OF THE PREFERRED ALTERNATIVE

Implementation of the proposed alternative will play a vital role in accommodating the aviation needs of the Metropolitan Area, specifically the north and northwest portions as described in Chapter 3 of this EIS/EA. The employment and economic, and sociological benefits of implementation of proposed development were described in Sections 5.11.3 and 5.11.4. Construction of proposed improvements will result in additional construction jobs over the short-term. Additional jobs will be generated by industries attracted to the area by improved aircraft storage facilities and additional FBO services required to serve aviation demand, over the long-term. Monies spent directly for aviation services will be respent many times in the local economy. Development of building areas at Janes Field will improve air service to the Metropolitan Area as a whole by accommodating additional General Aviation air traffic which in turn will allow Holman Field and Wold-Chamberlain Field to fulfill their respective system roles of accommodating corporate and air carrier uses. Proposed Phase 1A and Phase 1B improvements will also improve the quality of life in the vicinity of Janes Field by relocating air traffic and approach surfaces further from residential areas, particularly south of the airport.

10.6 RELATIONSHIP BETWEEN SHORT TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

This section examines the short-term impacts and long-term effects anticipated from the proposed action which will take place on present airport property. Short-term impacts are largely confined to the construction period, whereas long-term effects involve permanent alterations associated with the use of Janes Field upon completion of the proposed action.

Short-term impacts include noise and air emissions from construction vehicles and potential water quality impacts related to construction activity. However, the distance and intervening vegetation, topography and commercial abutting land uses should combine to prevent noise impacts from adversely affecting residential areas. Vehicular routes to the site used during construction will be via existing roads that are not in proximity to residential areas. Regarding potential water quality impacts, work will be closely supervised during construction to ensure compliance with required permits, regulations and techniques agreed upon and established to mitigate construction related impacts. These short-term impacts are more fully explained in Section 6.3.7.

There will be no short-term disruptions to the human environment. There will, however, be short-term impacts to wildlife that are presently on the site of the proposed action. Some of this wildlife will not adjust to the the new surroundings, nor find a new habitat. However, mitigation plans include replacement and relocation of deer trails and habitat as more particularly described in Section 5.8.1.

In addition, adverse short-term impacts will occur with the alteration of wetland areas on the airport. Mitigation plans include replacement of wetland and habitat of corresponding habitat value.

The proposed project will directly create numerous new employment opportunities and indirectly generate other spin-off work on and off the airport. This increased employment will be temporary from a construction standpoint, and permanent (long-term) in other respects.

The proposed action, if realized, would allow Janes Field to satisfy its role as contained in the most recent Aviation Chapter of the Metropolitan Council's Development Guide. In effect, this means that the long-term social and economic objectives of the Guide for the Metropolitan Area would be achieved.