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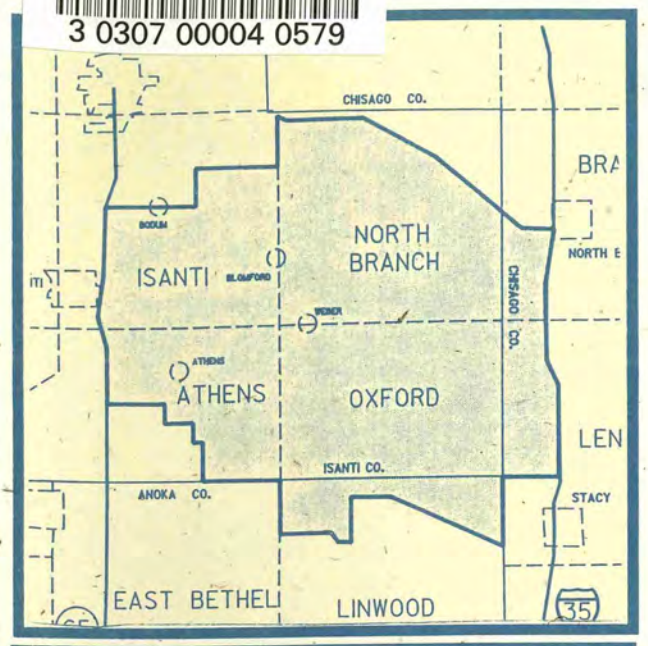

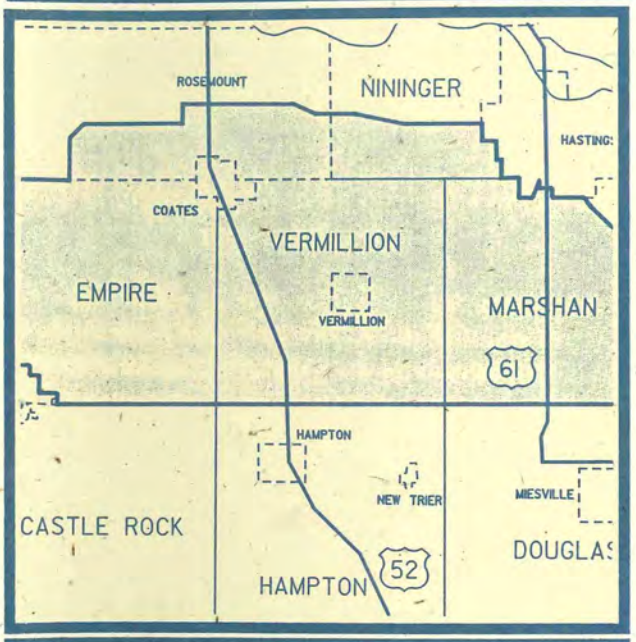

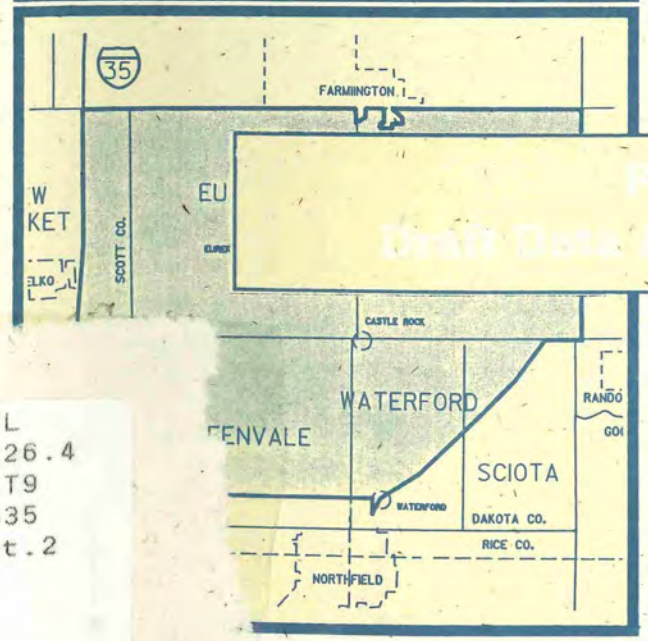

SELECTING A SEARCH AREA FOR A NEW MAJOR AIRPORT

June, 1991

Part Two
Draft Data Analysis

The second in a series of reports to the Twin Cities Area

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Selecting a Search Area for a New Major Airport
Part Two: Draft Data Analysis

June 1991

The Second in a Series of Reports
to the Twin Cities Area

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SECTION I

OVERVIEW

INTRODUCTION

This is the second of a series of four reports leading toward designating a search area for consideration as a location for a potential new major airport to serve the Twin Cities Metropolitan Area and the State of Minnesota.

Three search areas have been identified and recommended for further consideration. A search area is a large tract of land within which an airport site can be selected. The search areas are:

- Anoka-Isanti-Chisago Candidate Search Area, approximately 102 square miles, located north of the Twin Cities primarily in Isanti County;
- Dakota Candidate Search Area, 115 square miles, located southeast of the Twin Cities in Dakota County; and
- Dakota-Scott Candidate Search Area, 113 square miles, located south of the Twin Cities primarily in Dakota County.

The search areas were identified in December, 1990, using criteria adopted by the Metropolitan Council in May, 1990 upon the recommendation of its 37-member New-Airport Search Area Advisory Task Force. The task force and the Council have looked at all the land in the 14-county study area in and around the Twin Cities to determine the availability of land suitable for developing a new major airport. Eight sectors, within the 14-county study area, were studied during the screening process. Portions of three form the search areas.

The task force and the Council held public meetings on the three areas during February and March of 1991. The meetings were an opportunity to acquaint the public with the selection process and the three areas under consideration, and to ask people what kinds of information and data they thought should be gathered in order to help select one search area. Since then, the Council and the task force have been collecting more data about the search areas.

This report contains the results of that effort. It is being presented to the community at large during eight meetings in June and July so people will have more information about the search areas. In addition, the report is being published now in draft form so people and organizations can critique the information well before it is made final and used to help select one search area. The task force expects to make its selection in September of this year, and the Council is expected to act on the recommendation in December.

The next phase of the new airport track will be conducted by the Metropolitan Airports Commission (MAC) beginning in 1992. The MAC has up to four years to select a specific site within the final search area, complete development plans and prepare an environmental assessment.

"DUAL-TRACK" STRATEGY

Planning Steps

Under the Metropolitan Airport Planning Act of 1989, the Metropolitan Council has been charged with identifying a search area for the location of a potential new major airport to serve the Twin Cities Metropolitan Area and the State of Minnesota.

New major airport planning is part of a comprehensive process called the dual-track strategy. This strategy is designed to preserve the region's airport options for the future and to decide how best to meet airport capacity needs.

One track focuses on a new airport option. The first phase of this track--the selection of search areas--is the subject of this report. By the end of 1991 a single search area will be designated where a new replacement airport could be located. The Metropolitan Council and its New-Airport Search Area Advisory Task Force are doing the search-area work. Once a final search has been designated, the Metropolitan Airports Commission (MAC) will do detailed site planning and determine the precise location within the search area where the airport would be located. The MAC will then conduct an environmental evaluation and prepare a detailed plan for the facility.

The second track focuses on possible ways to improve the capacity of the current airport. The MAC is conducting this planning, and is focusing on meeting aviation needs projected to the year 2020.

The studies and recommendations concerning both tracks will converge in 1996 in a report to the legislature by the Council and the MAC on how best to address the long-term airport needs of the region.

The Council and the Metropolitan Airports Commission (MAC) will monitor trends during the six-year planning period and beyond. The trends include data on such factors as the growth in airport passenger and freight travel, the economy of the region and changes in the airline industry. The annual monitoring will give the region the best and most current information on which to base its decisions on implementing one track or the other, or to do nothing.

Why is the search for a new airport under way?

The Twin Cities region is going to need additional airport capacity at some point in the future. The current airport may not be adequate to meet the region's and the state's needs. Studies the Metropolitan Council conducted in 1987 and 1988 concluded that there is a high probability that demand for aircraft operations will exceed Minneapolis/St. Paul International Airport's (MSP) current capacity within 10 years. During the decade of the 1980s, flights (operations) at MSP grew from 282,000 annually to 380,000. Passengers grew from 8.7 million to 19 million. Council forecasts for the year 2020 are 577,000 flights and 37 million passengers.

Nationally, the Federal Aviation Administration sees the number of airline passengers doubling by the year 2000, then tripling in the next century.

The existing airport is 3,100 acres in size. It is surrounded by well established commercial and residential areas and by the Fort Snelling historical area and National Cemetery, which limit the

airport's expansion capabilities. The search for a new airport is based, in part, on those limitations. However, the sizable existing investments at MSP and the airport's convenient central location in the region warrant undertaking a thorough examination of the expansion possibilities of MSP.

Economic concerns and, to a much less extent, noise concerns are behind the planning. Airport capacity is crucial to the economic vitality of the region and a much larger multistate area. Inadequate capacity could stifle economic growth and cost the region economic opportunities. It could also put the state's businesses in a disadvantageous position in the national and world economy. Adding capacity may, therefore, be born of necessity, not simply the desire for more economic development.

THE SEARCH AREA PROCESS

Creating a Task Force

In early 1989, the Council created a 37-member New-Airport Search Area Advisory Task Force to guide the search area designation process. The task force's membership reflects the diverse interests and viewpoints identified at the forum--major air transport users, airlines, local officials, community groups, environmentalists, business community and economic development interests in the Twin Cities Metropolitan Area and in Greater Minnesota. The task force was subsequently enlarged by seven members, who represent the search areas.

Setting Search Area Selection Criteria

During 1989, the task force reviewed the steps taken by other areas in the country that considered major new airport construction during the past 25 years. The review included the Twin Cities' experience in the late 1960's and early 1970's. Federal and state requirements affecting airports were also reviewed. Search area selection criteria were drafted and reviewed throughout the first half of 1990. The criteria, adopted by the Council in May upon the recommendation of the task force, are as follows:

- Metropolitan Access--Ground transportation access by residents and businesses is a primary concern. Accessibility is being measured by the availability of major thoroughfares, by travel times and by physical distance.

- Environmental Impacts--The environment is one of the most complex issues that has to be addressed in the siting and development of an airport. Federal and state guidelines, policies and processes have been developed to address the impacts of large-scale projects and airport development. Environmental factors that must be addressed include physical features such as wetlands, floodplains and rivers, biological features such as plant and animal habitat, and airport development/operation factors such as noise and air quality. Noise and air quality impacts will be considered in greater detail at the final search area designation and site selection stages.

- General Land Requirements--One of the fundamental factors in selecting an airport search area is the size and design of the potential airport. The MAC has

developed a new airport conceptual design and the task force and Council are using the largest of several alternative conceptual designs in the designation of a final search area.

- Airspace Considerations--A new major airport would be the primary airport for the region and have priority for this portion of the national airspace system. The current airport would close if a new airport is built. The airspace relationship to other existing airports would need to be re-examined. There are also specific impacts that will be important at the site selection stage, such as the location of tall towers and power lines.

- Search Area Characteristics--Topography and density of development must be considered primarily because of their impact on the cost of development and acquisition. This factor is even more important at the site selection stage.

- Policy Considerations--Few policy limits have been placed on the search area process. One is governed by federal and state policies for environmental reviews. The second is a state law that says that at least one major or primary metropolitan airport must be as nearly equidistant as possible from the city halls of Minneapolis and St. Paul. This law, however, has not been viewed as an eliminating factor in the search area process. If the best search area does not meet exactly the requirement, the Council and the task force will consider recommending a change in the law.

Reviewing the Availability of Land

As a part of the screening process, the legislature called for a report on whether or not suitable land was available in the 14-county study area for a major new airport.[1] Based on a broad review of geographic information on accessibility, major environmentally sensitive areas and topography, the task force concluded that suitable land is available in the study area for a major new airport. The report was adopted by the task force and approved by the Council in November 1990 for submission to the legislature.

Applying the Criteria

The criteria were applied to the information developed as part of the land availability report. Eight geographic sectors were screened to assure consistent and full examination of all the areas in a broad band of land on the north and south sides of the urbanized area. The task force then held seven small group work sessions with the staff and consultants to review each sector in detail and determine its advantages and disadvantages. The three search areas were selected from this process.

GENERAL SCHEDULE

The task force and the Council are forums through which the region can get the information it needs to evaluate the search areas and to move toward consensus on a single search area. The

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[1]. The 14 counties are Anoka, Carver, Dakota, Chisago, Goodhue, Hennepin, Isanti, Le Sueur, Rice, Scott, Ramsey, Sherburne, Washington, and Wright.

planning process is an open one, and there will be many opportunities for groups, individuals, public agencies and officials to provide and share information and to be heard.

JUNE-JULY 1991 SCHEDULE

The task force will hold eight meetings in June and July for local government officials, the business community and the public. The meetings have been organized into two phases.

In June, new data will be presented at "public information meetings". The meetings are intended to help people better understand the new information. In July, the task force will hold the second phase of meetings to hear public comment on the information. The sessions are an important step in the process. The data will be used to help select the single search area later in the year.

Public information meetings

June 21	Task force discusses preliminary report on three search areas. 10 a.m. Metropolitan Council Chambers, Mears Park Centre, 230 E. Fifth St., downtown St. Paul.
June 24	Task force presents preliminary report on three search areas to community contact people. 7:30-9 p.m. Council Chambers.
June 25	Task force presents preliminary report on three search areas to people in **Dakota** candidate search area. 7:30-9 p.m. Hastings Senior High School auditorium. 11th St. and Pine St., Hastings.
June 26	Task force presents preliminary report on three search areas to people in **Dakota-Scott** candidate search area. 7:30-9 p.m. Farmington High School theater, 800 Denmark Av. (also County Rd. 31), Farmington.
June 27	Task force presents preliminary report on three search areas to people in **Anoka-Isanti-Chisago** candidate search area. 7:30-9 p.m. North Branch High School auditorium, County Rd. 14, North Branch.

Public comment meetings

July 17	Task force holds public meeting to hear comment on preliminary search-area report from regional organizations, business groups, citizens. 1 p.m. Metropolitan Council Chambers.
July 17	Task force holds public meeting to hear comment on preliminary search-area report from community contact people. 7:30 p.m. Met Council Chambers.
July 19	Task force holds public meeting to hear comment on preliminary search-area report from county and local officials and citizens from each search area. **Anoka-Isanti-Chisago:** 8:30-9:45 a.m. **Dakota:** 10-11:15 a.m. **Dakota-Scott:** 11:30 a.m.-12:45 p.m. Metropolitan Council Chambers.

SECTION II

METROPOLITAN ACCESS

The ability of residents and businesses to get to and from a potential new major airport for the Twin Cities Metropolitan Area is an important criterion in selecting a search area. Ground access includes a number of considerations, including travel times and highway distances from residential areas, employment centers and major activity centers. While the needs of existing residential and business areas must be addressed, the planned location of new housing and commercial/industrial development expected over the next 20 years should also be considered. The planned highway network for 2010 has been used for the access analysis. The need to improve the highway network to deal with congestion points is also addressed in the analysis that follows.

TRAVEL TIMES

The primary access question is "How long will it take to get to the airport?" The Council's *Metropolitan Aviation Development Guide Chapter* calls for the major airport to be accessible within at least 60 minutes from throughout the region. Thirty locations across the Metropolitan Area were selected to examine access to the three search areas. These results show not only travel times, but also distances on the regional highways to the search areas. Since the search areas are large, each search area has three reference points to show the range of accessibility from the two central city downtowns, major retail centers, employment centers and residential areas. Minneapolis-St. Paul International Airport (MSP) is also included for reference and comparison. MSP is located at approximately the geographic center of the region. As a result, providing comparable access will be difficult. Additions to the 2010 metropolitan highway system to accommodate airport traffic going to or from the search areas have not been included. These additions should reduce the travel times. This will be analyzed in the site selection phase.

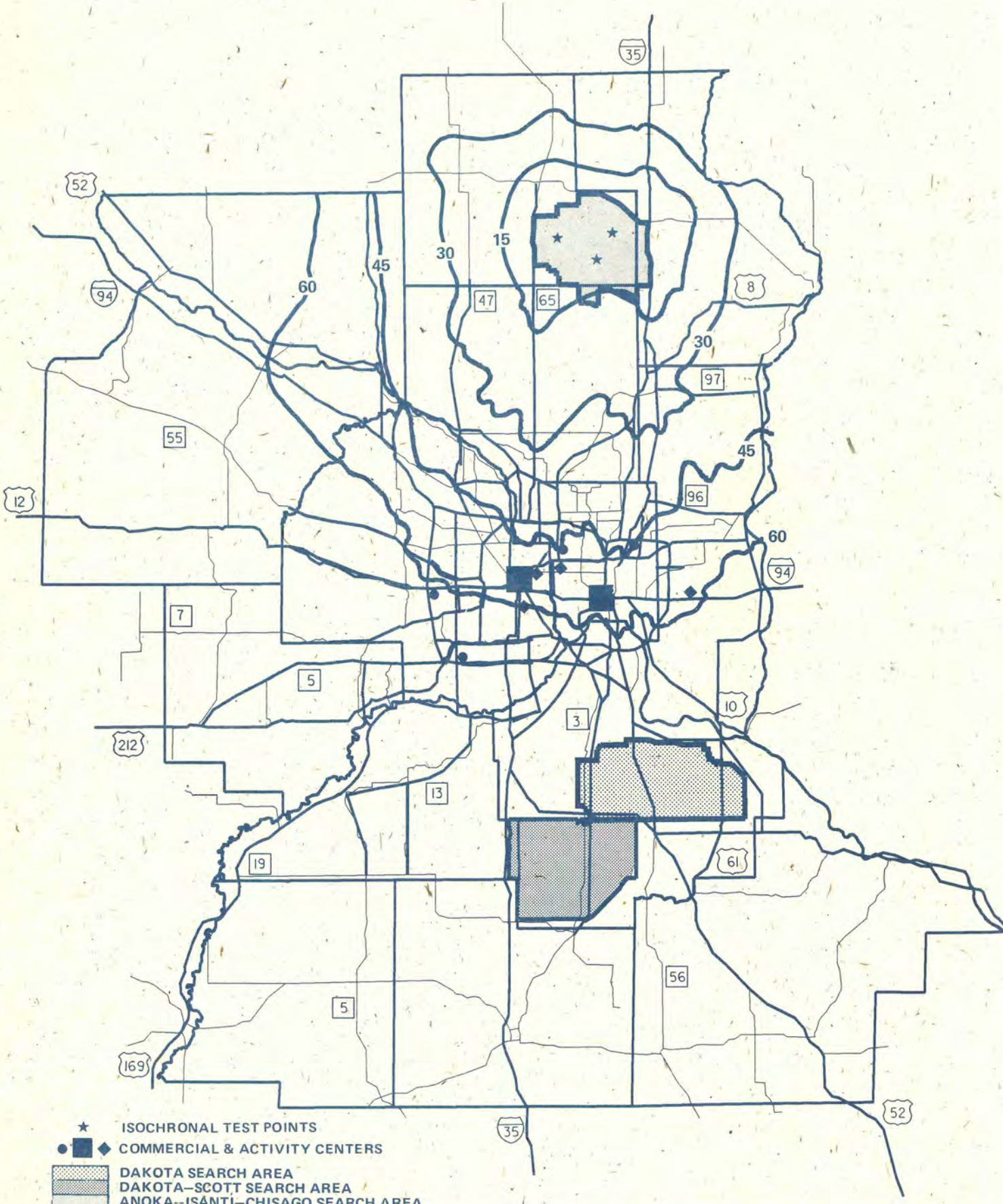
Travel times from all three search areas are generally within the 60-minute travel times during the periods when most of the traffic goes to or from an airport (Table 1 and Figures 1a, 1b and 1c). Travel times to the Isanti Township and North Branch Township reference points in the Anoka-Isanti-Chisago search area and the Marshan Township reference point in the Dakota search area exceed the 60-minute standard during afternoon peak time.

The regional average travel time to MSP in the year 2010 will be 25 minutes in normal airport drive time (off-peak) and 35 minutes during the afternoon peak. Anoka-Isanti-Chisago would add on an average 22 to 27 minutes to the afternoon airport travel time. The Dakota search area would add 8 or 9 minutes from its western portion and 30 minutes from the eastern portion. The disparity between the travel times for the eastern portion and the western portion is the result of the model assigning virtually all of the traffic to the western approach. This produces lower speeds and higher travel times. The western test point loads more equally to both the east and west. The Dakota-Scott search area would add 15 to 22 minutes to the afternoon airport travel time.

The Dakota search area comes closest to providing the 30 major locations with travel access comparable to MSP. All but one, the city of Anoka, are within the 60-minute travel time. The middle portion of the Dakota search area, Vermillion Township, reaches 22 locations within 45 minutes and 7 locations within 30 minutes. Dakota-Scott search area reaches 25-26 locations within the 60-minute timeframe, 10-12 locations within 45-minutes and only 1-2 locations within 30-minutes.

TABLE 1
TRAVEL TIMES TO SIGNIFICANT POINTS FROM THE SEARCH AREAS
PM PEAK AND NORMAL (OFF-PEAK) TRAVEL TIMES

	ANOKA-ISANTI-CHISAGO						DAKOTA						DAKOTA-SCOTT							
POINT	ISANTI		OXFORD		NORTH BRANCH		EMPIRE		MARSHAN		VERMILLION		CASTLE ROCK		EUREKA		GREENVALE		MSP	
	PM	OFF	PM	OFF	PM	OFF	PM	OFF	PM	OFF	PM	OFF	PM	OFF	PM	OFF	PM	OFF	PM	OFF
MINNEAPOLIS CITY HALL	53	53	54	54	61	60	46	56	68	51	44	42	56	53	49	48	61	48	21	21
SAINT PAUL CITY HALL	60	58	53	53	54	54	32	32	58	36	30	27	40	40	47	47	54	47	15	15
MSP	69	64	65	62	63	63	30	30	51	34	28	25	40	38	40	40	48	40	---	---
MAPLEWOOD MALL	49	49	42	42	44	44	42	42	68	46	47	38	61	46	57	57	65	58	28	27
RIDGEDALE	67	59	62	60	74	66	54	51	73	58	52	50	60	78	61	51	56	50	29	29
ROSEDALE	55	45	46	46	50	50	46	46	71	50	44	42	59	54	58	56	66	55	24	24
SOUTHDALE	76	66	68	67	70	70	38	35	57	43	37	34	44	43	36	36	38	35	13	13
3M HEADQUARTERS	61	61	54	54	55	55	33	33	59	37	39	29	52	41	48	48	56	51	23	23
HONEYWELL HEADQUARTERS	67	57	58	58	62	62	42	41	64	47	40	38	52	49	45	44	57	43	17	17
U OF M SAINT PAUL	60	49	51	50	54	54	44	44	67	48	42	39	56	52	54	53	62	52	20	20
U OF M MINNEAPOLIS	63	53	53	53	58	58	45	44	68	49	43	40	56	52	49	49	61	48	21	19
I-35E AND I-494	71	69	64	64	66	66	26	26	48	31	25	22	35	34	35	34	42	33	8	8
I-35E AND I-694	46	46	39	39	41	41	44	44	70	49	50	40	64	52	59	59	67	59	28	28
NORTH I-35E/35W SPLIT	37	35	30	30	31	31	63	63	89	68	61	59	85	71	78	78	86	77	46	46
SOUTH I-35E/35W SPLIT	84	79	77	77	78	78	26	26	48	31	25	22	30	27	24	24	26	23	21	21
I-35W AND 62 COMMON SECTION	73	63	64	64	68	68	36	34	56	41	35	32	43	42	35	34	37	34	13	12
I-35W AND I-494	77	67	68	68	72	72	37	32	53	40	34	31	41	39	33	32	34	31	11	11
I-35W AND I-694	49	39	40	40	43	43	49	49	75	54	47	45	57	57	62	61	72	60	30	29
EAST I-494/694 SPLIT	63	63	56	56	58	58	31	31	57	35	36	26	50	39	45	45	53	48	24	23
WEST I-494/694 SPLIT	56	49	51	49	63	55	61	58	80	66	59	57	68	66	69	59	63	58	36	36
I-394 AND I-494	68	60	63	61	75	67	55	51	73	59	53	50	60	59	62	52	57	51	30	30
HWY 18 AND I-494	76	68	71	69	77	75	41	38	59	45	39	37	47	46	39	38	44	37	16	16
HWY 100 AND HWY 62	64	64	65	65	72	71	41	39	60	46	40	37	47	46	40	39	42	38	17	16
HWY 100 AND I-394	57	57	58	58	66	63	51	48	70	56	49	47	57	56	49	49	51	48	27	26
HWY 10 AND HWY 610	33	33	34	34	51	40	58	58	84	62	56	53	66	66	67	66	80	65	38	38
ANOKA	44	36	37	37	50	42	67	67	93	72	65	63	75	75	82	72	76	71	48	47
CHASKA	85	77	80	78	92	84	58	49	71	59	53	51	61	57	57	50	51	49	31	31
HASTINGS	84	84	80	77	79	79	25	20	13	12	11	11	25	25	41	36	40	40	31	31
SHAKOPEE	88	81	83	82	95	87	46	39	62	49	43	41	50	47	46	40	40	39	30	30
STILLWATER	54	60	53	53	55	54	46	46	47	44	45	42	59	55	61	61	69	64	40	39
AVERAGE	62	58	57	56	62	60	44	42	65	48	43	40	53	50	50	49	57	49	35	25
SIGNIFICANT POINTS WITHIN NORMAL DRIVE TIME																				
WITHIN 30 MINUTES	0		1		0		4		1		7		2		1		1		23	
WITHIN 45 MINUTES	5		6		6		18		12		22		10		12		11		28	
WITHIN 60 MINUTES	17		18		15		28		26		29		25		25		26		30	

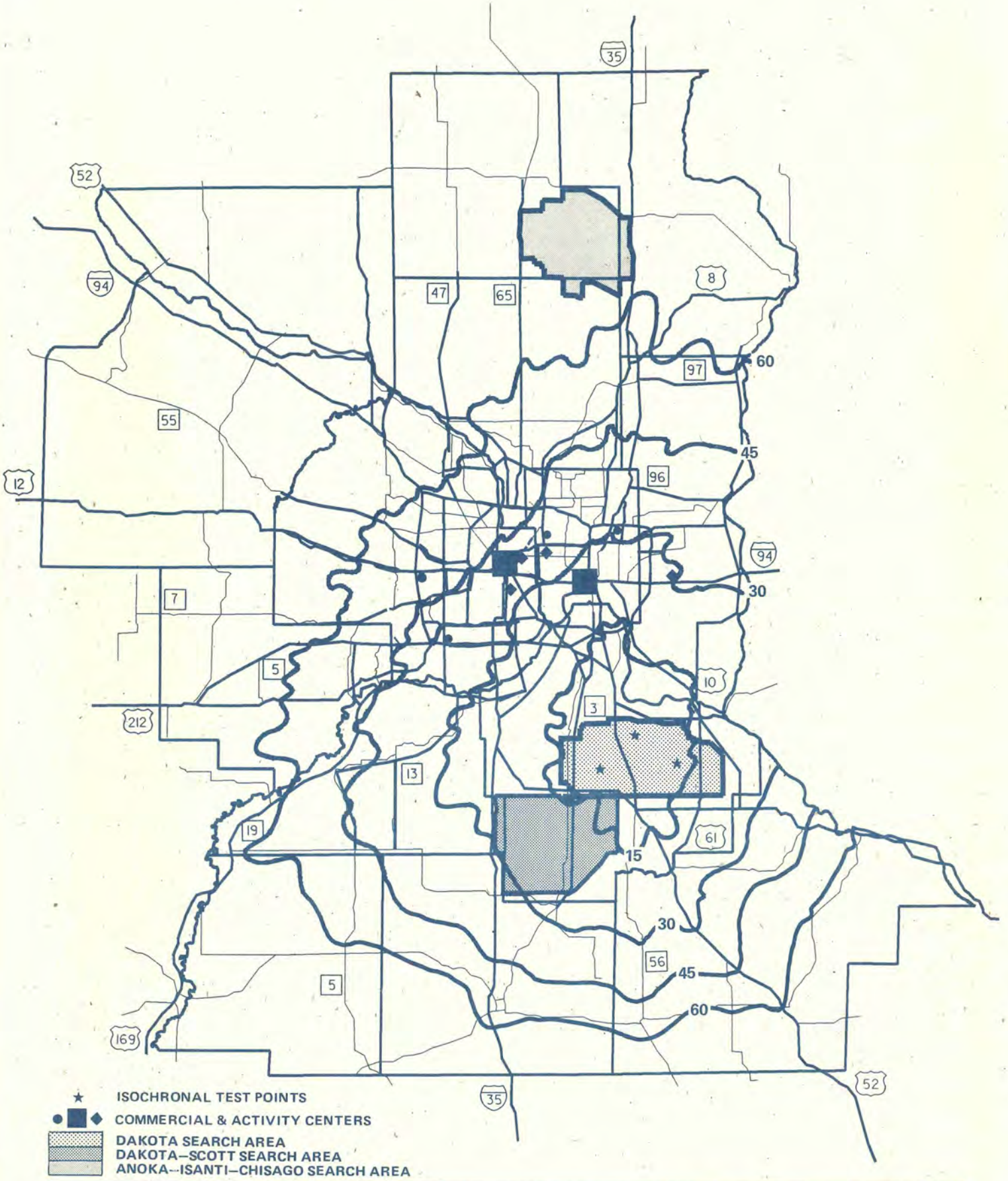


Source: Metropolitan Council

Anoka—Isanti—Chisago Search Area

1a. Driving Times From Candidate Search Areas

(Off-Peak



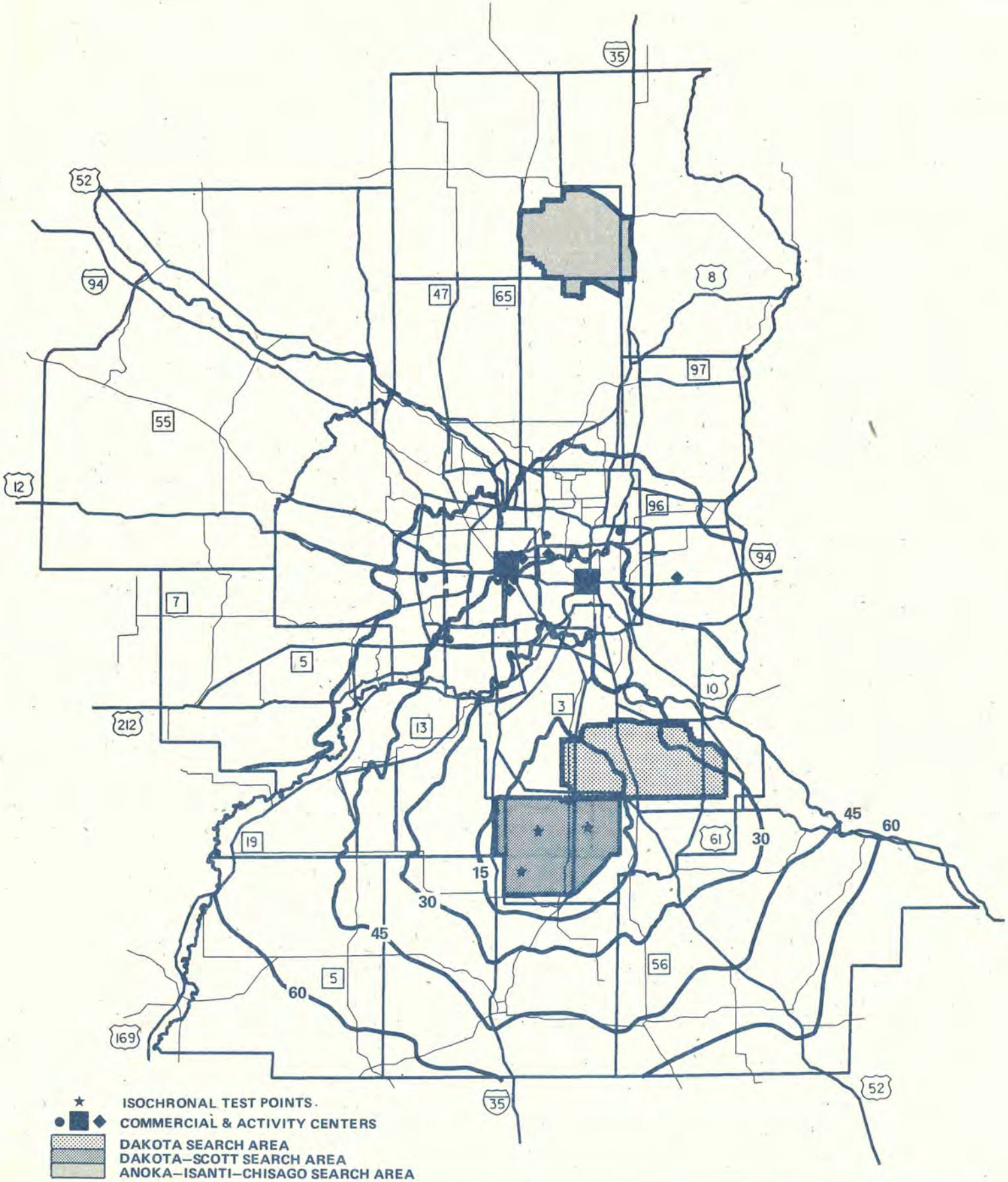
Source: Metropolitan Council

METROPOLITAN COUNCIL

Dakota Search Area

1b. Driving Times From Candidate Search Areas

(Off-Peak)



Source: Metropolitan Council

Dakota–Scott Search Area

1c. Driving Times From Candidate Search Areas

(Off Peak)

The Anoka-Isanti-Chisago search area reaches only half of the major locations within 60-minutes and 5-6 locations within 45-minutes.

TRAVEL DISTANCES

The analysis of highway distance, like that of travel time, shows that the southern two search areas are closer to the 30 major regional locations (Table 2) than the north search area. The average airport trip will increase significantly from the 16 mile average for MSP. The Dakota search area will add 12 to 17 miles to the average airport trip. The Dakota-Scott will require 20 to 22 additional miles. The northern search area will be 29 to 32 miles for the major locations.

POPULATION AND EMPLOYMENT SERVED

The Twin Cities Region is forecast to have 2.6 million residents and 1.6 million employees in 2010. The amount of the region's population, high income household quartile (the income group most likely to fly for business, personal business or pleasure), housing units, and employment served within 30, 45 and 60 minutes is shown in Table 3.

The Dakota search area would serve 75 to 92 percent of the population within 60 minutes, 40 to 61 percent within 45 minutes and 10 to 22 percent within 30 minutes. The Dakota-Scott search area would serve about 75 percent of the region's population within 60 minutes and a third within 45 minutes. The Anoka-Isanti-Chisago search area can be reached by 50 to 60 percent of the region's residents in 60 minutes, but 15 to 22 percent within 45 minutes.

The higher-income households are best served by the Dakota search area. From 80 to 95 percent would be within 60 minutes of reference points in the search area. Between half and two-thirds of the upper-income households would be within 45 minutes. Ten to 22 percent of the households would be within 30 minutes. The Dakota-Scott search area would serve 4 in 5 higher-income households within 60 minutes, 2 in 5 within 45 minutes and 1 in 5 within 30 minutes. The northern search area serve less than half of the upper-income households in 60 minutes, and 13 to 15 percent within 45 minutes.

The percent of housing units within 30, 45 or 60 minutes of the three search areas corresponds closely to the population figures.

Employment is more concentrated in the southern half of the region. Therefore, the southern search areas would serve the region's employment better. The percent of metropolitan employees within 30, 45 or 60 minutes of the middle of Dakota search area are 25 percent, 75 percent and 96 percent, respectively. The middle of the Dakota-Scott search area would reach 7 percent within 30 minutes, 35 percent within 45 minutes and 88 percent within 60 minutes. The middle reference point in the Anoka-Isanti-Chisago search area would serve within a 30-minute range 2 percent of the region's employees, 14 percent within 45 minutes and 62 percent within 60 minutes.

CONGESTION POINTS

The primary direction of travel for the three search areas is north-south, into and out of the center of the region. Therefore, the arterials and highways would have significant additional traffic each day. Figure 4 shows those highway links that will experience significant congestion (highway use expected to be at or more than twice design capacity). Table 4 shows for the number of links connecting reference points to the rest of the region where demand will create problems. The roads

TABLE 2

TRAVEL DISTANCES TO SIGNIFICANT POINTS FROM THE SEARCH AREAS

	ANOKA-ISANTI-CHISAGO			DAKOTA			DAKOTA-SCOTT			
POINT	ISANTI	OXFORD	NORTH BRANCH	EMPIRE	MARSHAN	VERMILLION	CASTLE ROCK	EUREKA	GREENVALE	MSP
MINNEAPOLIS CITY HALL	41	42	47	29	32	26	36	36	36	10
SAINT PAUL CITY HALL	44	42	44	22	25	19	30	32	36	8
MSP	47	48	50	22	25	19	28	28	33	---
MAPLEWOOD MALL	43	37	38	33	37	29	41	43	45	16
RIDGEDALE	46	47	52	35	43	36	41	40	40	19
ROSEDALE	38	39	43	32	35	28	37	41	42	11
SOUTHDALE	51	51	57	24	32	25	30	28	28	9
3M HEADQUARTERS	51	44	46	26	29	22	33	36	43	14
HONEYWELL HEADQUARTERS	44	45	50	28	31	25	34	34	34	8
U OF M SAINT PAUL	40	40	45	29	32	26	35	39	39	9
U OF M MINNEAPOLIS	42	43	48	29	32	26	37	37	37	9
I-35E AND I-494	50	51	53	17	22	16	24	28	28	5
I-35E AND I-694	41	35	36	31	34	27	38	41	44	16
NORTH I-35E/35W SPLIT	28	25	26	46	48	43	54	56	59	30
SOUTH I-35E/35W SPLIT	61	61	63	12	21	16	18	20	18	15
I-35W AND 62 COMMON SECTION	49	50	55	24	30	24	30	28	28	8
I-35W AND I-494	52	53	58	22	30	24	28	26	26	7
I-35W AND I-694	33	34	39	35	38	31	43	46	46	16
EAST I-494/694 SPLIT	55	49	50	23	27	20	31	33	41	16
WEST I-494/694 SPLIT	38	39	44	42	49	43	47	46	46	26
I-394 AND I-494	48	49	54	38	45	39	43	42	42	22
HWY 18 AND I-494	53	553	59	27	34	28	32	31	31	11
HWY 100 AND HWY 62	49	49	55	26	33	27	32	30	30	10
HWY 100 AND I-394	43	44	49	34	40	34	39	38	38	17
HWY 10 AND HWY 610	28	29	34	41	44	37	49	49	49	23
ANOKA	29	30	35	50	53	46	58	56	55	32
CHASKA	61	64	67	34	42	39	40	39	36	22
HASTINGS	72	66	67	13	8	8	19	24	28	23
SHAKOPEE	62	63	69	28	36	30	33	32	32	22
STILLWATER	48	41	43	35	32	32	43	45	52	28
AVERAGE	45	45	48	29	33	28	36	37	38	16

TABLE 3

MAJOR NEW AIRPORT METROPOLITAN ACCESSIBILITY
DEMOGRAPHICS TABULATED BY NORMAL TRAVEL TIME IN 2010

TOTAL 7 - COUNTY METROPOLITAN AREA PERCENT OF POPULATION SERVED

	Anoka - Isanti - Chisago			Dakota - Scott			Dakota			MSP
	Isanti	Oxford	North Branch	Empire	Marshan	Vermillion	Castle Rock	Eureka	Greenvale	
WITHIN										
30 Min.	3.4%	3.4%	1.6%	17.1%	10.3%	21.9%	8.9%	10.9%	9.8%	62.8%
45 Min.	20.2%	22.2%	15.3%	54.2%	40.4%	60.9%	34.2%	33.7%	35.2%	93.8%
60 Min.	56.4%	59.2%	50.5%	87.8%	74.8%	91.7%	70.5%	77.8%	77.6%	99.6%

TOTAL 7 - COUNTY METROPOLITAN AREA PERCENT OF HIGH INCOME QUARTILE HOUSING UNITS SERVED

	Anoka - Isanti - Chisago			Dakota - Scott			Dakota			MSP
	Isanti	Oxford	North Branch	Empire	Marshan	Vermillion	Castle Rock	Eureka	Greenvale	
WITHIN										
30 Min.	2.4%	2.4%	1.0%	17.6%	9.5%	21.5%	8.6%	11.6%	10.7%	69.8%
45 Min.	15.9%	18.3%	12.9%	57.2%	39.4%	64.6%	35.7%	39.2%	41.4%	96.3%
60 Min.	46.6%	48.2%	40.4%	91.3%	79.5%	94.7%	76.7%	82.8%	82.4%	99.8%

Demographics are those used for the Metropolitan Council's 2010F socioeconomic data.

TABLE 3 (CONTINUED)

MAJOR NEW AIRPORT METROPOLITAN ACCESSIBILITY
DEMOGRAPHICS TABULATED BY NORMAL TRAVEL TIME IN 2010

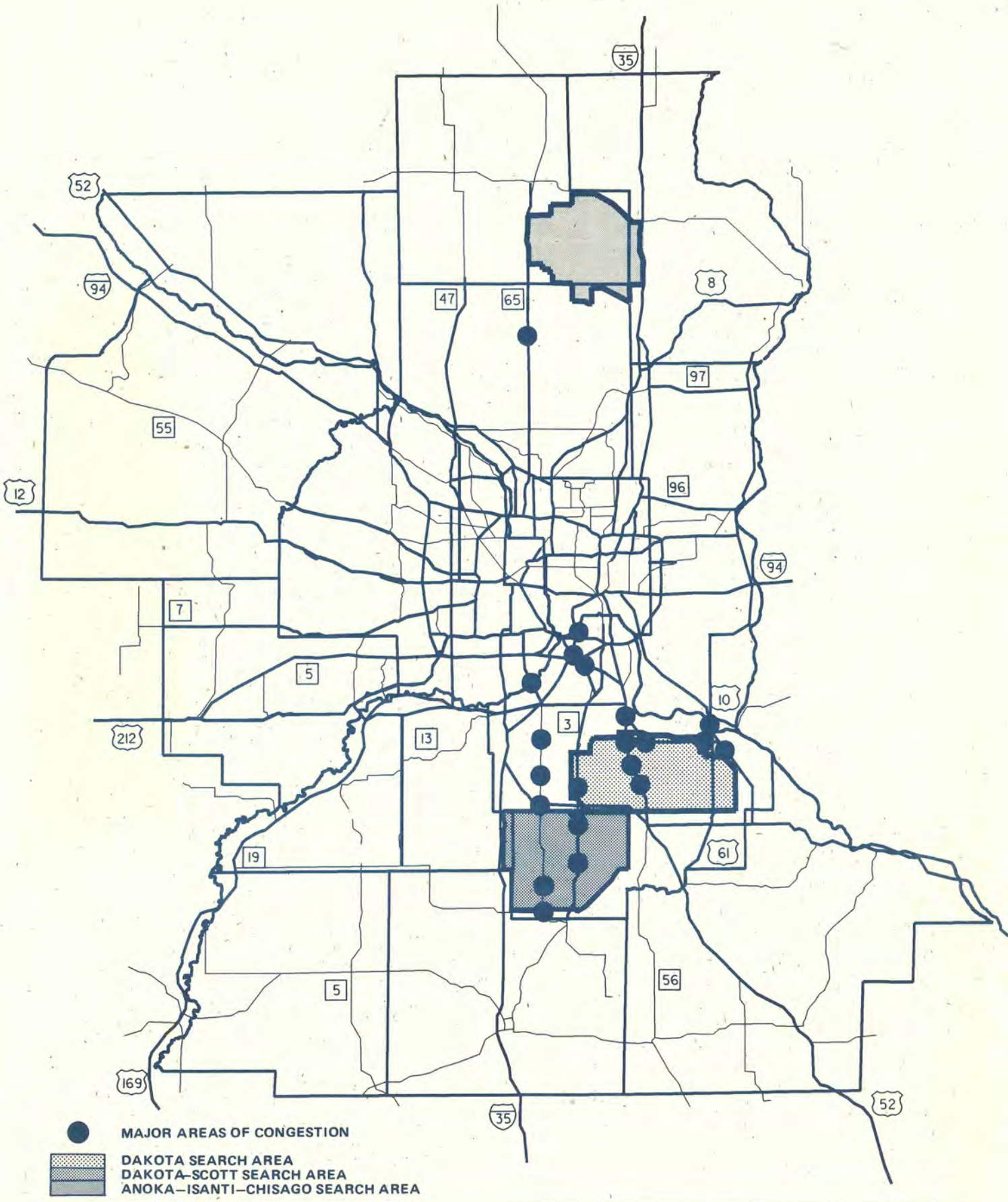
TOTAL 7 - COUNTY METROPOLITAN AREA PERCENT OF HOUSING UNITS SERVED

	Anoka -	Isanti -	Chisago	Dakota - Scott			Dakota			MSP
	Isanti	Oxford	North Branch	Empire	Marshan	Vermillion	Castle Rock	Eureka	Greenvale	
WITHIN										
30 Min.	2.8%	2.9%	1.4%	16.2%	9.2%	21.4%	8.0%	9.9%	8.9%	66.6%
45 Min.	18.2%	20.0%	13.5%	56.6%	40.7%	63.6%	33.9%	34.2%	36.4%	94.7%
60 Min.	57.3%	60.0%	49.9%	89.5%	77.4%	92.9%	73.1%	80.5%	80.3%	99.7%

TOTAL 7 - COUNTY METROPOLITAN AREA PERCENT OF TOTAL EMPLOYEES SERVED

	Anoka -	Isanti -	Chisago	Dakota - Scott			Dakota			MSP
	Isanti	Oxford	North Branch	Empire	Marshan	Vermillion	Castle Rock	Eureka	Greenvale	MSP
WITHIN										
30 Min.	1.9%	1.8%	1.3%	16.3%	7.8%	24.9%	5.8%	7.4%	6.9%	77.9%
45 Min.	14.3%	14.4%	8.9%	61.4%	39.3%	73.8%	36.0%	34.6%	36.5%	97.6%
60 Min.	59.4%	62.1%	48.6%	94.4%	85.7%	96.2%	81.9%	87.5%	88.3%	99.8%

Demographics are those used for the Metropolitan Council's 2010F socioeconomic data.



Source: Metropolitan Council

2. **Highway Congestion Areas For Airport Traffic** (2010 Highway System)

that would experience these problems are Hwy 77, Hwy 3, Hwy 55, and Hwy 52 in the south and to a limited extent, Hwy 65 in the north. Also, the Minnesota River bridge crossing on Hwy 77 is expected to experience congestion. The other major bridge crossings would not become congested from airport traffic, but the traffic could exacerbate congestion problems.

Potential solutions for the capacity constraints in the south would be an extension of Hwy 3 south from its planned terminus at Hwy 55 to some point south of Rosemount. The cost would be approximately $10-15 million per mile. Also, Hwy 55 could be upgraded with frontage roads and restricted access points at an approximate cost of $2 million per mile and $5 million per diamond interchange. Hwy 55 in Mendota Heights would need to be improved to four lanes along its entirety. Hwy 52 could be realigned to provide better access to the eastern area of the Dakota search area at an approximate cost of $5 million per mile. For the Anoka-Isanti-Chisago search area Hwy 65 could be improved with the addition of frontage roads and improved interchanges at an approximate cost of $2 million per mile and $5 million per diamond interchange. All costs are in 1990 dollars and are Metropolitan Council estimates.

TABLE 4

HIGHWAY CONGESTION POINTS

Test Point	Volume/Capacity $\geq$ 2	Volume/Capacity =1.75 to 2
Isanti	1	8
Oxford	1	4
North Branch	1	5
Empire	10	7
Marshan	16	7
Vermillion	10	7
Castle Rock	13	7
Greenvale	3	14
Eureka	7	11
Minneapolis - Saint Paul International Airport	3	5

SECTION III

ENVIRONMENTAL IMPACTS

This section provides an overview of reports of the environmental issues for the three search areas. This report is the second in a series that document the selection of a single search area. As such, the overall level of detail is more extensive than was used in the initial screening process, but less detailed than will be required to select a particular site within the selected search area.

ENVIRONMENTAL FACTORS

As the decision-making process for the possible new major airport moves from identification of three search areas to selection of a final search area, additional information on potential environmental impacts becomes critical. A primary emphasis is addressing the requirements of the alternative review process approved by the Minnesota Environmental Quality Board. In many cases, the number of variables evaluated and the level of detail exceeds that used in comparable new airport search efforts elsewhere in the country. In the selecting the search area for the new Denver airport, for example, the evaluation used significantly fewer environmental factors.

The environmental assessment of the three search areas has focuses on key factors identified by the task force and Metropolitan Council in 1990. The three environmental categories were physical, environmental and development related factors. The three include:

- Physical Environmental Factors: Wetlands; Rivers, Lakes, Streams (including county Ditches); Floodplains; Groundwater/Surficial Geology; Historic, Architectural, Archeological and Cultural Resources; Land Coverage (including Agricultural Lands, Deciduous and Coniferous Forests, Forested Wetlands); Parks and Open Space; Pipelines; Hazardous and Solid Waste Sites; Topography; and Soils.

- Biological Environmental Factors: Endangered, Threatened, and Special Concern plants and animals.

- Airport Development/Operation Related Environmental Factors: Hazardous and Solid Waste Generation; Air Quality; and Water Quality.

These environmental considerations vary widely in importance. Some, such as surficial geology or topography, can have significant impacts on the cost to construct an airport. Others, most obviously wetlands and endangered or threatened plants and animals, represent values that go beyond a traditional cost-benefit framework.

The impact of each factor cannot be weighed equally. Some factors such as relocation of a pipeline or design changes to avoid a historical site, can affect the overall cost of constructing an airport. Often these factors involve changes that are relatively straight forward to address. Other factors such as extent of wetlands and biotic communities are more difficult to overcome. The location of wetlands, floodplains, and rivers can be altered, the environmental magnitude of such undertakings, pose a considerable constraint.

Noise impacts, one of the most important environmental concerns, is discussed in Section IV and will be analyzed in detail as part of the site selection process.

To the extent available, geographic-based information on these environmental factors has been mapped for each search area. The Appendix contains the results of the environmental mapping effort. This section focuses on two of the most important areas -- wetlands and endangered, threatened or special concern plants and animals. Table 5 provides a comparative assessment of the relative degree of concern that each environmental factor raises for each of the search areas. In reviewing this table, it is important to remember that other factors need to be considered as part of any search area decision.

The data presented here provide a level of detail sufficient to understand the relative differences between search areas. The data was selected in order to assist the task force and Metropolitan Council in designating a final search area. Once this designation is accomplished, much more detailed and site-specific environmental analyses must be undertaken as part of selecting a specific airport site.

PHYSICAL ENVIRONMENTAL FACTORS

Wetlands have long been identified as one of the nation's most important environmental resources. As such, special emphasis will be given to wetlands at each stage of the process.

Figures 3a, 3b and 3c depict the location and concentration of protected wetlands for the three search areas. Approximately 25 percent of the total 61,720 acres in the Anoka-Isanti-Chisago or northern search area is classified as wetlands. The wide distribution of these wetlands throughout the search area suggests that the siting of a major new airport in this area would be somewhat difficult. However, one or two potential sites do exist.

The Dakota, or central search area, encompasses 74,590 acres, with only 2,600 acres classified as wetlands. These wetlands are mostly situated in the southwest portion of the area and are part of the Vermillion river system, which runs from the southwest to the northeast. In part because of the long history of farming, the Dakota search area has the least amount of wetlands acreage of the three search areas, with approximately 3.5 percent of the total area classified in this category.

Of the 73,865 acres that make up the Dakota-Scott search area, approximately 7,903 acres, or 11 percent, are classified as wetlands. The majority of the wetlands occupy the western and southwestern areas of the search area and are associated with the numerous rivers and streams which drain those areas.

Both in Minnesota and nationally, efforts have been under way to tighten restrictions on development activities in wetlands areas. The wetlands protection hierarchy developed by the Council on Environmental Quality, which stipulates avoidance of wetland impacts over mitigation practices wherever possible, is supported in Minnesota. Indeed, recent state legislation supports this hierarchy and institutionalizes a "no-net-loss" policy similar to what is emerging at the national level. Given these efforts, siting an airport in and around protected wetlands in any of the search areas will be difficult. Where an incursion on wetlands is unavoidable, mitigation is required with the replacement of destroyed wetlands by up to twice as many acres of new wetlands. The Minnesota Department of Natural Resources will determine the required replacement ratios for each type of wetland by 1993.

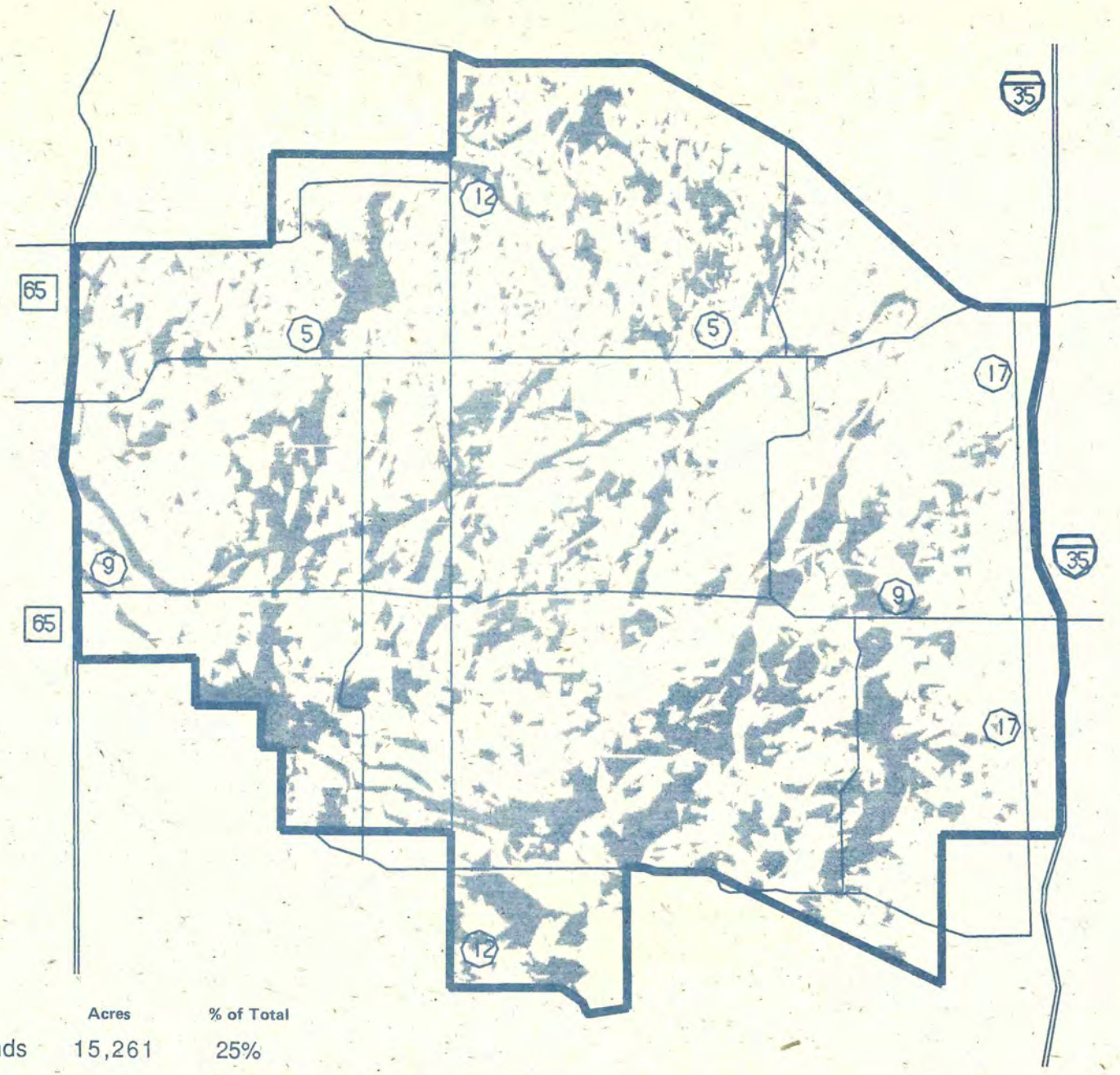
TABLE 5

Comparative Assessment of Enviromental Factors By Search Area

ENVIRONMENTAL FACTOR	ANOKA-ISANTI-CHISAGO	DAKOTA	DAKOTA-SCOTT
PHYSICAL FACTORS			
Wetlands	●	○	◍
Rivers, Lakes, Streams	●	◍	◍
Floodplains	●	○	◍
Groundwater/Surficial Geology	●	◍	◍
Cultural Resources	○	○	○
Land Coverage: Forested Land	◍	○	○
Land Coverage: Agricultrual*	○	◍	●
Parks, Open Space	○	○	○
Pipelines	○	○	○
Hazardous/Solid Waste Sites	○	○	○
Topography	○	○	◍
Soils	●	○	◍
BIOLOGICAL FACTORS			
Rare, Endangered, Threatened Species	◍	○	○
DEVELOPMENT-RELATED FACTORS			
Solid/Hazardous Waste Generation	○	○	○
Air Quality	○	○	○

● Significant Constraint ◍ Moderate Constraint ○ Minor Constraint

* Based on Crop Equivalency Rating (CER).



	Acres	% of Total
Designated Wetlands	15,261	25%

Source: U.S. Fish and Wildlife Service, National Wetlands Inventory

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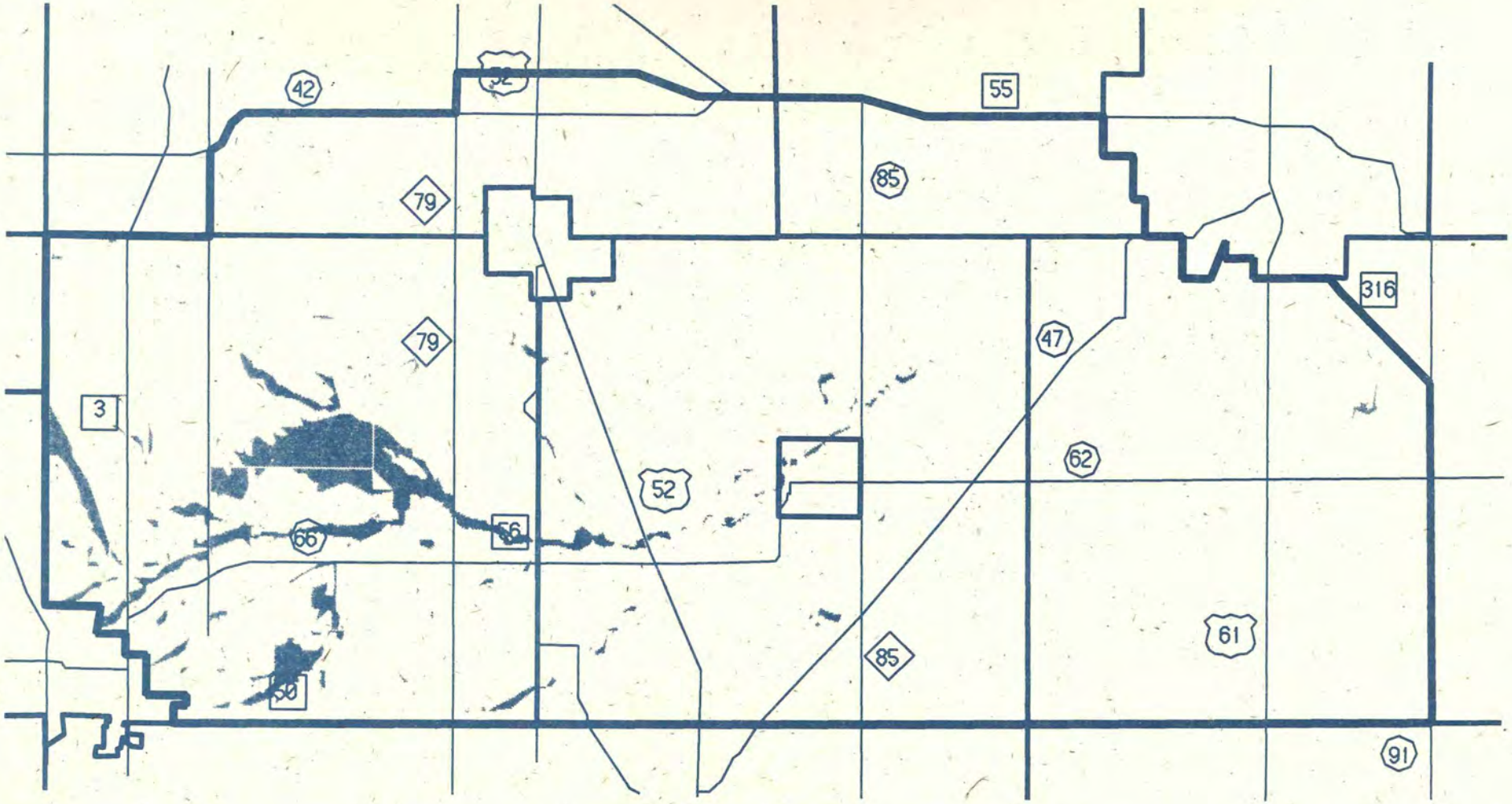
Anoka—Isanti—Chisago Search Area

3a. Wetland Areas

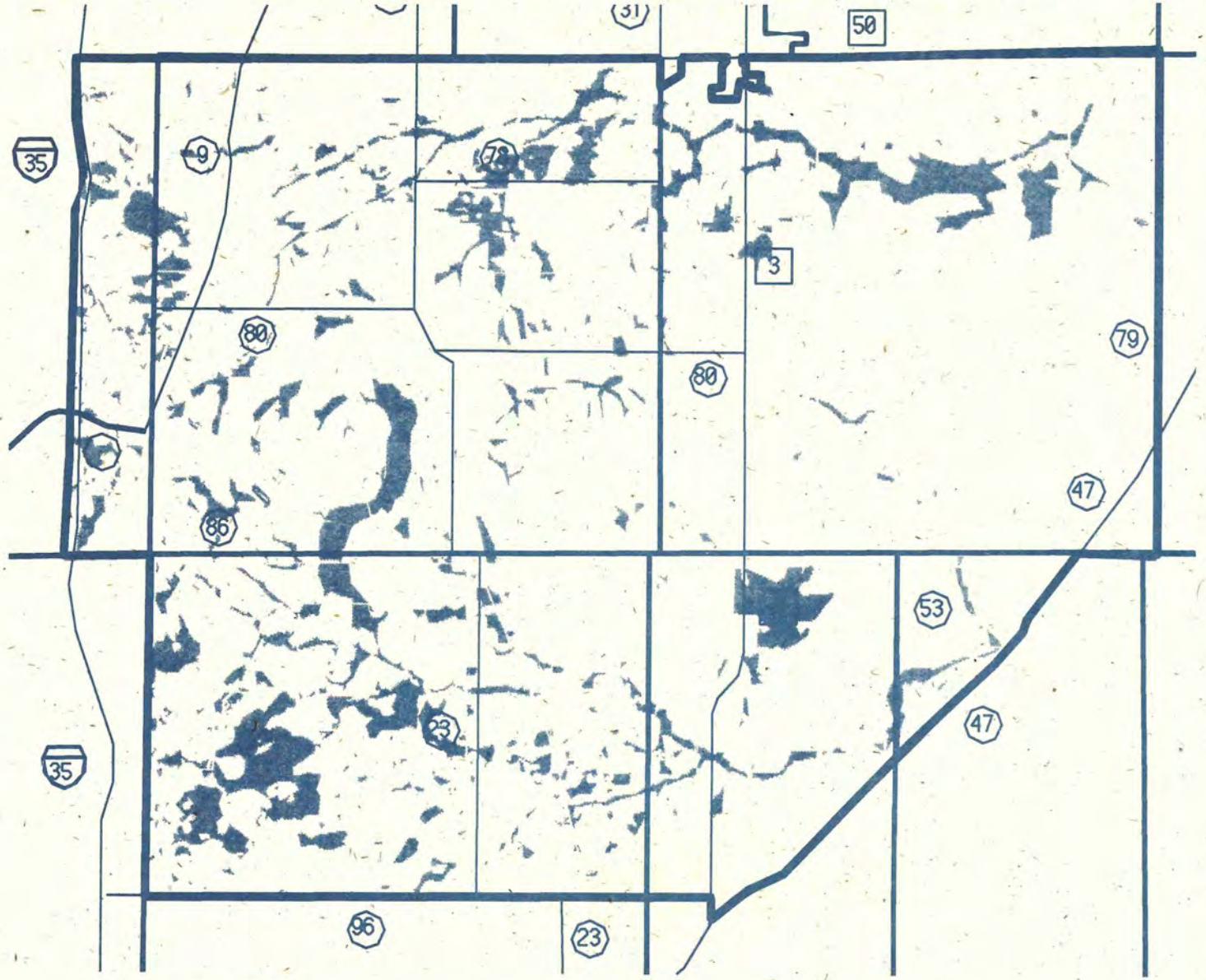


	Acres	% of Total
Designated Wetlands	2,595	3%

Source: U.S. Fish and Wildlife Service, National Wetlands Inventory

Dakota Search Area

3b. **Wetland Areas**



	Acres	% of Total
Designated Wetlands	7,903	11%

Source: U.S. Fish and Wildlife Service, National Wetlands Inventory

Dakota–Scott Search Area

3c. **Wetland Areas**

Other physical environmental factors have varying degrees of impact on the location of a new airport in each of the three search areas. For example, there are significant rivers and floodplains dispersed throughout the Anoka-Isanti-Chisago search area, potentially limiting locational decisions for that region. Also, this northern area has the highest percentage of organic soils of the three areas (approximately 1/3 is covered with peat) with significant removal costs.

Overlain sand and gravel are well dispersed throughout all the search areas. Depending on site location, each is susceptible to groundwater contamination. Each area also has sites that should be avoided where possible -- solid waste and hazardous waste dump sites as well as historical locations -- however their number or location do not rule out any of the search areas.

BIOLOGICAL ENVIRONMENTAL FACTORS

The biological investigation conducted in this phase of the airport siting study include determining known locations of threatened, endangered and special concern species of plants and wildlife which are found in the three search areas. Strict federal and state regulations and policies protect these resources and habitats, and these will be critical to decisions for siting a new airport.

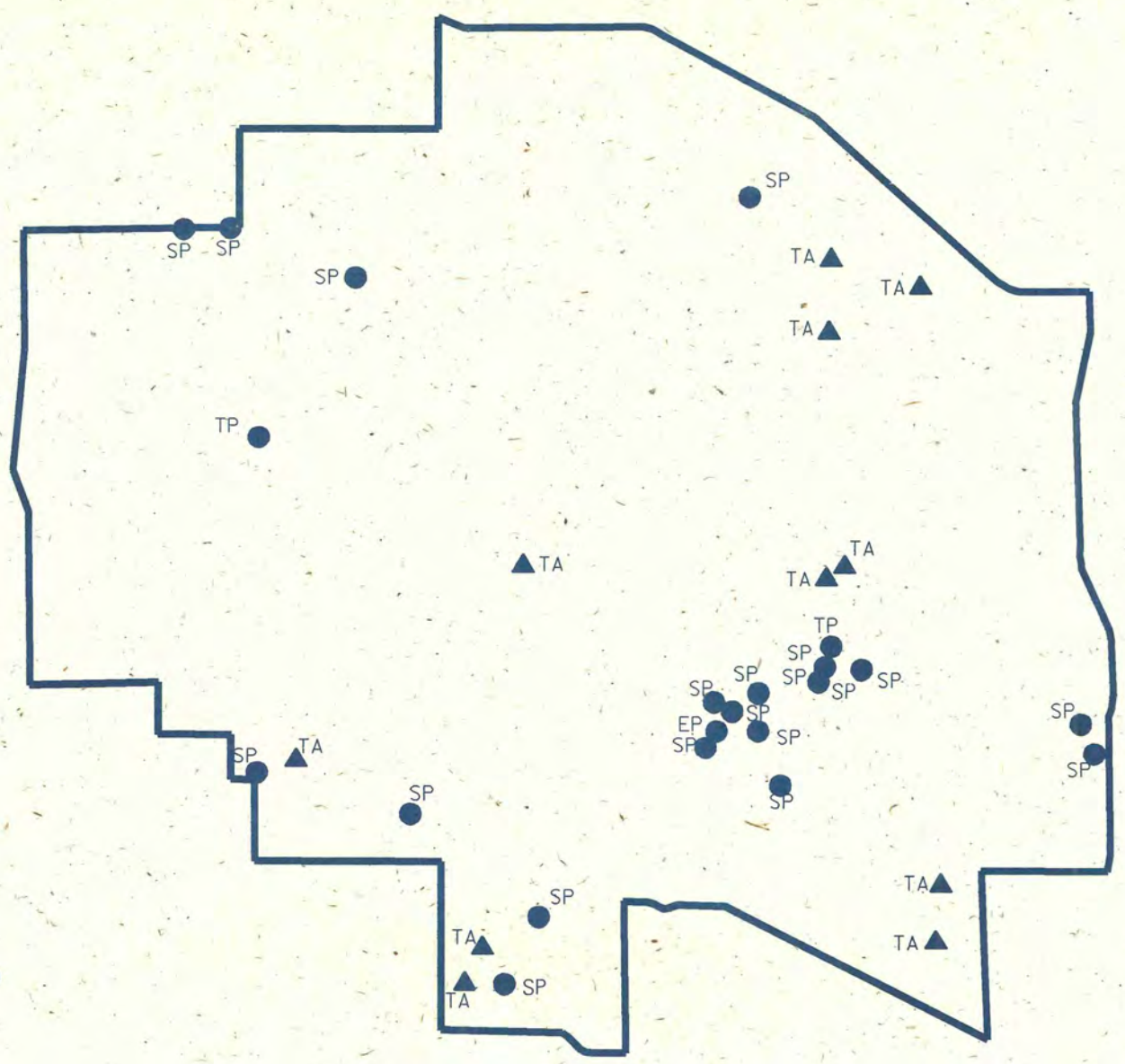
The Anoka-Isanti-Chisago search area contains a relatively large number of identified biotic communities, as well as many birds and waterfowl (Figure 4a). The majority of these biotic communities are located in the south central region of the search area, but special concern, threatened and endangered species of plants and animals can be found throughout the search area. The search area is outside, but close to the Carlos Avery State Wildlife Management Area to the south and the University of Minnesota's Cedar Creek National History Area to the south and west. The Minnesota Department of Natural Resources has voiced concern about the potential impacts of airport operations over these habitat areas.

As Figures 4b and 4c show, there are relatively few special concern, threatened or endangered plant or animal species within the other two search areas -- Dakota and Dakota-Scott. Several species are within three to five miles of the search areas, however, and there are concentrations of sensitive biotic communities to the north and east along the Mississippi and St. Croix rivers.

AIRPORT DEVELOPMENT/OPERATION-RELATED ENVIRONMENTAL FACTORS

In addition to the physical and biological environmental features intrinsic to each search area, some potentially serious environmental impacts could result from the construction and operation of a new major airport. Noise impacts are of particular concern. A detailed analysis will be part of the site selection process. Major airports generate solid and hazardous wastes. The safe disposal of these wastes becomes an important part of the cost of a new airport. Local air quality impacts created by a new airport need to be analyzed and, where possible, minimized. Water pollution concerns during both the construction phase of a new airport as well as during the operational life of the airport can add to the costs to construct and operate a major public facility.

A host of federal, state, and regional laws and regulations are in place, together with design techniques, to minimize the noise, waste, air and water quality impacts to communities adjacent to an airport. The three search areas are roughly similar in impact on these environmental factors. The requirements (both general and site-specific) of pollution control and mitigation will be similar no matter which search area and ultimately, which site is chosen for the new airport.



EP ● Endangered Plant Species
TP ● Threatened Plant Species
SP ● Special Concern Plant Species

EA ▲ Endangered Animal Species
TA ▲ Threatened Animal Species
SA ▲ Special Concern Animal Species

Source: Minnesota Department of Natural Resources

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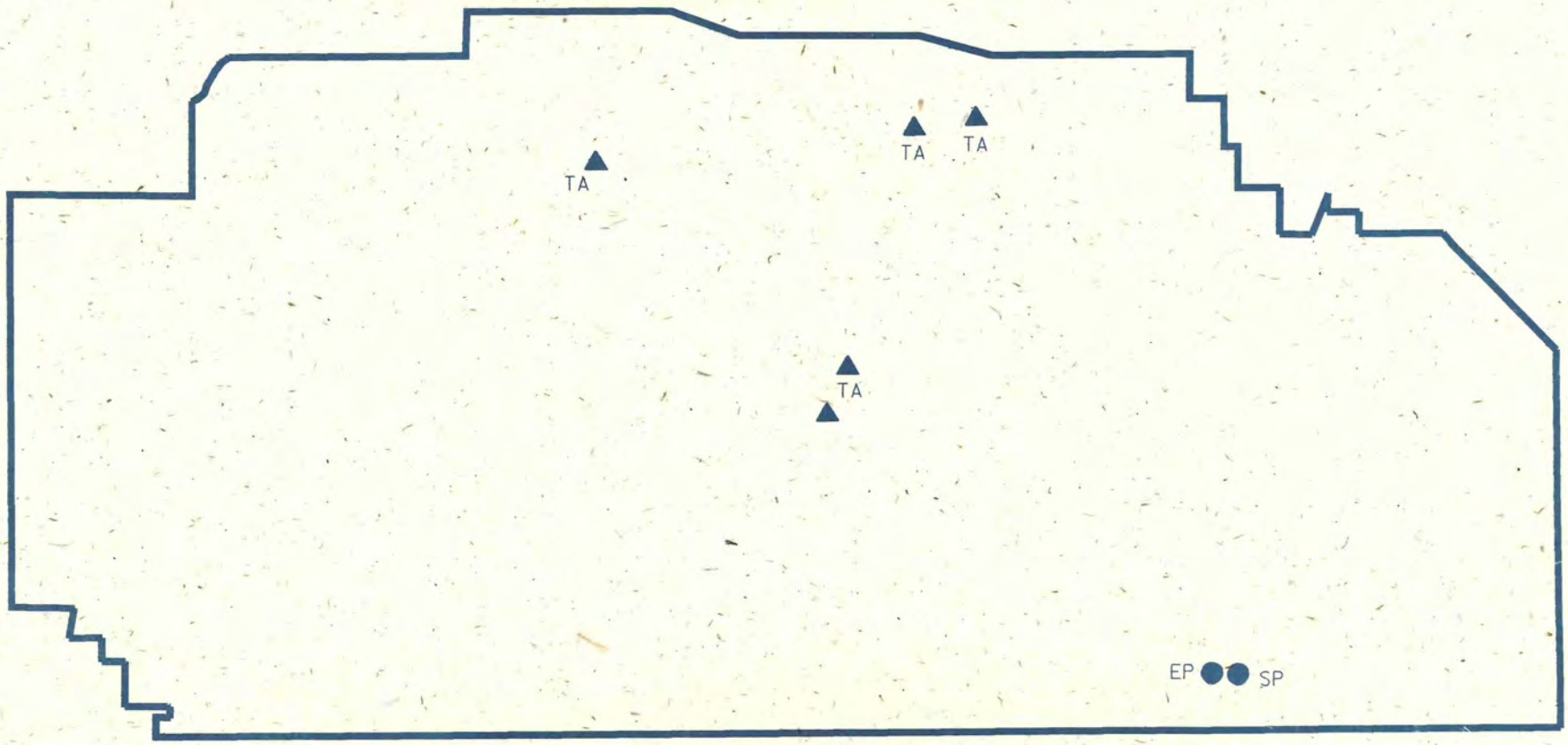
Anoka—Isanti—Chisago Search Area

4a. Biotic Communities



EP ● Endangered Plant Species
TP ● Threatened Plant Species
SP ● Special Concern Plant Species

EA ▲ Endangered Animal Species
TA ▲ Threatened Animal Species
SA ▲ Special Concern Animal Species

Source: Minnesota Department of Natural Resources

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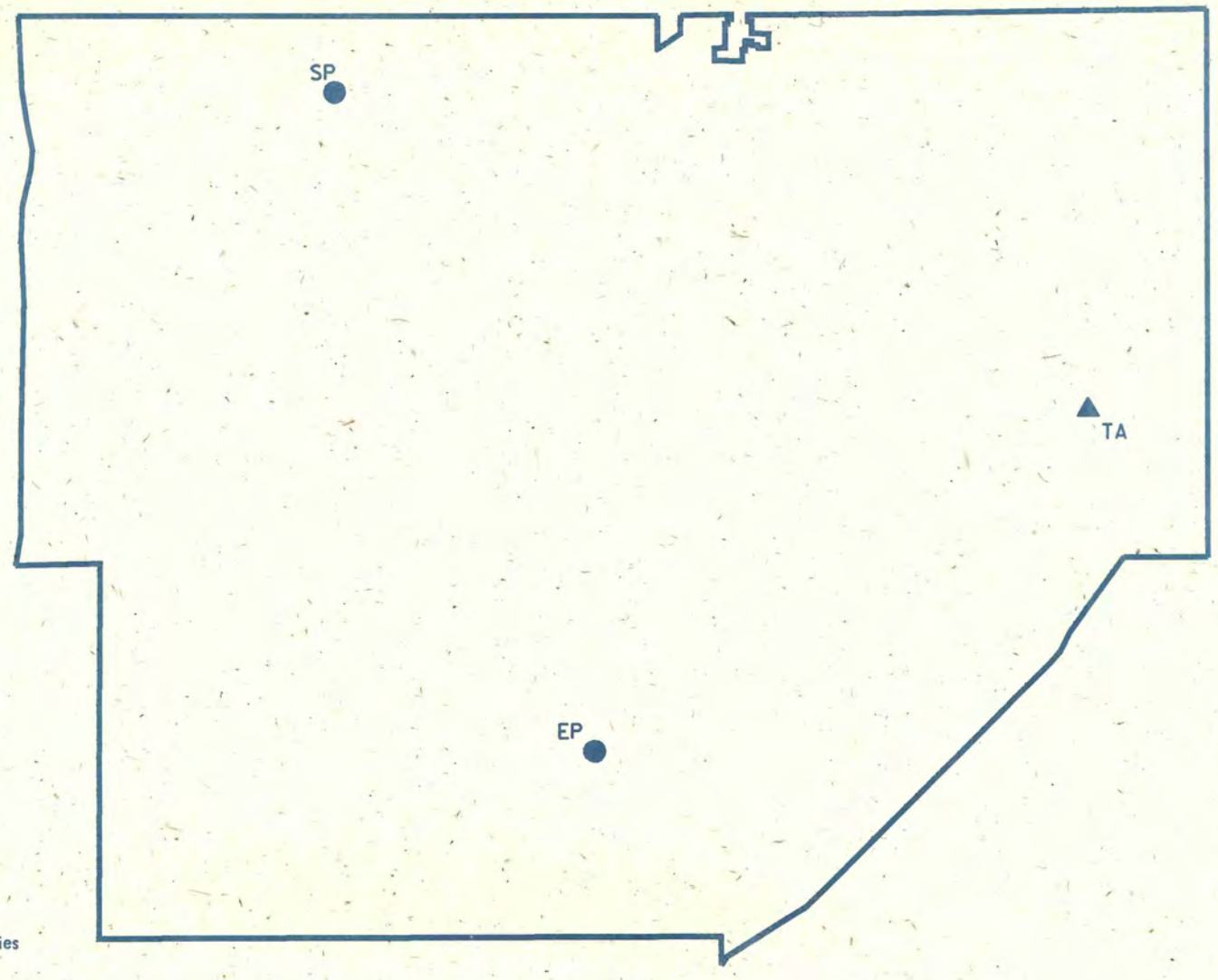
Dakota Search Area

4b. Biotic Communities



EP ● Endangered Plant Species
TP ● Threatened Plant Species
SP ● Special Concern Plant Species

EA ▲ Endangered Animal Species
TA ▲ Threatened Animal Species
SA ▲ Special Concern Animal Species

Source: Minnesota Department of Natural Resources

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Dakota–Scott Search Area

4c. **Biotic Communities**

Airports generate ground and air traffic that can, in turn, create air quality problems. These effects depend on the specific location of the proposed airport and on the type of ground access provided (highway versus transit, for example). As a result, air quality impacts are best quantified at the site selection stage.

SECTION IV

GENERAL LAND REQUIREMENTS
CONCEPTUAL DESIGN: POTENTIAL NEW AIR CARRIER AIRPORT[1]

The conceptual design chosen for a new air carrier airport to serve the Twin Cities satisfies two goals. It has sufficient capacity to meet the region's air transportation needs for a 30-year period with reserves for the future, and it is consistent with the *Metropolitan Aviation Development Guide Chapter* of the Metropolitan Council. This section discusses the major issues relating to the potential design for a new replacement airport.

LEGISLATIVE BACKGROUND

The Metropolitan Airport Planning Act of 1989 calls for the MAC, in consultation with the Metropolitan Council, to a develop a study of the facility requirements, airport functions and conceptual design for a new air carrier airport. The conceptual design study and plan are to describe and satisfy air transportation needs for at least a prospective 30-year period and are to be consistent with the *Metropolitan Aviation Development Guide Chapter* of the Metropolitan Council. This generic airport design is useful as a planning tool. Once a single search area has been selected, however, many of the design's features are likely to be altered in order to fit the specific characteristics of any proposed site.

CONCEPTUAL DESIGN PLAN PARAMETERS

The conceptual design was based on several parameters:

- Minneapolis-St Paul (MSP) International Airport will close if the new commercial airport is built;
- All facilities that currently exist at MSP will be provided at the new airport;
- The airport will be designed with sufficient capacity to accommodate demand forecasts beyond the year 2020, and do so in a safe and efficient manner;
- The new airport will maximize environmental protection while minimizing community disruption; and
- The new airport will be designed to minimize land area requirements.

---

[1]Based on *New Air Carrier Airport Conceptual Design and Study Plan*, Metropolitan Airports Commission, prepared by TRA Airport Consulting, et al., (January, 1991) and analysis by Apogee Research and Turner, Collie, and Braden.

LAYOUT ALTERNATIVES[2]

Several runway layout alternatives, each satisfying the conceptual design parameters, were considered (see Appendices). Those considered most promising included:

- **Alternative P-2** -- Four parallel runways with the terminal in the center;
- **Alternative T-1** -- Six runways (four parallel and two crosswind) around the terminal area; and
- **Alternative L** -- Three parallel and two crosswind runways in the primary and secondary directions (respectively) on the same side of the terminal area.

The MAC evaluated these alternatives based on:

- Operational efficiency,
- Land impacts, and
- Cost.

Using these criteria, the MAC selected Alternative T-1 shown in Figure 5a. Specific justifications included:

- It provides a high level of capacity in all four directions;
- The converging runway layout minimizes the taxiing distance;
- Arrival and departure runways are segregated, thus minimizing delay;
- Crosswind conditions during winter wind conditions is high; and
- The operating theory underlying this layout resembles to the one being used at the new airport in Denver and has FAA approval.

LAND REQUIREMENTS

Three factors determine the amount of land required for any given airport configuration: the airport layout, Minnesota law concerning land use safety zone requirements, and land for noise mitigation.

Airport safety zoning requirements were established by the State Legislature to balance the safety of people on the ground, those travelling on the aircraft, and public interest in maintaining existing

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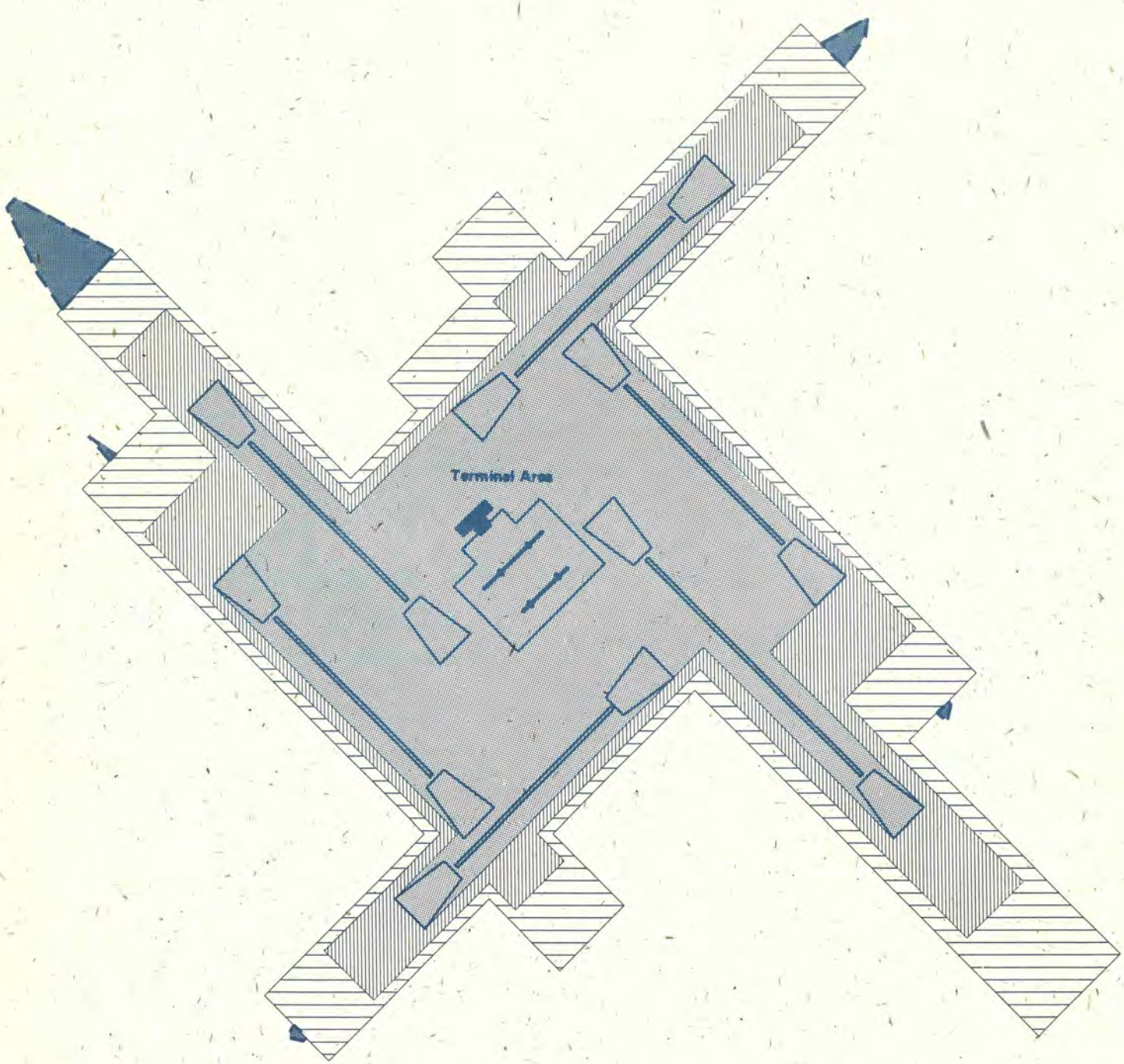
[2]In addition to the runway layout, a review of alternative terminal configurations was prepared. This review is discussed in greater detail in Appendices.



ACREAGE INCLUDING RUNWAY
FAA PROTECTION ZONES - 7,500 AC.
ACREAGE INCLUDING STATE
PROTECTION ZONE "A" - 10,800 AC.
ACREAGE INCLUDING STATE
PROTECTION ZONE "B" - 14,900 AC.
ACREAGE INCLUDING Ldn 65
NOISE CONTOURS - 15,300 AC.

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Source: New Air Carrier Airport Conceptual Design Study and Plan, January 1991, Metropolitan Airports Commission by TRA Airport Consulting, et.al.

5a. **New Airport Conceptual Design Alternative T-1**

land uses.[3] Minimum zoning standards of public airports as to airspace, land use safety, and noise sensitivity have been set forth under the Minnesota Statutes for both developed and undeveloped land.

Airport zones have stricter controls closer to the airport. The state defines three land use safety zones:

- *Safety Zone A* extends outward (in the approach of the runway) from a point 200 feet from the end of the runway for a distance of two-thirds of the actual or planned runway length;
- *Safety Zone B* extends beyond Safety Zone A (in the approach of the runway) for an additional distance equal to one-third of the actual or planned runway length beyond Safety Zone A; and
- *Safety Zone C* extends around the perimeter of the runway not including Safety Zones A and B at a height of 150 feet for a distance of 10,000 feet for precision instrument runways or 6,000 feet for all other runways.

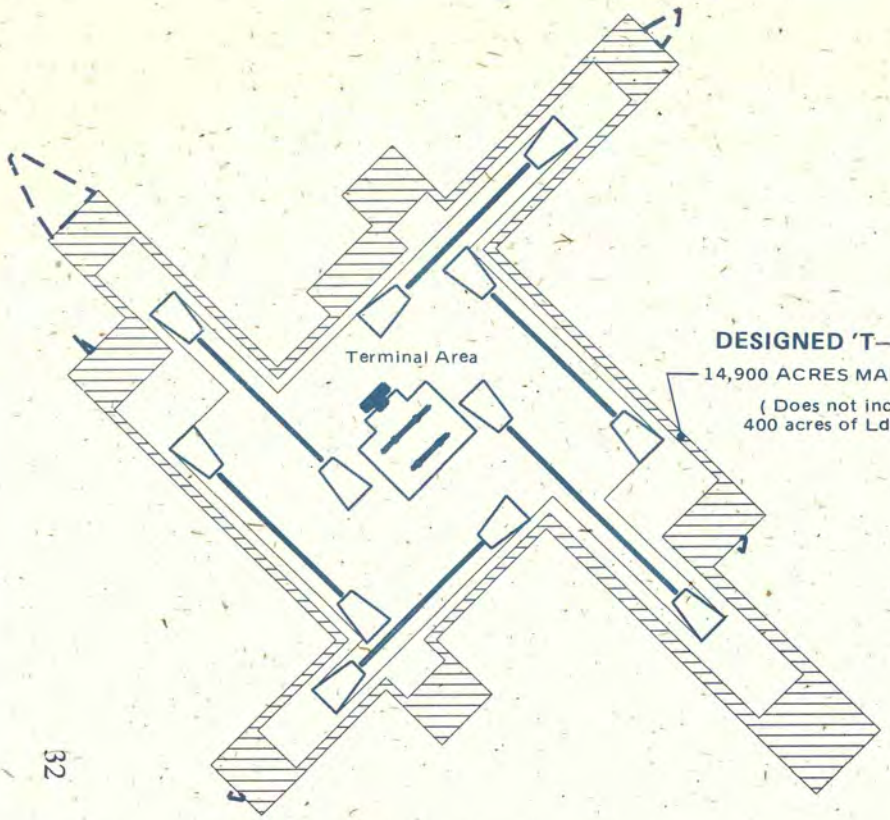
Land use restrictions are applied to airport operations depending on the zone. These restrictions are applied primarily to ensure the safety of aircraft operations from the airport. The safety zones also limit the population and building density in the runway approach area, which ensures that sufficient open space is available to protect property and life in case of an accident.

Figure 5b depicts the combined airfield and terminal design configuration, Safety Zones A and B, the Ldn 65 noise contour, and the land requirements of each.

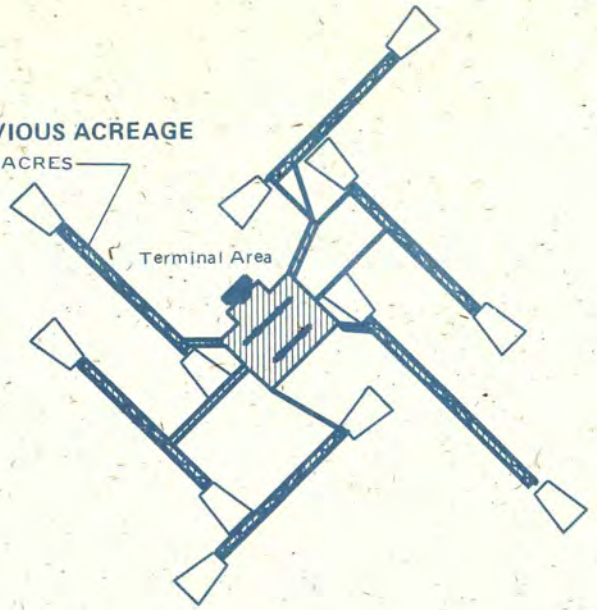
ESTIMATED COST

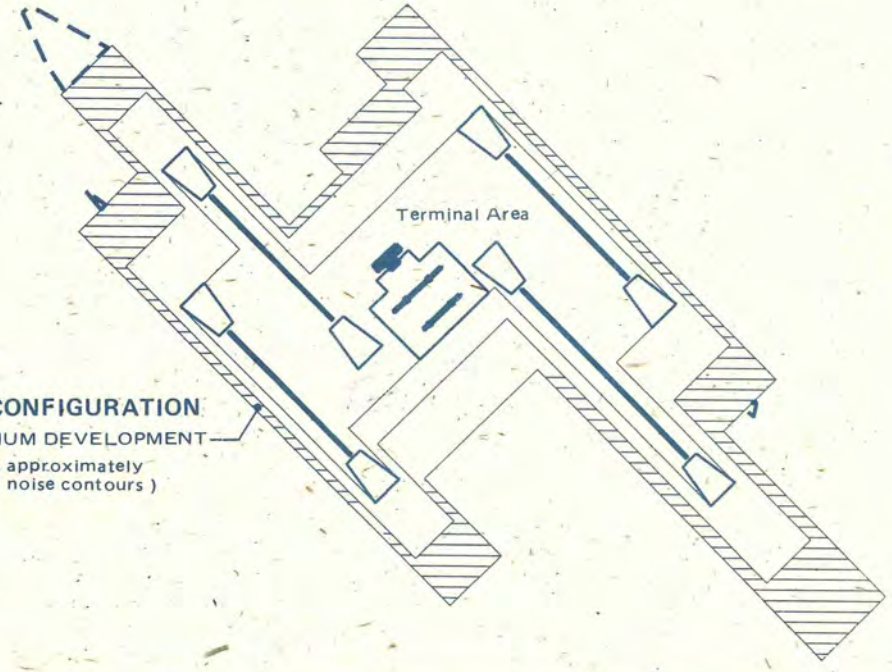
Construction and land acquisition costs of the new replacement airport for the Twin Cities depend on the location of the airport site selected. Preliminary cost estimates for building the ultimate six runway Alternative T-1 complex range from $3.7 to $4.1 billion. The actual development costs will be refined at the site selection level and they will reflect phasing of facilities to meet operational needs.

[3]Minnesota Statutes §§ 360.061-360.074 and §§ 360.81-360.91.

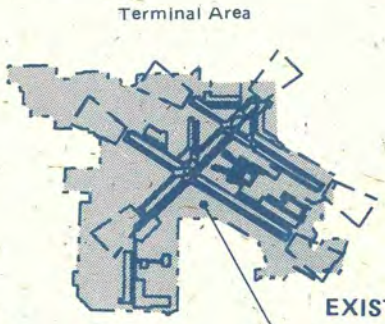


DESIGNED 'T–1' CONFIGURATION
14,900 ACRES MAXIMUM DEVELOPMENT
(Does not include approximately
400 acres of Ldn 65 noise contours)





MODIFIED 'T–1' CONFIGURATION
12,600 ACRES MAXIMUM DEVELOPMENT
(Does not include approximately
400 acres of Ldn 65 noise contours)



EXISTING MSP AIRPORT LAYOUT
3,000 ACRES

METROPOLITAN COUNCIL

Source: Turner Collie & Braden, Inc.

5b Alternative Airport Layout Acreage Requirements

SECTION V

AIRSPACE CONSIDERATIONS

A new airport location must consider the safety implications of existing physical obstructions (such as tall buildings, transmission lines or radio/TV towers) as well as the potential impact of aircraft operations on local, regional, and inter-regional airspace. The search area process has considered both factors in identifying potential search areas. While these issues (obstructions and airspace) take on a high priority at the site selection phase, neither appears to involve problems severe enough that it will rule out the selection of any one of the search areas.

OBSTRUCTIONS

Two categories of physical obstructions were considered: those whose height above ground level (AGL) exceeds 1,000 feet and those less than 1,000 feet but greater than 150 feet. As shown on the Figure 6, no obstructions greater than 1,000 feet exist with the search areas, and only three obstructions of the latter, shorter category exist within the search areas (two in the southwestern corner of the Dakota search area and one in the south-central portion of the Dakota-Scott search area). There are a few shorter obstructions close to the search areas to have an affect on flight paths.

Because of the small number of physical obstructions and their location on the periphery of the search areas, they are not limiting factors to selecting a single search area. Should an airport be located close to these or other obstructions, however, the orientation of the runway approach and departure patterns would determine the magnitude of the impact of those obstructions. Should a physical obstruction be considered a potential safety risk to an airport's airspace, it would have to be restructured or relocated. This would then become part of the cost for that site.

In addition, a specific site may require the relocation or realignment of electric transmission lines. This can be an important cost factor in evaluating the location or runway orientation of a specific site. For example, the construction of the new Denver Airport required the relocation of a 20-mile section of a major power line at a cost of approximately $1 million per mile. However, while some smaller lines cross Dakota and Dakota-Scott search areas, no major line or generating facility appears to limit the selection of a search area.[1]

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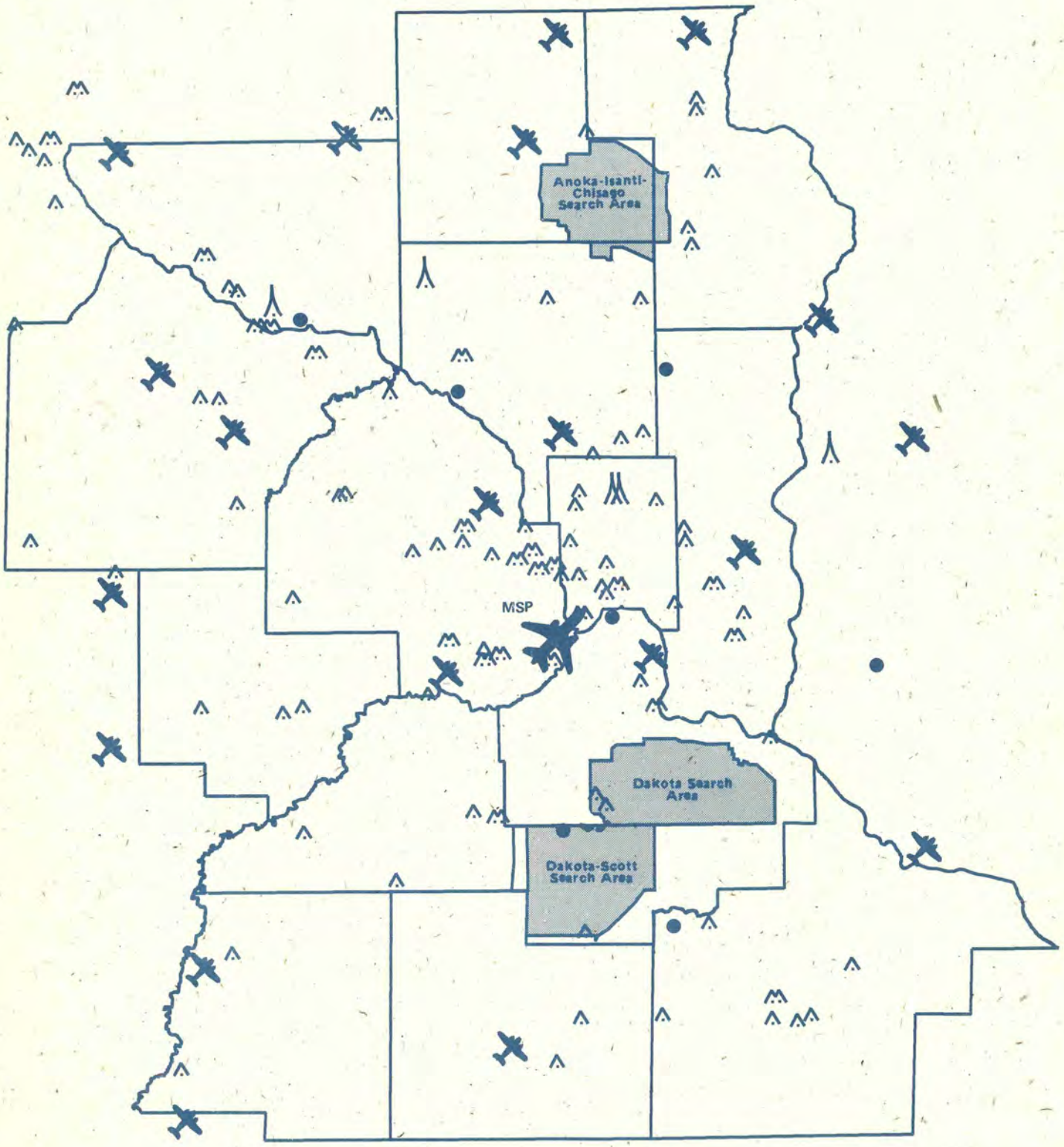
[1] See *A Report on the General Land Availability for a New Major Airport to Serve the Twin Cities Metropolitan Area*, prepared for the Metropolitan Council of the Twin Cities by Apogee Research, Inc., *et al*, (November 1990), pp. 24-27.



METROPOLITAN COUNCIL

Source: Twin Cities Aeronautical Chart National Oceanic and Atmospheric Administration, February, 1991

Metropolitan Council, Regional System Reliever Airports Study,1990

6. Regional Airports and Obstructions

AIRSPACE

The Twin Cities Area has a highly developed airport system that, in addition to MSP, includes regional reliever airports and smaller general aviation facilities (see Figure 6). The airspace to support this system is tied together in three ways: airspace controls for specific airports, navigational aids to support regional traffic flow, and the overall airspace structure, which includes traffic routings within and around the region. The potential impact of each issue for the three search areas is discussed below and summarized in Table 6.

The impact of any new major airport on existing local airports would be determined by a combination of proximity and the volume and direction of aircraft flow. Because a potential new airport would replace the region's current primary commercial airport, it would be considered the dominant airport for air traffic planning purposes, and would, therefore, take precedence over other regional airports. As a result, where conflicts exist, those airports would have to either modify traffic flows or close. Cambridge Municipal (to the north) and Airlake (to the south) appear to be the airports that could be affected most severely. Specific impacts would be determined at the site selection phase.

Likewise, navigational aids designed and located to handle the current airspace may have to be relocated to ensure effective operation of the redesigned airspace for a new airport. This would likely be required regardless of which search area is selected and is not, therefore, a factor in search area selection. The specific details may be a cost consideration for site selection.

Local and regional airspace structure would have to be redesigned for any new site. This would include shifting the current Terminal Control Area for MSP and centering it on the new airport site. This change would be the most significant contributor to the need for changes in local and regional airspace. Because this undertaking is not site-specific, however, it does not favor any search area. Perhaps the one area whose impact would differ by search area would be that of high-altitude airways (for those aircraft overflying the region, for example flights between Seattle and Chicago). In this regard, some limited adjustments are likely for the two search areas in the south, but would likely not be necessary for the northern search area.

TABLE 6

SUMMARY OF AIRSPACE IMPACTS

Airspace Element	Search Areas		
	Anoka-Isanti-Chisago	Dakota	Dakota-Scott
AIRPORTS			
	Possible closure of Cambridge Municipal, or severe operational restrictions.	Need to adjust arrivals and departures of Holman and South St. Paul Airports	Potential closure of Airlake Airport or physical integration with new airport. Probable encroachment on Stanton airport.
NAVIGATIONAL AIDS			
		Possible need to relocate Farmington VOR depending upon site location.	Probable need to relocate Farmington VOR.
AIRSPACE STRUCTURE			
• Terminal Control Area	Need to restructure TCA including arrival and departure routes, gates, feeder fixes, etc.	Need to restructure TCA including arrival and departure routes, gates, feeder fixes, etc.	Need to restructure TCA including arrival and departure routes, gates, feeder fixes, etc.
• Low-Altitude Airways	Potential moderate adjustments to low-altitude airways for general aviation traffic using the Gopher VOR.	Potential minor to moderate adjustments to low-altitude airways for general aviation traffic using the Farmington VOR.	Probable major adjustments.
• High Altitude Airways	No significant high altitude airway adjustments expected.	Some high altitude airway adjustment may be necessary.	Some high altitude airway adjustment may be necessary.

SECTION VI

GENERAL SEARCH AREA CHARACTERISTICS

The characteristics of each of the three search areas are presented under three categories:

- Land use, which describes the generalized land use, including residential, parks and recreation, commercial/industrial, and other categories based on satellite photo analysis (see Figures 7a, 7b and 7c);
- Household densities, based on 1990 census data, including analysis of the relative population densities by search area (see Figures 8a, 8b and 8c); and
- Agricultural land types, which are evaluated based on a State Crop Equivalency Rating (CER) (see Table 7).

Each of these is described below. A more detailed discussion of each is presented in the Appendices.

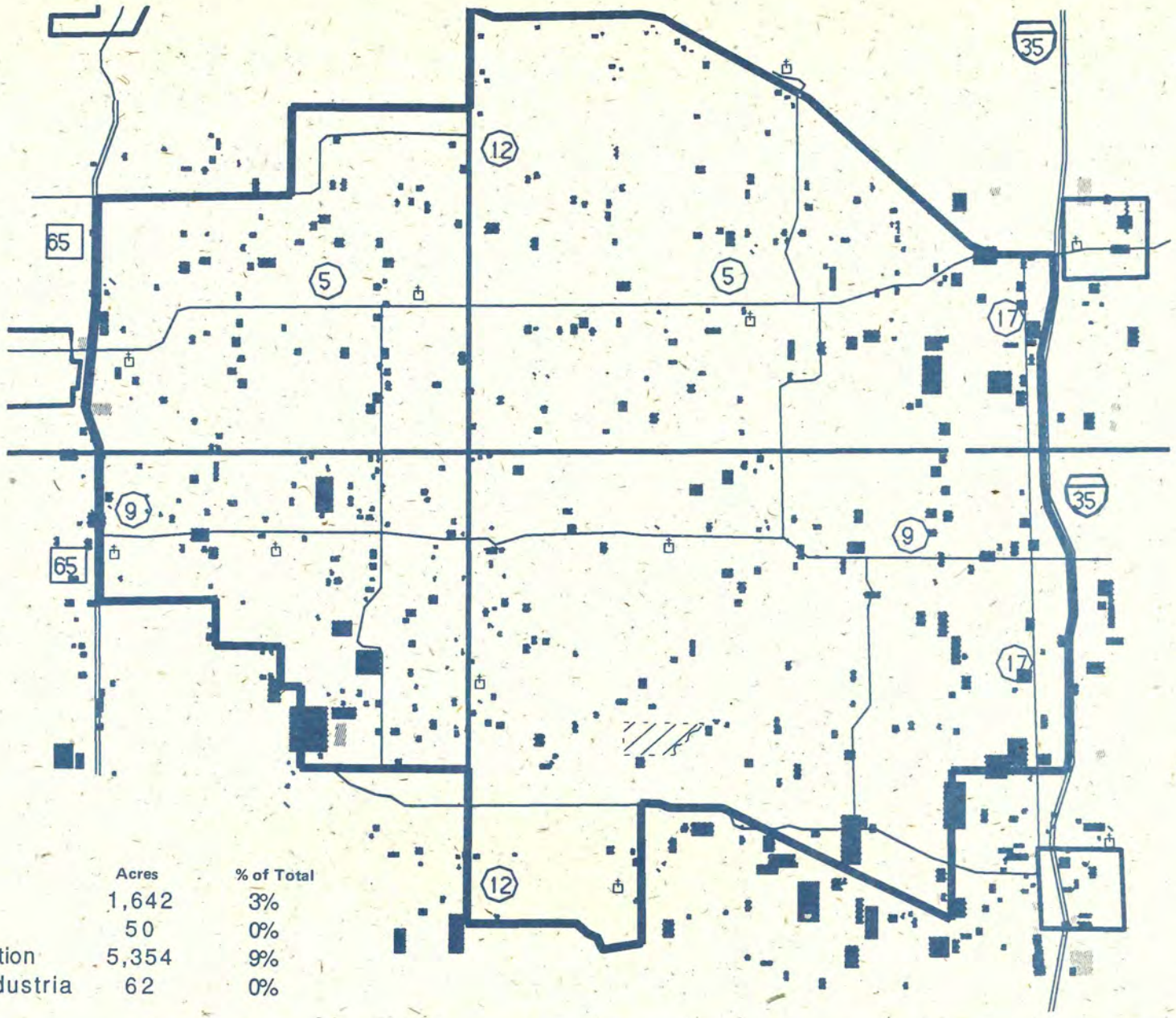
LAND USE CHARACTERISTICS

All three search areas are predominantly used for agriculture and farming. In general, the Dakota search area has the largest percentage -- 85 percent -- of acreage in agricultural land. The Dakota-Scott search area follows with 84 percent and the Anoka-Isanti-Chisago search area has just over 62 percent of its total area in agricultural use. Parks and recreation land use is generally the second highest land use for the search areas. The Anoka-Isanti-Chisago search area has the largest percentage of both parks and recreation land use and designated wetlands. Dakota county has the largest percentage of land occupied by a public use.[1] The remaining two search areas have less than 1 percent public land use. Less than 4 percent of each search area is designated residential land use. The following summarizes the land uses for each of the search areas.

Anoka-Isanti-Chisago Search Area

The Anoka-Isanti-Chisago search area is approximately 102 square miles, or 61,720 acres. It is located north of the Twin Cities primarily in Isanti County (see Figure 7a). Primarily agricultural land, this area has less than 2 percent of its total area occupied by commercial and public land use. Parks and recreation cover approximately 9 percent of this search area. This area has the greatest amount of wetlands and wooded land. Wetlands and biotic communities are located throughout the area but have a higher concentration in the northern portion of this search area. There are several lakes in the southeastern portion of the search area.

[1]In Dakota county, this use category is dominated by the University of Minnesota site at Rosemount.



Land Use	Acres	% of Total
Residential	1,642	3%
Public	50	0%
Parks & Recreation	5,354	9%
Commercial/Industria	62	0%
Cemeteries		

Source: Digitized From 1990 Aerial Photographs
Cemetery Locations From County & Private Sources

METROPOLITAN COUNCIL

Anoka—Isanti—Chisago Search Area

7a **Selected Land Uses**

Dakota Search Area

The Dakota search area is approximately 115 square miles, or 74,590 acres. It is located southeast of the Twin Cities in Dakota County (see Figure 7b). About 3 percent of the total search is divided among a number of commercial/industrial areas. This area has very few wetlands and biotic communities. Only 3.5 percent of the total area is designated wetlands. These are generally found in the southwest corner of the search area. No large lakes exist within the area but the area is traversed by the Vermillion River and the northern portions of the area are close to the Mississippi and Lower St. Croix Rivers. Just over 7 percent of the total land use in this search area is occupied by parks and recreational use. This search area's public land use is approximately 11 percent of the total area. The majority of this land belongs to the University of Minnesota.

Dakota-Scott Search Area

The Dakota-Scott search area is 113 square miles, or 73,865 acres. It is located south of the Twin Cities primarily in Dakota County (see Figure 7c). Less than 1 percent of the total search area is commercial and industrial development. This area has about 0.5 percent of its total area designated for public use. Parks and recreation land comprise slightly over 1 percent of the total search area. The wetlands and hilly areas increase in number in the western portion of the search area. Wetlands occupy 11 percent of the total land in this area. Chub Lake and Rice Lake are the two largest lakes in this area. The Vermillion River traverses the northwestern section of the area and the Chub Creek crosses the southern portion. Few biotic communities are located in the area.

HOUSEHOLD DENSITY

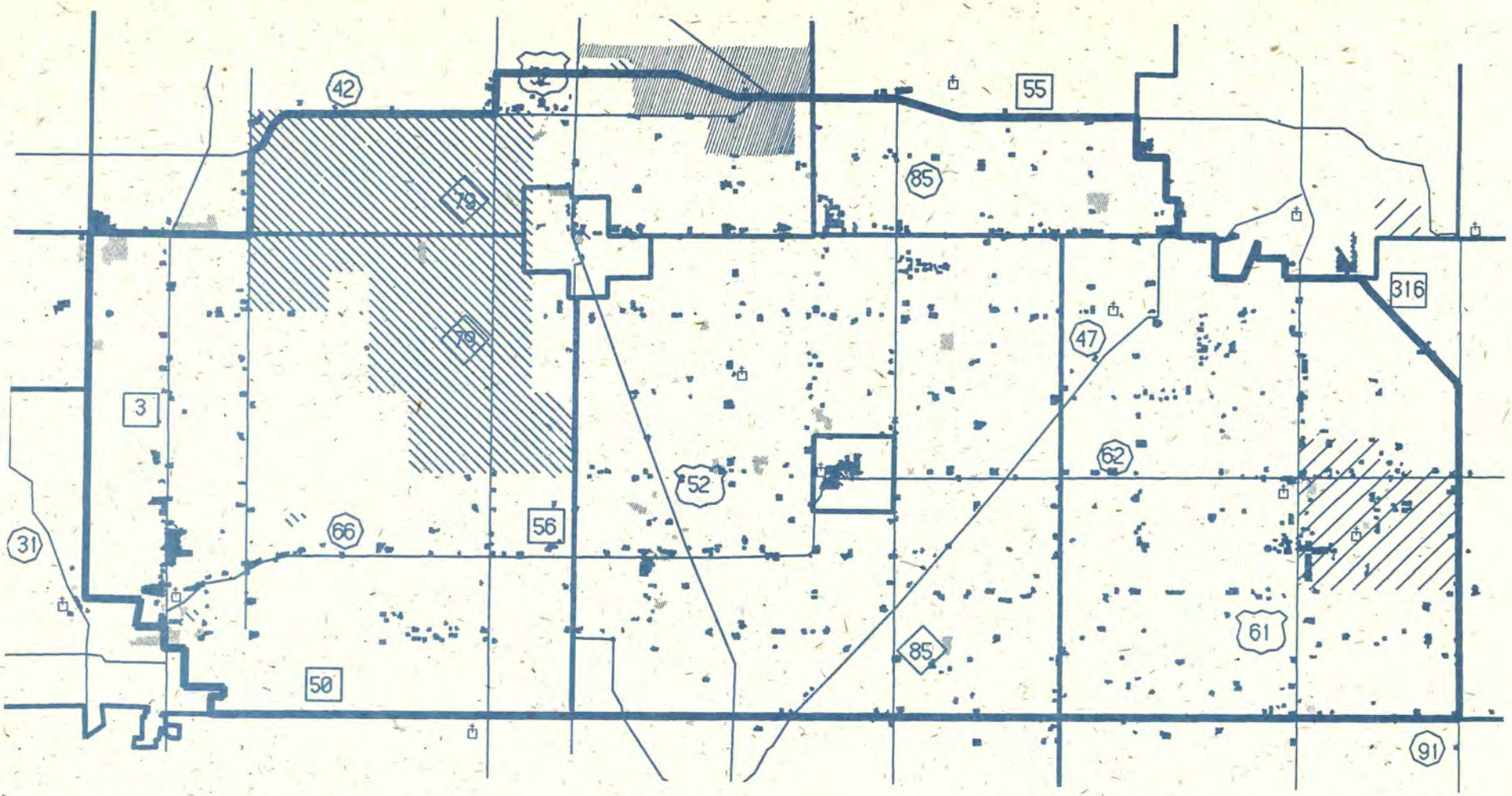
None of the search areas is densely populated, although the northern area is more densely populated than the two southern areas. Figures 8a, 8b and 8c depict the household densities for each area. Generally, population centers -- over 50 housing units per acre -- are found in only a few locations in each search area.

Anoka-Isanti-Chisago Search Area

Approximately 3 percent of this search area (1,642 acres) is residential land use. High rural densities--more than 20 households per square mile--are found to the west of the search area along Hwy 65 (see Figure 8a). The remainder of the search area has 10 to 20 households per square mile, with concentrations of higher population densities along I-35 to the east and throughout the Anoka County portion along the southern border of the search area.

Dakota Search Area

Slightly over 1 percent of the Dakota search area is residential. The rural population densities are greatest along the northern portion of the area along the Hwy 55 corridor (see Figure 8b). Rural densities are high along Hwy 3 and the western edge of the search area. The remainder of the area has relatively low population density -- between 10 to 50 households per square mile -- with the exception of three concentrations of population with densities over 50 housing units per acre located along the Vermillion River.



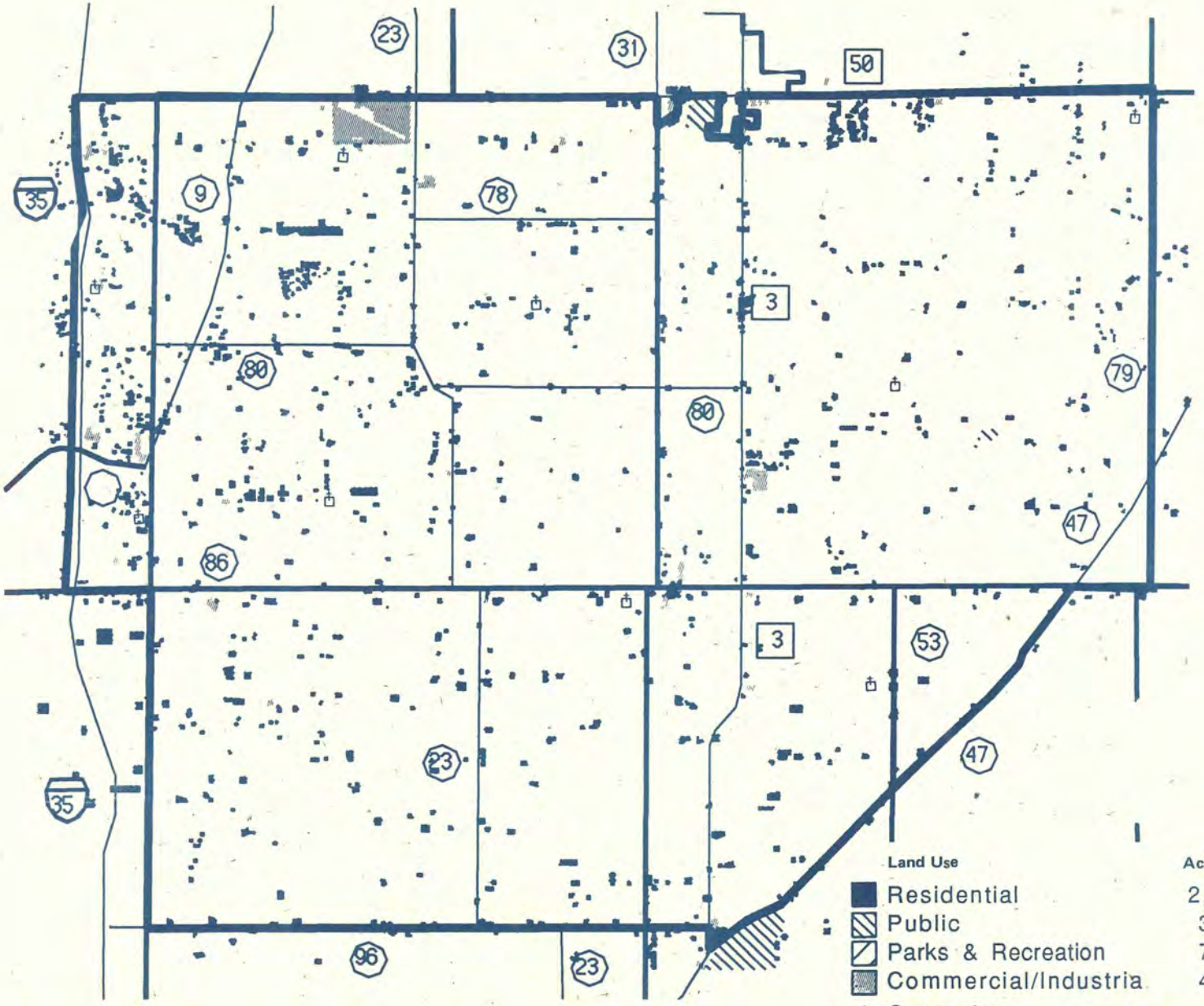
Land Use	Acres	% of Total
Residential	1,026	1%
Public	8,064	11%
Parks & Recreation	5,374	7%
Commercial/Industria	1,985	3%
Cemeteries		

Source: Digitized From 1990 Aerial Photographs
Cemetery Locations From County & Private Sources

METROPOLITAN COUNCIL

Dakota Search Area

7b Selected Land Uses



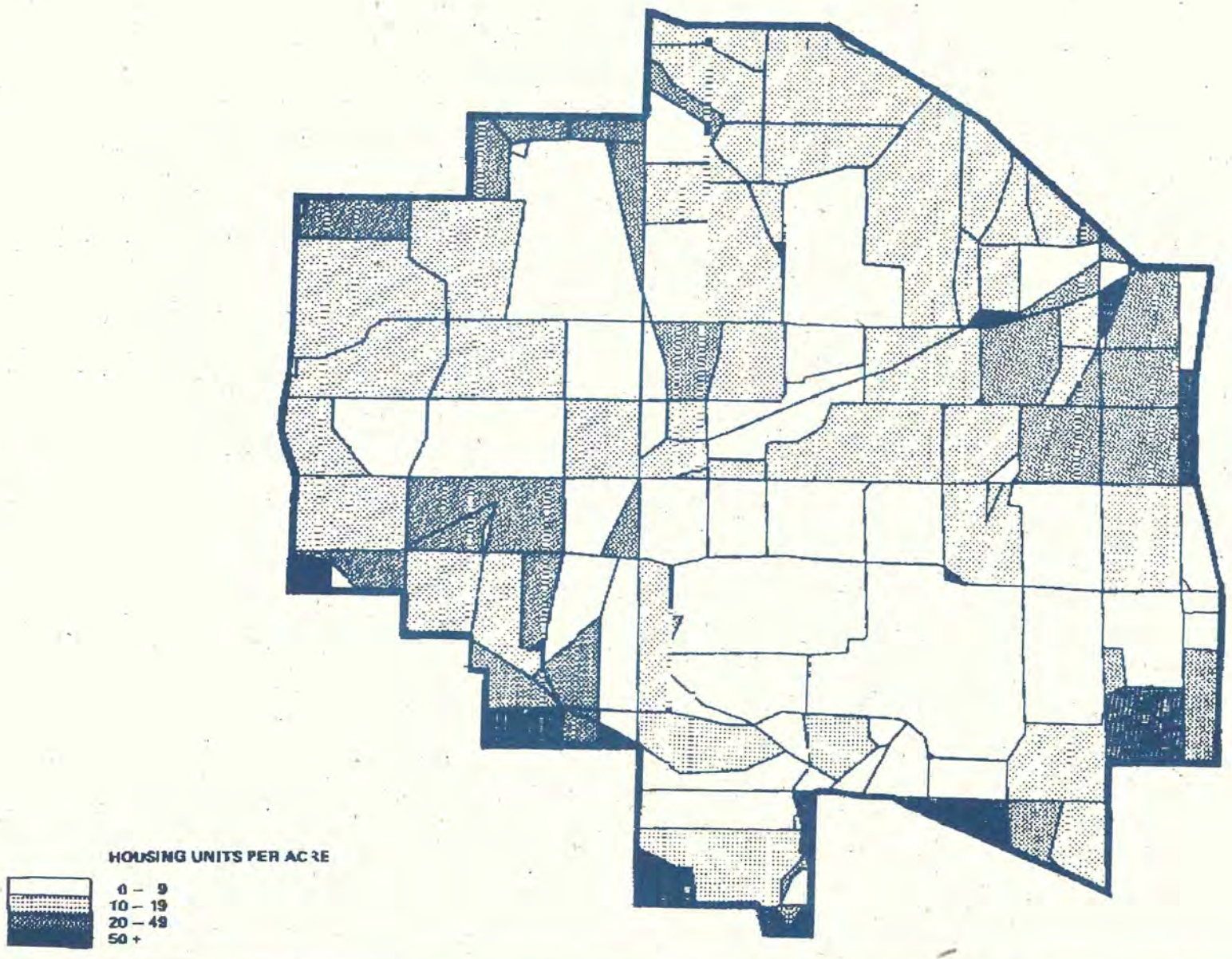
Land Use	Acres	% of Total
Residential	2,554	3%
Public	385	1%
Parks & Recreation	778	1%
Commercial/Industria	451	1%
Cemeteries		

Source: Digitized From 1990 Aerial Photographs
Cemetery Locations From County & Private Sources

METROPOLITAN COUNCIL

Dakota–Scott Search Area

7c **Selected Land Uses**

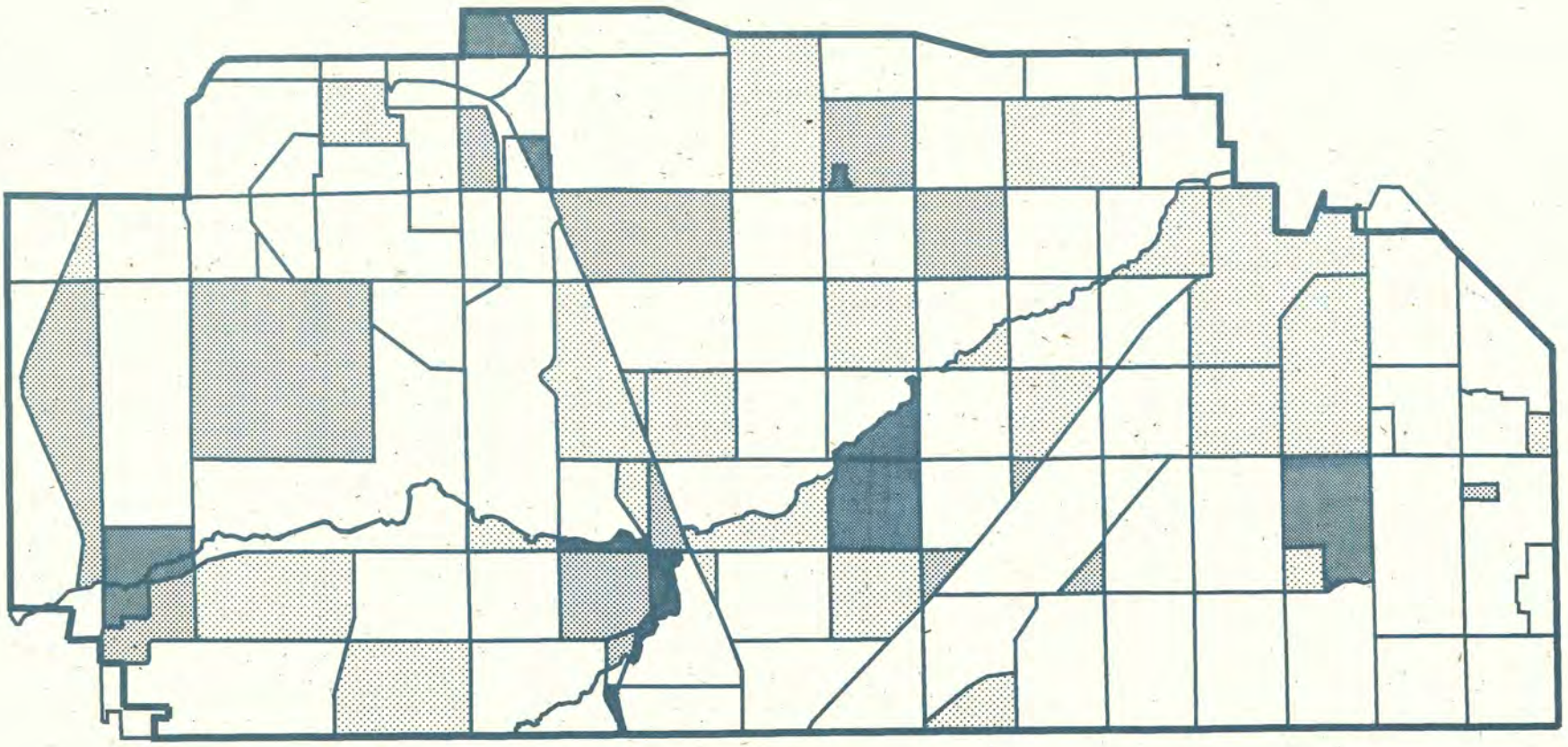


METROPOLITAN COUNCIL

Source: 1990 U.S. Census

Anoka–Isanti–Chisago Search Area

8A **Household Densities**
(1990 Census Block Data)



HOUSING UNITS PER ACRE

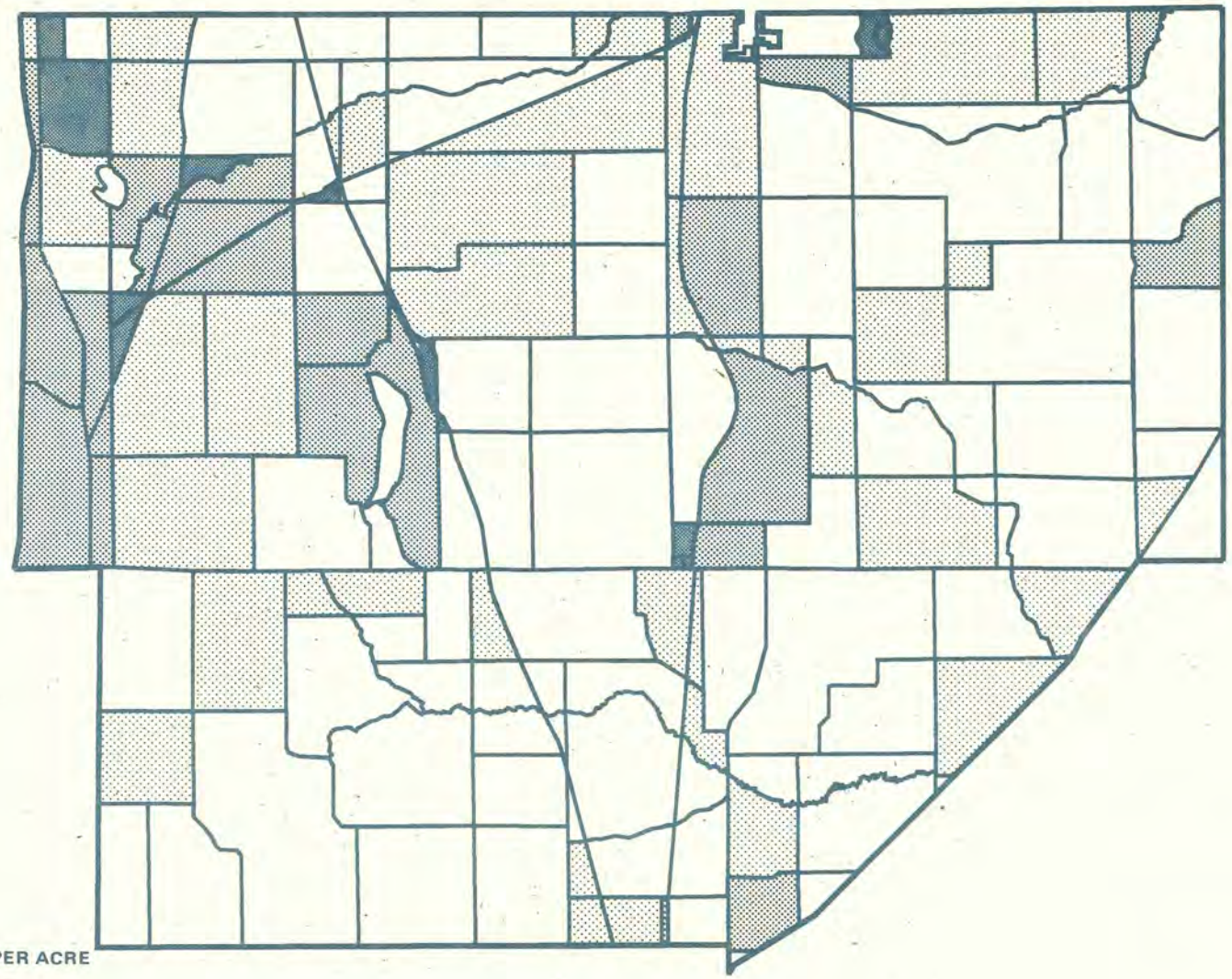
0 – 9
10 – 19
20 – 49
50 +

Source: 1990 U.S. Census

METROPOLITAN COUNCIL

Dakota Search Area

8b. Household Densities
(1990 Census Block Data)



HOUSING UNITS PER ACRE

0 – 9
10 – 19
20 – 49
50 +

Source: 1990 U.S. Census

METROPOLITAN COUNCIL

Dakota–Scott Search Area

8c. Household Densities (1990 Census Block Data)

Dakota-Scott Search Area

This area has only 3.5 percent of its total area used for residential purposes. Rural population densities are high--20 housing units and above--primarily where Hwy 50 intersects County Road 3 and the Soo Railroad Line in the northern portion of the search area (see Figure 8c). Household densities are 20 housing units and above around Rice Lake and Chub Lake. Concentrations of housing densities of greater than 10 units per acre are found between the Soo Railroad Line and Interstate 35 and between the Soo Railroad Line and County Road 3. Moving southeasterly towards the borders of the search area, the population densities decline while the intensity of agricultural land use increases.

AGRICULTURAL LANDS

The primary land use for the search areas is agricultural. However, the general crop productivity and soil association characteristics vary between the areas. Each of the search areas have been identified by a Crop Equivalency Rating (CER) that is described in greater detail in Appendices. A weighted average CER for each of the three search areas is shown in the table below.

The three search areas consist of several soil associations whose utility for crop and pasture agriculture vary widely. As a result, these soil associations vary greatly in their productivity and usefulness as agricultural land. The higher rating means the soil is more productive for growing crops. The following is a summary of the soil characteristics for each search area:

TABLE 7
SUMMARY OF CROP EQUIVALENCY RATINGS
BY SEARCH AREA

Search Area	Weighted Average Crop Equivalency Rating (CER)
Anoka-Isanti-Chisago	48.1
Dakota	66.5
Dakota-Scott	81.2

Anoka-Isanti-Chisago Search Area

Agricultural uses and farming occupies over half, 62 percent, of the total land in this area. The Anoka-Isanti-Chisago search area has the lowest average CER rating of 48.1. This area is typified by poorly drained soil dominated by sand. The Hayden/Bluffton soil association, which represents 31 percent of the total area has the highest CER of 65. The largest soil association, Zimmerman/Lino, occupies 60 percent of the search area but has the lowest CER, 40.5, in the area.

Dakota Search Area

This search area is primarily farmland. Approximately 89 percent of the total area is used for agricultural purposes. The Dakota search area had an average CER rating of 66.5. Its largest soil association, Waukegan/Wadens/Hawick, occupies 67 percent of the search area and has a CER of 70. The Marshan/Cylinder soil and the Ostrander/Kinger/Maxfield soil associations have the highest CER ratings of approximately 84 percent. However, combined these areas only represent 11 percent of the entire area.

Dakota-Scott Search Area

This search area is primarily farmland. Agricultural lands comprise 84 percent of the total search area's acreage. Based on the average CER values, the Dakota-Scott search area has the highest crop productivity. The average value of the CER was effected by the consistently high CER values throughout the search area. In particular, the Lester/Blooming/Merton soil association, which covers 40 percent of the entire search area, has a CER rating of 92. Only 11 percent of the entire area was rated below 50.

SECTION VII

POLICY CONSIDERATIONS

The public policy considerations used by the Council in the search area process derive from several sources:

- State law on the major airport location in relation to the downtowns of Minneapolis and St. Paul (Minnesota Statutes, Section 473.621, Subdivision 4)
- *Metropolitan Development Guide* plans of the Metropolitan Council.
- State and federal policy on environmental assessments.

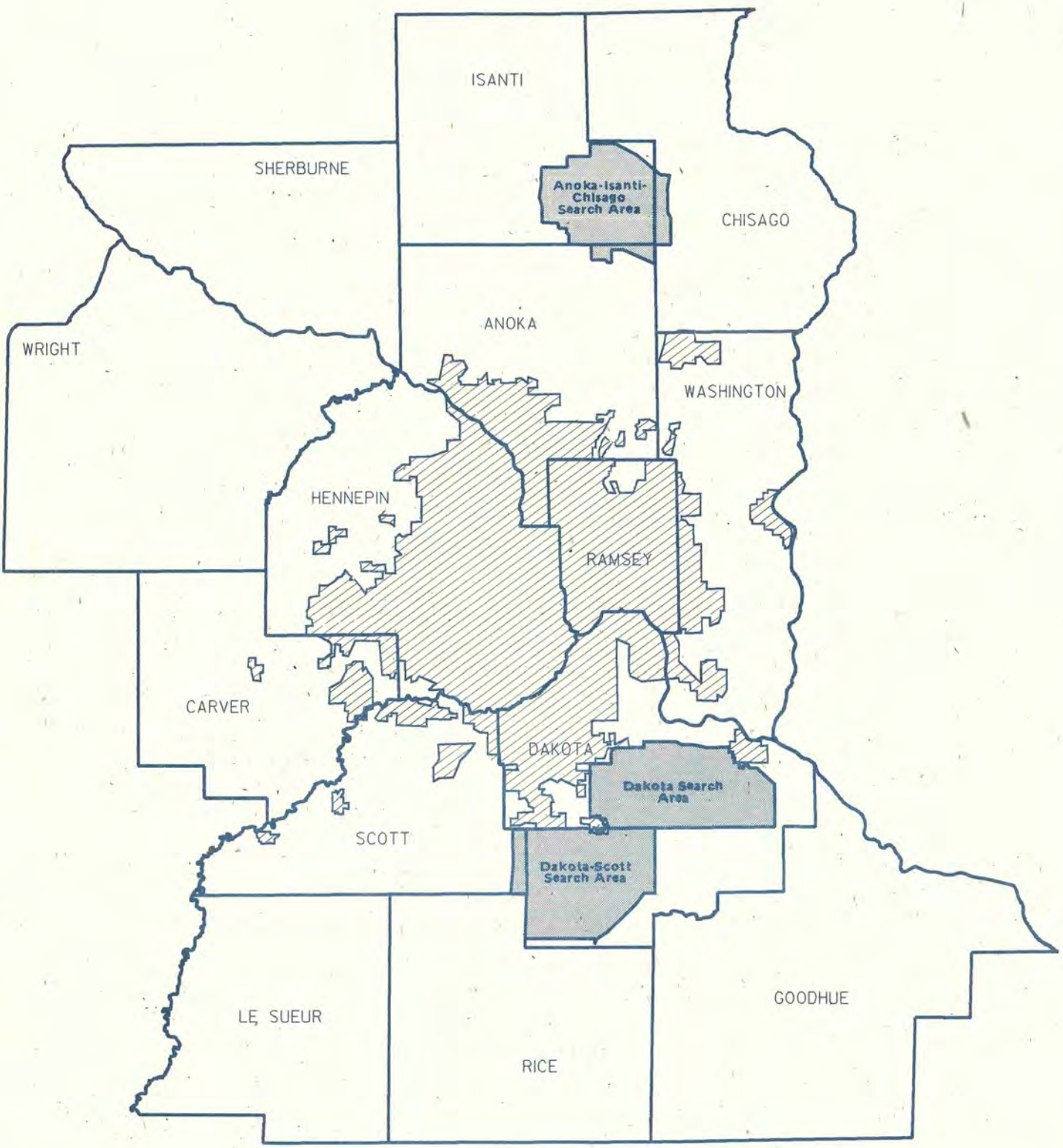
POLICY CONSIDERATION 1: *Maximize airport access to the urbanized metropolitan area centered on the downtowns of Minneapolis and St. Paul.*

State law requires that at least one major or primary metropolitan airport shall be located as nearly equidistant from the city halls of Minneapolis and St. Paul as possible. Other new airports to be constructed are to be located so that the airport system shall be substantially of equal convenience to both cities. This law dates back to the 1940s when the two central cities formed the urbanized portion of the Twin Cities. In contrast, today's central city downtowns are generally the geographic centers of their respective parts of the region. The three search areas meet this equidistance requirement since the metropolitan highway network provides both downtowns with generally equal access (see metropolitan access section).

POLICY CONSIDERATION 2: *Location outside the Metropolitan Urban Service Area (MUSA)*

The Metropolitan Council's *Metropolitan Development and Investment Framework* and *Metropolitan Aviation Development Guide Chapter* are the major policy documents affecting the new airport planning process. The Framework sets the general direction for future development patterns in the region and establishes guidelines for making decisions about major public facilities to support commercial, industrial and residential development. The Framework's strategy directs urban growth requiring urban services into the Metropolitan Urban Service Area (MUSA) shown in Figure 9 and seeks to maintain rural land uses and density in the remaining portions of the seven metropolitan counties. A major new airport, as a user-oriented facility affecting the entire region, would be the type of facility covered by the "special regional facility" definition in the Framework. The long-term aviation forecasts show the need for additional airport facilities to serve the region in the 21st Century. As a special facility, the airport search area and final site will be determined according to its special design and operating requirements, then the Council will review its development policies as they relate to the airport.

The density of residential development within the MUSA makes it an inappropriate location for a new major airport. Therefore, the three search areas are located outside the MUSA. The



Source: Metropolitan Council

9 **Metropolitan Urban Service Area**

Anoka-Isanti-Chisago search area, with the exception of the Linwood Township portion in Anoka County, is also outside the jurisdiction of the Metropolitan Council and MAC. If selected, legislative authorization to develop an airport outside the metropolitan area would be required. The Dakota and Dakota-Scott search areas are adjacent to the MUSA. Airport sites selected in either of the southern search areas may or may not be contiguous to the MUSA.

The Council will work with the MAC and local governments to determine the best way to provide metropolitan service to the new airport site. If non-contiguous to the MUSA, the site could function as a self-sufficient, freestanding activity center or the MUSA could be extended to include the site. In either instance the Council and local governments would have to address what happens to land within the intervening area. Should the intervening area be added to the MUSA immediately? Should it be added in a staged manner linked to the timing of potential new airport development? Should the area remain in the Rural Service Area and continue to used primarily for commercial agriculture?

Once a site boundary is identified, the Council and MAC will institute the provisions of the Airport Development Act (see section IV). The act authorizes the Metropolitan Council to guide the land-use development planning in and around the airport site. Site protection and regional land-use planning studies will need to incorporate metropolitan policies, and recognize regional growth trends and the experience at other major airports across the country. This experience is analyzed in the *HUB Airport Case Studies* published by the Council in Jan., 1990 and in *Characteristics of development Evolving Around Airports* by Cambridge Systematics, Inc. (January 1991). This is summarized as follows:

- Metropolitan Development:
    - New airports did not change the traditional development pattern of the region.
    - There is a general pattern of development in the airport environs, but the pace of development varies (if in the traditional path of development it is faster; if not, it is slower).
    - The new airport location influenced the rate of growth but not the type or sequence of development.
    - The quality "image" of airport environs is important to its development.
    - Large-scale developments in airport environs can be as important as the airport in attracting development.
    - The airport's impact on development is spread broadly across the region; impact is not isolated to airport environs.

- Airport Location:
    - Actual distance in miles may not determine "How far is too far?" The "perception" of the location in the region may determine the answer as well.
    - Air cargo and hospitality industries generate much of the development in the airport environs.
    - Major highway and/or interstate highway access is important. Development seems as attracted to these interchanges as to the airport.
    - Higher quality residential areas are important to attract higher-end corporate headquarters and commercial-industrial development to the airport environs.

- International & Air Cargo:
  - The airport needs to have direct/non-stop service to foreign destinations in order to attract significant foreign investment and business location.
  - It is important to have direct/non-stop service to international destinations in order to have a high level of air cargo activity.
  - Air cargo service generates substantial development activity on the airport's property and within the airport environs.

- Airport Development:
  - On-site airport land can generate substantial revenue for the airport authority. It can also complement or compete with land in adjacent communities.
  - Office and lodging developments have clustered around the interstate highway interchanges. Next to the interstate and state highway systems, the most important road network from an economic perspective is that which links the industrial/warehouse facilities to the air cargo entrances.

- Sequence of Commercial-Industrial Development:
  - There is a consistent pattern in the general sequence of commercial-industrial development within the airport environs, excluding large-scale developments of 1,000 acres or more. The sequence is as follows:

    (1) Lodging (hotels, motels),
    (2) Single user (office, manufacturing),
    (3) Owner financed industrial, office/warehouse or office/distribution buildings,
    (4) Small (less than 15,000 sq. ft.) speculative industrial, office/warehouse or office/distribution buildings of average design quality,
    (5) Larger speculative industrial, office/warehouse, or office/distribution buildings, typically built out with 25 percent to 30 percent office use,
    (6) Multi-story office buildings and
    (7) Franchise and specialty restaurants.

    The timing of development depends on many factors, but primarily the relationship of the airport environs to the growth corridors of the overall region. Basically, the first three development types begin in the first five years of opening. The remaining may take up to 20 years to occur.

- Airport Economic Development Attraction:
  - A major airport, especially one with significant international service and air cargo operations, can act as a magnet in attracting new businesses and residents to its environs. If the airport brings a new level of international business or expanded air cargo opportunities, it can also pull new businesses into the metropolitan area and to the environs. To achieve full economic potential, a sustained and cohesive marketing effort must be undertaken to draw businesses other than those which must locate at or near the airport. Similarly, regions without adequate airport capacity will be perceived as less attractive locations for business expansion, and will lose incremental growth to other parts of the country.

POLICY CONSIDERATION 3: *Single major airport for scheduled air service for the metropolitan area.*

The *Metropolitan Aviation Development Guide Chapter* and the Council's goals for the major airport support the development and operation of a single major airport for scheduled passenger service. All three search areas can accommodate the requirements of the new major airport conceptual design.

POLICY CONSIDERATION 4: *Federal and state environmental review processes.*

State and federal law require assessments of governmental actions which significantly impact the environment. The search area designation process is guided and shaped by these requirements (see section VIII). The environmental analysis was approved by the Minnesota Environmental Quality Board in October, 1990.

SECTION VIII

WHEN ISSUES WILL BE ADDRESSED IN THE PLANNING PROCESS

The dual-track major airport strategy calls for the Metropolitan Council and the MAC to undertake a number of activities during the 1989-1996 planning period. The new major airport track (Track B of the dual-track strategy) has several phases of planning studies.

The initial phase--through the end of 1991--will result in the designation of a search area and conceptual design for a potential new airport. During this phase, general environmental data will be collected and analyzed. The second phase--from 1992 to 1996--will result in the selection of a new major airport site within the search area. During the second phase the MAC will prepare an airport layout plan and an airport development plan, including an environmental analysis, which will be used later for the preparation of an environmental impact statement (EIS) by the Federal Aviation Administration (FAA). In a third phase--after 1995--a cost, benefit and environmental comparison will be made among four basic options: doing nothing, expansion of Minneapolis-St. Paul (MSP) International, landbank the site for the future development of a new airport, or build a new airport. Both the Council and the MAC have responsibilities in each of the phases. The level of detail for the environmental analysis and documentation at each phase is commensurate with the action required and will become progressively more specific.

SEARCH AREA ANALYSIS PHASE

The Council in May 1990, adopted criteria to guide the planning, analysis and decision-making for the designation of a new major airport search area. The criteria, developed by the Council's New Airport Search Area Task Force, are:

- Metropolitan access,
- Environmental impacts,
- General land requirements,
- Airspace considerations,
- Search area characteristics, and
- Policy considerations.

In Dec., 1990, the Council applied the criteria to determine the general availability of suitable land for a new airport in 14 counties surrounding the Twin Cities. A report on the availability of suitable land was submitted to the Legislature. Based on the report, which concluded that land was available, the Council applied the criteria a second time and identified three large candidate search areas in Jan. 1991. Pursuant to legislative mandate, by Jan. 1, 1992, the Council must designate a search area within which the MAC can locate the site for a possible new airport.

The Council is committed to considering environmental impacts and alternatives as part of the planning process for a new major airport. The Council applied to the Minnesota Environmental Quality Board (EQB) for an alternative review process as provided by the EQB's rules that have

been promulgated under the Minnesota Environmental Policy Act (MEPA). The EQB approved this process in October 1990. This alternative review is as comprehensive or more comprehensive than what would be required under traditional EIS rules. The National Environmental Policy Act of 1969 (NEPA) does not apply at the search area designation phase since the Council is not a federal agency and because planning activities such as this have not been interpreted as requiring an environmental impact statement. NEPA does not require that the FAA prepare an EIS until the FAA approves an airport site or an airport layout plan.

Consistent with the requirements of NEPA and MEPA, the Council's environmental review is designed to assure that environmental factors are considered and integrated along with other social and economic factors. The Council and its New-Airport Search Area Task Force held a series of public meetings to solicit comments on the search areas in February and March 1991. In addition, the search area information has been given to the federal and state agencies participating in the EQB alternative review process. Comments from the public meetings and the review agencies were used to help direct the focus of the environmental review and planning analyses of the search areas. While not all the questions and issues raised can be addressed in the search area analysis phase of this process, those issues that cannot will be addressed during the new airport siting phase. Table 8 summarizes the issues identified during the February and March public meetings and shows what is addressed at the search area phase and what will be examined in the new airports siting phase. The latter becomes part of the scoping for the siting process. The Appendix contains the environmental analysis of the three candidate search areas.

The issues/questions raised are summarized under four topic headings:

- environmental issues,
- airport operation issues,
- economic development and airport finance issues, and
- infrastructure investment.

The issues are as follows:

- **environmental issues**
  - What will happen to the natural habitat and wildlife?
  - How will the surface water be protected?
  - What are the impacts on wetlands?
  - What will happen to agricultural lands?
  - What will the aircraft noise impacts be?
  - What will happen to the rural area and rural lifestyle?
  - How will existing users of the major airport be impacted?
  - How much land is needed for an airport for the 21st Century?
  - What are the air quality impacts?
  - What are the impacts of waste disposal facilities on airport development?
  - What are the energy impacts of moving the major airport?
- **airport operation issues**
  - What are the facility requirements?
  - What are the impacts on regional, state and national airspace?
  - What are the land-use compatibility issues?

- **economic development and airport finance issues**

    - What are the implications for long-range metropolitan growth?
    - What are the land use and development impacts?
    - What type of spin-off development is associated with airport developments?
    - Who pays and how are airports financed?

- **infrastructure investment issues**

    - What are the on-site airport investment requirements?
    - What are the off-site airport investment requirements?

NEW AIRPORT SITING ANALYSIS PHASE

In January, 1992, the MAC will begin the new airport siting process. This effort is to be completed within four years. This effort will include site selection within the final search area, airport master plan development and preparation of environmental documentation. The analysis from the first phase will provide initial scoping for the environmental documentation as well as direction for the reports to be prepared by the Council and MAC in 1996.

AIRPORT STRATEGY RECOMMENDATION PHASE

Following the completion of the airport siting process the Council and the MAC will make their recommendations to the Legislature on the best way to meet the air transportation needs for the 21st Century. The dual-track legislation specifically calls for recommendations based on the assessment of the effects of a new airport on MSP, impacts of a new airport on the local, regional and state economies, financial planning, airport development financing, and a method to capture a portion of the revenue from development around the airport for public purposes.

TABLE 8

WHEN ISSUES ARE TO BE ADDRESSED IN THE PLANNING PROCESS

ENVIRONMENTAL ISSUES

Search Area Analysis	*New Airport Siting Analysis*
• **Natural Habitat & Wildlife** • identification of general location of endangered, threatened, special concern, and rare plant and animal species. • source: Minnesota Department of Natural Resources (DNR)	• **Natural Habitat & Wildlife** • establish specific locations of critical plant and animal habitat (including use of Minnesota County Biological Survey). • boundaries of critical plant and animal habitat. • assess impacts of airport development and operation. • identification of mitigation measures and general cost of mitigation.
• **Surface Water** • identification of surface water--protected lakes, rivers and streams; floodplains; and wetland areas. • general assessment of surficial geology, soils and slopes. • general assessment of watershed district plans. • assessment of general land/surface coverage of conceptual new airport (runways, taxiways, terminal). • source: U. S. Geological Survey Topographic Maps; Federal Emergency Management Agency, Flood Insurance Maps; U.S. Fish and Wildlife Service, National Wetlands Inventory	• **Surface Water** • location of protected rivers, lakes and streams. • assess impacts of airport development (land coverage of runways, terminal buildings, associated airport buildings, road access) and operation. • Minnesota Pollution Control Agency and U. S. Environmental Protection Agency require compliance with federal Clean Water Act. MAC is required to apply for a national pollutant discharge elimination system permit and a state disposal system permit which regulates runoff to protect surface and ground water.
• **Wetlands** • identify location of wetlands (including seasonal, definition based on vegetation). • quantification of wetlands (acreage). • source: U.S. Fish and Wildlife Service, National Wetlands Inventory	• **Wetlands** • location of wetlands including field checks. • evaluate type and classification of wetlands. • assess impacts of airport development and operation. • comply with requirements of state and federal law regarding avoidamce of wetlands, wetlamd replacement, and mitigation measures.

Search Area Analysis	*New Airport Siting Analysis*
• **Agricultural Land** • identify agricultural land use. • identify agricultural land enrolled in Agricultural Preserves. • quantify agricultural land by general *crop equivalent ratings*. • source: Remote Sensing Laboratories, University of Minnesota; counties; Metropolitan Council	• **Agricultural Land** • identification of prime agricultural land. • assessment of impacts of airport development and operation on prime agricultural land (including potential use of airport development and land use controls to protect or continue agricultural uses).
• **Noise Impacts** • general aircraft noise impact based on new airport conceptual design using 2020 traffic forecasts and Stage III fleet noise characteristics. • source: New Airport Conceptual Design Study and Plan, January 1991, MAC	• **Noise Impacts** • federal and state noise analysis required to assure airport development plan and operation meets federal and criteria for noise impact and land use compatibility. • LdN 75 to be on airport site and LdN 65 on or within airport land use control area (Airport Development Act provides for noise related regulations) • Airport Development Act land use regulations and noise impact area determined for final airport site.
• **Rural Development Impacts** • population and housing unit analysis. • land use classification (residential, public, parks and recreation, commercial/industrial, cemeteries) • identify location of historic places. • source: 1990 U. S. Census, Block Data; 1990 Aerial Photographs, Metropolitan Council; Minnesota Historical Society	• **Rural Development Impacts** • identification of population, households and housing units within new airport site. • assessment of land use changes (employment and economic activity). • assessment of relocation costs and impacts. • assessment of impacts on historic places and cost of mitigation of impacts on properties covered by National Historic Preservation Act. • assessment of impacts on cemeteries. • assessment of development impacts of airport development on infrastructure (including ground transportation access improvements).

Search Area Analysis	*New Airport Siting Analysis*
• **Airport User Impacts** • ground travel time and distance from candidate search areas to 2010 population (socio-economic characteristics--income quartile) and employment within Metropolitan Area. • source: Metropolitan Council	• **Airport User Impacts** • assessment of air travel distances (including cost of delay and airport efficiency) • assessment of travel time and distance for population and employment to new airport site. • assessment of travel time and distance for airport employees to new airport site. • assessment of travel time and distance for airport dependent businesses (air cargo, etc.)
• **Airport Site Requirements** • conceptual design, six runway ultimate development capacity (2020+). • source: New Air Carrier airport Conceptual Design Study and Plan, January 1991, MAC.	• **Airport Site Requirements** • reassessment of facility requirements (update/revision of long-range forecasts) for airport site and determination of development phasing.
• **Air Quality** • relationship to non-attainment areas of State Implementation Plan (SIP) • source: Minnesota Pollution Control Agency, U. S. Environmental Protection Agency	• **Air Quality** • assessment of air quality impacts of airport road system (parking, terminal area access) boiler plant and aircraft operation; indirect source permit required. • compliance with state and federal air quality regulations.
• **Solid Waste Disposal** • location of solid waste disposal facilities. • source: U. S. Environmental Protection Agency, Minnesota Pollution Control Agency, County records (Note: Dakota County has a permit pending before the Minnesota Pollution Control Agency for the Dakota County Incinerator adjacent to Coates in the Dakota Candidate Search Area. If the facility is permitted and built and the Dakota candidate search area is selected, a co-location study will be needed.)	• **Solid Waste Disposal** • assessment of impacts of waste disposal facilities on airport site . • assessment of cost of mitigation measures (including relocation of facilities or the reimbursement of remaining economic life).

Search Area Analysis	*New Airport Siting Analysis*
• **Fossil Fuels** • general assessment of increase/decrease of vehicle miles traveled to candidate search areas and resulting fuel consumption. • source: Metropolitan Council	• **Fossil Fuels** • assessment of difference in fuel consumption for ground transportation between MSP and new airport site. • assessment of difference in fuel consumption for aircraft between major city pairs and MSP/ new airport site.

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AIRPORT OPERATION ISSUES

Search Area Analysis	*New Airport Siting Process*
• **Airport Design Requirements** • identify facility requirements of 2020 for a new replacement airport. • source: New Airport Conceptual Design Study and Plan, January 1991, MAC.	• **Airport Design Requirements** • update facility requirements for 2020 for a new replacment airport; determine facility needs for potential date of opening (including number and orientation of runways, number and type of gates, terminal space requirements, parking facilities, onsite support facilities). • compare capabilities of new airport and MSP.
• **Airspace System** • assess potential impacts of candidate search areas on exiting airports within 14 county area. • assess potential impacts of candidate search areas on existing naviagational aids. • assess potential impacts of candidate search areas on airspace structure--low altitude airways, high altitude airways and terminal control area. • preliminary airspace feasibility review by FAA. • source: FAA, Turner Collie & Braden	• **Airspace System** • define new terminal control area, airspace gate structure and navigational way points/fixes. • assess specific impacts on land use, navigational aids, airways for each alternative site. • airspace review by FAA.
• **Land Use Compatibility** • identify new major land use protection and compatibility regulations. • apply provisions of new major airport search area protection. • source: Metropolitan Council	• **Land Use Compatibility** • apply provisions of new major airport search area protection law. • determine/implement procedures for airport safety zone regulations and new major airport development area act.

Search Area Analysis	*New Airport Siting Process*
• **Long-Range Metropolitan Growth** • consistency/relationship with metropolitan development goals and policies, forecasts (population, households and employment), ground transportation forecasts, and air transportation forecasts. • assess annual air transportation use (passengers, aircraft operations) and compare to long-term forecasts. • Source: Metropolitan Council, Metropolitan Development Guide; annual contingency planning assessment.	• **Long-Range Metropolitan Growth** • assess impact of new airport site and MSP on the long-range growth and the orderly and economic development of the metropolitan area. • annually assess changes in airline industry (operations; technology--aircraft, navigational aids/landing systems, alternative modes; finance; airline structure; national/regional economy).
• **Land Use and Economic Development** • determine land use classification (residential, public, parks and recreation, commercial/industrial, cemeteries). • determine land coverage (agricultural lands, coniferous forest, deciduous forest, forested wetlands, developed/urban land uses) • identify location of regional airports and obstructions, Metropolitan Urban Service Area (MUSA), solid waste disposal facilities, agricultural preserves, parks and nature preserves, and pipelines. • source: 1990 Aerial Photographs, Metropolitan Council; Remote Sensing Laboratories, University of Minnesota, Twin Cities Aeronautical Chart, NASA; Regional System Reliever Airports Study, Metropolitan Council; EPA, MnPCA, counties; MnDOT.	• **Land Use and Economic Development** • assess impact of airport development on property tax valuation and taxes. • determine method to capture for public uses a portion of the revenue from development around the new airport. • determine reuse policies for MSP; examine airport related development in airport environs--commercial, industrial and residential.
• **Spin-Off Development** • assess experience of other major new airport development on metropolitan and subregional development (airport environs). • source: Metropolitan Council	• **Spin-Off Development** • determine method to capture for public uses a portion of the revenue from development around the new airport. • determine reuse policies for MSP; examine airport related development in airport environs--commercial, industrial and residential.

Search Area Analysis	*New Airport Siting Process*
• **Airport Finance** • annually assess trends and issues concerning airport finance at federal and metropolitan levels. • source: Metropolitan Council, annual contingency planning assessment.	• **Airport Finance** • determine financial plan for airport development (new airport and MSP) including sources of funds (fees, leases charges, federal grants, sale of MSP airport assets). • determine reuse policies for MSP. • compare financing options for new airport site development and MSP expansion. • annually assess changes in airline industry (operations; technology--aircraft, navigational aids/landing systems, alternative modes; finance; airline structure; national/regional economy).

INFRASTRUCTURE INVESTMENT ISSUES

Search Area Analysis	*New Airport Siting Process*
• **Onsite Airport Infrastructure Investment** • identify facility requirements for 2020. • source: New Airport Conceptual Design Study and Plan, January 1991, MAC	• **Onsite Airport Infrastructure Investment** • assess best way to provide onsite airport public services (sanitary and storm sewer systems, water, fire, police)--self-contained operations, tie in to adjacent communities or metropolitan systems.
• **Offsite Airport Infrastructure Investment** • identify ground transportation access corridors and bottlenecks. • quantify investment requirements to improve ground transportation access (lanes, interchanges, highway classification changes). • identify non-ground transportation infrastructure issues. • source: Metropolitan Council	• **Offsite Airport Infrastructure Investment** • assess ground transportation (highway and transit) corridors and investment requirements. • assess impacts of onsite and offsite investment needs (regional and local community/county) and implementation schedule. • assess socio-economic impacts of airport development on airport environs (residential, commercial, industrial, and public services including schools.

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ERRATA SHEET

Selecting a Search Area for a New Major Airport
Part Two: Draft Data Analysis

- page 13-14, Table 3, "Dakota-Scott" should read "Dakota" and "Dakota" should read "Dakota-Scott".

- page 16, substitute following for Table 4:

TABLE 4

LINKS WITH MODELLED CONGESTION

Test Point	Volume/Capacity ≥ 2	Volume/Capacity =1.75 to 2
Isanti	1	9
Oxford	1	3
North Branch	1	4
Empire	9	6
Marshan	14	7
Vermillion	8	6
Castle Rock	15	7
Greenvale	3	14
Eureka	11	11
Minneapolis - Saint Paul International Airport	6	3

- page 19, Table 5, substitute "Enviromental" with "Environmental"

- page 23, fourth paragraph, sixth line, substitute "National" with "Natural"