

AIRLAKE AIRPORT

ASSESSMENT OF ENVIRONMENTAL EFFECTS OF THE METROPOLITAN AIRPORTS COMMISSION'S SEVEN YEAR CAPITAL IMPROVEMENT PLAN

**FOR THE
METROPOLITAN AIRPORTS COMMISSION**

**BY
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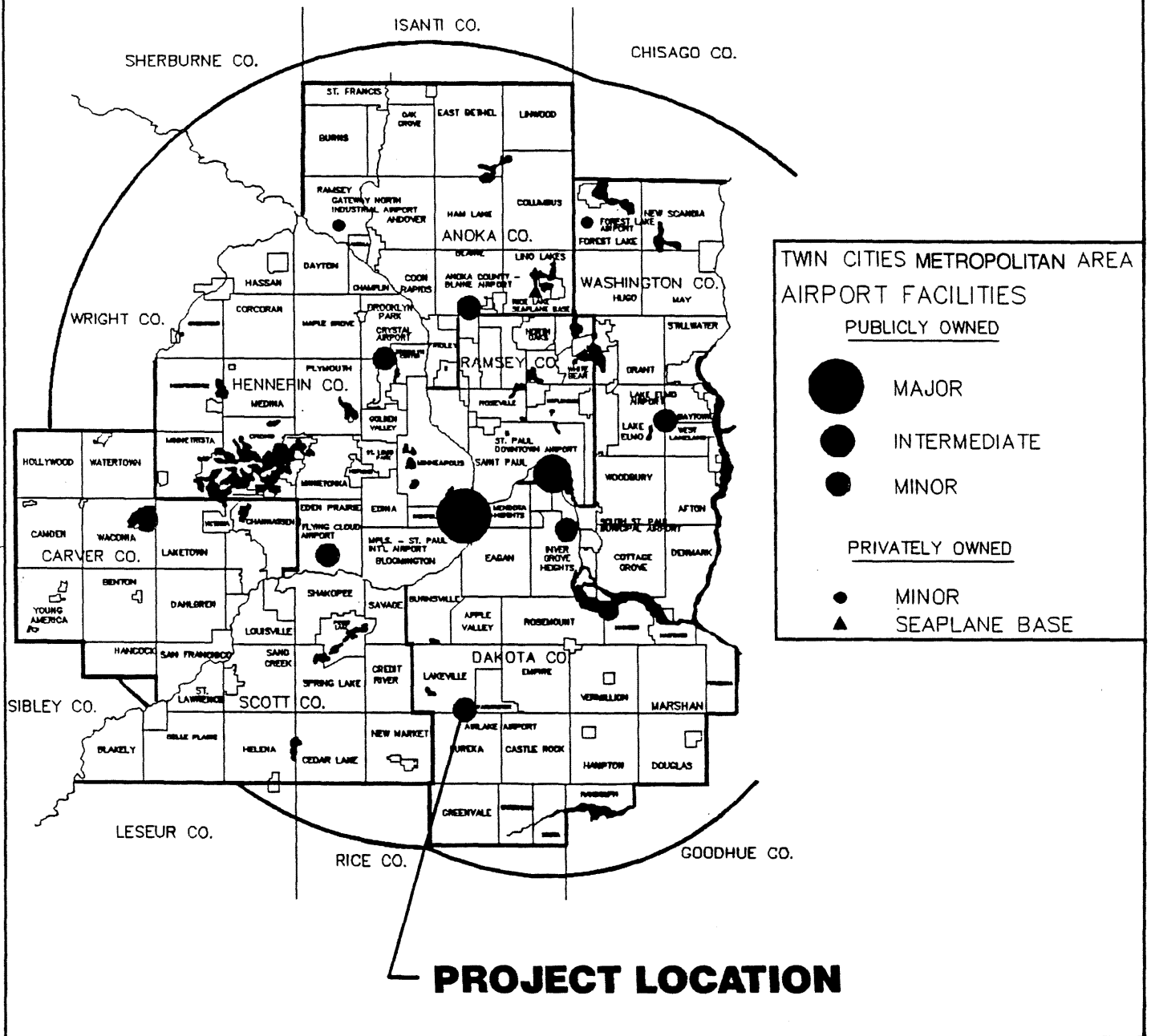
Pursuant to MS 473.614, sd 1
Consultant's Rpt prepared for MAC

ASSESSMENT OF ENVIRONMENTAL EFFECTS

Airlake Airport Metropolitan Airports Commission Seven Year Capital Improvement Plan

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ASSESSMENT OF ENVIRONMENTAL EFFECTS

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FIGURE

1

ASSESSMENT OF ENVIRONMENTAL EFFECTS

Airlake Airport Metropolitan Airports Commission Seven Year Capital Improvement Plan

A. INTRODUCTION

This report, prepared in response to the requirements of Minnesota Statutes 1986, Chapter 473, amended by Minnesota Statutes 1988, Chapter 664, presents an assessment of the environmental effects of projects in the Commission's seven-year capital improvement plan (1991-1997) for Airlake Airport.

This assessment examines the cumulative environmental effects of all the listed capital improvement projects at the airport from 1991 to 1997. Many of the projects listed entail only repair or rehabilitation of existing facilities. Such work would not affect the before/after usage of the facilities, and as such would not add to or subtract from the cumulative environmental effects. The projects included in the evaluation are those that have the potential of altering, creating, or in some manner affecting the environmental impact categories listed below.

B. IMPACT CATEGORIES USED TO ASSESS ENVIRONMENTAL EFFECTS

Aircraft Noise

The types of projects which might impact the effects of noise on the environment are new or lengthened runways, new or lengthened taxiways, new maintenance hangars, facilities that may increase operations, and noise insulation and other noise mitigation measures.

Vehicular Traffic

The types of projects which might impact the effects of traffic at the airport or to the surrounding community are new buildings or building additions, new parking spaces or structures, and new or modified roadways or roadway systems.

Air Quality

Air quality impacts at the airport will be primarily caused by changes in vehicular or aircraft activity. Projects which might have an impact will generally be the same projects which affect aircraft noise or vehicular traffic.

Water Quality

Projects which might affect water quality are those which create additional runoff (new pavements or buildings), fire suppression systems, new retention basins, or projects which might affect the groundwater.

Light Emissions

Projects evaluated under this category are airport beacons, lights associated with new runways or taxiways and lights associated with new roadways, parking lots, or ramps.

Sewage

Those projects which have the potential to increase sewage discharged into the sewage disposal system are new or expanded buildings or other changes that significantly alter the number of people using a facility.

Wetland Impact

All projects are evaluated to see if they would entail the full or partial filling of wetlands.

Residential Relocation Impacts

Residential relocation impacts are associated with land acquisition projects that will displace occupied residential units.

C. PROJECTS WITH POTENTIAL ENVIRONMENTAL EFFECTS

Table 1 is a listing of all the projects included in the MAC's Capital Improvement Plan for the years 1991 through 1997. Those projects determined to not contribute to the cumulative environmental effects at the airport are so noted on Table 1. The notations are keyed by number in order to better explain the type of work the project entails and why this type of project will not contribute to the cumulative environmental effects.

TABLE 1
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See Note	Project Description	1991	1992	1993	1994	1995	1996	1997
^*	Building Area Development	\$600,000			\$600,000			\$300,000
^*	Land Acquisition	\$300,000						
(1)	Runway Light Replacement	\$200,000						
*	Runway 11/29 Extension		\$500,000					
(2)	Security Fencing			\$100,000	\$100,000			
^*	Partial Parallel Taxiways				\$800,000			
(1)	Pavement Rehabilitation				\$200,000			
Yearly Totals		\$1,100,000	\$500,000	\$100,000	\$1,700,000	\$0	\$0	\$300,000

NOTES:

- ^ Item discussed in Previous Assessment of Environmental Effects.
- * The items marked with an asterisk have potential effects that are discussed in the text.
- (1) A rehabilitation project which does not physically alter the original size.
- (2) A structural or mechanical modification that does not increase size or passenger capacity.

D. CUMULATIVE ENVIRONMENTAL EFFECTS

Following is summary of the cumulative environmental effects by impact category.

D.1 Aircraft Noise

The increased building area at Airlake Airport will result in a greater number of based aircraft at the airport and correspondingly greater number of aircraft operations. The greater number of operations will create a change in noise generated by the airport.

The lengthened Runway 11/29 at Airlake airport will not exceed the typical length for minor airports. Therefore, the type of aircraft using the airport will not change significantly. It is expected that the largest aircraft to use the airport as a result of the lengthened runway will be light to medium sized business jets.

A Long-term Comprehensive Airport Development Plan was prepared in 1989 for Airlake Airport by Hoyle, Tanner & Associates, Inc. The development plan projects an increase in building area to accommodate 348 aircraft by the year 2006 as opposed to 153 based aircraft in 1986. The development plan also includes the lengthening of Runway 11/29.

In preparing the Comprehensive Development Plan, a noise analysis was conducted using the FAA Integrated Noise (computer) Model (INM). Noise contours were developed for the forecasted traffic levels for the year 2006. The noise contours also considered the addition of a crosswind runway which is part of the Comprehensive Development Plan but not part of MAC's present Capital Improvement Plan. The phasing and timing of all improvements envisioned by the Comprehensive Development Plan are subject to further investigation.

The noise analysis evaluated the impact to the surrounding area on the basis of comparing the noise contours to the Noise Exposure Zones included in the Metropolitan Council's Aviation Chapter of the Development Guide. The Noise Exposure Zones set land use guidelines on the basis of noise exposure from aircraft.

The analysis conducted for the development plan found that existing and expected residential land uses encompassed by the noise zones in the airport vicinity are conditionally acceptable land uses.

Since the Capital Improvement Plan does not contain all of the development envisioned by the Comprehensive Development Plan, the noise impact should be even less than stated above.

The lack of a crosswind runway, which was included in the noise analysis conducted in the development plan should not create a difference from the effects stated above. This is because all the turboprop and jet aircraft which create the greatest noise will normally use existing Runway 11/29 even if a new crosswind is built.

D.2 Vehicular Traffic

A brief analysis was conducted for the Comprehensive Development Plan. The analysis centered on roadway improvements needed to accommodate physical changes to the airport. Traffic congestion is not expected to be a problem as a result of increases to the building area. A study conducted for a similar airport found there should be an increase of approximately 140 additional entering vehicles in the morning peak hour, for a building area increase of approximately equal size. The existing road system can easily handle the expected increase.

D.3 Air Quality

The following is an excerpt from the Comprehensive Development Plan:

"Federal guidelines, FAA Report FAA-EE-82-21 Air Quality Procedures for Civilian Airports and Air Force Bases and State Guidelines, 6 MCAR S 4.313A, both show that the level of operations and auto parking spaces projected at Airlake Airport for the 20 year future is (under) state thresholds (and therefore) not at a level to require air quality analysis. FAA-EE-82-81 shows that an air quality analysis is required if thresholds of a State Indirect Source Review (ISR) are exceeded, or if there is no State ISR, if annual enplanements are more than 1,300,000 passengers or annual GA operations are more than 180,000 at air carrier airports or annual operations at a GA airport more than 180,000. 6 MCAR S 4.313A shows that an ISR is not required if auto parking capacity is not increased by 1,000 cars or more or total auto parking capacity is not increased to 2,000 cars or more. Therefore, there will be no noticeable change in air quality for either of the refined alternatives".

D.4 Water Quality

The Comprehensive Development Plan recommends the construction of drainage swales to accommodate development of the future building area, the runway extension and other development envisioned in the development plan (including the additional taxiways). The drainage swales would prevent an increase in runoff to the feeder stream to the Vermillion River over existing conditions with a design storm of equal to or less than five years.

The drainage swales would also provide treatment of settleable pollutants from surface water runoff.

D.5 Light Emissions

The increased building area, runway length and taxiways are not expected to create significant light emissions.

D.6 Sewage

As each individual hangar is constructed, permits for waste water will be obtained from the MAC and the local governmental units. Inflammable waste traps are required to be installed in each individual hangar wastewater system which will contain oil and cleaning fluids associated with aircraft and vehicle maintenance.

D.7 Wetland Impact

No known wetlands are in the project area.

D.8 Residential Relocation

The cumulative effects of the projects are not expected to create residential relocation impacts.

APPENDIX A

ENVIRONMENTAL ANALYSIS OF INDIVIDUAL PROJECTS

I. PROJECTS BEGINNING IN 1991

The following projects are included in the MAC's Capital Improvements Projects for 1991 and have the potential to effect the environment:

- North Building Area Development
- Land Acquisition

I.A NORTH BUILDING AREA DEVELOPMENT

The hangar construction area on the north side of the runway is full and a waiting list of potential tenants is currently being maintained. The Long Term Comprehensive Development Plan identified a new hangar area south of the runway as the next expansion area which would also require the construction of a new parallel taxiway. However, an option to extend the existing building area to the east has since been evaluated and appears to be more feasible from an economic standpoint. This is what is programmed for 1991. An existing underground pipeline will have to be relocated, however, adequate area to meet the near term hangar demand can be created without the major grading and taxiway construction costs required on the south side of the runway.

I.B LAND ACQUISITION

All of the land necessary for the operation of the airport as it currently exists has been acquired, however, certain privately owned parcels adjacent to 220th Street have been identified for potential Air Easement Rights. This item is programmed in the event negotiations for the Air Easements are completed.

II. PROJECTS BEGINNING IN 1992

The following project is included in the MAC's Capital Improvements Project Program for 1992 and has the potential to effect the environment:

- Runway 11/29 Extension

II.A RUNWAY 11/29 EXTENSION

This project calls for the extension of existing Runway 11/29 to 5,000 feet (340 feet on the Runway 11 end and 560 feet of the Runway 29 end) to provide an increased level of operational safety for the aircraft currently utilizing the facilities. The table below shows takeoff and landing distances available after this extension.

TAKEOFF AND LANDING DISTANCES

<u>RUNWAY</u>	<u>TAKEOFF LENGTH</u>	<u>LANDING LENGTH</u>
11	5,000	4,660
29	5,000	4,040

Presently, the runway is 4,100 feet long by 75 feet wide with a 400 foot displaced threshold on the Runway 29 end.

An environmental analysis of this project was done as part of the Airlake Airport Comprehensive Development Plan completed in 1989. The only impact categories effected by this project are water quality and noise.

- Aircraft Noise

In preparing the development plan, a noise analysis was conducted using the FAA Integrated Noise (computer) Model (INM). Noise contours were developed for the forecasted traffic levels for the year 2006. The noise contours also considered the addition of a crosswind runway which is part of the Long-term Comprehensive Development Plan but not part of MAC's present Capital Improvement Plan. The phasing and timing of all improvements envisioned by the Comprehensive Plan are subject to further investigation.

The noise analysis evaluated the impact to the surrounding area on the basis of comparing the noise contours to the Noise Exposure Zones included in the Metropolitan Council's Aviation Chapter of the Development Guide. The Noise Exposure Zones set land use guidelines on the basis of noise exposure from aircraft.

The analysis conducted for the development plan found that existing and expected residential land uses encompassed by the noise zones in the airport vicinity are conditionally acceptable land uses.

The lack of a crosswind runway, which was included in the noise analysis conducted in the development plan should not create a difference from the effects stated above. This is because all the turboprop and jet aircraft which create the greatest noise would use the existing Runway 11/29 even if a new crosswind is built.

- Water Quality

The impacts of this are discussed as part of the Recommended Alternative of the Comprehensive Airport Development Plan completed in 1989. The plan recommends construction of drainage swales which will alleviate any water quality concerns as a result of runoff.

III. PROJECTS BEGINNING IN 1993

There are no projects beginning in 1993 that have the potential to effect the environment.

IV. PROJECTS BEGINNING IN 1994

The following projects are included in the MAC's Capital Improvement Plan for 1994 and have the potential to effect the environment:

- South Building Area Development
- Partial Parallel Taxiway

IV.A SOUTH BUILDING AREA DEVELOPMENT

The money programmed in 1994 for the building area development project is for a new hangar area south of the runway. This area is recommended in the Long Term Comprehensive Development Plan. Impacts to vehicular traffic and water quality are expected to be minimal. Inflammable waste traps are required to be installed in each individual hangar wastewater system which will contain oil and cleaning fluids associated with aircraft and vehicle maintenance.

IV.B PARTIAL PARALLEL TAXIWAY

This project includes construction of a partial parallel taxiway on the south side of Runway 11/29. This taxiway would serve the new building area (see South Building Area Development above). The impacts of this are discussed as part of the Recommended Alternative of the Comprehensive Airport Development Plan completed in 1989.

APPENDIX B

1991 CAPITAL IMPROVEMENT PROJECTS 1992 CAPITAL IMPROVEMENT PROGRAM

1991 CAPITAL IMPROVEMENT PROJECTS

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BUILDING AREA DEVELOPMENT - \$600,000

The hangar construction area on the north side of the runway is full and a waiting list of potential tenants is currently being maintained. The Long Term Comprehensive Plan identified a new hangar area south of the runway as the next expansion area which would also require the construction of a new parallel taxiway. An option to extend the existing building area to the east has been evaluated and appears to be more feasible from an economic stand point. An existing underground pipeline will have to be relocated, however, adequate area to meet the near term hangar demand can be created without the major grading and taxiway construction costs required on the south side of the runway.

LAND ACQUISITION - \$300,000

All of the land necessary for the operation of the airport has been acquired, however, certain privately owned parcels in the extreme northwest corner of the airport have been identified for potential Air Easement Rights. This item is programmed in the event negotiations for the Air Easements are completed.

RUNWAY LIGHTING REPLACEMENT - \$200,000

When the Commission acquired Airlake Airport in the early 1980's, it inherited a runway lighting system of marginal condition. Maintenance on the system is becoming a constant problem. It is proposed a new lighting system be installed in accordance with current criteria.

1992 CAPITAL IMPROVEMENT PROGRAM RELIEVER AIRPORTS

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RUNWAY 11/29 EXTENSION - \$500,000

The Long Term Comprehensive Plan completed for the airport recommends that Runway 11/29 be extended to 5,000' to provide an increased level of operational safety for the aircraft currently utilizing the facilities. The extension is programmed to allow the required environmental analysis to be completed.