

EXPANSION OF FLYING CLOUD AIRPORT
Eden Prairie, Minnesota

FINAL ENVIRONMENTAL IMPACT STATEMENT
SECTION 4(f) EVALUATION
VOLUME I

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

METROPOLITAN AIRPORTS COMMISSION

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This Final EIS and Section 4(f) Evaluation present the environmental impacts of the proposed action and alternatives and the responses to comments on the Draft EIS that was distributed in December 1999 and the Supplement Draft EIS that was distributed in August 2001. The proposed expansion is the extension of the main runway to 5,000 feet and the other parallel runway to 3,900 feet, the construction of a new building area, land acquisition and other associated development to provide the capacity and facility improvements for the Flying Cloud Airport in Hennepin County, Minnesota. This Final EIS and Section 4(f) Evaluation are submitted for review pursuant to the following Public Law requirements: Section 102(2)(C) of the National Environmental Policy Act of 1969 (P.L. 91-190); 42 U.S.C. 4321, The Federal Aviation Act of 1958, as amended, recodified at 49 U.S.C. 40101, et sec.; The Airport and Airway Improvement Act of 1982, as amended, recodified at 49 U.S.C. Section 47101, et sec.; Section 4(f) of the Department of Transportation Act of 1966, recodified at 49 U.S.C., Subtitle 1, Section 303(c); and Minnesota Rules, Chapter 4410. The Federal Aviation Administration is the lead agency for the federal government and the Metropolitan Airports Commission is the lead agency for the state of Minnesota in the preparation of the joint Final EIS. The Minnesota Environmental Quality Board will determine the adequacy of the Final EIS for the state of Minnesota.

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EXPANSION OF FLYING CLOUD AIRPORT - FINAL EIS/ SECTION 4(f) EVALUATION

EXECUTIVE SUMMARY

Purpose and Scope of Document

This document is a combination of the Environmental Impact Statement (EIS) and the Section 4(f) Evaluation. The purpose of this Final EIS (FEIS) is to disclose the environmental impacts of the alternatives under consideration, provide measures to mitigate potential adverse effects, provide interested agencies and the public with the information they need to participate in the state and federal review of the alternatives, and support an informed FAA final project decision. The purpose of the Section 4(f) Evaluation is to analyze and discuss the impacts of the proposed Flying Cloud Airport (FCM) expansion on resources eligible for review under Section 4(f) of the 1966 Department of Transportation Act, recodified at 49 U.S.C. Subtitle I, Section 303(c).

The FEIS contains the evaluation of the impacts on the environment of the alternatives for implementing the Flying Cloud Airport (FCM) Long-Term Comprehensive Plan and the no-action alternative. These alternatives have been studied by the Metropolitan Airports Commission (MAC) and the Federal Aviation Administration (FAA). The FEIS also contains the measures proposed to mitigate the potential adverse effects of the alternatives. The location of FCM is in the City of Eden Prairie in Hennepin County, as shown on **Figure ES-1**, which is attached to this Executive Summary.

This FEIS is both a state and federal document; it was prepared in accordance with the National Environmental Policy Act (NEPA) and the Minnesota Environmental Policy Act (MEPA), and all portions apply to each unless stated otherwise in the text.

The issues, impacts and alternatives to be analyzed and discussed in the FEIS were presented in the March 1998 Scoping Decision, which was prepared jointly by FAA and MAC in accordance with the Minnesota Environmental Quality Board (EQB) process. A Draft Scoping Decision was distributed on November 4, 1997, for review and comment. A scoping public hearing was held on December 4, 1997, and the comment period ended on December 19, 1997. Responses to scoping comments were included in the Scoping Decision. The Scoping Decision was adopted by MAC on March 16, 1998 and was utilized by FAA and MAC in preparing this FEIS.

A Draft Environmental Impact Statement (DEIS) for the proposed expansion of FCM was distributed on January 7, 2000, for review and comment. A public hearing was held on February 9, 2000, and the comment period ended on February 21, 2000. The DEIS Noise Mitigation Plan contained mandatory nighttime restrictions on Stage 2 aircraft as a revision to the existing Ordinance 51 that FAA determined would require the completion of the process contained in FAA Regulations, FAR Part 161. MAC prepared the required Part 161 Analysis and Notice, which was distributed in July 2000 and a public hearing held on August 15, 2000, and the extended comment period ended on October 16, 2000. Comments by FAA and others on the weight restrictions in the existing MAC Ordinance 51, stated that mandatory restrictions on access to airports for the purpose of controlling noise appear to be discriminatory and, therefore, inconsistent with the conditions of receiving federal grants. As a result of these comments there were changes to the alternatives presented in the DEIS and new information was also obtained that changed the analysis of some of the environmental impacts presented in the DEIS. A Supplement DEIS (SDEIS) was therefore prepared and distributed on August 8, 2001, for review and comment. The SDEIS presented the substantive changes to the DEIS and was subject to the same distribution and filing requirements as the DEIS. It was also distributed to those persons and agencies that made substantive comments on the DEIS. A public hearing was held on September 19, 2001, and the extended comment period ended on October 23, 2002. Comments on the DEIS and SDEIS are presented with responses in Volume II of this FEIS.

Changes to the SDEIS

This FEIS incorporates the following substantive changes to the SDEIS:

1. On December 4, 2002, the City of Eden Prairie endorsed the "Memorandum of Understanding concerning Cooperative Solutions to Infrastructure, Right-of-Way/Easement and Park Needs between the City of Eden Prairie and the Metropolitan Airports Commission regarding Flying Cloud Airport" (MOU) that had been developed by representatives of the City and MAC. The MAC endorsed the MOU on December 17, 2002. The MOU is presented in Appendix A.4 of the FEIS.
2. On December 17, 2002, the MAC and the City of Eden Prairie executed a "Final Agreement Concerning Flying Cloud Airport and MAC Ordinance No. 51 between the City of Eden Prairie and the Metropolitan Airports Commission" (Final Agreement). The Final Agreement included an amendment to Ordinance 51 (see Item 3 below) and noise mitigation commitments by MAC, and the City repealed resolutions opposing the proposed airport expansion with commitments to not advocate or support opposition to the proposed airport expansion. The Final Agreement is presented in Appendix A.4 of the FEIS.
3. Noise Mitigation Plan – Ordinance 51 was amended by MAC with Ordinance 97 on December 16, 2002, to prohibit use of FCM by aircraft with certified maximum gross takeoff weights of 60,000 pounds (the existing runways' takeoff weight-bearing capacity of dual wheel aircraft) or greater. Nighttime maintenance run-ups are prohibited between 10 p.m. and 7:00 a.m. local time. The noise mitigation commitments in the Final Agreement were incorporated into the noise mitigation in Section V.Q.3.
4. Fleet Mix – No Action 2010 INM fleet mix was revised to include 8 annual (0.02 daily) operations by Stage 2 jet aircraft (Lear 25) based on Airport Noise and Operations Monitoring System (ANOMS) data for 2001 and 2002. The Stage 2 jet aircraft (Lear 25) in the Proposed Action (Alternative F with Noise Mitigation) 2010 INM fleet mix was changed from 1.54 to 0.02 daily operations, which resulted in a decrease in noise impacts compared to Alternative F with 1.54 Stage 2 daily operations. The decrease in Proposed Action Stage 2 operations is based on the aggressive measures in the Final Agreement that MAC will employ to discourage the use of Stage 2 aircraft at FCM. Operations by aircraft with certified maximum gross takeoff weights of 60,000 pounds or greater (e.g., GIV aircraft) were eliminated. Operations of Lear 35 Stage 3 jet aircraft were revised so that the total forecast of daily operations in 2010 did not change. See Tables A.3-4 and A.3-6 in Appendix A.3 of the FEIS.
5. Noise Analysis – The numbers of dwelling units in the DNL contours are based on Hennepin County GIS Parcel Data and MAC field verification in the spring of 2002, and population is based on the 2000 Census of household size.
6. Cultural Resources – Hangars to be removed by the proposed expansion were evaluated as to their historical significance. The hangars are part of a group of hangars abutting TH 212 that are considered a historic district that is eligible for listing on the National Register of Historic Places.
7. DOT Section 4(f) – There is an adverse effect on the historic district stated above, which required preparation of a Section 4(f) Evaluation and execution of a Memorandum of Agreement with the State Historic Preservation Officer (SHPO) and affected parties on mitigation for the removal of the affected hangars.

Purpose and Need for the Project

Project Purpose

The *general* purpose of the project is to provide for the airport development plan that best satisfies the year 2010 aviation needs of Flying Cloud Airport (FCM) and the Metropolitan Airports System, as stated in the Aviation Chapter of the Metropolitan Development Guide of the Metropolitan Council. The *specific* purpose

of the project is to provide for the 1992 FCM Long-Term Comprehensive Plan (LTCP) approved by the Metropolitan Council, which includes the following actions:

- acquire sufficient land to protect the airport from incompatible development,
- provide sufficient hangar spaces to accommodate existing and year 2010 demand,
- provide a runway with an effective length of 5,000 feet for takeoffs and landings to induce appropriate general aviation aircraft to use FCM instead of the Minneapolis-Saint Paul International Airport (MSP) and provide the associated taxiways and navigational aids, consistent with FAA standards,
- provide a parallel 3,900-foot runway, and
- revise the 1978 MAC Ordinance 51 to allow maximum utilization of the 5,000-foot runway by general aviation jet aircraft. (Ordinance 51 restricted use of FCM by jet aircraft to 20,000 pounds or less maximum takeoff weight; the 2002 Ordinance 97 allows use of FCM by aircraft with certified maximum gross takeoff weight less than 60,000 pounds.)

Project Need

The Minnesota legislature, in its April 1996 decision to expand MSP instead of constructing a new replacement airport, mandated that MAC divert the maximum feasible number of general aviation operations from MSP to the reliever airports because the runway capacity of MSP is constrained by the size of the site.

FCM is classified as a general aviation Minor Airport in the Metropolitan Airports System (see *Aviation Chapter, Metropolitan Development Guide*, Metropolitan Council, adopted December 19, 1996). The Metropolitan Airports System consists of:

- Minneapolis-Saint Paul International Airport (MSP), the Major Airport that provides the primary scheduled commercial airline passenger service in the region.
- St. Paul Downtown Airport, the Intermediate Airport that is the primary reliever airport for MSP and provides service for the larger general-aviation business jets and smaller commercial airline jets that require runways between 5,000 and 8,000 feet.
- Six Minor Airports including FCM. A Minor Airport is a secondary reliever airport for MSP and provides service for business aircraft, flight training, air taxi, personal use and recreation, and the military. It is to provide the facilities necessary to accommodate access to the state, the region and the nation, but its runway length cannot exceed 5,000 feet in accordance with state law.
- Three special purpose airports serving recreational aircraft or waterborne aircraft (seaplanes).

The existing primary runway (Runway 9R/27L) is approximately 3,909 feet in length.¹ This runway length is inadequate to provide efficient general-aviation air taxi and business aircraft access to the nation. The FAA has developed runway length design curves for business jet aircraft of approximately 60,000 pounds and less maximum takeoff weight (MTOW). The minimum runway design length was derived from these design curves for 75 percent of the fleet at a 60 percent useful load. When applying this curve data to conditions at FCM, a runway length of 5,500 feet is required. At FCM, however, the maximum length of runway is limited by state law to 5,000 feet. A 5,000-foot runway at FCM will therefore be less than what is needed for full utilization under all conditions, by all of the light-to-medium size business jets represented by the FAA's design charts. A listing of the light-to-medium size business jet aircraft is presented in **Table ES-1**. Assuming effective utilization at 60% of load capacity, only 16 of the 43 jets can effectively operate at existing FCM because of the length of the runway and the conditions footnoted in **Table ES-1**. With a 5,000-foot runway, 41 of the jets could effectively operate at FCM under Ordinance 97 (amended Ordinance 51).

Six of the business jet aircraft types in **Table ES-1** are currently based at FCM. Three of the six can operate at full load on the existing 3,909-foot runway (Cessna 500, 501 and 525). The other three (Cessna 550, Beechjet 400 and Beechjet 400A) are typically used to carry passengers and/or products to east coast destinations, such as New York, Washington, D.C., and Atlanta, as well as the Citation II to west coast destinations, such as Seattle, San Francisco and Los Angeles. These based aircraft types must reduce their

¹ The designations of the parallel runways have been adjusted from 9R/27L and 9L/27R to 10R/28L and 10L/28R to reflect the drift in magnetic declination from true north. However, for consistency with the previous scoping and EIS public and agency review documents, the runway designations have not been changed in this FEIS.

Table ES-1 Business Jet Utilization of 3,900' and 5,000' Runways

No.	Business Jet Make and Model	Stage (1)	Aircraft Wgt. (2) (lbs.)	MTOW (3) (lbs.)	3900' Rwy. MTOW (4) (lbs.)	5000' Rwy. MTOW (4) (lbs.)	60% of Full Load (5) (lbs.)	Can Effectively Use Existing Runways?	Can Effectively Use 5000' Runway?
1	CESSNA 500 CITATION I #	3	6,782	11,850	11,850	11,850	9,823	Yes	Yes
2	CESSNA 501 CITATION I #	3	6,000	11,850	11,850	11,850	9,510	Yes	Yes
3	CESSNA 525 CITATION #	3	6,580	10,400	10,200	10,400	8,672	Yes	Yes
4	CESSNA 550 CITATION II #	3	7,416	14,100	12,000	13,500	11,426	Yes	Yes
5	CESSNA 560 CITATION V	3	9,250	15,900	15,500	15,900	13,240	Yes	Yes
6	CESSNA 650 CITATION III	3	11,811	21,000	16,000	18,000	17,324	No	Yes
7	CESSNA 650 CITATION VII	3	11,770	23,000	17,000	20,000	18,508	No	Yes
8	CESSNA 750 CITATION X	3	19,376	35,700	23,000	30,000	29,170	No	Yes
9	DASSAULT FALCON 10	3	10,800	18,400	16,800	18,800	15,960	Yes	Yes
10	DASSAULT FALCON 20-G	3	16,600	31,000	cannot use	cannot use	25,240	No	No
11	DASSAULT FALCON 50	3	21,125	38,800	32,000	36,800	31,730	Yes	Yes
12	DASSAULT FALCON 200	3	18,800	32,000	25,200	28,800	26,720	No	Yes
13	DASSAULT FALCON 900B	3	22,811	46,500	cannot use	37,800	36,944	No	Yes
14	DASSAULT FALCON 2000	3	20,735	36,000	27,600	32,000	29,894	No	Yes
15	ISRAEL 1124A WESTWIND 2	2	13,250	23,500	18,397	21,327	19,400	No	Yes
16	ISRAEL ASTRA.SP	3	13,225	23,500	17,687	20,647	19,390	No	Yes
17	LEARJET 24F	2	7,130	13,500	13,500	13,500	10,952	Yes	Yes
18	LEARJET 25D	2	7,840	15,000	13,500	15,000	12,056	Yes	Yes
19	LEARJET 31A	3	10,588	16,500	15,000	17,000	14,135	Yes	Yes
20	LEARJET 35A/36A	3	8,838	18,000	14,000	16,000	14,735	No	Yes
21	LEARJET 55C	3	12,622	21,000	16,000	18,000	17,649	No	Yes
22	LEARJET 60	3	14,038	22,750	16,000	18,000	19,265	No	No
23	MTSUBISHI MU 300-10 DIAMOND II	3	8,248	15,780	14,052	15,780	12,767	Yes	Yes
24	RAYTHEON BEECHJET 400 #	3	9,900	15,780	14,502	15,780	13,428	Yes	Yes
25	RAYTHEON BEECHJET 400A #	3	10,450	16,100	14,858	16,100	13,840	Yes	Yes
26	RAYTHEON HAWKER 125-1000	3	18,000	31,000	cannot use	28,000	25,800	No	Yes
27	RAYTHEON HAWKER 125-F1A	3	11,600	21,450	19,200	21,450	17,510	Yes	Yes
28	RAYTHEON HAWKER 125-F3A/RA	3	12,800	23,600	19,200	21,450	19,280	Yes	Yes
29	RAYTHEON HAWKER 125-F400	3	12,800	23,600	19,200	21,450	19,280	Yes	Yes
30	RAYTHEON HAWKER 125-700	3	12,845	25,500	19,600	21,700	20,438	No	Yes
31	RAYTHEON HAWKER 125-800	3	14,720	27,400	20,400	23,200	22,328	No	Yes
32	RAYTHEON HAWKER 125-800XP	3	16,270	28,120	cannot use	25,670	23,380	No	Yes
33	ROCKWELL SABRELINER 40	2	11,250	18,650	15,500	17,800	15,690	No	Yes
34	ROCKWELL SABRELINER 65	3	13,754	24,000	18,600	20,600	19,902	No	Yes
35	ROCKWELL SABRELINER 80	2	13,600	23,300	19,200	22,000	19,420	No	Yes
36	CANADAIR CL-600	3	23,385	40,400	31,200*	36,100*	33,594	No	Yes
37	CANADAIR CL-600 (WINGLETS)	3	23,200	41,250	31,200*	36,500*	34,030	No	Yes
38	CANADAIR CL-601	3	23,200	42,100	33,000*	37,000*	34,540	No	Yes
39	CANADAIR CL-601-1A	3	23,200	45,100	33,000*	37,000*	36,340	No	Yes
40	CANADAIR CL-601-3A	3	23,200	45,100	34,250*	38,100*	36,340	No	Yes
41	CANADAIR CL-601-3R	3	23,200	45,100	34,250*	38,100*	36,340	No	Yes
42	CANADAIR CL-604	3	26,630	48,200	36,400*	41,000*	39,572	No	Yes
43	GULFSTREAM IV	3	42,500	74,600	57,360	66,920	61,760	No	Yes

* BASED ON MANUFACTURER PERFORMANCE DATA FOR ISA CONDITIONS + 13° C

- BASED AT FCM (10-99)

(1) SOURCE: FAA ADVISORY CIRCULAR 36-1G "NOISE LEVELS FOR U.S. CERTIFICATED & FOREIGN AIRCRAFT" APPENDIX 3.

(2) THIS WEIGHT IS GENERALLY SUPPLIED BY THE MANUFACTURER. THE CRITERIA USED TO DETERMINE THIS WEIGHT VARIES, BUT USUALLY INCLUDES THE BASIC MATERIALS AND INSTRUMENTATION (AND SOMETIMES CREW) NECESSARY FOR THE AIRCRAFT TO FLY.

(3) MAXIMUM TAKEOFF WEIGHT (MTOW) COMES FROM A VARIETY OF SOURCES, INCLUDING AC 150/5300-13 AIRPORT DESIGN APPENDIX 13, AEROSPACE SOURCE BOOK AS PUBLISHED BY AWST (JANUARY 11, 1999), A/C MANUFACTURERS' DATA, JANE'S ALL THE WORLD'S AIRCRAFT, BUSINESS & COMMERCIAL AVIATION (MAY, 1990) AND FAA ADV. CIRCULAR 36-1G "NOISE LEVELS FOR U.S. CERTIFICATED & FOREIGN AIRCRAFT," APPENDIX 3.

(4) THE SPECIFIC CRITERIA USED TO DETERMINE THIS WEIGHT VARIED FROM MANUFACTURER TO MANUFACTURER. IN MOST CASES, THESE CRITERIA INCLUDED FLAP SETTINGS OF 7 TO 15 DEGREES, ANTI-ICE OFF, NO WIND, AN ELEVATION OF 906' MSL, A TEMPERATURE OF 85 DEGREES F AND DRY RUNWAYS.

(5) 60% OF FULL LOAD = 0.60 x (MTOW - AIRCRAFT WEIGHT) + AIRCRAFT WEIGHT

weight (have less fuel and/or fewer passengers), especially during the summer months, in order to ensure a safe takeoff. The 3,909-foot runway length at FCM requires that these based aircraft stop at an airport with an adequate runway length to pick up additional fuel and/or passengers when making long distance trips. This intermediate stop is frequently made at MSP, which is inconsistent with the purpose of a reliever airport. An April 1997 survey of FCM Fixed Base Operators (FBOs) found that there were 16 to 29 flights per week from FCM that pick up and drop off their passengers at MSP, because of the inadequate length of the runway.² This results in an average of 22.5 flights and 45 operations per week, and 2,340 operations per year at MSP. The FBOs also say when the condition of the runway at FCM is such that breaking distances for aircraft are affected (e.g., icing), these aircraft that can otherwise use the 3,909-foot runway must takeoff light and go to MSP for passengers or fuel and stop at MSP if they can't safely land at FCM.³ This can amount to more than 20 operations per day at MSP, including transient aircraft destined for FCM. The number of days when these conditions occur varies from year to year.

The inadequate length of the existing primary runway at FCM also encourages businesses wanting efficient access to the nation and located in the southwestern area of the region to base their aircraft at MSP – which is inconsistent with the Aviation Chapter of the Metropolitan Development Guide. Policy 6 of the Aviation Chapter urges MAC to *provide the facilities needed by general aviation operators and to maintain all of its reliever airports at a high level of operational readiness. If experience indicates that further inducements are necessary to encourage greater use of reliever airports, the MAC should use financial inducements that would make it more economical to use the reliever airports than the major airport.* A 5,000-foot runway and additional hangar space are facility improvements that operators at FCM have repeatedly stated are needed for the airport to have a high level of operational readiness. These improvements would provide an inducement for business aircraft to not use MSP.

A further inducement for business aircraft to not use MSP is the relaxation of the 20,000-pound weight limit on takeoffs in former Ordinance 51. Although the provision of a 5,000-foot runway would benefit existing based aircraft, Ordinance 51 prohibited the use of FCM by business jets with takeoff weights greater than 20,000 pounds. The 1978 Ordinance 51 was outmoded for its intended purpose of controlling jet noise. Advances in engine and aerospace technology since 1978 have resulted in the production of jet aircraft that weigh more than 20,000 pounds when empty and emit less noise on takeoff than their older counterparts. Also, in September 2000 the FAA informed the MAC that artificial mandatory weight restrictions on access to airports for the purpose of controlling noise appear to be discriminatory and therefore inconsistent with the conditions of receiving federal grants. Ordinance 51 was amended in Ordinance 97 on December 17, 2002, to allow use of FCM by aircraft with certified maximum gross takeoff weights less than 60,000 pounds.

The other existing parallel runway (Runway 9L/27R) is 3,600 feet in length. The proposed runway extension to 3,900 feet would increase the capacity and improve the operation of FCM. The FAA classifies FCM as a General Utility Airport. The FAA required length for a General Utility 1 runway is 3,900 feet. Extending the runway and providing a taxiway connection between Runways 9L and 9R would enable the tower to utilize both runways and expedite departures of aircraft that require a 3,900-foot or less runway. The extension would be constructed first, thereby satisfying the need to accommodate the existing aircraft requiring a 3,900-foot runway during construction of the Runway 9R extension. It would also provide for these aircraft when Runway 9R is closed for maintenance and snow removal.

Currently, there is no hangar space available for new tenants at FCM. There is a waiting list of persons requesting space; the waiting list has fluctuated between 50 and 100 spaces over the past several years. Some businesses with aircraft operating at MSP have told MAC staff they would relocate to FCM if hangar space is available and the runway is lengthened to 5,000 feet.

² Because the 1997 survey responses did not state the frequency of the stopovers, Larry Dallam of HNTB contacted Elliott Aviation on January 6, 2004, and Executive Aviation on January 7, 2004, the two FBOs that reported the stopovers in the 1997 survey, and they stated that these stopovers were per week and are accurate for 1999 and to date.

³ MAC does not use de-icing salt on the runways, only sand and urea.

The Metropolitan Council analyzed the demand and capacity of the reliever airport system in a 1990 Regional Reliever Airport Study and recommended needed improvements at individual airports based on that analysis. The study recommended an expanded building area and extension of the primary runway (Runway 9R/27L) at FCM. The Metropolitan Council also addressed the need for the expanded building area and extension of the primary runway to 5,000 feet in its approval of the FCM LTCP in April 1996 (see report in Appendix A.8 of the FEIS). The Council stated that FCM was ... *one of the first airports in the region and has had a more sophisticated mix of aircraft types than many of the other general aviation airports. It is projected that the mix will be increasingly more sophisticated, and will require improved services and longer runways.* The Council further stated that...*expansion at Flying Cloud is critical to meet the demand from growth in the western suburbs* – and cited the substantial private development that has occurred/is occurring in Edina, West Bloomington, Minnetonka, Eden Prairie, Chanhassen, Shakopee and Chaska. It also stated that the proposed expansion at FCM is in keeping with other public infrastructure expansion recently completed or planned in the southwest metro area – including I-494, I-35W, Trunk Highway (TH) 5, TH 62 Crosstown Highway extension, future TH 212 and the Lake Ann interceptor.

Another need for the proposed 5,000-foot runway is related to aircraft insurance policies. An aircraft owner requests insurance for his/her aircraft and the insurance company requests information on the aircraft, how it will be operated, the experience of the pilots, based airport, etc. The insurer sets the rate based on this information and holds the owner to it. Several owners operating jet aircraft have insurance based on runways of at least 5,000 feet in length. Because of this requirement, some transient aircraft that could utilize FCM must land and depart at other nearby airports, such as MSP.

There is also a need for a service road around the east and west ends of Runways 9R/27L and 9L/27R and a need to acquire land to protect FCM from incompatible development. The service road would eliminate service and maintenance vehicles crossing the runways and reduce the occurrence of runway incursions. There are vacant lands west and south of FCM that were owned by developers and proposed for residential development. Close-in residential development is incompatible with long-term airport development plans and with noise generated by normal aircraft operations.

Alternatives Considered to Meet Project Purpose and Need

When considering how to meet the purpose and need for the project defined in the LTCP, a number of alternatives were analyzed. Consistent with the LTCP, the project/proposed expansion is to develop a new south building area on the airport and to increase the lengths of the existing parallel runways 9R/27L and 9L/27R. Runway 9R/27L is currently 3,909 feet in length and 75 feet in width and Runway 9L/27R is 3,600 feet in length. The 120 feet of existing pavement at the east end of Runway 9R/27L would be removed in order to provide an object-free area 600 feet in length off the east end of the runway. Runway 9R/27L would be extended 1,211 feet to the west for a total length of 5,000 feet and widened to 100 feet. This would require the existing Runway 9R precision instrument landing system to be relocated and a new parallel taxiway and other associated taxiways to be constructed. The proposed project would also require the existing VOR facility to be shifted 267 feet to the south. FAA standards for Category B-II aircraft require an object-free area of 600 feet in length to be free of objects that pose a safety problem for landing and departing aircraft. TH 212 and its fence would intrude about 120 feet into this area if the runway were not shifted to the west.

Runway 9L/27R would be extended 300 feet to the west to a final length of 3,900 feet. No extension of the existing crosswind Runway 18/36 is proposed. A service road would be provided around the east and west ends of Runways 9R/27L and 9L/27R.

The proposed expansion also includes the acquisition of approximately 83 acres of land and 12 acres of easements for approach protection in the expanded Mn/DOT Safety Zone B west of the airport for Runway 9R and approximately 9 acres of acquisition east of FCM in the expanded Mn/DOT Safety Zone B for Runway 27L. (See **Figure ES-2**). Acquisition of the land has been pursued in order to prevent incompatible residential development during the preparation of the EIS.

Two alternatives are under consideration in this FEIS for detailed analysis – Alternative F and No Action. The proposed action is Alternative F with mitigation, as discussed on page xiv of this Executive Summary.

Alternative F

Alternative F is the proposed expansion described above. (The Proposed Action is Alternative F with mitigation as discussed later in this Executive Summary.)

No Action Alternative

The No Action Alternative represents the course of action that would be pursued in the absence of the implementation of the proposed action. It assumes the optimal use of the existing and planned airport infrastructure and incorporates all improvements to the airport infrastructure currently underway or funded. It is not intended to be a "do nothing" course of action with no impacts. There would be an increase in aircraft operations compared with the 1999 existing condition, which could result in adverse noise impacts.

The No Action Alternative would retain the existing runways and associated airfield and landside facilities. It includes approximately 101 acres of land acquisition to eliminate incompatible development within the existing state safety zones for Runway 9R/27L east of Eden Prairie Road, and land acquisition of about 72 acres to provide a buffer zone for development south of the airport and provide land for the new south building area development in Alternative F. The No Action Alternative is shown in **Figure ES-3**.

The No Action Alternative did not include the land acquisition for the buffer zone and new south building area development in the formal scoping for the project (see Scoping Decision, March 1998). The MAC subsequently determined that it would proceed with the land acquisition and, subject to environmental review, development of the new south building area whether or not the runway was expanded to 5,000 feet. MAC has received numerous requests for hangar space at FCM over the past several years and the waiting list fluctuates between 50 and 100 spaces. No significant adverse impacts from the acquisition of this vacant land have been identified. The environmental impacts from the development of the new south building area and the operations of the additional based aircraft are included in the proposed expansion alternatives because, in accordance with FAA guidance, the No Action Alternative should only include actions that either have no significant adverse impacts on the environment or the impacts have been previously reviewed in an environmental document.

Alternatives Eliminated

On-Site Alternatives

Alternatives A and B. There were two alternatives identified in scoping that were eliminated in the DEIS – Alternatives A and B. Alternatives A and B would extend both parallel runways and utilize *declared distances* for some arrivals and departures on Runway 9R/27L. The longer of the two runways (Runway 9R/27L) would be extended 1,091 feet to the west for a final length of 5,000 feet; the existing length is 3,909 feet. The other runway, Runway 9L/27R, would be extended 300 feet to the west to a final length of 3,900 feet; the existing length is 3,600 feet. No extension of the existing crosswind Runway 18/36 is proposed. A FAA-required safety area would extend 600 feet off the east end of Runway 9R/27L and include a portion of TH 212 (see **Figure ES-4**). TH 212 and its fence intrude about 120 feet into this area. This area must be free of objects that could pose a safety problem for landing and departing aircraft. In order to maintain this 600-foot-long area without moving the end of the runway to the west, the east end of Runway 9R/27L would have to be striped for a distance of 120 feet, and departures and landings on 9R and landings on 27L would have 4,880 feet (5,000 - 120) of available runway. This is called a *declared distance* that pilots would have to observe for these operations. Only departures on 27L would have the full 5,000 feet available.

As in the Alternative F, the new south building area and access road would be developed and land would generally be acquired for expansion of state Safety Zones A and B and navigational aids at the west ends of the extended runways. The lights associated with the navigational aids include MALS lights at the west end of the south parallel runway.

Alternative A would have retained the Ordinance 51 limitation on use of the airport to aircraft with not more than 20,000 pounds maximum gross takeoff weight and Alternative B would have allowed aircraft with not more than 30,000 pounds maximum gross takeoff weight.

The only physical difference between Alternatives A and B and Alternative F is the final location of the west end of the extension of Runway 9R/27L – which would be 120 feet farther west for Alternative F than for Alternatives A and B.

Alternatives A and B were eliminated in the DEIS as a result of a November 19, 1997, FAA letter to MAC commenting on MAC's proposed Airport Layout Plan (ALP) for Alternatives A and B. FAA stated that the use of declared distances is allowable at "constrained" airports on a case-by-case basis. However, FAA questioned the justification that FCM is constrained since there is no physical impediment to shifting the runway 120 feet to the west and thereby achieving an unrestricted 5,000-foot runway. It is noted that the 1989 FCM Master Plan had incorporated a 500-foot shift to the west to be consistent with the FAA standards at that time and received public opposition to the proposed shift. MAC updated the Master Plan in October 1992 with no shift and the use of declared distances. The controversial Master Plan was finally approved by the Metropolitan Council in April 1996. MAC submitted the ALP in August 1996 with declared distances, on the basis that FCM was constrained by public opposition and the approved Master Plan. If Alternative F is approved, the ALP will be updated to show the 120-foot shift to the west, as already disclosed for each of these proposed alternatives. This is a compromise with the general public and satisfies FAA's design standards.

MAC agreed with FAA that the use of declared distances should not be allowed except in very unusual circumstances, and that FCM would have a higher level of safety without the use of striping and pilot notification for declared distances. Also, the purpose and need for the proposed action requires a runway with an effective length of 5,000 feet, which could not be achieved by Alternative A or B.

The land acquisition costs for Alternatives A and B would be the same as for Alternative F and the differences in environmental impacts would be those affected by the 120-foot shift, which are not significant.

Alternatives C, D and E. There were three alternatives identified in the DEIS that were eliminated in the SDEIS – Alternatives C, D and E. Alternatives C, D and E were identical to Alternative F except for the use of FCM by jet aircraft, which would have been restricted according to jet aircraft weight. Alternative C was proposed to maintain the restriction on use of the airport by jet aircraft to those with 20,000 pounds or less maximum takeoff weight, as specified in then existing Ordinance 51. Alternative D was proposed to restrict use of FCM to jet aircraft with 30,000 pounds or less maximum takeoff weight. Alternative E was proposed to restrict use of FCM to jet aircraft with 22,500 pounds or less basic empty weight.

Alternatives C, D and E would have restricted access to FCM based on aircraft weight for the purpose of controlling noise. Since there is no evidence that these weight limits are related to any legitimate noise objective at FCM, they are considered inconsistent with the FAA grant assurance of reasonable access to FCM and therefore were eliminated.

Off-Site Alternatives

Relocate Existing FCM. It is considered impractical to find a suitable site in the southwestern part of the metro area that would accommodate the users of FCM. The site would have to be in a rural area (similar to the current site when it was acquired in 1947) with the ability to control existing and future land use around the airport to ensure compatibility with airport operations. Potential sites could be in Carver County and southern Scott County; however, such sites would be too remote to attract the corporate users of FCM and divert users of MSP located in Hennepin County (see **Figure ES-5**). Also, even if a suitable site could be found, the time to perform the site selection studies, prepare the Long-Term Comprehensive Plan (LTCP) and obtain the necessary approval of the Metropolitan Council, acquire the land and develop the airport would be well beyond the 2010 timeframe when the facilities are needed. Therefore, this alternative would not satisfy the purpose and need for the project.

Utilize Other Reliever Airports. The reliever airports are shown in **Figure ES-5**. The minor airports were located to accommodate general aviation users in each airport's service area. FCM is the airport of choice for most general aviation jet aircraft whose owner or operator is located in FCM's service area, the southwestern part of the Metro Area. Utilization of an airport is the choice of the aircraft owner/operator; neither FAA nor MAC can dictate what airport to use.

St. Paul Downtown Airport. Currently, the only reliever airport in the Metropolitan Area with a runway length equal to or greater than 5,000 feet is St. Paul Downtown Airport located in downtown St. Paul. It encompasses 540 acres owned by the MAC. It has an Air Traffic Control Tower (ATCT) and 3 runways; the longest runway is 6,700 feet with a precision approach. The Airport is the primary reliever of MSP. However, St. Paul Downtown Airport does not have space for the hangar capacity needed to accommodate the forecast-based jets at FCM because the site is constrained by the Mississippi River, highway and rail facilities, and industrial development. It therefore would not satisfy the purpose and need for the project.

Airlake Airport. Airlake Airport is located in Dakota County and encompasses 565 acres owned by the MAC. It has a turf crosswind runway and a 4,098-foot paved runway with a precision approach that could be extended to 5,000 feet. There is insufficient space to provide the hangar capacity needed to accommodate the forecast-based jets at FCM. Airlake does not have an ATCT. Expansion of Airlake to provide an ATCT and other facilities to accommodate the users of the proposed expansion of FCM would require the preparation of a new Long-Term Comprehensive Plan (LTCP) and obtain approval of it by the Metropolitan Council, acquisition of additional land, and development of the airport. The time required would be beyond the 2010 timeframe when the facilities are needed. Also, Airlake is too distant from FCM to attract the users of FCM and divert users of MSP located in Hennepin County. It therefore would not satisfy the purpose and need for the project.

Crystal Airport. Crystal Airport is located in northern Hennepin County and encompasses 430 acres owned by the MAC. It has an ATCT and 4 runways; the longest is 3,266 feet without a precision approach. None of the runways can be extended to 5,000 feet due to lack of available space. It therefore would not satisfy the purpose and need for the project.

Anoka County–Blaine Airport. Anoka County–Blaine Airport is located in Anoka County and encompasses 1,900 acres owned by the MAC. It has an ATCT, a 4,855-foot primary runway without a precision approach, and a crosswind runway that is to be extended to 5,000 feet and a precision approach installed. The Airport is too distant from FCM to attract the users of FCM and divert users of MSP located in Hennepin County. It therefore would not satisfy the purpose and need for the project.

Lake Elmo Airport. Lake Elmo Airport is located in Washington County. It has 2 runways; the longest is 2,850 feet without a precision approach. Lake Elmo does not have an ATCT. The Airport is too distant from FCM to attract the users of FCM and divert users of MSP located in Hennepin County. It therefore would not satisfy the purpose and need for the project.

South St. Paul Municipal Airport. South St. Paul Municipal Airport is located in Dakota County and encompasses 204 acres owned by the city of South St. Paul. It has one runway 4,000 feet in length without a precision approach and does not have an ATCT. The Airport is surrounded by urban development and could not be expanded to provide an ATCT and the other facilities needed to accommodate the users of the proposed expansion of FCM. Also, the Airport is too distant from FCM to attract the users of FCM and divert users of MSP located in Hennepin County. It therefore would not satisfy the purpose and need for the project.

Evaluation of Alternatives

One purpose of the project is to provide the facilities and services at FCM needed to induce general aviation aircraft operating in the southwestern metro area to not use MSP. Alternative F would provide the needed hangar development and would extend the existing 3,909-foot primary runway to 5,000 feet, which could potentially accommodate most of the light-to-medium size business jet aircraft fleet. As shown in Table ES-2, Alternative F could effectively accommodate 41 of the 43 light-to-medium size business jets compared to 16 for the No Action Alternative. Alternative F is forecast to accommodate 24,440 business jet operations in 2010 compared to 8,659 for No Action. The No Action Alternative could not achieve the purpose and need for the project since it would not provide the needed hangar development and would not extend the existing 3,909-foot primary runway to 5,000 feet.

Table ES-2 Business Jet Utilization by Alternative

No.	Business Jet Make and Model	Stage	Able to Effectively Operate Under Alternative?	
			No Action	Alternative F
1	CESSNA 500 CITATION I #	3	Yes	Yes
2	CESSNA 501 CITATION I #	3	Yes	Yes
3	CESSNA 525 CITATION #	3	Yes	Yes
4	CESSNA 550 CITATION II #	3	Yes	Yes
5	CESSNA 560 CITATION V	3	Yes	Yes
6	CESSNA 650 CITATION III	3	No	Yes
7	CESSNA 650 CITATION VII	3	No	Yes
8	CESSNA 750 CITATION X	3	No	Yes
9	DASSAULT FALCON 10	3	Yes	Yes
10	DASSAULT FALCON 20-G	3	No	Yes
11	DASSAULT FALCON 50	3	Yes	Yes
12	DASSAULT FALCON 200	3	No	Yes
13	DASSAULT FALCON 900B	3	No	Yes
14	DASSAULT FALCON 2000	3	No	Yes
15	ISRAEL 1124A WESTWIND 2	2	No	Yes
16	ISRAEL ASTRA SP	3	No	Yes
17	LEARJET 24F	2	Yes	Yes
18	LEARJET 25D	2	Yes	Yes
19	LEARJET 31A	3	Yes	Yes
20	LEARJET 35A/36A	3	No	Yes
21	LEARJET 55C	3	No	Yes
22	LEARJET 60	3	No	No
23	MITSUBISHI MU 300-10 DIAMOND II	3	Yes	Yes
24	RAYTHEON BEECHJET 400 #	3	Yes	Yes
25	RAYTHEON BEECHJET 400A #	3	Yes	Yes
27	RAYTHEON HAWKER 125-F1A	3	Yes	Yes
28	RAYTHEON HAWKER 125-F3A/RA	3	Yes	Yes
29	RAYTHEON HAWKER 125-F400	3	Yes	Yes
30	RAYTHEON HAWKER 125-700	3	No	Yes
31	RAYTHEON HAWKER 125-800	3	No	Yes
32	RAYTHEON HAWKER 125-800XP	3	No	Yes
26	RAYTHEON HAWKER 125-1000	3	No	Yes
33	ROCKWELL SABRELINER 40	2	No	Yes
34	ROCKWELL SABRELINER 65	3	No	Yes
35	ROCKWELL SABRELINER 80	2	No	Yes
36	CANADAIR CL-600	3	No	Yes
37	CANADAIR CL-600(WINGLETS)	3	No	Yes
38	CANADAIR CL-601	3	No	Yes
39	CANADAIR CL-601-1A	3	No	Yes
40	CANADAIR CL-601-3A	3	No	Yes
41	CANADAIR CL-601-3R	3	No	Yes
42	CANADAIR CL-604	3	No	Yes
43	GULFSTREAM IV	3	No	No -- exceeds Ordinance wgt. limits

- Based at FCM (10-99)

The alternatives were examined for impacts in the following 25 environmental categories:

Air quality, biotic communities, bird-aircraft hazards, compatible land use, construction impacts, coastal barriers, coastal zone management program, endangered and threatened species, economic, energy supply and natural resources, environmental justice, farmland, floodplains and flooding, historic/architectural and archaeological resources, induced socioeconomic impacts, light emissions and visual impacts, noise, social, Section 4(f), solid and hazardous waste and wastewater impacts, water quality, wetlands, wild and scenic rivers, wildlife refuges and cumulative impacts.

A table summarizing the impacts of the alternatives is on pages xvii, xviii and xix. More detail on the impacts of the alternatives is found in Section V of the FEIS.

Mitigation

Noise Mitigation

The significant adverse noise impacts of Alternative F could be mitigated by a number of measures. The MAC established an FCM EIS Noise Mitigation Committee to determine appropriate measures that would mitigate noise impacts. The committee recommended a Noise Mitigation Plan to MAC and MAC approved the plan for inclusion in the DEIS for public review and comment. The plan was modified as a result of FAA's review of the Part 161 process and from discussions between MAC, FAA and the City of Eden Prairie during the SDEIS comment period, which resulted in the Final Agreement including the amendment to Ordinance No. 51 and the MOU in Appendix A.4 of the FEIS. MAC has committed to implementation of the following measures as part of the Proposed Action.

1. *Preferential Use of Runways* – When winds, weather or traffic conditions do not otherwise dictate the use of the runways at FCM, the FAA tower will normally use the runways for arrivals and departures of all aircraft in the following priority:
 - The calm wind runway is 9R
 - Arrivals – 9R, 9L, 27L, 27R, 36, 18
 - Departures – 9R, 9L, 27L, 27R, 18, 36
 - Jet Arrivals and Departures – 9R, 27L

Note: This does not apply to training operations in the traffic pattern.

2. *Preferential Departure Routes* – All departures on Runway 9R/27L (other than training operations) will be encouraged to use headings of 135 degrees clockwise to 230 degrees, unless precluded by other traffic or weather considerations. Unless otherwise instructed by ATC, turbojet aircraft departing 9R/27L under visual flight rules (VFR) shall be encouraged to turn to the southerly headings after crossing the departure end of the runway and attaining an altitude of 500 feet above ground level (AGL).

Note: All *jet* departures are currently directed to headings of 135 degrees clockwise to 230 degrees, in accordance with a Letter of Agreement between Flying Cloud ATCT and Minneapolis TRACON (M98) and ATCT FCM Order 7220.3J, unless precluded by other traffic or weather considerations. (A copy of the Letter and Order are in Appendix B1 of the FEIS.)

3. *Maximum Takeoff Weights* – The taking off or landing of any aircraft with a certified maximum gross takeoff weight of 60,000 pounds or greater is prohibited.

Exceptions: Does not apply in the case of an emergency, and does not apply to aircraft owned and operated by the U.S. government.⁴

4. *Stage 2 Operations* – MAC will implement a voluntary program to preclude all operations at the Airport by Stage 2 Aircraft.

⁴ Claimers for an exception, excluding the owner or operator of a U.S. government aircraft, must notify the MAC within 24 hours by submitting the form designated by the MAC's Director of Reliever Airports or designated representative for this purpose.

5. *Voluntary Nighttime Use Procedures* – During the hours of 2200 to 0600 local time, pilots are asked to voluntarily comply with the following procedures:
- All aircraft operators are encouraged not to fly during the nighttime hours of 2200 to 0600 local time, except for operations between 2200 and 2400 local time conducted to meet Nighttime Currency Requirements.
 - All aircraft operators are encouraged not to conduct training in the traffic pattern from midnight to 0600 local time (which allows pilots to maintain nighttime proficiency requirements according to FAR Part 91). Multiple training events by jet aircraft are especially discouraged.
 - Intersection takeoffs are discouraged at all times, especially from 2200 to 0600 local time.

In addition, MAC will identify and evaluate specific operational procedures that would limit the noise impact of early morning aircraft operations between 0600 and 0700 local time, including dispersion of departures, defined flight routes or noise abatement departure procedures. MAC will adopt those procedures mutually acceptable to MAC and Eden Prairie.

Note: MAC shall consult with the FAA on acceptable early morning operational procedures prior to their implementation.

6. *Maintenance Run-ups* – Maintenance engine run-ups are prohibited from 2200 to 0700 hours local time. During the control tower's published hours of operation the tower should direct traffic to the following preferred run-up areas:
- Runway 18/36 at the "No Name" taxiway (*taxiway abeam the VOR*)
 - Whenever practical, aircraft will conduct engine run-ups so the nose of the aircraft is on a 360-clockwise to 030-degree heading.

Exceptions: The prohibition does not apply in the case of an emergency, does not apply to aircraft owned and operated by the U.S. government, and does not apply to unscheduled maintenance run-ups performed between 2200 and 0700 hours local time where strict compliance with the prohibition would not allow sufficient time to permit the aircraft to depart on schedule the following morning.⁵

7. To encourage strict observance of the voluntary procedures and to obtain compliance with Ordinance 97 (amended Ordinance No. 51), MAC will take the following actions, as committed to in the Final Agreement:
- Prepare and distribute operating rules and regulations for FCM that contain these mitigation measures and procedures.
 - Use its best efforts to negotiate with Fixed Base Operators, Airport Users who base aircraft at the Airport and other Airport Users, as determined by MAC, voluntary letters of intent committing the Fixed Base Operator or Airport User to (1) adhere to the voluntary limits on aircraft operations contained in these mitigation measures, and (2) participate actively in implementing and monitoring compliance with Amended Ordinance No. 51 and the measures contained in Article 3 of the Agreement.
 - Inform current and future Airport Users and Fixed Base Operators about the commitments contained in these mitigation measures and Amended Ordinance No. 51 that affect aircraft operations at the Airport by publishing and keeping current notice in the following publications: Airport Facility Directory; Department of Defense Flight Information Manual; Jeppesen Information Manual; and relevant MAC publications.
 - Implement a Pilot Education Program designed to inform Airport Users and Fixed Base Operators about the commitments contained in these mitigation measures and in Amended Ordinance No. 51 that affect the actions of Airport Users and Fixed Base Operators, other operational requirements and noise abatement measures that MAC has adopted previously, and any additional operational requirements and noise abatement measures as MAC, in its sole discretion, may choose to adopt and include. The Pilot Education Program may include, but will not be limited to, posting and display of information in facilities maintained by Fixed Base

⁵ Same as Footnote 4.

Operators and airfield signage. MAC will consult on at least an annual basis with the Designated Representative of Eden Prairie on the curriculum for and implementation of the Pilot Education Program.

- Publicly recognize through a certificate, award, or similar means, on an at least annual basis the actions and efforts of one or more Airport Users or Fixed Base Operators that avoid or promote avoidance of operations inconsistent with the voluntary limits contained in these mitigation measures.
- Thoroughly investigate all credible complaints and information received from local residents, Eden Prairie, Airport Users, Fixed Base Operators, or any other source to determine whether a violation or failure to comply with a voluntary measure has occurred and take appropriate action as dictated by the violation.
- Instruct all MAC employees working on a temporary or permanent basis at the Airport of the commitments in these mitigation measures and provide instructions on procedures for notifying the proper parties of a potential violation or failure to comply with a voluntary measure.
- Send a written notice to the owner or operator of any aircraft known to have operated in a manner inconsistent with the voluntary restraints on Nighttime Aircraft Operations, early morning departures and operations by Stage 2 Aircraft. The notice shall provide information about the inconsistent operation, state that MAC's policy is to limit voluntarily inconsistent operations, and request that the owner or operator provide a detailed response describing the reason for the inconsistent operation. MAC shall maintain a record of all such correspondence and provide copies of such correspondence to the Designated Representative of Eden Prairie.
- Perform on no less than a monthly basis, a review of the ANOMS flight track database to identify any and all Stage 2 Aircraft operations occurring at the Airport since the prior review. MAC shall keep a separate record of all Stage 2 Aircraft operations and provide the Designated Representative of Eden Prairie, on a quarterly basis, with a notice identifying the date and time of each Stage 2 Aircraft operation in the quarter and a total of all Stage 2 Aircraft operations in the preceding rolling twelve months.

8. *Incompatible New Development* – MAC will acquire the incompatible undeveloped properties or parcels in the current Eden Prairie Comprehensive Plan that are within the Proposed Action 2010 DNL 65 noise contour.

9. *Incompatible Existing Land Use* – Existing noise-sensitive structures within the Proposed Action 2010 DNL 65 noise contour will have an exterior to interior sound reduction of 25 dBA. Existing noise-sensitive structures within the Proposed Action 2010 DNL 60 noise contour will have an exterior to interior sound reduction of 20 dBA. (The exterior to interior sound reduction of 20 dBA in the DNL 60 Noise contour is a local criterion.)

MAC will test the residences within the Proposed Action 2010 DNL 60 noise contour in accordance with a methodology agreed upon by MAC and Eden Prairie, to determine the existing exterior to interior noise reduction level. MAC will complete testing within two years from the date that the extended runways are made available for use. In the event that any affected residence has an exterior to interior noise attenuation of less than 20 dBA, MAC will provide sound insulation to achieve a noise reduction of at least 20 dBA.⁶ MAC will consult with Eden Prairie to determine the nature and extent of sound insulation to be provided for eligible residences. MAC will complete sound insulation of all eligible residences within two years from the date that the extended runways are made available for use. MAC will provide the testing and sound insulation regardless of whether funding is provided by the federal government.⁷ No new residence for which final building permits were issued on or after December 4, 2001, shall be eligible to receive testing or sound insulation.

10. *Incompatible Infill Development and Reconstruction or Additions to Existing Structures* – Infill development and reconstruction or additions to existing noise-sensitive structures within the Proposed

⁶ Buildings built in cold climates have typical reductions of 27 dBA with the windows closed (24 dBA with windows open). Protective Noise Levels, Condensed Version of EPA Levels Document, Table II, EPA November 1978.

⁷ These activities are not eligible for Federal Airport Improvement Program (AIP) funding.

Action 2010 DNL 65 noise contour will be constructed to meet an interior sound level of 45 dBA. Infill development is a vacant parcel(s) of land surrounded by developed land as defined by the Aviation Policy Plan of the Metropolitan Council. The City of Eden Prairie will be responsible for permitting the new construction.

Proposed Action

The alternative preferred by both the FAA and MAC is Alternative F with the above noise mitigation measures. It is the only alternative of those considered that can achieve the purpose and need for the project and have the least adverse impact on any of the 25 environmental impact categories evaluated in this FEIS. Implementation of the mitigation measures will eliminate the significant adverse noise impacts of Alternative F. For these reasons, Alternative F with noise mitigation is also the alternative environmentally preferred by both the FAA and MAC.

The FAA will allow the 60,000-pound weight limit contained in Ordinance 97 for the following reasons. The limit is consistent with the recorded runway bearing strength⁸; it replaces an artificial weight restriction previously in effect that the FAA stated was illegal; the substitute weight limit provides substantial relief to operators from the restriction it replaces; and the MAC manages a multi-airport system, guaranteeing access to other airports in its system.

Also included in the Proposed Action are the MAC responsibilities and commitments in the "Memorandum of Understanding concerning Cooperative Solutions to Infrastructure, Right-of-Way/Easement and Park Needs between the City of Eden Prairie and the Metropolitan Airports Commission regarding Flying Cloud Airport" (MOU).

The Final Agreement and MOU contain responsibilities and commitments by MAC and the City, in return for which the City supported the amended Ordinance No. 51 and will not challenge the Proposed Action or the EIS. The Final Agreement and MOU are presented in Appendix A.4 of the FEIS.

The Proposed Action is to approve, for construction and use, Alternative F with the noise mitigation described above and with the MAC responsibilities and commitments in the MOU between MAC and the City of Eden Prairie. The Proposed Action also contains the commitment by the MAC to obtain the following environmental permits and to comply with their terms and conditions.

- Water Appropriation Permit from the Minnesota Department of Natural Resources
- Section 401 Water Quality Certification, NPDES General Construction Storm Water Permit from the Minnesota Pollution Control Agency
- Drainage Design Review and Permit from the Lower Mississippi River Watershed District
- Drainage Design Review and Permit from the Riley Purgatory Bluff Creek Watershed District
- Storm Water Permit from the City of Eden Prairie

The Proposed Action is shown in **Figure ES-2**.

Public Involvement

The involvement of the public and government agencies in the preparation of this FEIS began with scoping. The FAA issued a Notice of Intent to prepare an EIS and to conduct public scoping, which was published in the October 31, 1997, Federal Register. The Minnesota Environmental Quality Board (EQB) published a notice of the proposed project, the availability of the Scoping Environmental Assessment Worksheet (EAW) and Draft Scoping Decision, and the dates of the public scoping meeting and comment period in the November 3, 1997, EQB Monitor. The Draft Scoping Decision described the alternatives proposed for analysis and the issues and impact categories that were proposed for detailed analysis and those not proposed for detailed analysis based on the information in the Scoping EAW.

⁸ See FAA letter to MAC dated September 27, 2000, in Appendix B of the FEIS.

A public scoping meeting on the Scoping EAW and Draft Scoping Decision for the preparation of the DEIS was held on December 4, 1997, in Eden Prairie. The Scoping Decision was adopted by the Commission on March 16, 1998, and included the responses to comments on the Scoping EAW and Draft Scoping Decision. The following is a summary of the substantive issues and concerns identified in the Scoping Decision and subsequently in the preparation of the DEIS, SDEIS and FEIS:

1. The effectiveness of existing MAC Ordinance 51 in controlling jet noise at FCM
2. The unjust discrimination of Ordinance 51 on the use of FCM by aircraft with takeoff weights greater than 20,000 pounds that generate less noise than some aircraft with takeoff weights less than 20,000 pounds
3. The noise impact of the 2010 forecasts on existing and planned residential land uses
4. The accuracy of the forecasts in general and business jet nighttime operations in particular, and the sensitivity of the forecasts on noise levels in residential areas
5. The benefits of the proposed project in relation to its direct and indirect costs
6. The impact on the water quality of receiving waters
7. Visual effects
8. No increase in existing noise, which means no expansion of the airport that would result in additional aircraft noise
9. The effects of additional flights over the Minnesota Valley National Wildlife Refuge

The primary issue is aircraft noise. The City of Eden Prairie and residents have been concerned about aircraft noise since the introduction of business jets in the 1970s. They have wanted the airport to be a place primarily for single- and twin-engine piston aircraft. Eden Prairie's concerns and discussions with MAC led to MAC's adoption of FCM Ordinance 51 in 1978 to control jet noise by setting a limit of 20,000 pounds on the weight of jet aircraft at takeoff.

The MAC established two committees of affected agencies, municipalities, airport users and local citizen groups to provide input and advice on the preparation of the DEIS – the Flying Cloud Airport EIS Advisory Committee and the Flying Cloud Airport DEIS Noise Mitigation Committee. The DEIS Advisory Committee was principally comprised of staff members and the Noise Mitigation Committee was principally comprised of policy representatives. Representation on the committees is listed in the chart on the following page.

The MAC also has periodically published and distributed newsletters to inform agencies and the public on the progress of the study. In addition, MAC established a web page on the Internet.

Implementation Schedule

Land acquisition to date is shown in **Figures ES-2** and **ES-3**. Land acquisition for implementation of the proposed action was initiated because of rapidly increasing land values and impending development. Construction of the new south building area, runway extensions, taxiways and navigation aids is expected to begin in 2005 after completion of the environmental review process. MAC anticipates a two-year construction period. MAC could begin leasing space in the new building area upon completion of the construction; however, it is the tenant's responsibility to build the hangar.

EIS Committees

Flying Cloud Airport EIS Advisory Committee	Flying Cloud Airport DEIS Noise Mitigation Committee
MAC Airport Planner, Chair	MAC Commissioner, Chair
FAA Airport Planner	Metropolitan Council Member
EQB Planner	City of Eden Prairie Mayor
Mn/DOT Aeronautics Planner	City of Bloomington Appointee
Metropolitan Council Aviation Planner	City of Shakopee Appointee
Eden Prairie Planner	US Fish and Wildlife Service Staff
FCM Fixed Base Operator	FAA Airports Division
Zero Expansion member (Eden Prairie citizen group)	FAA Air Traffic Control Tower at FCM
Flying Cloud Airport Advisory Commission Member (members appointed by Eden Prairie and currently disbanded)	2 FCM users – Grand Casinos, Inc. and TCB Air Inc.

**Table ES-3
SUMMARY OF IMPACTS**

Criterion	Existing Conditions (1999)	2010 Conditions				
		Alternative		Proposed Action		
		No Action	Alternative F			
Air Quality						
1.	Maximum 1-hour CO concentration at sensitive receptors (ppm); Standards: 30 ppm State; 35 ppm Federal	10.5	10.9	12.7	6.1	
2.	Maximum 8-hour CO concentration at sensitive receptors (ppm); State/Federal Standard: 9 ppm	4.3	4.5	5.1	3.9	
3.	Total CO emissions (tons/yr.) Impact	1,424	1,464 +40	1,748 +284	1,789 +325	
4.	Total SOx emissions from on-airport sources (tons/yr.) Impact	0.50	0.56 +0.06	1.07 +0.51	1.08 +0.52	
5.	Total CO emissions from construction activities (tons/yr.)		0	16	16	
Biotic Communities (Fish, Wildlife and Plants)						
6.	Number of acres of wildlife habitat displaced.		0	74	74	
Bird-Aircraft Hazards						
7.	Number of monthly aircraft operations less than 2,000 feet over areas where birds congregate.	8,110	8,325	10,211	10,380	
Compatible Land Use						
8.	Number of dwellings in DNL 65+ contour:	Existing	0	0	9	0
		Planned	0	0	6	0
		Total	0	0	15	0
9.	Number of dwellings in DNL 60-65 contour:	Existing	42	54	478	154
		Planned	23	28	82	34
		Total	65	82	560	188
Economic						
10.	Estimated development cost. (millions) Cumulative cost		\$22.8	\$52.0 \$74.8	\$52.0 \$74.8	
11.	Tax revenue lost (based on taxes payable in 1999): City of Eden Prairie School District 272 1998 tax capacity lost		\$10,788	\$64,343	\$64,343	
			\$1,342	\$5,408	\$5,408	
			0.0099%	0.059%	0.059%	
12.	Ratio of direct and indirect benefits to direct and indirect costs, through the year 2023 relative to No Action.			1.70	1.70	
Endangered and Threatened Species						
13.	Number of endangered, threatened or special concern species in Minnesota that would be adversely affected.	0 (1 exists - bald eagle)	0	0	0	

**Table ES-3
SUMMARY OF IMPACTS**

Criterion	Existing Conditions (1999)	2010 Conditions			
		Alternative		Proposed Action	
		No Action	Alternative F		
Energy Supply and Natural Resources					
14.	Additional supply of local energy needed to accommodate projected demand.		None	None	None
Environmental Justice					
15.	Is there an adverse impact on low income households from noise, relocation or other factors?	No	No	No	No
16.	Is there an adverse impact on minority households from noise, relocation or other factors?	No	No	No	No
Floodplains and Floodways					
17.	Number of acres of encroachment or filling of floodplain.		0	0	0
Historic, Architectural, Archaeological and Cultural Resources					
18.	Number of individual properties or districts on or eligible for the National Register that would be adversely affected.		1 (District)	1 (District)	1 (District)
19.	Number of known archaeological sites potentially eligible for the National Register that would be disturbed.		0	0	0
Induced Socioeconomic					
20.	Is there an expected change in development pattern?		No	No	No
21.	Is there an expected change in demand for public services?		Yes	Yes	Yes
FCM will connect to Eden Prairie water and sewer					
Light Emissions and Visual Impacts					
22.	Effect of airport lights on nearby residents.	Minimal	Minimal	Minimal	Minimal
Noise					
23.	Number of existing and future residents within the year 2010 DNL 65+ noise contour. Impact	0	0 0	42 +42	0 0
24.	Number of existing and future residents within the year 2010 DNL 60-65 noise contour. Impact	65	232 +167	1,585 +1,353	532 +300
25.	Number of schools, places of worship and parks within DNL 65+ contour.	0	0	0	0
Section 4(f)					
26.	Number of public parks and recreation areas adversely affected.	0	0	0	0
Social					
27.	Number of households that would be displaced.		0	4	4
28.	Number of businesses and employees that would be displaced.		0	0	0

**Table ES-3
SUMMARY OF IMPACTS**

Criterion	Existing Conditions (1999)	2010 Conditions			
		Alternative		Proposed Action	
		No Action	Alternative F		
Solid and Hazardous Waste					
29.	Are there sufficient processing and disposal facilities available to accommodate the waste generated?	Yes	Yes	Yes	Yes
Water Quality – Surface Water					
30.	Will there be sufficient storage capacity to accommodate runoff?	Yes	Yes	Yes	Yes
31.	Will pollutant discharges to receiving waters exceed MPCA levels?	No	No	No	No
Water Quality – Groundwater					
32.	Potential for adverse impacts on groundwater quality.	Low	Minimal	Minimal	Minimal
Wetlands					
33.	Number of wetland acres displaced.		0	0	0
Wildlife Refuges					
34.	Number of monthly flights less than 2,000 feet over the refuge. Impact	4,102	4,240 +138	5,539 +1,299	6,328 +2,088
35.	Number of acres of environmental education and wildlife recreation activity adversely affected by noise within DNL 60+ contour.	0	0	0	0

Table 37
Comparison of Alternative Forecasts

	1996	2000	2005	2010
Total Based Aircraft				
Base Case	505	491	491	491
Alternative A	505	550	580	603
Alternative B	505	557	586	611
Alternative C	505	550	580	603
Alternative D	505	558	587	612
Alternative E † F	505	559	588	613
Total Based Jets				
Base Case	12	14	15	15
Alternative A	12	22	23	25
Alternative B	12	28	31	33
Alternative C	12	22	23	25
Alternative D	12	29	32	34
Alternative E † F	12	30	33	35
Total Operations				
Base Case	225,997	234,470	240,160	241,353
Alternative A	225,997	261,867	282,958	295,748
Alternative B	225,997	266,506	288,272	301,398
Alternative C	225,997	262,322	283,409	296,196
Alternative D	225,997	267,071	288,951	302,193
Alternative E † F	225,997	267,750	289,743	302,982
Total Jet Operations				
Base Case	5,876	7,612	8,335	8,659
Alternative A	5,876	13,711	15,996	17,199
Alternative B	5,876	18,350	21,310	22,849
Alternative C	5,876	14,166	16,447	17,647
Alternative D	5,876	18,915	21,989	23,644
Alternative E † F	5,876	19,594	22,781	24,433
Total Nighttime Operations				
Base Case	8,294	8,870	9,160	9,253
Alternative A	8,294	10,467	11,458	12,048
Alternative B	8,294	11,006	12,072	12,698
Alternative C	8,294	10,522	11,509	12,096
Alternative D	8,294	11,071	12,151	12,793
Alternative E † F	8,294	11,150	12,243	12,882
Total Nighttime Jet Operations				
Base Case	1,087	1,408	1,542	1,602
Alternative A	1,087	2,311	2,696	2,899
Alternative B	1,087	2,850	3,310	3,549
Alternative C	1,087	2,366	2,747	2,947
Alternative D	1,087	2,915	3,389	3,644
Alternative E † F	1,087	2,994	3,481	3,733

Sources: Tables 13, 20, 24, 28, 32 and 36.

