



FLYING CLOUD AIRPORT

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

**FOR THE
METROPOLITAN AIRPORTS COMMISSION**

**BY
HOWARD NEEDLES TAMMEN & BERGENDOFF**

TL
726.4
.T9
A873
1991
v.4

SEPTEMBER 1991

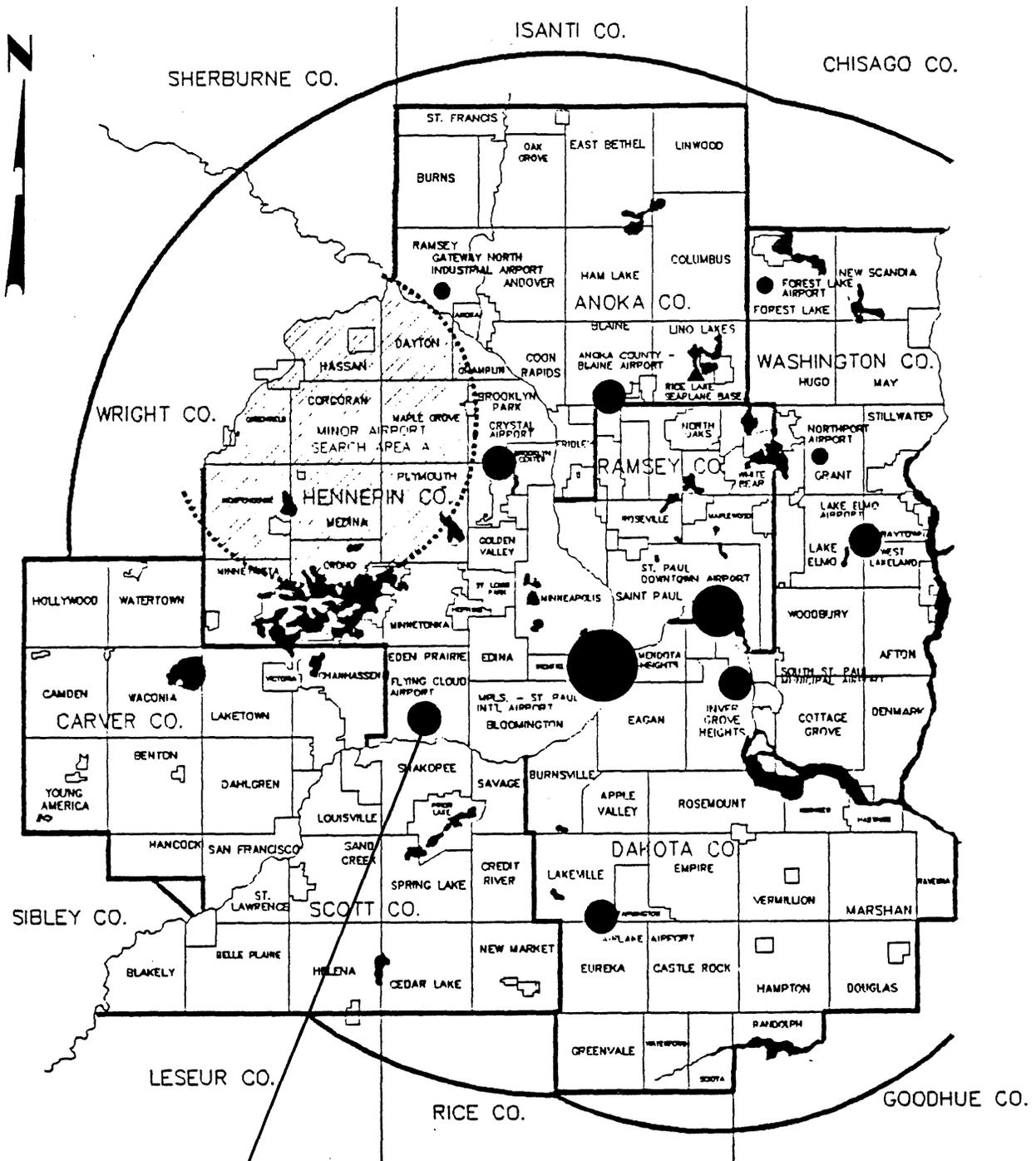
LEGISLATIVE REFERENCE LIBRARY
645 State Office Bldg
Saint Paul, Minnesota 55155

ASSESSMENT OF ENVIRONMENTAL EFFECTS

**Flying Cloud Airport
Metropolitan Airports Commission Seven Year Capital Improvement Plan**

TABLE OF CONTENTS

	<u>Page</u>
A. INTRODUCTION	1
B. IMPACT CATEGORIES USED TO ASSESS ENVIRONMENTAL EFFECTS	1
C. PROJECTS WITH POTENTIAL ENVIRONMENTAL EFFECTS	2
D. CUMULATIVE ENVIRONMENTAL EFFECTS	4
D.1 Noise Impacts	
D.2 Traffic Impacts	
D.3 Air Quality Impacts	
D.4 Water Quality Impacts	
D.5 Light Emissions Impacts	
D.6 Sewage Impacts	
D.7 Wetland Impacts	
D.8 Residential Relocation Impacts	
APPENDIX A - ENVIRONMENTAL ANALYSIS OF INDIVIDUAL PROJECTS	
APPENDIX B - 1992 CAPITAL IMPROVEMENT PROJECTS AND 1993 CAPITAL IMPROVEMENT PROGRAM	



PROJECT LOCATION

ASSESSMENT OF ENVIROMENTAL EFFECTS
FLYING CLOUD AIRPORT

FIGURE
1

ASSESSMENT OF ENVIRONMENTAL EFFECTS

Flying Cloud 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 identified in the Commission's seven-year capital improvement plan (1992-1998) for Flying Cloud Airport.

This assessment examines the cumulative environmental effects of all the listed capital improvement projects proposed for implementation at the airport from 1992 to 1998. 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 1992 through 1998. 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
FLYING CLOUD AIRPORT
METROPOLITAN AIRPORTS COMMISSION**

See Note	Project Description	1992	1993	1994	1995	1996	1997	1998
^*	Land Acquisition	\$100,000						
(1)	Pavement Rehabilitation	\$250,000		\$250,000		\$250,000		
*	Runway 9R/27L Extension	\$5,000,000						
*	South Building Area Construction		\$7,500,000					
*	Utility Connections	\$1,500,000						
Yearly Totals		\$6,850,000	\$7,500,000	\$250,000	\$0	\$250,000	\$0	\$0

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 a summary of the cumulative environmental effects by impact category. Appendix A contains an analysis of environmental effects on a project-by-project basis.

D.1 Noise Impacts

Noise modeling indicates that aircraft noise, with the Runway extension and building area expansion in place, will not produce levels of noise that are incompatible with adjacent land uses according to federal standards. The 65 Ldn contour remains well inside airport property except for one small area on the southwest side. A comprehensive noise abatement plan has been prepared by MAC in concert with the Flying Cloud Airport Advisory Commission and FAA. This noise abatement plan has been approved by the City of Eden Prairie. The implementation of the new noise abatement plan will help insure that unnecessary aircraft noise is reduced to a minimum. New federal regulations requiring the phase out of noisier (Stage II) jet aircraft by the year 2000 will also insure that noise is minimized. Even so, aircraft noise will continue to be associated with the airport. The Metropolitan Council has developed model noise zoning standards. These model standards put certain conditions on development in Zone C (60 to 65 Ldn) and Zone D (55 to 60 Ldn outside the MUSA line). These conditions should be included within local zoning ordinances as appropriate.

An EIS currently being written for the extension of runway 9R/27L will include a detailed noise analysis.

D.2 Traffic Impacts

The cumulative effects of the project are not expected to create significant impacts to vehicular traffic.

D.3 Air Quality Impacts

The cumulative effects of the projects are not expected to create significant impacts to air quality.

D.4 Water Quality Impacts

The total amount of impervious surface will be increased due to widening and lengthening of Runway 9R-27L and the construction of the new building area. New ditches and a detention pond will be created to keep all of the increased runoff on airport property. The water which accumulates in the detention pond will ultimately seep into the soil.

D.5 Light Emissions Impact

The relocation of the approach lights for Runway 9R is the only item which is anticipated to impact light emissions. The approach lights are fairly unidirectional, pointed at the approach path for arriving aircraft. A grove of pine trees separates residential areas from the end of the approach lights. Therefore, the cumulative effects of the projects are not expected to create significant light emission impacts.

D.6 Sewage Impacts

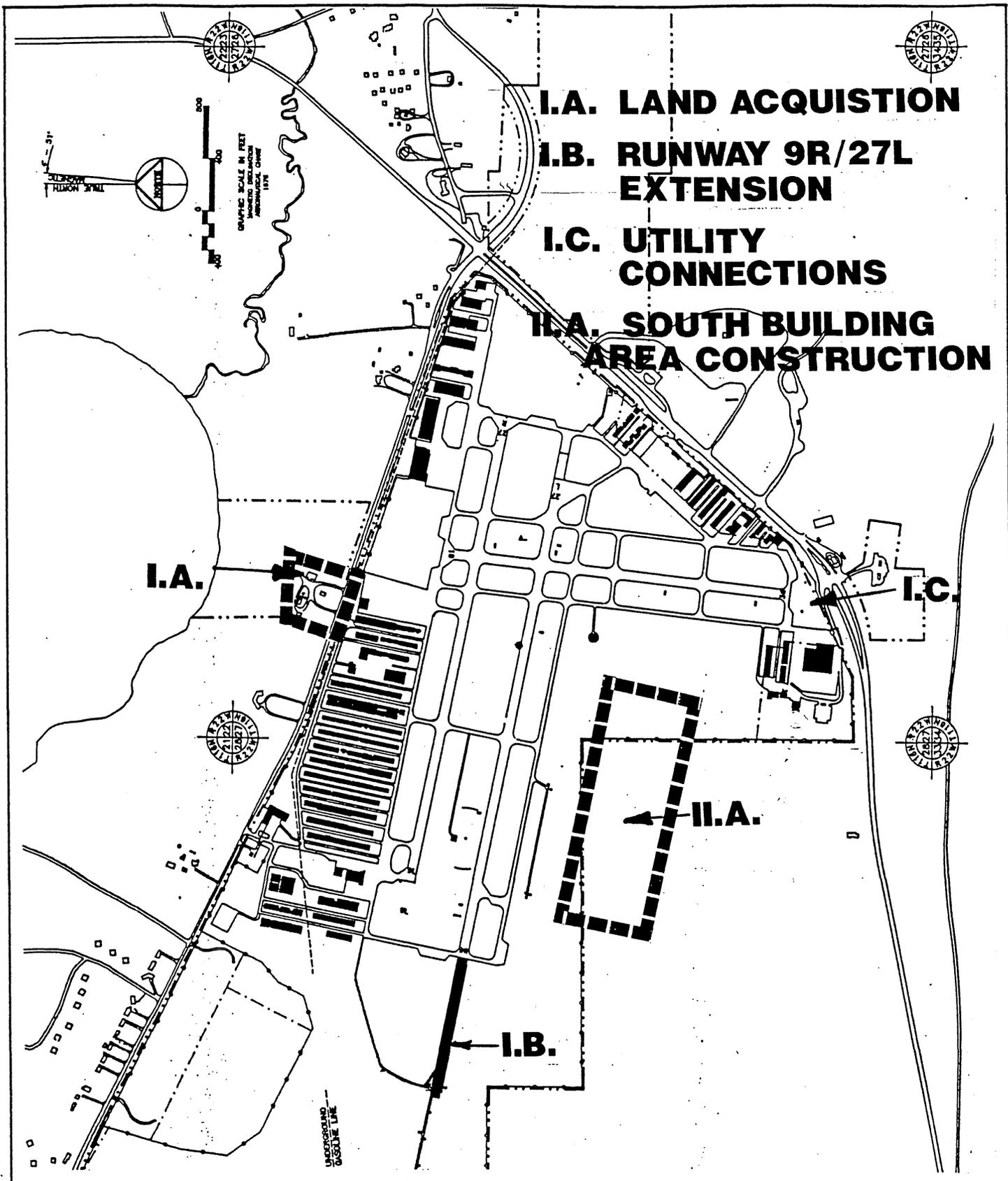
Sanitary sewer and watermain connections will principally involve installing water and sewer mains adjacent to the existing building areas. Individual services will be connected into the mains as need warrants. The MWCC sewer system is adequately sized to handle the minimal increase.

D.7 Wetland Impacts

No known wetlands are in the project area.

D.8 Residential Relocation Impacts

One residential property will be taken with the land acquisition for approach protection. The residents of this property will be relocated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), which provides that assistance be granted to persons, businesses, farms, and non-profit organizations that may be displaced by public improvements. The rest of the property will also be acquired according to state and federal criteria. It is hoped that a majority of the property which is acquired for Runway Protection Zone and safety zone purposes can be leased back to the city for a golf course or other low density park usage which is a compatible land use. Therefore the land acquisition impacts are not anticipated to be negative.



ASSESSMENT OF ENVIRONMENTAL EFFECTS
 FLYING CLOUD AIRPORT
CIP IMPACT PROJECTS

FIGURE
2

APPENDIX A

ENVIRONMENTAL ANALYSIS OF INDIVIDUAL PROJECTS

I. PROJECTS BEGINNING IN 1992

The following projects are included in the MAC's Capital Improvement Projects for 1992 and have the potential to effect the environment:

- Land Acquisition
- Runway 9R/27L Extension
- Utility Connections

I.A. LAND ACQUISITION

The project involves the acquisition of approximately 3.8 acres of private property in the approach to Runway 18 to improve approach protection (consistent with FAA guidelines). One hobby farm (including residence and outbuildings) will be removed, and an outdoor storage/dumping area will be eliminated on the same property. Positive environmental effects include the clean-up of a domestic waste storage area, less chance of detriment to water quality, and less impervious surface.

- Residential Relocation Impacts

One residential unit will be taken for the land acquisition. The residents of the owner-occupied unit will be relocated according to the provisions of The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), which provides that assistance be granted to persons, businesses, farms, and non-profit organizations which may be displaced by public improvements. The relocated residents of the unit could also benefit from a new location away from the airport (i.e. airport noise, safety hazards, and light emissions).

I.B. RUNWAY 9R-27L EXTENSION

The existing runway 9R-27L will be lengthened from 3900 feet to 5,000 feet and widened to 100 feet. The runway shall be designed to handle a maximum aircraft weight of 30,000 pounds. MAC ordinance 51 shall be modified to increase the maximum weight of aircraft at the airport from 20,000 pounds to 30,000 pounds. Analysis has shown that many of the newer quieter (Stage III) business jets are in the 20,000 to 30,000 pound weight category. Runway 9R-27L should be designed for the dimensional standards for general utility II runways with an airport reference code of B-II. This is consistent with the airports designation as a minor reliever airport and the MAC's desire to limit the critical aircraft to small and medium sized business jets. An EIS is currently being prepared regarding this project.

- **Aircraft Noise Impacts**

Noise modeling indicates that aircraft noise, with the extended runway in place, will not produce levels of noise that are incompatible with adjacent land uses according to federal standards. The 65 Ldn contour remains well inside airport property except for one small area on the southwest side. The implementation of MAC's new noise abatement plan will help insure that unnecessary aircraft noise is reduced to a minimum. New federal regulations requiring the phase out of noisier (Stage II) jet aircraft by the year 2000 will also insure that noise is minimized. Even so, aircraft noise will continue to be associated with the airport. The Metropolitan Council has developed model noise zoning standards. These model standards put certain conditions on development in Zone C (60 to 65 Ldn) and Zone D (55 to 60 Ldn outside the MUSA line). These conditions should be included within local zoning ordinances as appropriate.

- **Water Quality Impacts**

The majority of the airport's current runoff flows to a depression located near the west end of Runway 9R-27L where the runoff quickly percolates into the ground due to the well-drained sandy subsurface soils. The extension of Runway 9R-27L and the parallel taxiway will result in most of this depression being filled. New ditches and a new detention pond will be created during the construction of this project.

- **Light Emission Impacts**

The runway extension will require the relocation of the Medium Approach Lighting System (MALSR), the glideslope and middle marker, the VASI on each runway end and the Runway End Identifier Lights (REILS) on the east end. The lights will be pointed at the approach path for arriving aircraft and a grove of pine trees separates them from residential areas. Significant light impacts are not anticipated.

- **Residential Relocation Impacts**

Land acquisition of 116 acres will be required for the extension of Runway 9R-27L. The land between County Road 4 and Eden Prairie Road, which underlies the runway protection zone and Minnesota model Zone A will be acquired. Most of the land acquired for the runway on the west end will not be required for airport purposes. Certain uses such as golf courses are compatible in the Runway Protection Zone and Minnesota Safety Zone A.

It is hoped that much of the land acquired can be leased back to the City of Eden Prairie for a compatible use. Residential relocation will not be necessary.

I.C. UTILITY CONNECTIONS

Flying Cloud Airport is currently served by individual septic systems and private wells, and borders the Metropolitan Urban Service Area (MUSA) on its north and east sides. Eleven thousand linear feet of sewer and water service will be extended to the control tower and FBO buildings with new 8" mains, beginning at Mitchell Road and continuing on MAC property adjacent to CR1 and TH 169, and ending at the control tower. Positive social environmental effects will be obtained by the provision of municipally-controlled and monitored utility services, capping of several existing wells with questionable water quality, and elimination/clean up of several individual septic systems. Cumulatively, these improvements will provide improved potable water supplies and waste distribution methods at Flying Cloud Airport, as well as an enhancement to existing Air Rescue and Fire Fighting protection facilities.

Individual services will be connected into the mains as need warrants.

II. PROJECTS BEGINNING IN 1993

The following projects are included in the MAC's Capital Improvement Program for 1993 and have the potential to affect the environment:

- South Building Area Construction

II.A. SOUTH BUILDING AREA CONSTRUCTION

The new building area is planned for 1993. It is located on the south and west side of the airport. Taxiway modifications and building area construction, will require relocation of the VOR. Construction plans include an earthen berm, approximately 20 feet high, to be constructed on the south side of the building area to hide the hangars when viewing the river bluff area from the south. Buildings on the north side of the new building area will be limited to a maximum height of 20 feet so as to not obstruct the view of the air traffic control tower. Buildings on the far south side of the building area will be limited to a maximum height of 44 feet.

- Traffic Impacts

The increased building area will enable more services and aircraft to be based at the airport. The increased traffic is not expected to be a significant impact.

- Water Quality Impacts

The impervious surface will be increased by hangars and taxilanes. Additional runoff will be collected in the new ditches and the new detention pond to be constructed to service the runway extension and the building area.

APPENDIX B
1992 CAPITAL IMPROVEMENT PROJECTS
1993 CAPITAL IMPROVEMENT PROGRAM

1992 CAPITAL IMPROVEMENT PROJECTS

FLYING CLOUD AIRPORT

LAND ACQUISITION - \$100,000

The FAA strongly encourages airport owners to acquire/control property in the runway approach areas. In the approach to Runway 18, Commission property nearly surrounds private property in the runway clear zone. Acquisition of the approximate 3.8 acre parcel would provide additional approach protection for the airport. Previously approved by the Commission.

PAVEMENT REHABILITATION - \$250,000

Periodically, it is necessary to rehabilitate aircraft operational areas (runways, taxiways, aprons) through bituminous overlays, sealcoats, or in some instances, reconstruction, to restore the surfaces to a smooth, even condition and improve overall operating conditions. This year's project will include alleyways and pavements in the south and southeast building areas.

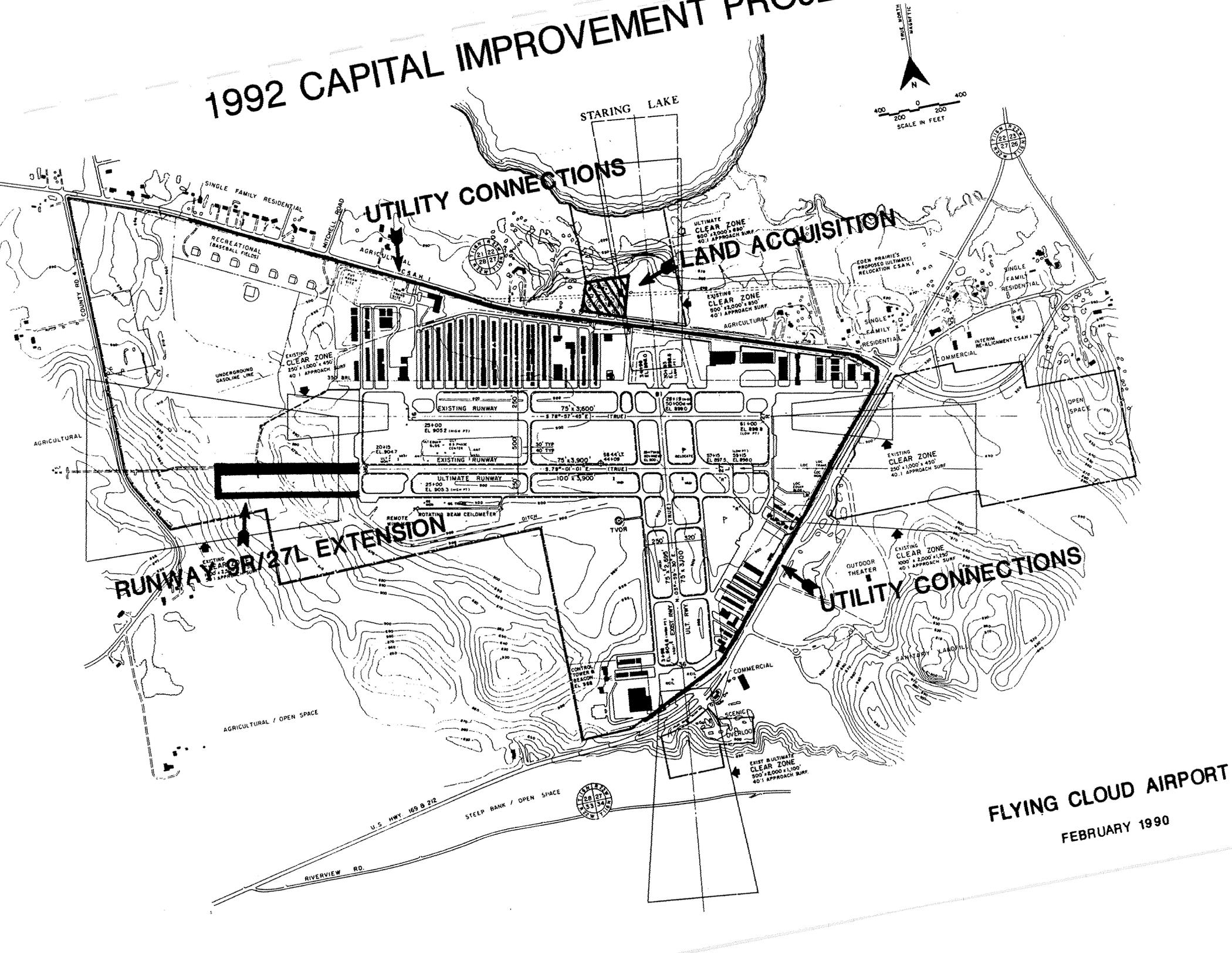
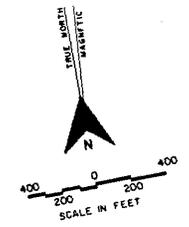
RUNWAY 9R/27L EXTENSION - \$5,000,000

The Long-Term Comprehensive Development Plan for Flying Cloud Airport recommends that Runway 9R/27L be lengthened from 3900 feet to 5000 feet to allow for safer operation of light to medium sized business jets. Included with the runway extension would be the extension of the existing north and south parallel taxiways.

UTILITY CONNECTIONS - \$1,500,000

The airport currently borders the Metropolitan Urban Service Area (MUSA) on its north and east sides and, therefore, private wells and individual wastewater treatment systems are scattered throughout the airport. The City of Eden Prairie has expressed a desire to extend city water and sewer mains to serve the airport property. It is proposed the extension of these utilities begin in 1992.

1992 CAPITAL IMPROVEMENT PROJECT



UTILITY CONNECTIONS

LAND ACQUISITION

RUNWAY 9R/27L EXTENSION

UTILITY CONNECTIONS

FLYING CLOUD AIRPORT
FEBRUARY 1990



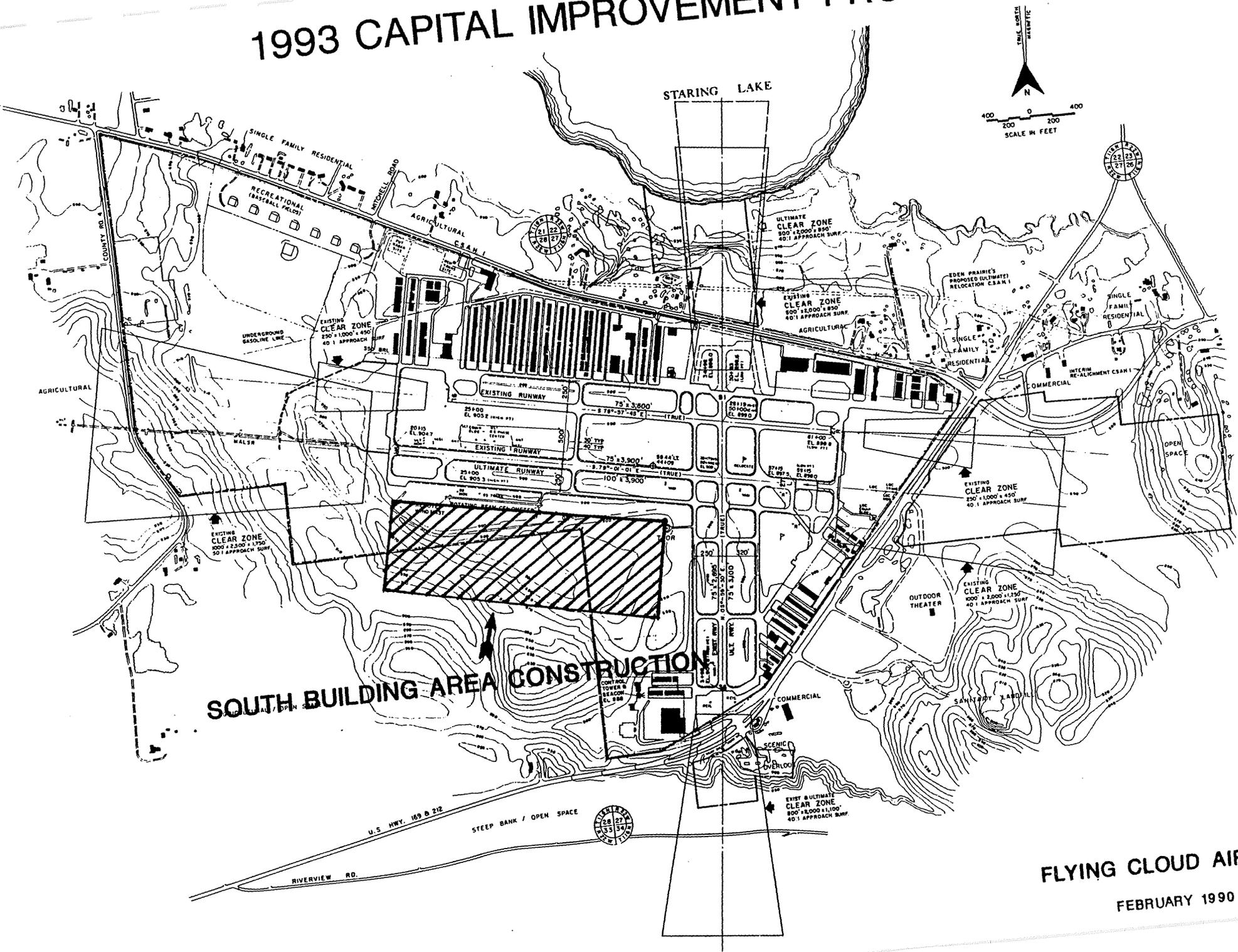
1993 CAPITAL IMPROVEMENT PROGRAM

FLYING CLOUD AIRPORT

SOUTH BUILDING AREA CONSTRUCTION - \$7,500,000

The amount of hangar and tie down space has been a limiting factor for expanded development at Flying Cloud Airport. The Long Term Comprehensive Development Plan prepared for the airport recommends that a new building area be constructed to meet the projected demand. The preferred alternative consists of a new building area on the south side of the airport positioned so that the VOR can remain in place. This building area requires substantial fill to be placed and also that a minimum of 79 acres be acquired.

1993 CAPITAL IMPROVEMENT PROGRAM



SOUTH BUILDING AREA CONSTRUCTION

FLYING CLOUD AIRPORT
FEBRUARY 1990