

Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)
Meeting Record

December 27, 2010

Flying Cloud Airport Joint Airport Zoning Board

Meeting Agenda

Thursday, July 16, 2009

3:00 P.M.

Eden Prairie City Center – Heritage Rooms 3 & 4
8080 Mitchell Road, Eden Prairie

Agenda Items

1. Board Member Introductions
2. Organizational Logistics
3. Selection of Chairperson
4. Goal of the Flying Cloud Airport Joint Airport Zoning Board
5. Establish Next Meeting Date

Flying Cloud Airport Joint Zoning Board Meeting Plan

Meeting 1:

- Introductions
- Chairperson Selection
- Distribution of Orientation Materials
- Review Board's Goal
- Discuss Future Agenda Items

Meeting 2:

- Review State Statute
- Federal Land Use and Airspace Criteria
- MnDOT Presentation on State Safety Zone Background and Criteria
- Addressing Complex Considerations in the Zoning Process: MSP Joint Zoning Board Experience
- Board Member Direction on Specific Items to be Considered in the Zoning Effort

Meeting 3:

- Report on Additional Considerations as Requested by the Board

Meeting 4:

- Approval of first Draft FCM Zoning Ordinance and Maps for Public Hearing

Meeting 5:

- First Public Hearing on Proposed Ordinance

Meeting 6:

- Review of comments and responses and submittal of first draft to the Commissioner of Transportation

MEMORANDUM

TO: Flying Cloud Airport Joint Airport Zoning Board

FROM: Dennis Probst

SUBJECT: **Suggested Process for Selecting the Board Chair**

DATE: July 16, 2009

The method of selecting the Chair of the Flying Cloud Airport Joint Airport Zoning Board ("Board") is set out in Minn. Stat. § 360.063, subd. 3, which provides:

A joint board shall have as members two representatives appointed by the municipality owning or controlling the airport¹ and two from the county or municipality, or in case more than one county or municipality is involved two from each county or municipality, in which the airport hazard is located, *and in addition a chair elected by a majority of the members so appointed*. All members shall serve at the pleasure of their respective appointing authority. (Emphasis supplied).

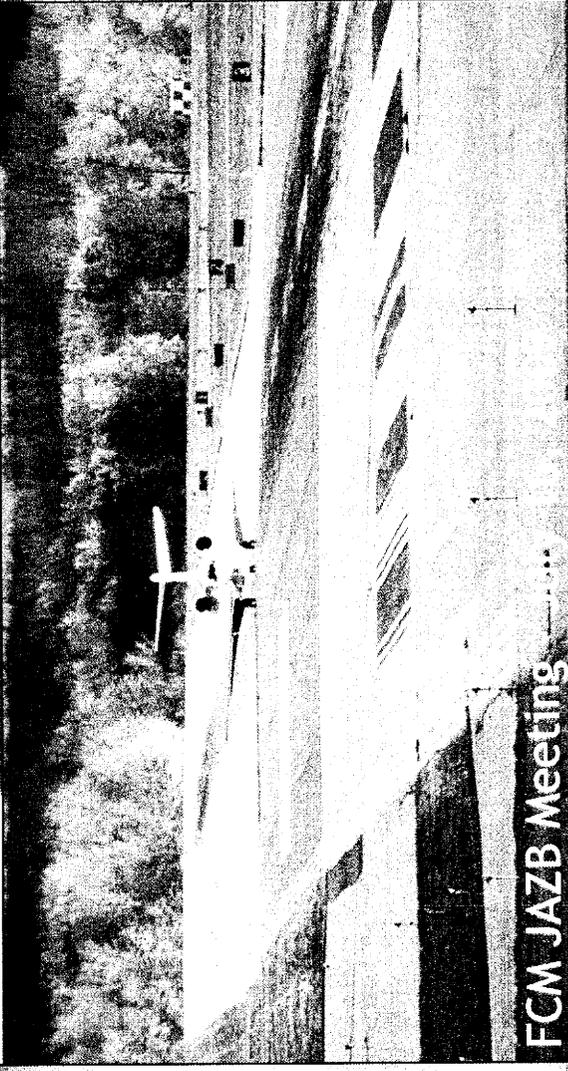
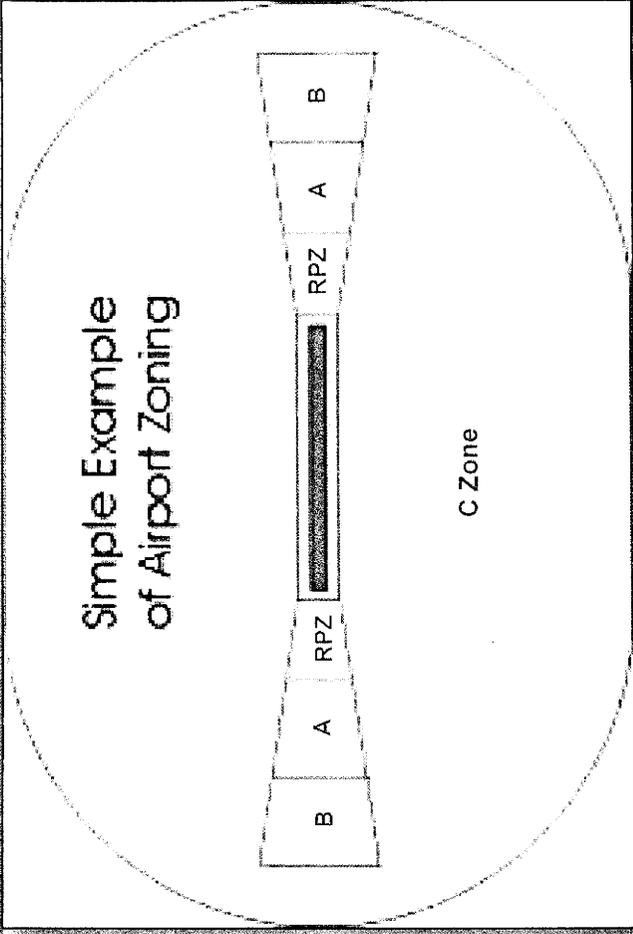
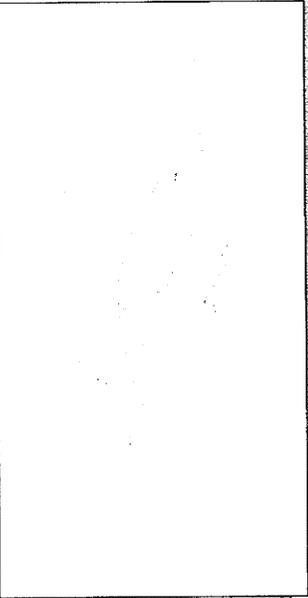
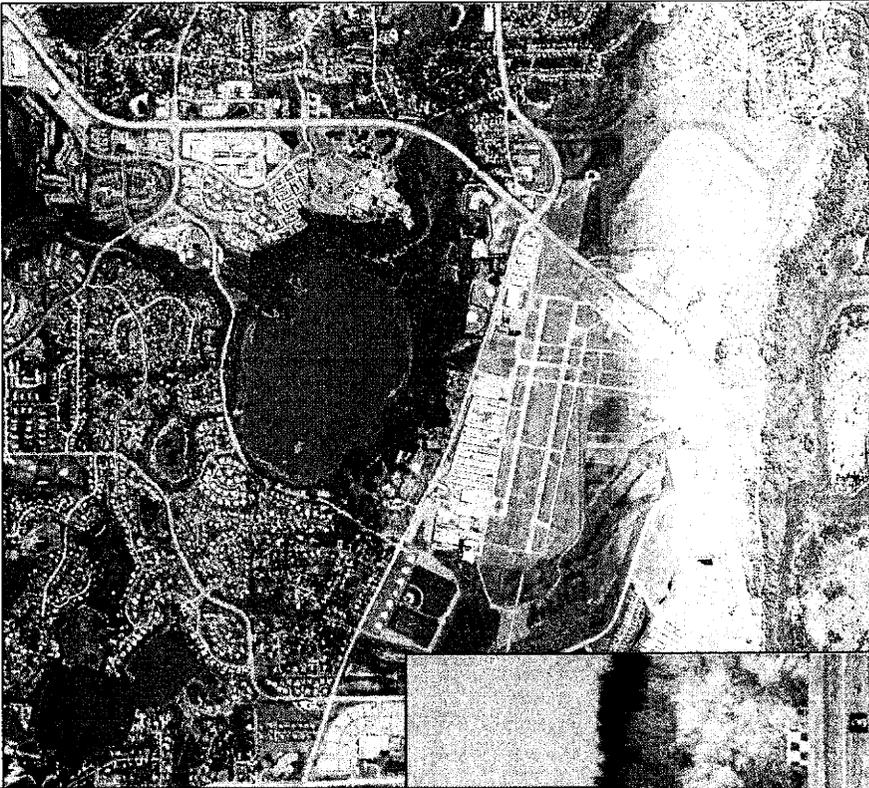
As you can read, the Chair must be someone "in addition" to the Board, i.e., not one of the members or alternates appointed by the municipalities or the Metropolitan Airports Commission. And the Chair must be elected by a majority of the Board Members, i.e., not a quorum of the majority or other lessor number. No other criteria are stated.

I suggest a process patterned on the one used by the Wold-Chamberlain Field Joint Airport Zoning Board. First, all members would have ten days to submit names in addition to the ones already identified. Second, staff will contact all those nominated, determine who would be willing to serve, and compile a brief biography of each willing candidate. This would be mailed to all Board Members within ten to twelve days after nominations close. Third, the Board would vote at its next meeting. Fourth, the Chair would assume his/her duties at the third meeting of the Board.

¹ "Owning or controlling municipality" is defined to include the Metropolitan Airports Commission. See Minn. Stat. § 360.063, subd. 3(d).

Flying Cloud Airport (FCM) Joint Airport Zoning Board (JAZB)

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FCM JAZB Meeting



Why Are We Here?

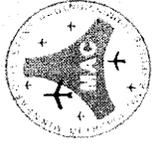


Minn. Stat. §360.062:

- Establishes that “**airport hazards**” endanger lives, property and airport utility and should be prevented with consideration given to avoiding the disruption of existing land uses based on social and financial costs.

Minn. Stat. §360.063, subd. 3:

- In an effort to prevent the creation or establishment of “airport hazards,” the statute states that “**the Metropolitan Airports Commission shall request creation of one joint airport zoning board for each airport operated under its authority.**”
- Establishes that “**A joint board shall have as members two representatives appointed by the municipality owning or controlling the airport and two from the county or municipality, or in case more than one county or municipality is involved two from each county or municipality, in which the airport hazard is located, and in addition a chair elected by a majority of the members so appointed.**”





GOAL:

Develop FCM Zoning Ordinance for Review and Approval by the Commissioner of Transportation, for Subsequent Adoption by the Board and then by Local Municipalities

Major Considerations:

- **MnDOT Model Ordinance – Minnesota Rule 8800.1200 and Minnesota Rule 8800.2400**
- **FCM's unique characteristics in the context of existing and planned land uses around the airport**
- **Maintaining a “reasonable standard of safety” while considering the social and financial costs to the community**
- **Minn. Stat. §360.066, subd. 1 is especially instructive when addressing the question of zoning around complex urbanized airports such as FCM**





➤ When addressing airport zoning; minimum standards and land uses related to reasonableness the statute instructs that:

“Standards of the commissioner defining airport hazard areas and the categories of uses permitted and airport zoning regulations adopted under sections 360.011 to 360.076, shall be reasonable, and none shall impose a requirement or restriction which is not reasonably necessary to effectuate the purposes of sections 360.011 to 360.076. In determining what minimum airport zoning regulations may be adopted, the commissioner and a local airport zoning authority shall consider, among other things, the character of the flying operations expected to be conducted at the airport, the location of the airport, the nature of the terrain within the airport hazard area, the existing land uses and character of the neighborhood around the airport, the uses to which the property to be zoned are planned and adaptable, and the social and economic costs of restricting land uses versus the benefits derived from a strict application of the standards of the commissioner.”





**Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)**

2009 REFERENCE MANUAL



Reference Manual Contents

1. FCM JAZB Roster
2. List of Acronyms and Definitions
3. Minnesota Statutes Chapter 360, Sections 360.061 to 360.074
4. Minnesota Rules, Chapter 8800.1200
5. Minnesota Rules, Chapter 8800.2400
6. MnDOT Model Airport Zoning Ordinance
7. Maps of Model State Safety Zones with 2005 Land Use
8. Maps of Model State Safety Zones with 2008 Digital Ortho-Photography
9. Maps of Model State Safety Zones with Parcels
10. Maps of Model State Safety Zones with 2020 Planned Land Use
11. Maps of Airspace Zones with 2008 Digital Ortho-Photography
12. MnDOT Airport Land Use Compatibility Manual



**FLYING CLOUD AIRPORT
JOINT AIRPORT ZONING BOARD**

**Thursday, July 16, 2009
Eden Prairie City Center – Heritage Rooms 3 & 4
8080 Mitchell Road, Eden Prairie, MN**

MINUTES

Tom Anderson, MAC General Counsel, convened the Flying Cloud Airport Joint Airport Zoning Board meeting at 3:05 p.m. The following were attendance:

Members: Steve Peterson, City of Bloomington
Glen Markegard, City of Bloomington
Kate Aanenson, City of Chanhassen
Jerry McDonald, City of Chanhassen
Brad Aho, City of Eden Prairie
Jon Duckstad, City of Eden Prairie
Joseph Helkamp, City of Shakopee
Molly Sigel, Metropolitan Airports Commission
Sherry Stenerson, Metropolitan Airports Commission

Others: Scott Neal, Scott Kipp, City of Eden Prairie; Deb Sorenson, James Terry, Mn/DOT; Chris Olwell, Eden Prairie Sun Current; Tom Anderson, Cameron Boyd, Jenn Felger, Roy Fuhrmann, Chad Leqve, MAC Staff

1. INTRODUCTIONS

Tom Anderson, MAC General Counsel, introduced himself and indicated that he would moderate the meeting since a Chair has not yet been selected. He reviewed the proposed agenda for the meeting and introduced Chad Leqve and Jenn Felger from the MAC who will provide staff support to the Board. Board members introduced themselves.

IT WAS MOVED BY DUCKSTAD, SECONDED BY AHO, THAT TOM ANDERSON SERVE AS TEMPORARY CHAIR OF THE FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD UNTIL A CHAIR IS ELECTED BY THE BOARD. THE MOTION CARRIED BY UNANIMOUS VOTE.

2. ORGANIZATIONAL LOGISTICS

Mr. Anderson stated that the Joint Airport Zoning Board is a public body and subject to the open meeting law, therefore all meetings will be open to the public. Mr. Anderson stated MAC has attempted in the past to implement zoning around the Flying Cloud Airport but was unsuccessful in completing the process. Mr. Anderson described the zoning process as outlined in State Statutes stating that after deliberations, if the Board is going to proceed with a zoning ordinance, it will need to adopt a draft ordinance for purposes of holding a public hearing. Based on the input received at the public hearing, a recommendation would be made to the Commissioner of Transportation. The Commissioner of Transportation has

the ability to accept or reject that recommendation. Following review by the Commissioner, the JAZB incorporates the Commissioner's recommendations and holds a second public hearing on the revised ordinance; the Board then sends it back to the Commissioner for final approval.

Chad Leqve presented a meeting plan outlining the topics and goals to be considered by the Board. Board Member Peterson suggested meeting every three weeks and requested that staff bring a proposed schedule to the next meeting. The Board agreed that Thursdays at 3:00 p.m. at the Eden Prairie City Center would be convenient and that meetings may be added to or deleted from the schedule on an as needed basis. The next meeting is scheduled for Thursday, August 13th, at 3:00 p.m.

Mr. Anderson stated that each entity represented is entitled to appoint two members to the Board; the City of Shakopee currently has one member appointed.

The Board discussed using Robert's Rules of Order during Board deliberations and agreed that a quorum consist of a majority of the members (i.e., 6 of 11) being in attendance to take action.

IT WAS MOVED BY PETERSON AND SECONDED BY STENERSON, TO FOLLOW ROBERT'S RULES OF ORDER WITH THE NORMAL QUORUM REQUIREMENTS. THE MOTION PASSED BY UNANIMOUS VOTE.

3. SELECTION OF CHAIRPERSON

Mr. Anderson reviewed the method of selecting the Chair for the Board as set out in Minnesota Statutes which provides that the Chair must be an individual "in addition" to the Board Members appointed and be elected by a majority of the Board Members. Board Members Aho and Duckstad nominated Rick King to serve as Board Chair. Board Member Aho reviewed Mr. King's background noting that he is an Eden Prairie resident, currently serves as the Chair of the Flying Cloud Airport Advisory Commission, is familiar with local government, and is willing to serve as Chair.

IT WAS MOVED BY PETERSON, SECONDED BY MCDONALD, TO ELECT RICK KING AS CHAIR OF THE FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD. THE MOTION CARRIED BY UNANIMOUS VOTE.

4. GOAL OF THE FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD

Chad Leqve, MAC Staff, gave a brief presentation on the Minnesota Statutes regarding airport zoning stating that the fundamental goal of the Board is to develop a Zoning Ordinance for review and approval by the Commissioner of Transportation for subsequent adoption by the Board and then by local municipalities. Major considerations for the Board are as follows:

- MnDOT Model Ordinance
- FCM's unique characteristics in the context of existing and planned land uses around the airport
- Maintaining a "reasonable standard of safety" while considering the social and financial costs to the community

Mr. Leqve noted that Minn. Stat. §360.066, subd. 1 is extremely instructive when addressing the question of zoning around complex urbanized airports such as FCM.

Mr. Leqve also gave a brief summary of the materials contained in a Reference Manual that was provided to each Board Member.

Mr. Anderson responded to questions regarding the history of the zoning process around Flying Cloud Airport, noting that currently, there is no ordinance in place. There were efforts during the 1980's to address land use around the airport, however liability concerns from the Cities related to the concept of takings stopped the process. Mr. Anderson stated that the role of the JAZB is to zone the land outside the airport boundary to ensure compatible land use.

Mr. Anderson stated that a Zoning Ordinance for MSP has been adopted and the zoning process for the St. Paul Downtown Airport (STP) is currently underway; the first Public Hearing on the draft ordinance for STP has been scheduled. He stated that most of the out-state airports have been zoned. Board Member Peterson, who served on the MSP JAZB, discussed the MSP process that was followed noting that the Commissioner of Transportation approved the recommendations by the Board to modify the zoning ordinance for MSP.

Mr. Anderson responded to a question regarding clarification on who has final authority over zoning stating that Mn/DOT has the ultimate authority if the JAZB fails to act within a reasonable amount of time. Mr. Anderson stated that concerns regarding liability issues associated with the regulatory taking of property have been discussed during the zoning processes for MSP and STP. He stated that in past zoning processes, the municipalities have not been interested in MAC setting up its own zoning administration structure but would rather have the cities administer the ordinance that is adopted by the Zoning Board. During the zoning processes for MSP and STP, an Indemnification Agreement was adopted by the MAC and the municipalities.

5. ESTABLISH NEXT MEETING DATE

The next meeting is scheduled for Thursday, August 13th, at 3:00 p.m., at the Eden Prairie City Center.

IT WAS MOVED BY STENERSON, SECONDED BY AHO TO ADJOURN. THE MOTION CARRIED BY UNANIMOUS VOTE.

The meeting was adjourned at 3:45 p.m.

Flying Cloud Airport Joint Airport Zoning Board

Meeting Agenda
Thursday, August 13, 2009
3:00 P.M.

Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie

Agenda Items

1. Chairman Introduction
2. Approval of Meeting Agenda
3. Approval of July 16, 2009 FCM JAZB Meeting Minutes
4. MnDOT – Model State Safety Zones Background and Criteria
5. Airspace Zone Criteria
6. Existing Land Uses around FCM and the Model State Safety Zones
7. Addressing Complex Considerations in the Zoning Process (Minn. Stat. §360.066, subd. 1)
8. Board Direction on Specific Items to be Considered in the Zoning Effort
9. Next Meeting Date

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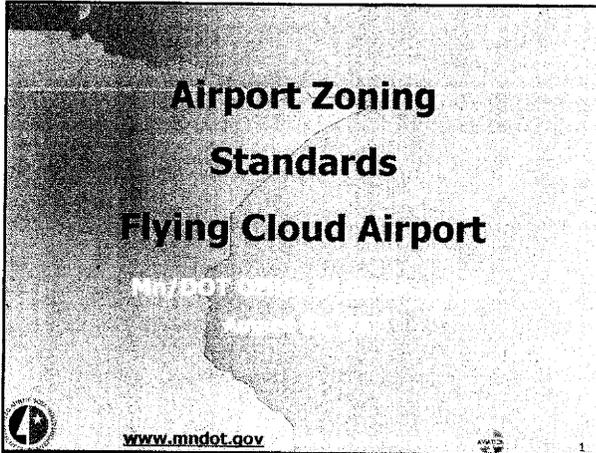
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Airport Zoning Standards

Flying Cloud Airport

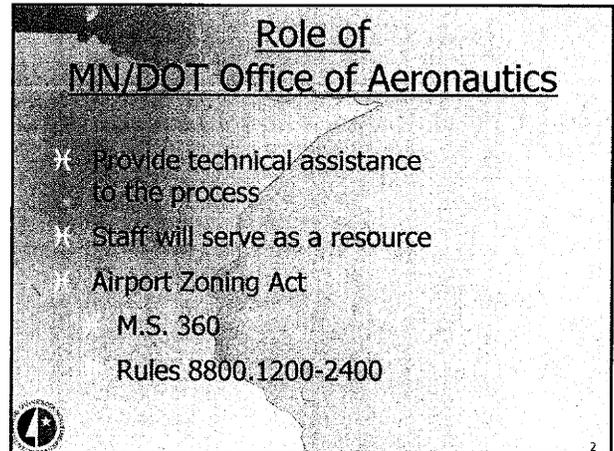
Mn/DOT Office of Aeronautics
Aeronautics

www.mndot.gov

Role of Mn/DOT Office of Aeronautics

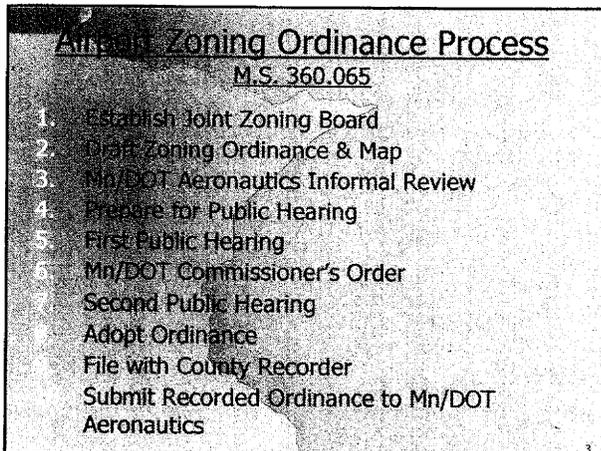
- ✖ Provide technical assistance to the process
- ✖ Staff will serve as a resource
- ✖ Airport Zoning Act
M.S. 360
Rules 8800.1200-2400

Airport Zoning Ordinance Process

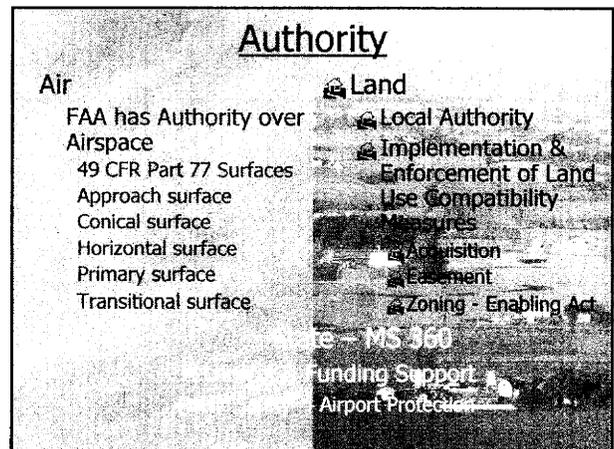
M.S. 360.065

1. Establish Joint Zoning Board
2. Draft Zoning Ordinance & Map
3. Mn/DOT Aeronautics Informal Review
4. Prepare for Public Hearing
5. First Public Hearing
6. Mn/DOT Commissioner's Order
7. Second Public Hearing
8. Adopt Ordinance
9. File with County Recorder
10. Submit Recorded Ordinance to Mn/DOT Aeronautics

Authority

<p>Air</p> <p>FAA has Authority over Airspace 49 CFR Part 77 Surfaces Approach surface Conical surface Horizontal surface Primary surface Transitional surface</p>	<p>Land</p> <p>Local Authority Implementation & Enforcement of Land Use Compatibility Measures Acquisition Easement Zoning - Enabling Act</p> <p>MS 360 Funding Support Airport Protection</p>
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Why Zone?

MN Rules 8800.2400 Subp. 6. Use restrictions. In order to restrict those uses which may be hazardous to the operational safety of aircraft operating to and from an airport, and furthermore to limit population and building density in the runway approach areas, thereby creating sufficient open space so as to **protect life and property in case of accident**, the following use restrictions are applied to the land use safety zones.

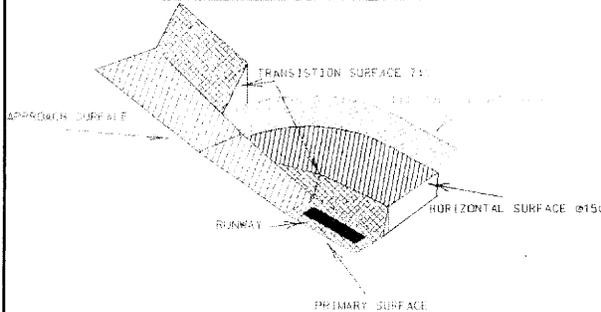
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Land Use Safety Zones Purpose & Intent

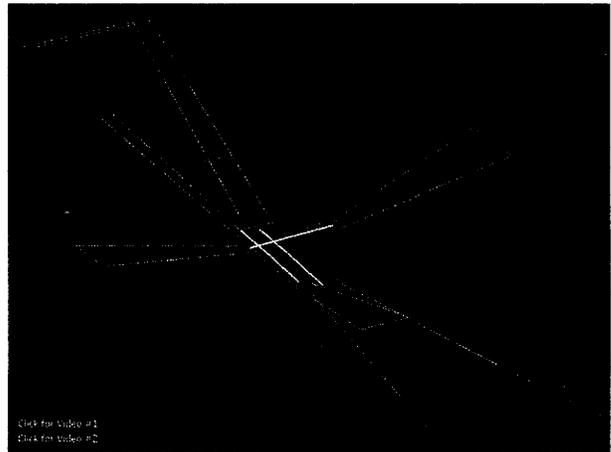
1. SAFETY for pilots/passengers in the air,
SAFETY for people on the ground around the airport
Protection of Property in the Airport Area
Limit Population and Building Density to create sufficient open space in case of accident.
2. PROTECT Utility of the Airport
Provide Compatible land uses around airports
allow no uses that create smoke or visually distract pilot or attract birds and animals

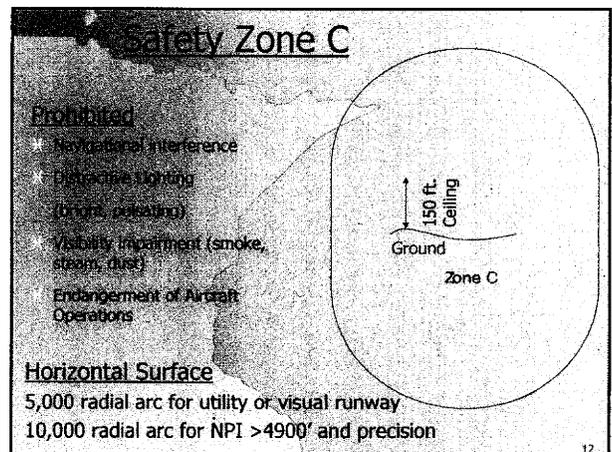
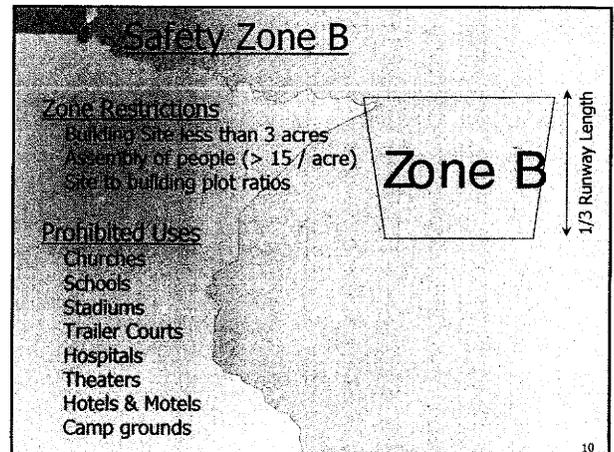
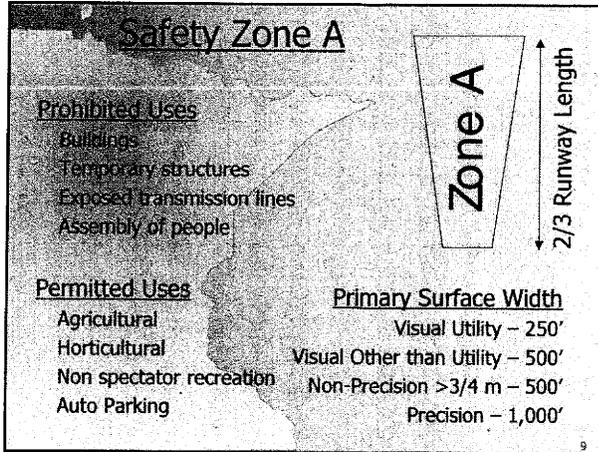
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Airspace Diagram



It is important to remember that the diagram depicts airspace surfaces but the Airport Zoning Ordinance affects the land uses beneath the surfaces.





1974 Basis for Zoning Lengths Simple, Reasonable, Equitable

- ✦ Airports + 1 mile radius = 1/2 of 1% of Minnesota's Land Mass
- ✦ 70% of recorded aircraft accidents occurred within that small area
 - Aircraft are operating at lower altitudes and near critical stall speeds
 - A forced landing becomes extremely limited when operating at low/slow speeds
- ✦ Most smaller paved airports ~ 3,000' runways with 2,000' clear zone area = 2/3 ratio clear zone to runway length
- ✦ Remaining 1/3 area for zone B ~ 50/50 split

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"Reasonableness"

- ✦ Standards of the commissioner defining airport hazard areas and the categories of used permitted and airport zoning regs adopted under 360 shall be reasonable... M.S. 360.066
- ✦ Surfaces of standards are to be consistent with surfaces of FAA Part 77 - MS 360.011
- ✦ Elimination or removal of existing land uses is not in the public interest - MS 360.062
- ✦ Provides for a Social and Economic cost consideration to the strict application of the standards - MS 360.066
- ✦ Existing Residential Neighborhoods in BUU areas are conforming uses - MS 360.066

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Questions?



Kathy Vesely
Planning Director and
Zoning Administrator
651-234-7193
kathy.vesely@dot.state.mn.us

Debra Sorenson
Airport Zoning Coordinator
651-234-7191
deb.sorenson@dot.state.mn.us

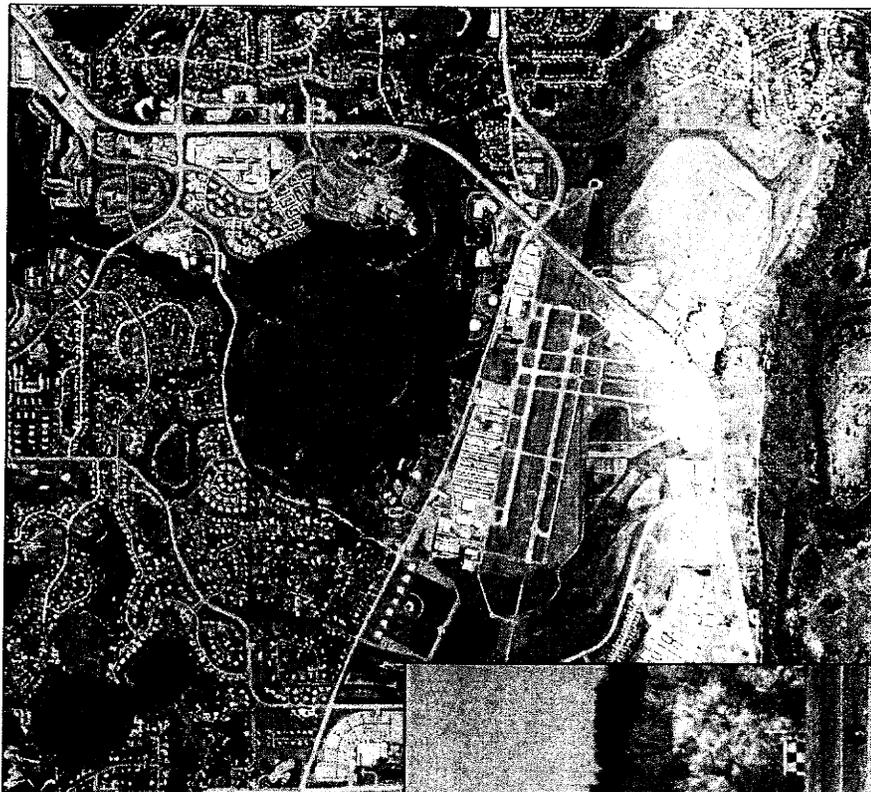
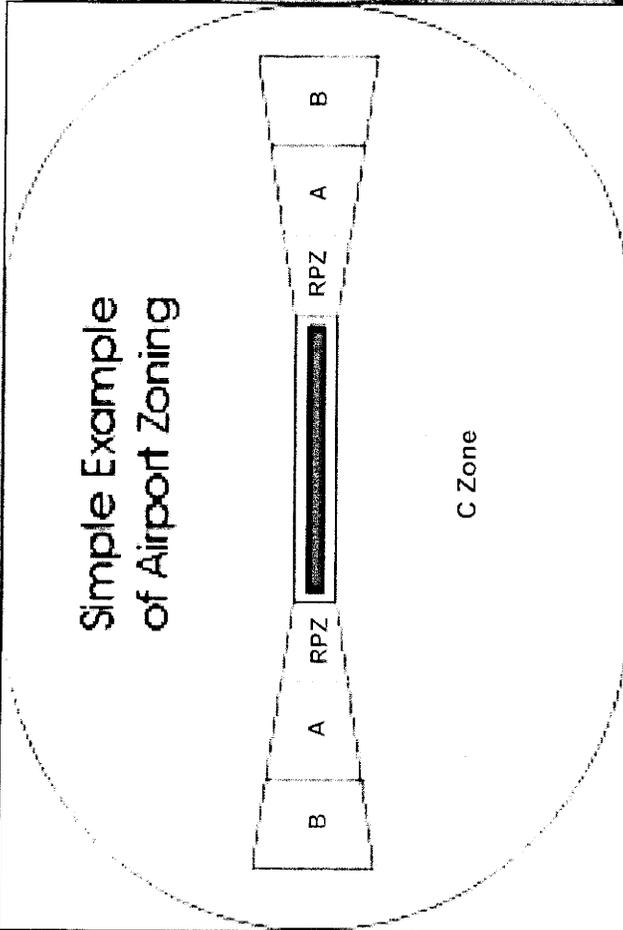
James Terry
Airport Zoning Coordinator
651-234-7190
james.terry@dot.state.mn.us

www.mndot.gov

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Flying Cloud Airport (FCM) Joint Airport Zoning Board (JAZB)

recovery



FCM JAZB Meeting - August 13th, 2009



Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

Airspace Zone Criteria

Federal and State Guidance:

- 49 CFR Part 77
- Minn. Rules Chapters 8800.1200 and 8800.2400

Federal Regulation 49 CFR Part 77 establishes national standards and notification requirements for objects affecting navigable airspace.

Minn. Rule Chapter 8800.1200 provides state's guidance on criteria for determining air navigation obstructions.

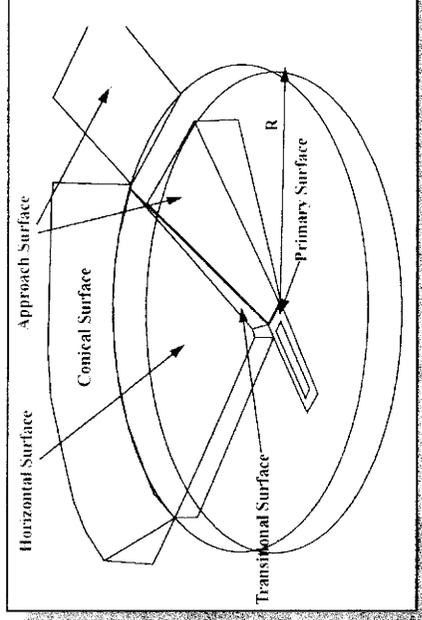
Minn. Rules Chapter 8800.2400 incorporates airspace criteria in airport zoning standards.



Imaginary Surfaces



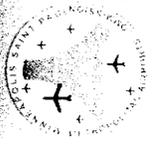
- **Primary Surface** – aligned (longitudinally) with each runway and extends from 200 ft from each runway end with a width of 120 ft to 1,000 ft depending on the runway's classification.
- **Approach Surface** – longitudinally centered with the runway and extends beyond the primary surface at a slope and to a distance based on runway classification.
- **Horizontal Surface** – horizontal plane 150 ft. above the established airport elevation. Constructed by swing arcs around the end of the primary surface with a radius of either 5,000 ft or 10,000 ft based on the runway's classification.
- **Conical Surface** – 20:1 surface extending 4,000 ft beyond the horizontal surface.
- **Transitional Surface** – constructed to join approach and horizontal or approach and transitional surfaces.

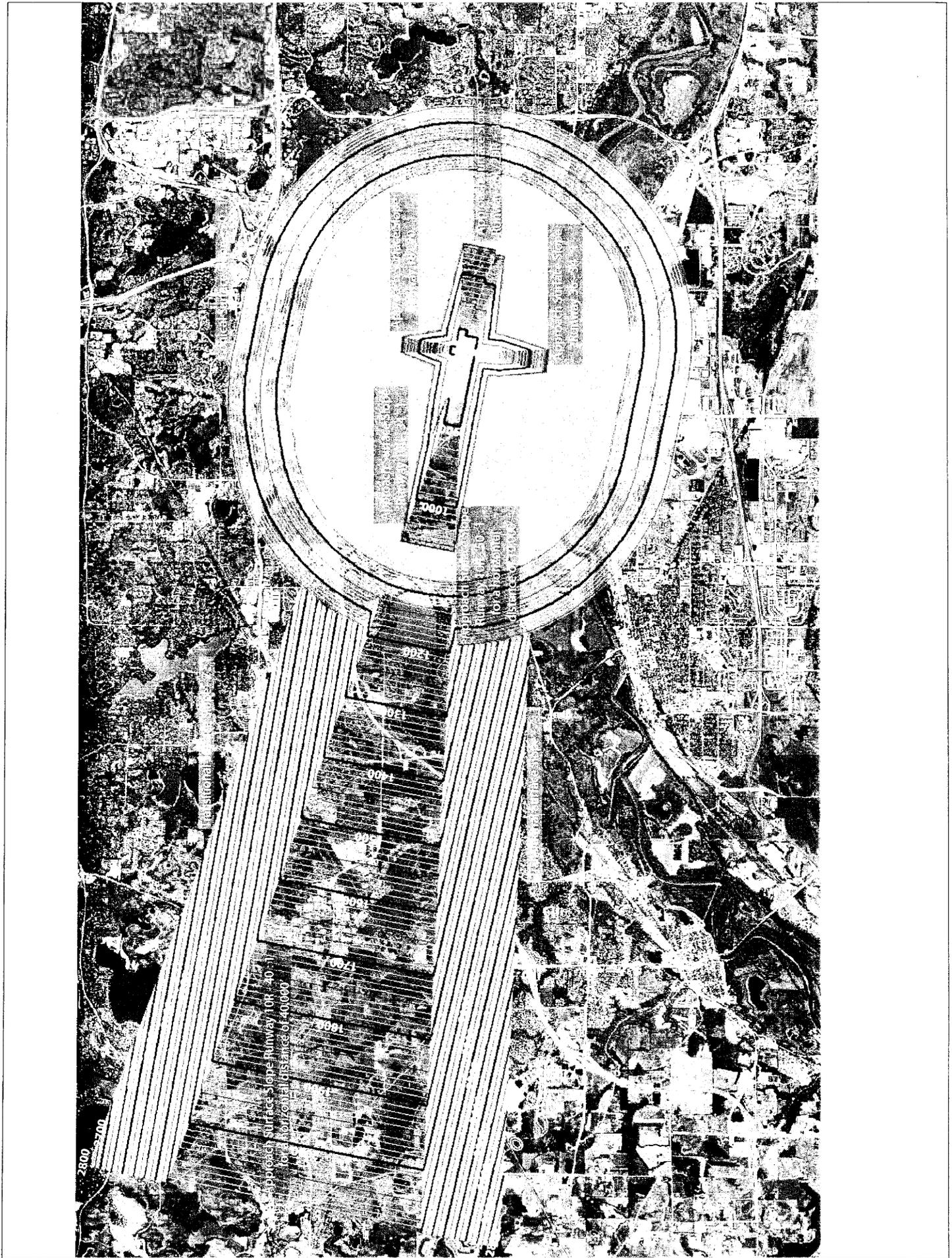


FCM Airspace Surface Dimensions by Runway

Surface	Runway 18	Runways 36, 28L, 10L, 28R	Runway 10R
Width of Primary Surface	500 ft	500 ft	1,000 ft
Radius of Horizontal Surface	5,000 ft	5,000 ft	10,000 ft
Width of Approach Surface at Outer Edge	1,500 ft	3,500	16,000 ft
Approach Surface Length	5,000 ft	5,000 ft	50,000 ft
Approach Slope	20:1	34:1	50:1 *

* Last 40,000 ft the slope is 40:1





2800

2800

APPROXIMATE SURFACE RAMP RUNWAY (OR TAXIWAY) CENTERLINE DISTANCE OF 401000'

1991

1991

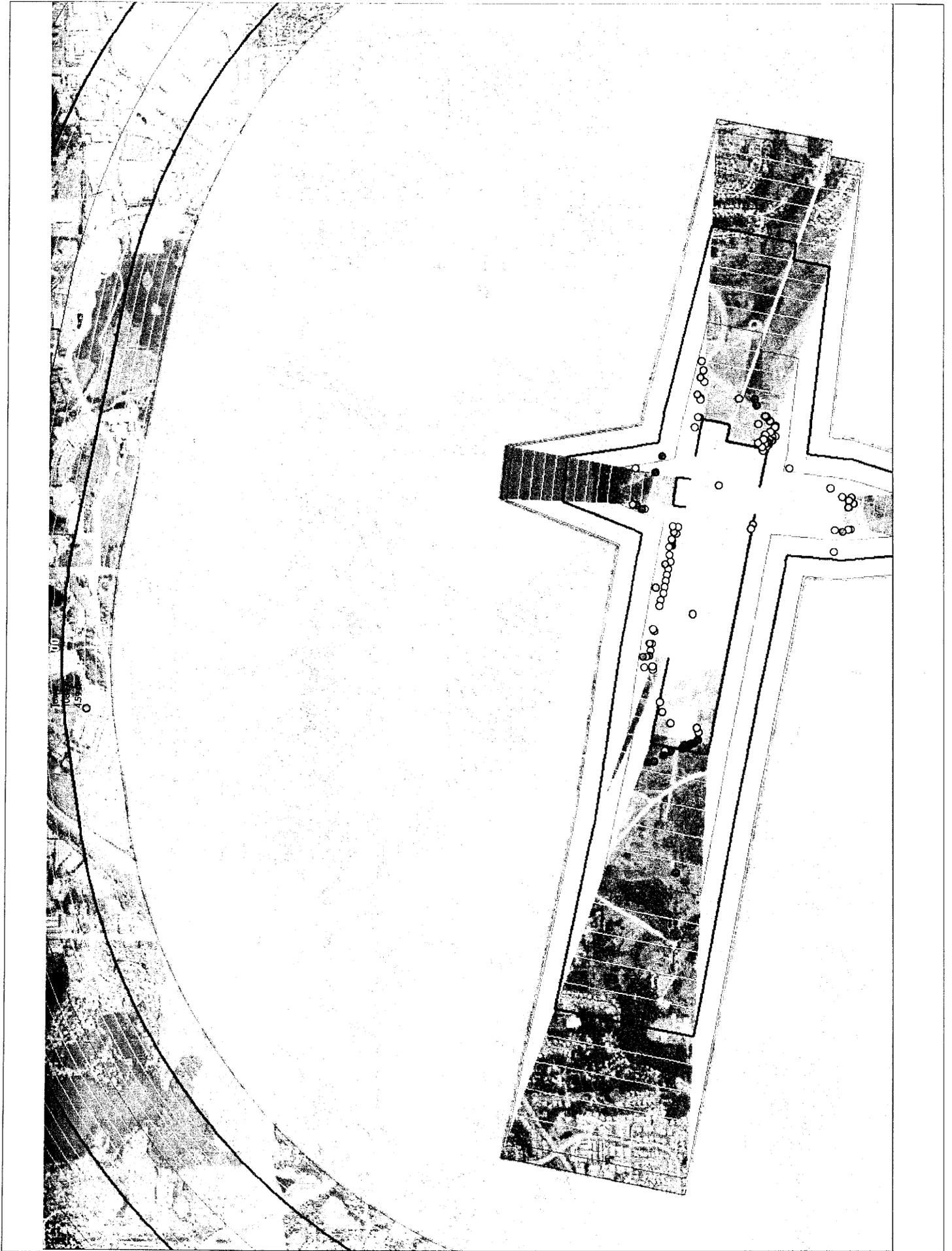
1991

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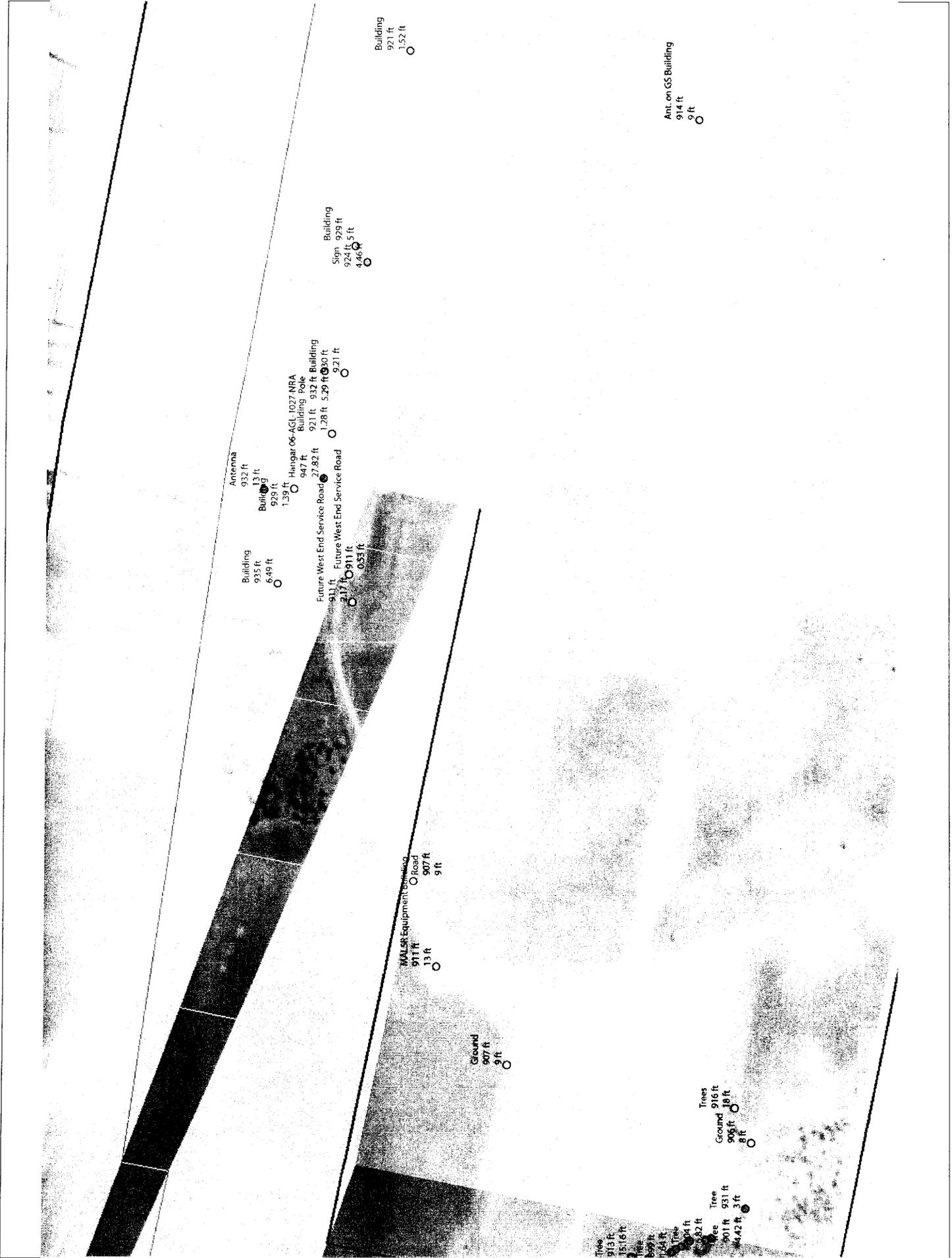
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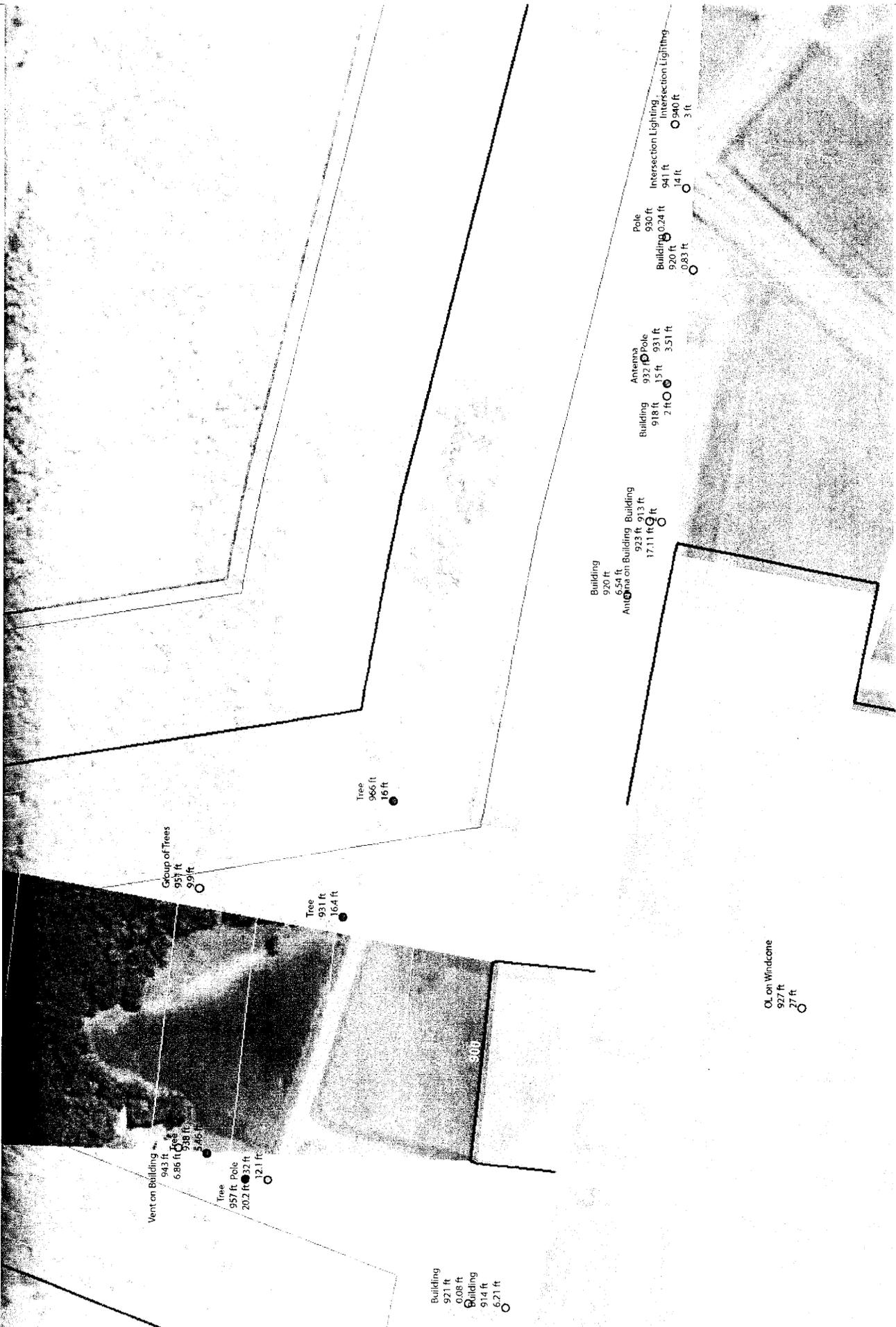
1000

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Vent on Building

943 ft
686 ft
538 ft
346 ft

Tree

957 ft Pole
202 ft
32 ft
12.1 ft

Group of Trees

957 ft
89 ft

Tree

931 ft
16.4 ft

Tree

966 ft
16 ft

Building

921 ft
0.08 ft
914 ft
6.71 ft

Building

920 ft

Antenna on Building

923 ft

Building

913 ft

17.11 ft

Building

918 ft

2 ft

Antenna

932 ft

Pole

931 ft

15 ft

3.51 ft

Building

920 ft

0.24 ft

Pole

930 ft

1.4 ft

Intersection Lighting

941 ft

3 ft

Building

920 ft

0.83 ft

Intersection Lighting

940 ft

3 ft

OL on Windcone

927 ft
27 ft

OL on Windcone
927 ft
27 ft

OL on TVOR/DME
931 ft Ult. Windcone
29.6 ft 927 ft
27 ft

Flying Cloud Drive
916 ft
1.16 ft

Tree
932 ft
8.55 ft

Tree
928 ft

Antenna on Building
913 ft
0.25 ft

Pole
934 ft

Pole
931 ft

Pole
15.5 ft 931 ft

Pole
13.29 ft

OL on Pole
103 ft

OL on Pole
916 ft

OL on Pole
18.8 ft

OL on Pole
3.38 ft

OL on Pole
18 ft

OL on Pole
936 ft

OL on Pole
18.8 ft

OL on Pole
916 ft

OL on Pole
3.38 ft

OL on Pole
18 ft

OL on Pole
936 ft

OL on Pole
18.8 ft

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OL on Pole
936 ft

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18.8 ft

OL on Pole
916 ft

OL on Pole
3.38 ft

OL on Pole
18 ft

OL on Pole
936 ft

OL on Pole
18.8 ft

OL on Pole
916 ft

OL on Pole
3.38 ft

Building
931 ft
0.83 ft

Building
929 ft
8 ft

Fence
910 ft
3 ft

Flying Cloud Drive
919 ft
9.51 ft

OL on Fence
918 ft

OL on Fence
910 ft 10.1 ft

OL on Fence
193 ft

OL on Fence
914 ft

OL on Fence
2.16 ft

Beacon on ATC
988 ft
11.5 ft

Building
928 ft
8 ft

Floodlight
938 ft
16 ft

OL on Hangar
937 ft
21 ft 21 ft

OL on Hangar
937 ft

OL on Hangar
21 ft

OL on Hangar
937 ft

OL on Hangar
21 ft

Airspace Surface Obstruction Data for Flying Cloud Airport (FCM)

Obstruction Type	Surface by Runway	Count	Average Elevation (ft. MSL)	Average Penetration (ft. MSL)
Future West End Service Road	10L Approach	2	911.0	1.3
Beacon on ATCT Building	10R Approach	1	988.0	11.5
Floodlight	10R Approach	2	932.5	14.5
OL on Hangar	10R/36 Transitional	1	938.0	16.0
OL on TVOR/DME	10R/36 Transitional	1	937.0	21.0
Ult. Windcone	10R/36 Transitional	1	931.0	29.6
Ground	10R/36 Transitional	1	927.0	27.0
Tree	10R/36 Transitional	1	906.0	4.8
Vent on Building	10R Approach	19	912.7	8.5
Antenna	18 Transitional	1	943.0	6.9
Building	18 Transitional	1	932.0	13.0
Building 34	18 Transitional	19	923.4	5.9
Building 34 North	18 Transitional	1	920.0	0.0
Building 36C	18 Transitional	1	927.2	0.0
Hangar 06-AGL-1027-NRA	18 Transitional	1	923.0	0.0
Pole	18 Transitional	1	947.0	27.8
Road	18 Transitional	9	930.2	6.2
Sign	18 Transitional	1	907.0	9.0
Tree	18 Transitional	2	924.5	2.2
Antenna on Building	18 Transitional	4	941.0	6.6
Building	28L Approach	1	913.0	0.3
Future East End Service Road	28L Approach	11	914.6	10.4
OL on Pole	28L Approach	1	906.0	6.6
Pole	28L Approach	1	924.0	18.6
Tree	28L Approach	3	932.0	15.2
Antenna	28L Approach	2	932.0	8.2
Antenna on Building	28R Approach	1	932.0	15.0
Billboard Sign 04-AGL-2272-OE	28R Approach	1	923.0	17.1
Building	28R/18 Transitional	1	968.0	0.0
Building 26	28R/18 Transitional	10	920.0	1.1
Group of Trees	28R/18 Transitional	1	929.0	0.0
Intersection Lighting	28R/18 Transitional	1	951.0	9.9
Pole	28R/18 Transitional	2	940.5	8.5
Power Pole	28R/18 Transitional	3	928.0	1.3
Road	28R/18 Transitional	3	930.0	0.0
Tree	28R/18 Transitional	1	913.0	0.0
Building	28R/18 Transitional	3	949.0	10.8
Flying Cloud Drive	28R/18 Transitional	1	920.0	0.8
Building	28R/18 Transitional	1	916.0	1.2
Fence	36 Approach	5	926.8	5.0
Flying Cloud Drive	36 Approach	1	910.0	5.0
OL on Pole	36/28L Transitional	1	916.0	3.4
Pole	36/28L Transitional	2	932.0	9.4
Power Pole	36/28L Transitional	1	924.0	10.3
Flying Cloud Drive	36/28L Transitional	1	924.0	18.0
OL on Fence	36/28L Transitional	3	917.0	7.3
Tower	36/28L Transitional	1	910.0	1.9
Church 00-AGL-1388-OE	Conical	1	1084	4.59
Church 01-AGL-433-OE	Horizontal	1	1020	0
Church 01-AGL-434-OE	Horizontal	1	1047	0
Ant. on GS Building	Horizontal	1	1047	0
Ground	Primary	1	914	9
MALS Equipment Building	Primary	2	906.5	8.5
OL on Windcone	Primary	1	911	13
Tree	Primary	1	927	27
Trees	Primary	1	931	3
	Primary	1	916	18

Airspace Surface Obstruction Summary by Runway

Surface by Runway	Count	Average Elevation (Ft. MSL)	Average Penetration (Ft. MSL)
10L Approach	2.00	911.0	1.3
10R Approach	20.00	912.4	8.3
10R/ Transitional	7.00	940.9	19.2
18 Approach	1.00	943.0	6.9
18 Transitional	40.00	927.2	6.2
28L Approach	19.00	919.2	10.6
28R Approach	2.00	918.0	1.0
28R/ Transitional	27.00	930.3	3.9
36 Approach	4.00	915.3	5.9
36/ Transitional	11.00	924.7	7.3
Conical	1.00	1084.0	4.6
Horizontal	3.00	1038.0	0.0
Primary	7.00	916.0	12.4

The FCM obstruction information came from one of the following sources: NOAA Aeronautical Data Sheet surveyed 06/90, Federal Aviation Administration Digital Obstacle File reflecting changes to 12/14/08, Runways 10L, 10R and 28L SEH, Inc. 405 Survey 12/07, or the Conditionally Approved ALP Dated 05/15/08.

Runway Safety Zones - Federal Runway

Protection Zone (RPZ)



Federal Guidance:

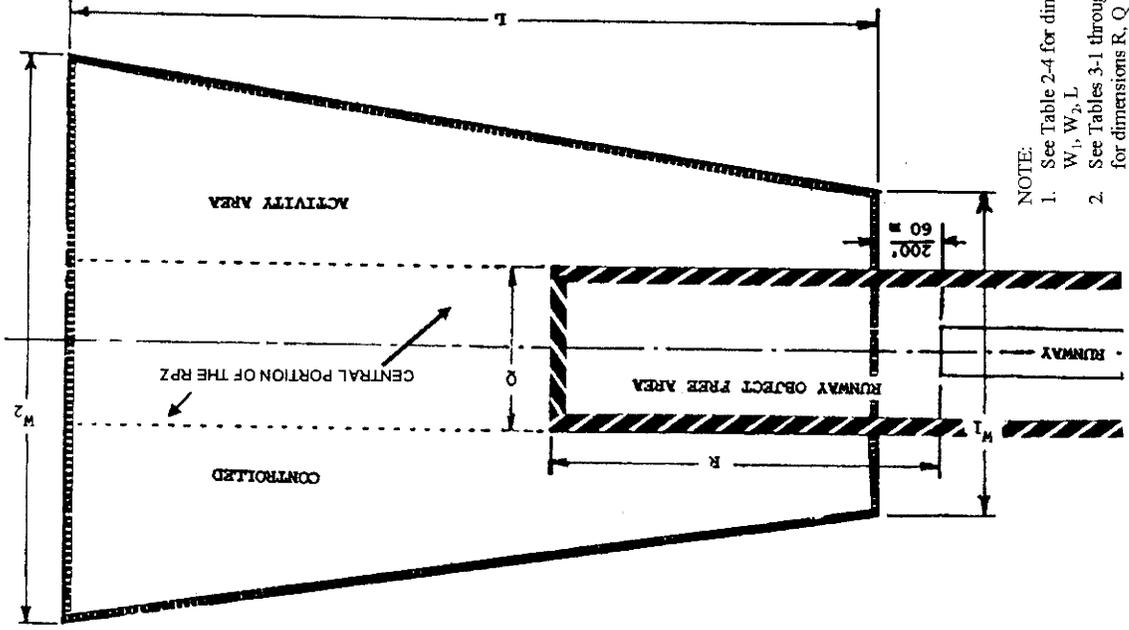
➤ FAA Advisory Circular 150/5300-13

AC 150/5300-13 CHG 4

Table 2-4. Runway protection zone (RPZ) dimensions

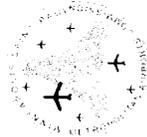
Approach Visibility Minimums ^{1/}	Facilities Expected To Serve	Dimensions		RPZ acres
		Length L Feet (meters)	Outer Width W ₂ feet (meters)	
Rwy 18 Rwy 36	Small Aircraft Exclusively	1,000 (300)	450 (135)	8.035
Rwy 10L Rwy 28L And Rwy 28R Not lower than 1-Mile (1 600 m)	Aircraft Approach Categories A & B Aircraft Approach Categories C & D	1,000 (300)	700 (210)	13.770
Not lower than ¾-Mile (1 200 m)	All Aircraft	1,700 (510)	1,010 (303)	29.465
Lower than ¾-Mile (1 200 m)	All Aircraft	2,500 (750)	1,510 (453)	48.978
			1,750 (525)	78.914

^{1/} The RPZ dimensional standards are for the runway end with the specified approach visibility minimums. The departure RPZ dimensional standards are equal to or less than the approach RPZ dimensional standards. When a RPZ begins other than 200 feet (60 m) beyond the runway end, separate approach and departure RPZs should be provided. Refer to Appendix 14 for approach and departure RPZs.



RPZ Land Use Criteria

- The RPZ should be clear of all structures and developments that would create a place of public assembly.
- Some limited uses are permitted in the RPZ, provided they do not attract wildlife, are outside of the OFA, and do not interfere with navigational aids. Things such as automobile parking facilities, although discouraged, may be permitted provided the parking facility and any associated appurtenances, in addition to meeting all of the preceding conditions are located outside of the central portion of the RPZ.

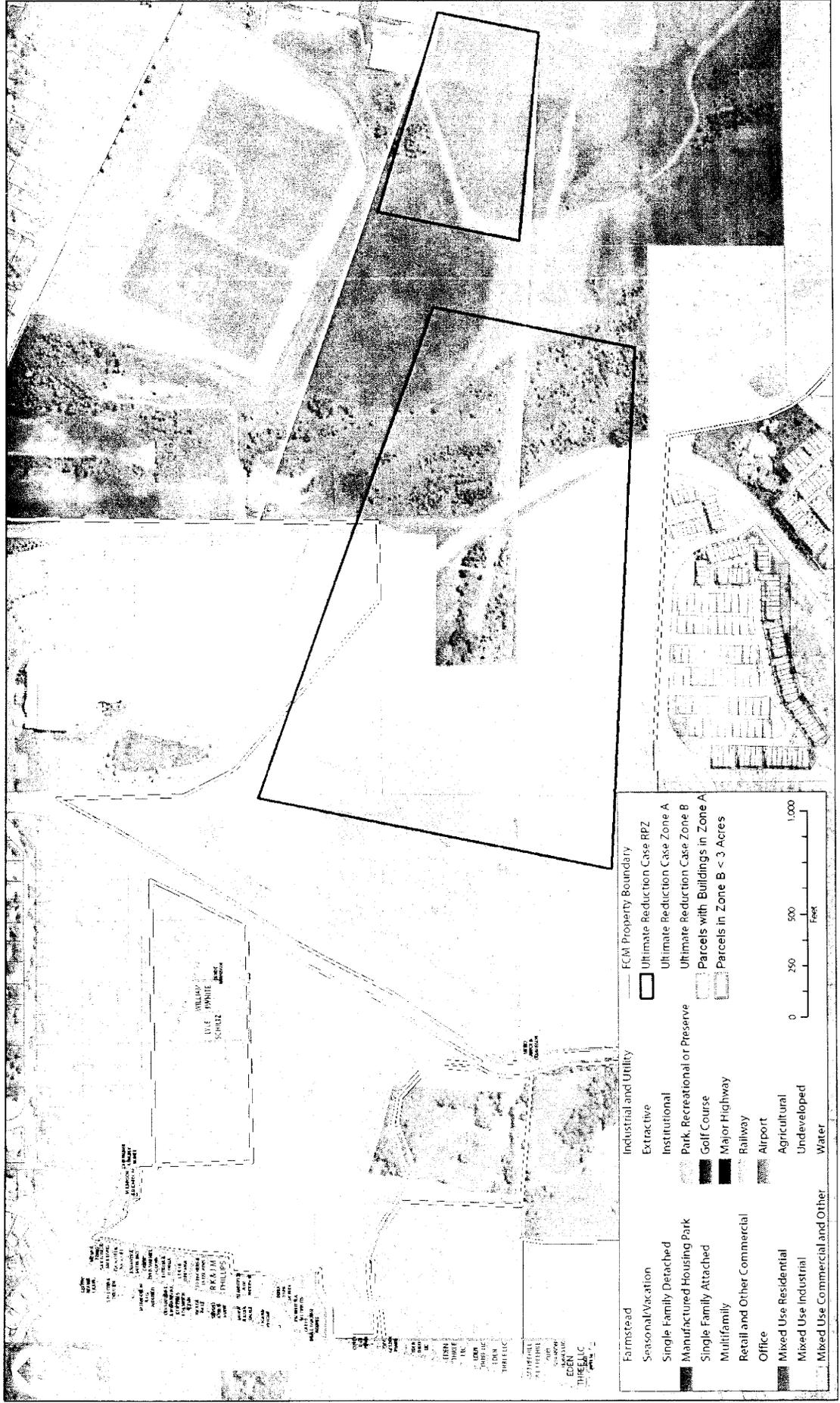


Model Airport Safety Zones for FCM

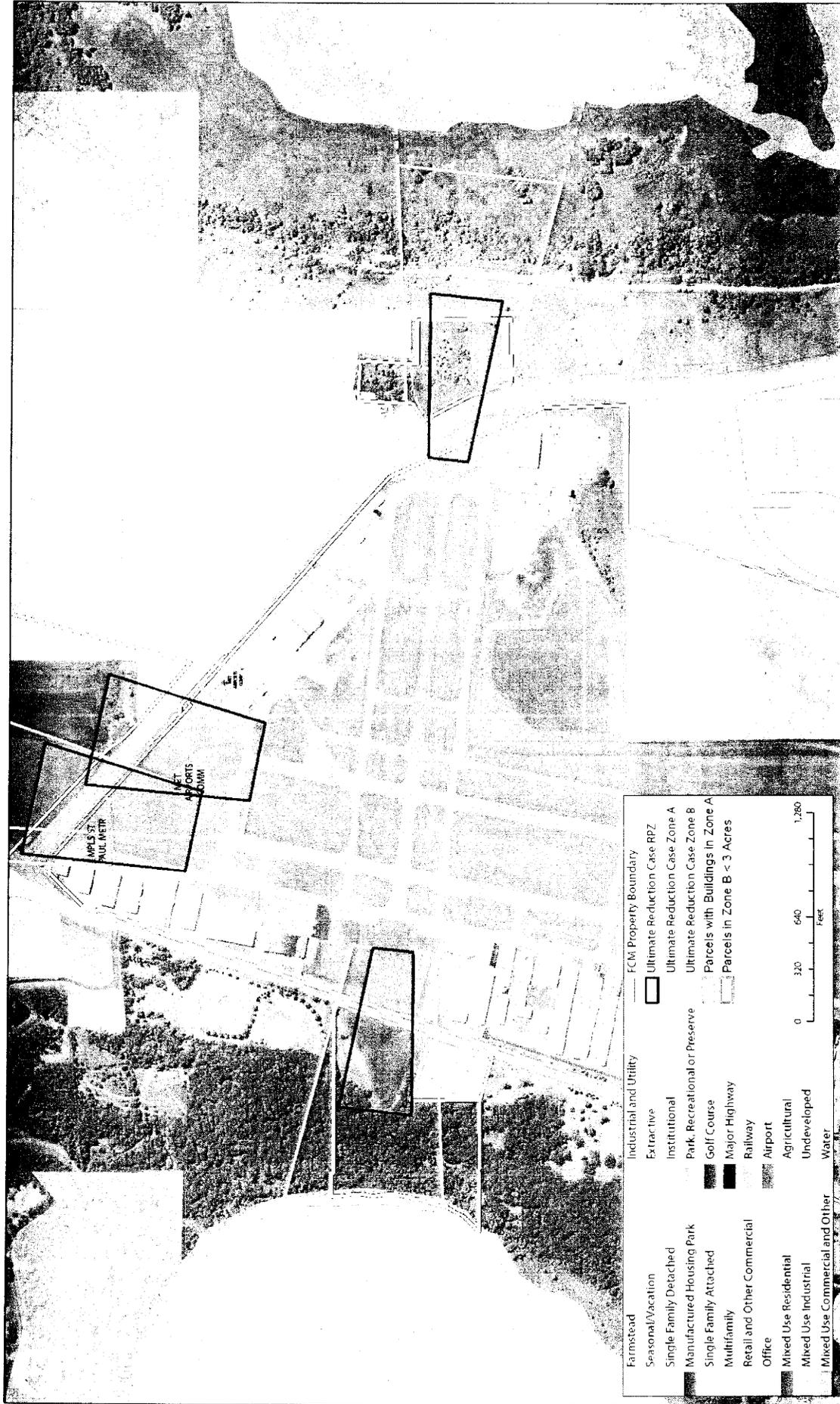


RPZs
Zone A
Zone B
Zone C
FCM Property Boundary

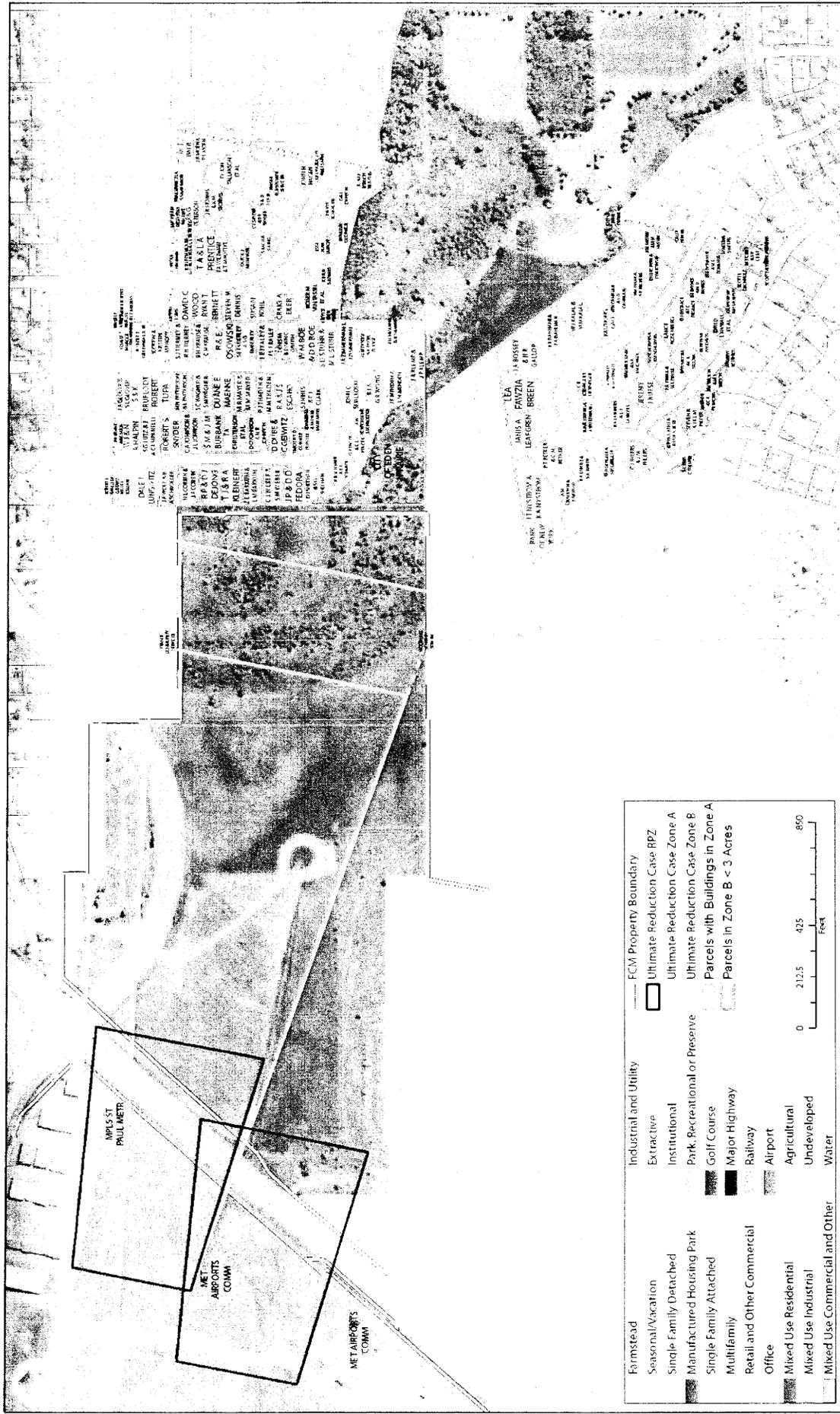
Runways 10L/10R – Existing Land Use Incompatibilities with Model Ordinance



Runways 18 & 36 – Existing Land Use Incompatibilities with Model Ordinance



Runways 28L/28R - Existing Land Use Incompatibilities with Model Ordinance



FCM MnDOT Model Safety Zones – Existing Land Use Analysis

Summary

Runway	RPZ Total Acres	RPZ Incompatible Acres	% of Runway Incompatibilities	% of Airport Incompatibilities
18	8.03	0.00	0.0%	0.0%
36	8.03	0.00	0.0%	0.0%
10L	13.76	0.00	0.0%	0.0%
10R	78.85	0.00	0.0%	0.0%
28L	13.76	0.00	0.0%	0.0%
28R	13.76	0.00	0.0%	0.0%
Total	136.19	0.00	0.0%	0.0%

*Note - 1.62 acres are included in both the Runway 28L and Runway 28R RPZs

Runway	Model Zone A Total Acres	Model Zone A Incompatible Acres	% of Runway Incompatibilities	% of Airport Incompatibilities
18	22.70	0.00	0.0%	0.0%
36	22.70	0.00	0.0%	0.0%
10L	39.31	0.00	0.0%	0.0%
10R	35.84	0.00	0.0%	0.0%
28L	100.92	8.18	8.1%	94.2%
28R	39.31	0.51	1.3%	5.8%
Total	260.80	8.69	3.3%	100.0%

* Note - Zone A calculations exclude the area encompassed by the RPZ and

40.68 acres are included in both the Runway 28L and 28R Zone A and 17.66 acres are included in both the Runway 10L and 10R Zone A

Runway	Model Zone B Total Acres	Model Zone B Incompatible Acres	% of Runway Incompatibilities	% of Airport Incompatibilities
18	23.32	0.00	0.0%	0.0%
36	23.32	0.00	0.0%	0.0%
10L	43.98	0.00	0.0%	0.0%
10R	86.02	12.29	14.3%	16.6%
28L	86.01	44.98	52.3%	60.7%
28R	43.98	16.87	38.4%	22.8%
Total	306.63	74.15	24.2%	100.0%

* Note - 26.37 acres are included in both the Runway 28L and 28R Zone B

RPZ and Zone A Incompatibilities

Violates restriction wherein parcels shall contain no buildings or temporary structures

Total Acreage in Zone A : 260.80 Total Acreage in RPZs : 136.19

Total Incompatible Acreage : 8.69 Total Incompatible Acreage : 0

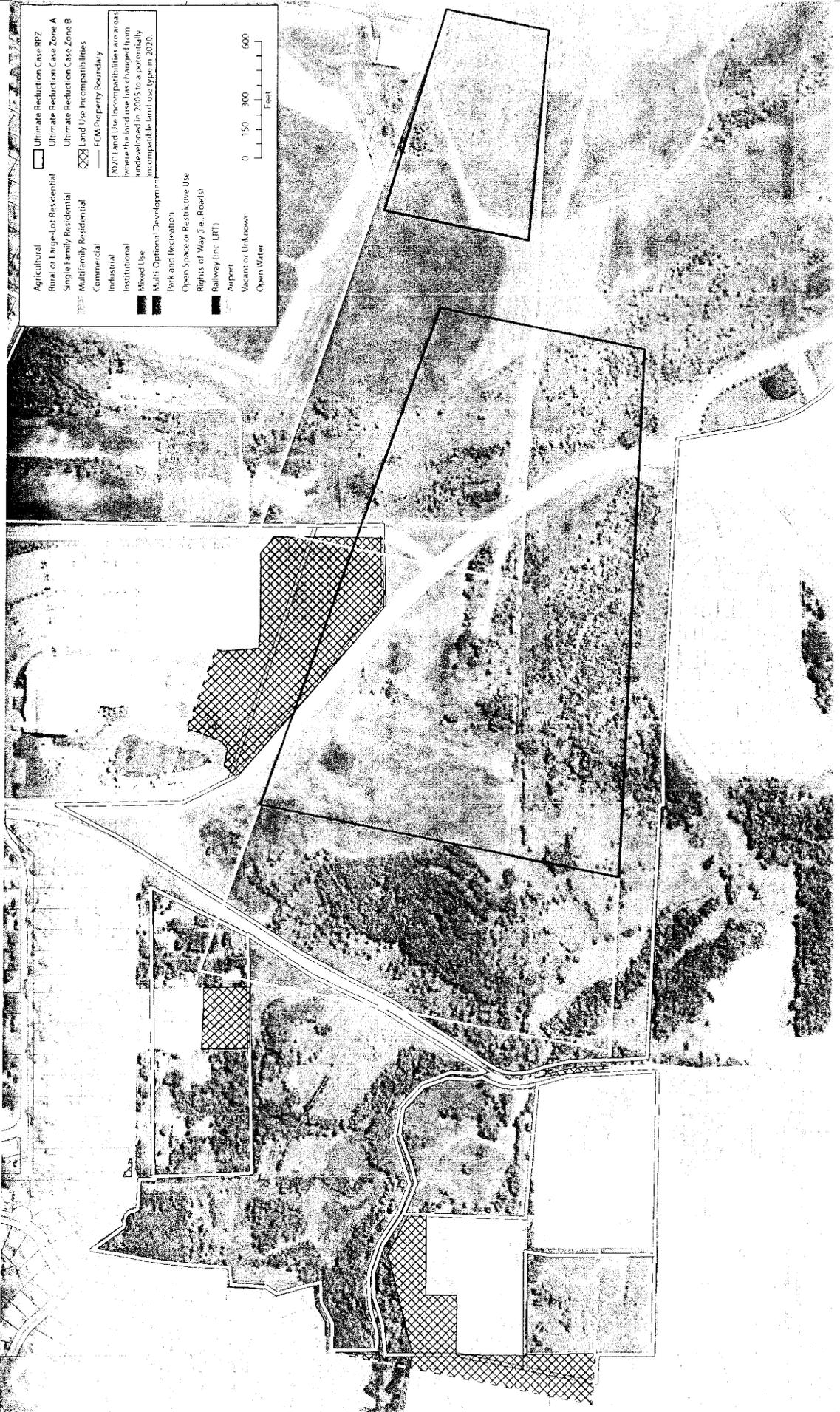
Zone B Incompatibilities - Acreage Provision

Violates restriction wherein each use shall be on a site that is not less than 3 acres

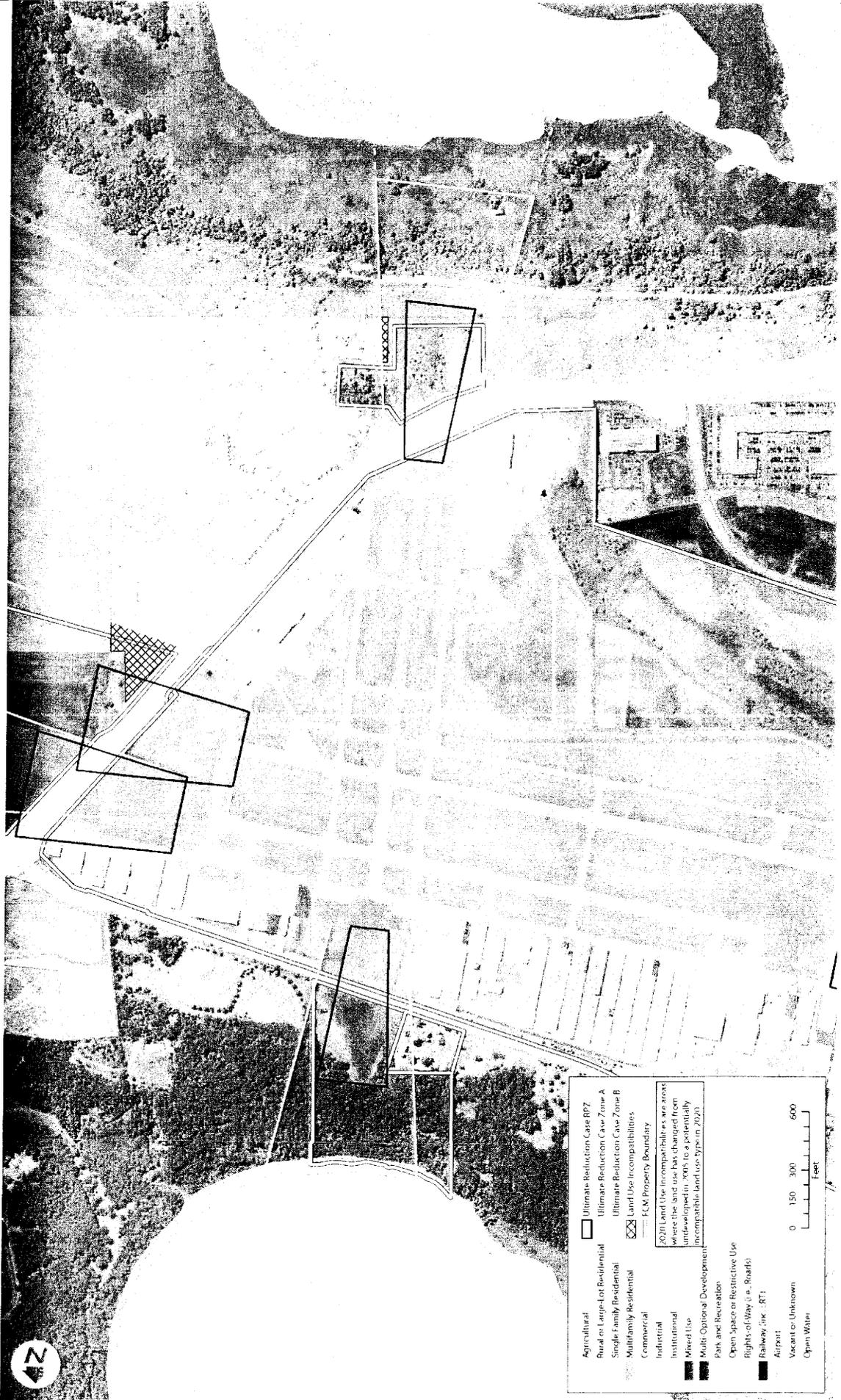
Total B Zone Acreage : 306.63

Total acreage incompatibilities: 74.15

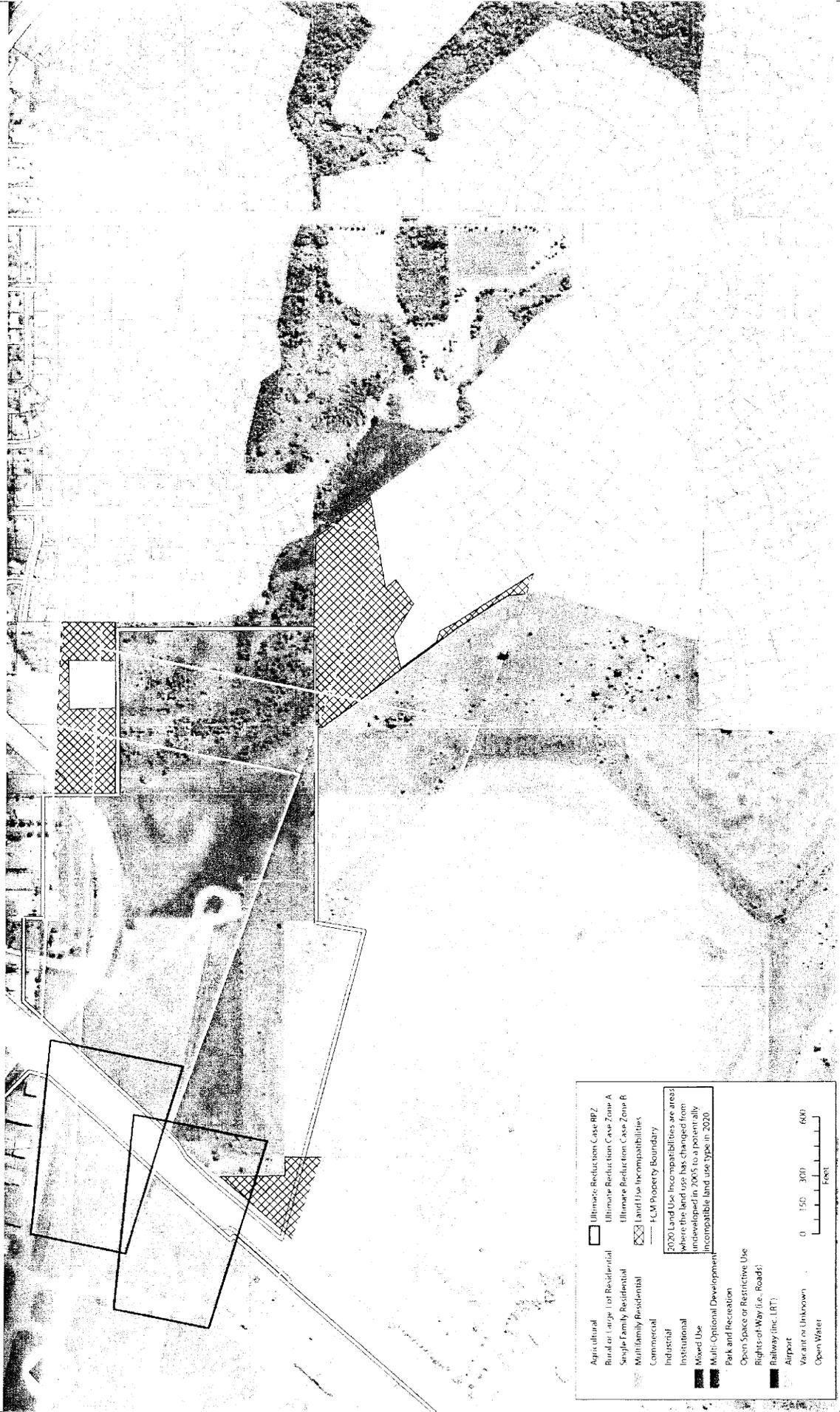
Runways 10L/10R- Changes in Zoning from 2005 to 2020



Runways 18 & 36 – Changes in Zoning from 2005 to 2020



Runways 28L/28R – Changes in Zoning from 2005 to 2020



Addressing Complex Considerations in the Zoning Process

colleaver



Minn. Stat. § 360.066, subd. 1:

- Provides insight into addressing airport zoning; minimum standards and land uses related to reasonableness.

“Standards of the commissioner defining airport hazard areas and the categories of uses permitted and airport zoning regulations adopted under sections 360.011 to 360.076, shall be reasonable, and none shall impose a requirement or restriction which is not reasonably necessary to effectuate the purposes of sections 360.011 to 360.076. In determining what minimum airport zoning regulations may be adopted, the commissioner and a local airport zoning authority shall consider, among other things, the character of the flying operations expected to be conducted at the airport, the location of the airport, the nature of the terrain within the airport hazard area, the existing land uses and character of the neighborhood around the airport, the uses to which the property to be zoned are planned and adaptable, and the social and economic costs of restricting land uses versus the benefits derived from a strict application of the standards of the commissioner.”



**FLYING CLOUD AIRPORT
JOINT AIRPORT ZONING BOARD**

**Thursday, August 13, 2009
Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie, MN**

MINUTES

Rick King, Chair, called the Flying Cloud Airport Joint Airport Zoning Board meeting to order at 3:00 p.m. The following were attendance:

Members: Rick King, Chair
Steve Peterson, City of Bloomington
Glen Markegard, City of Bloomington
Kate Aanenson, City of Chanhassen
Jerry McDonald, City of Chanhassen
Brad Aho, City of Eden Prairie
Jon Duckstad, City of Eden Prairie
Joseph Helkamp, City of Shakopee
Julie Klima, City of Shakopee
Molly Sigel, Metropolitan Airports Commission
Sherry Stenerson, Metropolitan Airports Commission

Others: Scott Neal, Scott Kipp, City of Eden Prairie; Deb Sorenson, James Terry, Mn/DOT; Glen Orcutt, Federal Aviation Administration; Cameron Boyd, David Bitner, Jenn Felger, Roy Fuhrmann, Chad Leqve, Amanda Nyren, Dennis Probst, MAC Staff

1. CHAIRMAN INTRODUCTION

Chair King welcomed the Board and introduced himself. He stated that he is very interested in the Flying Cloud Airport and is pleased to serve as the Chair of the Joint Airport Zoning Board.

2. APPROVAL OF MEETING AGENDA

IT WAS MOVED BY PETERSON, SECONDED BY HELKAMP, TO APPROVE THE AGENDA AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

3. APPROVAL OF JULY 16, 2009 FCM JAZB MEETING MINUTES

IT WAS MOVED BY PETERSON, SECONDED BY HELKAMP, TO APPROVE THE MINUTES OF THE JULY 16, 2009 FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD MEETING AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

4. **Mn/DOT – MODEL STATE SAFETY ZONES BACKGROUND AND CRITERIA**

Deb Sorenson, Mn/DOT Office of Aeronautics, gave a presentation regarding Airport Zoning Standards and reviewed the role of the Office of Aeronautics in the airport zoning process. Mn/DOT's role is to provide technical assistance to the process and to serve as a resource. She noted the State Model Zoning Ordinance contained in the Board Member's handbook is used state-wide to provide assistance in developing zoning ordinances. Since each airport is geographically and demographically different, there is legislation allowing flexibility when applying the State Model Ordinance to individual airports.

Ms. Sorenson stated that the Joint Airport Zoning Board process outlined in State Statutes is straight forward however, as the process proceeds the Board may be challenged with questions and opposition to the proposed restrictions. She also reviewed FAA and Mn/DOT's role in the zoning process noting that the FAA has authority to develop and define the airspace. Mn/DOT is responsible for promulgating the State's Airport Zoning Rules to be consistent with the airspace surfaces and to provide for continued funding for zoned airports or airports exercising due diligence to zone.

Ms. Sorenson stated that the purpose and intent of zoning is to protect the safety of people and property in flight and on the ground and to protect the future utility of the airport. Land use restrictions in Safety Zones A and B limit population and building density off the ends of runways to create sufficient open space in case of an accident.

Ms. Sorenson introduced James Terry, Mn/DOT, who presented a 3D model of the Flying Cloud Airport's existing conditions and approach surfaces.

Ms. Sorenson reviewed the Minnesota minimum standards noting that Zones A and B are equal to runway length (A is 2/3 of the runway length and B is 1/3 of the runway length) and reviewed the prohibited and incompatible land uses associated with each zone. Zone C restrictions were also reviewed. The zoning lengths were based on NTSB data collected from 1965-1973 that recorded over 65% of accidents occurring within a one mile radius of the airport

Ms. Sorenson reviewed the statutes that provide flexibility in zoning and noted the importance of the social and economic position, along with minimum standards, creating a balance between the airport and the growth of the communities without compromising the importance of safety.

Chad Leque noted the runway being extended at FCM will be included in future analyses.

5. **AIRSPACE ZONE CRITERIA**

Chad Leqve stated that airspace zoning deals with the height of objects around airports and to ensure there is a consistent way of assessing heights of objects around the airport and how to deal with existing and proposed structures that may have a height element to them that could impact the airspace.

Chad Leqve reviewed Federal Regulation 49 CFR Part 77 which provides federal guidance as it relates to the following imaginary surfaces and he provided a definition of each:

- Primary Surface
- Approach Surface
- Horizontal Surface
- Conical Surface
- Transitional Surface

It was noted that protecting the navigable airspace is incorporated into the zoning process through State statute and that an adopted zoning ordinance includes both land use and airspace regulations. The airspace zoning extent is 1.5 miles around airport property and two miles on the approaches to the runways.

Graphics of the runway ends showing the Part 77 surfaces were also presented to the Board as well as a summary of airspace surface obstructions per each runway. It was also noted that the FAA and the State view airspace criteria the same way.

Mr. Leqve discussed the FAA's 7460 Review Process which is used to evaluate any proposed development of structures in the airport environs in the context of Part 77 surfaces. This allows the FAA to determine if a proposed development poses a hazard to navigable airspace.

Mr. Aho asked if there any existing penetrations to the airspace that need to be modified at this time. Mr. Leqve responded that he is not aware of any imminent safety issues. Scott Kipp, City of Eden Prairie, noted that there are a few trees off of Runway 36 that probably need to be trimmed or removed. Mr. Leqve noted that the process for dealing with trees would be codified in the final ordinance.

6. **EXISTING LAND USES AROUND FCM AND THE MODEL STATE SAFETY ZONES**

Mr. Leqve stated that the safety zones deal with geographic areas on the ground that have specific development criteria tied to them to try and avoid the existence of things on the ground that should an aircraft crash, exacerbates the tragedy of the situation.

Mr. Leqve reviewed the Runway Protection Zone land use criteria that the FAA provides as guidance for land use at runway ends as it relates to safety. Land use in the RPZ's is predicated on the approach capabilities of the runway and the associated minimum visual requirements of that runway as well as the type of aircraft using the runway. He noted that the State Model Safety Zones go beyond the federal criteria. Flying Cloud Airport meets the federal criteria.

Mr. Leqve noted that Zone A restrictions are identical to the Runway Protection Zone; Zone B, per the State Model Ordinance, has acreage lot requirements and building site to lot ratio requirements. In short, the Model Ordinance tries to ensure a certain degree of open space. Zone C has a height restriction requirement however in terms of land use control it prohibits construction of things that would interfere with communication or navigational aids.

Mr. Leqve gave a presentation regarding the application of the model zones to existing land uses around Flying Cloud Airport. He presented graphics of each runway end with the model zones in place as well as existing land use incompatibilities for each runway end. He also presented a summary of the percentage of acres for each runway end that would be considered incompatible with the application of the model zones. With regard to residential developments and open spaces around FCM, Mr. Leqve noted that the intent of the Zoning Ordinance is to be preventive not corrective. He also clarified that the Zoning Ordinance has nothing to do with noise.

Mr. Leqve also presented graphics of changes in zoning from 2005 to 2020 for each runway end based on information from the Metropolitan Council's local community comprehensive plans.

7. **ADDRESSING COMPLEX CONSIDERATIONS IN THE ZONING PROCESS (MINN. STAT. §360.066, SUBD. 1)**

Mr. Leqve stated that statutorily it is recognized that the main issue for Zoning Boards is to look at what is truly required to maintain a reasonable degree of safety around the airport while ensuring that it is not an undue burden from a social and economic perspective.

Mr. Leqve reviewed Minn. Stat. §360.066 subd. 1, which provides insight into addressing airport zoning; minimum standards and land uses related to reasonableness. The following, among other things, should be considered when determining what minimum airport zoning regulations should be adopted:

- The character of the flying operations
- The location of the airport
- The nature of the terrain within the airport hazard area
- The existing land uses and character of the neighborhood around the airport
- The uses to which the property to be zoned are planned and adaptable
- The social and economic costs of restricting land uses versus the benefits derived from a strict application of the standards of the commissioner

Chair King noted the key items are safety, economic impact, and potential land uses and that the MSP and STP Joint Airport Zoning Boards conducted safety studies for those airports to assist in their deliberations. He suggested that this Board request the same type of study be conducted for Flying Cloud Airport. Chair King asked for clarification on how the economic impact information was developed for the STP JAZB and if it would be appropriate to do the same for FCM.

Mr. Leque reviewed the process and analysis that was used for the safety study at STP. He noted that the FAA uses an accident probability of 10^{-7} or 1 accident per 10,000,000 operations at the airport. With regards to the economic study for the STP JAZB, the City of St. Paul conducted the analysis; Mr. Aho noted that the City of Eden Prairie staff is ready to move forward with the economic study. It was noted that MAC owns approximately 300 acres in Zone A and approximately 100 acres in Zone B and may want to pursue potential development opportunities for those areas.

Chair King suggested that MAC conduct the safety study and the City of Eden Prairie conduct the economic study. Board discussion followed regarding potential land uses and it was suggested that MAC staff, in coordination with City staff, prepare a report regarding potential land uses in Zones A and B for the Board's consideration.

8. **BOARD DIRECTION ON SPECIFIC ITEMS TO BE CONSIDERED IN THE ZONING EFFORT**

IT WAS MOVED BY PETERSON, SECONDED BY STENERSON, TO DIRECT MAC STAFF TO COMPLETE A SAFETY STUDY FOR THE FLYING CLOUD AIRPORT, DIRECT CITY OF EDEN PRAIRIE STAFF TO DEVELOP AN ECONOMIC IMPACT ANALYSIS, AND DIRECT MAC STAFF AND CITY STAFF TO DEVELOP POTENTIAL LAND USES FOR THE BOARD'S CONSIDERATION. THE MOTION CARRIED BY UNANIMOUS VOTE.

Chair King requested that Mn/DOT report on the technical data that was used to determine the dimensions of model zones and a summary of the number of variances for Non-MAC airports in the State.

IT WAS MOVED BY PETERSON, SECONDED BY AHO, TO INVITE MN/DOT TO PRESENT THE ANALYTICAL DATA USED TO DEVELOP THE MODEL ORDINANCE AND THE NUMBER OF VARIANCES FROM THE MODEL ORDINANCE THAT HAVE BEEN APPROVED AT THE NEXT BOARD MEETING. THE MOTION CARRIED BY UNANIMOUS VOTE.

9. **NEXT MEETING DATE**

The Board agreed to meet on the third Thursday of each month at 3:00 p.m. at the Eden Prairie City Center and that meetings could be added or deleted on an as needed basis.

IT WAS MOVED BY HELKAMP, SECONDED BY AHO, TO ADJOURN THE MEETING. THE MOTION CARRIED BY UNANIMOUS VOTE.

The meeting was adjourned at 4:25 p.m.

Flying Cloud Airport Joint Airport Zoning Board

Meeting Agenda
Thursday, November 19, 2009
3:00 P.M.
Eden Prairie City Center – Heritage Rooms 3 & 4
8080 Mitchell Road, Eden Prairie

Agenda Items

1. Approval of Meeting Agenda
2. Approval of August 13, 2009 FCM JAZB Meeting Minutes
3. Review of Safety Study for Flying Cloud Airport
4. Review of Potential MAC Property Development
5. Mn/DOT Report
 - Technical Data Behind Model Ordinance Safety Zone Dimensions and Development Restrictions
 - Summary of Variances from Model Zoning Ordinance at Non-MAC Airports in the State of Minnesota
6. Next Meeting Date

**FLYING CLOUD AIRPORT
JOINT AIRPORT ZONING BOARD**

**Thursday, August 13, 2009
Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie, MN**

MINUTES

Rick King, Chair, called the Flying Cloud Airport Joint Airport Zoning Board meeting to order at 3:00 p.m. The following were attendance:

Members: Rick King, Chair
Steve Peterson, City of Bloomington
Glen Markegard, City of Bloomington
Kate Aanenson, City of Chanhassen
Jerry McDonald, City of Chanhassen
Brad Aho, City of Eden Prairie
Jon Duckstad, City of Eden Prairie
Joseph Helkamp, City of Shakopee
Julie Klima, City of Shakopee
Molly Sigel, Metropolitan Airports Commission
Sherry Stenerson, Metropolitan Airports Commission

Others: Scott Neal, Scott Kipp, City of Eden Prairie; Deb Sorenson, James Terry, Mn/DOT; Glen Orcutt, Federal Aviation Administration; Cameron Boyd, David Bitner, Jenn Felger, Roy Fuhrmann, Chad Leqve, Amanda Nyren, Dennis Probst, MAC Staff

1. CHAIRMAN INTRODUCTION

Chair King welcomed the Board and introduced himself. He stated that he is very interested in the Flying Cloud Airport and is pleased to serve as the Chair of the Joint Airport Zoning Board.

2. APPROVAL OF MEETING AGENDA

IT WAS MOVED BY PETERSON, SECONDED BY HELKAMP, TO APPROVE THE AGENDA AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

3. APPROVAL OF JULY 16, 2009 FCM JAZB MEETING MINUTES

IT WAS MOVED BY PETERSON, SECONDED BY HELKAMP, TO APPROVE THE MINUTES OF THE JULY 16, 2009 FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD MEETING AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

4. **Mn/DOT – MODEL STATE SAFETY ZONES BACKGROUND AND CRITERIA**

Deb Sorenson, Mn/DOT Office of Aeronautics, gave a presentation regarding Airport Zoning Standards and reviewed the role of the Office of Aeronautics in the airport zoning process. Mn/DOT's role is to provide technical assistance to the process and to serve as a resource. She noted the State Model Zoning Ordinance contained in the Board Member's handbook is used state-wide to provide assistance in developing zoning ordinances. Since each airport is geographically and demographically different, there is legislation allowing flexibility when applying the State Model Ordinance to individual airports.

Ms. Sorenson stated that the Joint Airport Zoning Board process outlined in State Statutes is straight forward however, as the process proceeds the Board may be challenged with questions and opposition to the proposed restrictions. She also reviewed FAA and Mn/DOT's role in the zoning process noting that the FAA has authority to develop and define the airspace. Mn/DOT is responsible for promulgating the State's Airport Zoning Rules to be consistent with the airspace surfaces and to provide for continued funding for zoned airports or airports exercising due diligence to zone.

Ms. Sorenson stated that the purpose and intent of zoning is to protect the safety of people and property in flight and on the ground and to protect the future utility of the airport. Land use restrictions in Safety Zones A and B limit population and building density off the ends of runways to create sufficient open space in case of an accident.

Ms. Sorenson introduced James Terry, Mn/DOT, who presented a 3D model of the Flying Cloud Airport's existing conditions and approach surfaces.

Ms. Sorenson reviewed the Minnesota minimum standards noting that Zones A and B are equal to runway length (A is 2/3 of the runway length and B is 1/3 of the runway length) and reviewed the prohibited and incompatible land uses associated with each zone. Zone C restrictions were also reviewed. The zoning lengths were based on NTSB data collected from 1965-1973 that recorded over 65% of accidents occurring within a one mile radius of the airport

Ms. Sorenson reviewed the statutes that provide flexibility in zoning and noted the importance of the social and economic position, along with minimum standards, creating a balance between the airport and the growth of the communities without compromising the importance of safety.

Chad Leque noted the runway being extended at FCM will be included in future analyses.

5. **AIRSPACE ZONE CRITERIA**

Chad Leqve stated that airspace zoning deals with the height of objects around airports and to ensure there is a consistent way of assessing heights of objects around the airport and how to deal with existing and proposed structures that may have a height element to them that could impact the airspace.

Chad Leqve reviewed Federal Regulation 49 CFR Part 77 which provides federal guidance as it relates to the following imaginary surfaces and he provided a definition of each:

- Primary Surface
- Approach Surface
- Horizontal Surface
- Conical Surface
- Transitional Surface

It was noted that protecting the navigable airspace is incorporated into the zoning process through State statute and that an adopted zoning ordinance includes both land use and airspace regulations. The airspace zoning extent is 1.5 miles around airport property and two miles on the approaches to the runways.

Graphics of the runway ends showing the Part 77 surfaces were also presented to the Board as well as a summary of airspace surface obstructions per each runway. It was also noted that the FAA and the State view airspace criteria the same way.

Mr. Leqve discussed the FAA's 7460 Review Process which is used to evaluate any proposed development of structures in the airport environs in the context of Part 77 surfaces. This allows the FAA to determine if a proposed development poses a hazard to navigable airspace.

Mr. Aho asked if there any existing penetrations to the airspace that need to be modified at this time. Mr. Leqve responded that he is not aware of any imminent safety issues. Scott Kipp, City of Eden Prairie, noted that there are a few trees off of Runway 36 that probably need to be trimmed or removed. Mr. Leqve noted that the process for dealing with trees would be codified in the final ordinance.

6. **EXISTING LAND USES AROUND FCM AND THE MODEL STATE SAFETY ZONES**

Mr. Leqve stated that the safety zones deal with geographic areas on the ground that have specific development criteria tied to them to try and avoid the existence of things on the ground that should an aircraft crash, exacerbates the tragedy of the situation.

Mr. Leqve reviewed the Runway Protection Zone land use criteria that the FAA provides as guidance for land use at runway ends as it relates to safety. Land use in the RPZ's is predicated on the approach capabilities of the runway and the associated minimum visual requirements of that runway as well as the type of aircraft using the runway. He noted that the State Model Safety Zones go beyond the federal criteria. Flying Cloud Airport meets the federal criteria.

Mr. Leqve noted that Zone A restrictions are identical to the Runway Protection Zone; Zone B, per the State Model Ordinance, has acreage lot requirements and building site to lot ratio requirements. In short, the Model Ordinance tries to ensure a certain degree of open space. Zone C has a height restriction requirement however in terms of land use control it prohibits construction of things that would interfere with communication or navigational aids.

Mr. Leqve gave a presentation regarding the application of the model zones to existing land uses around Flying Cloud Airport. He presented graphics of each runway end with the model zones in place as well as existing land use incompatibilities for each runway end. He also presented a summary of the percentage of acres for each runway end that would be considered incompatible with the application of the model zones. With regard to residential developments and open spaces around FCM, Mr. Leqve noted that the intent of the Zoning Ordinance is to be preventive not corrective. He also clarified that the Zoning Ordinance has nothing to do with noise.

Mr. Leqve also presented graphics of changes in zoning from 2005 to 2020 for each runway end based on information from the Metropolitan Council's local community comprehensive plans.

7. **ADDRESSING COMPLEX CONSIDERATIONS IN THE ZONING PROCESS**
(MINN. STAT. §360.066, SUBD. 1)

Mr. Leqve stated that statutorily it is recognized that the main issue for Zoning Boards is to look at what is truly required to maintain a reasonable degree of safety around the airport while ensuring that it is not an undue burden from a social and economic perspective.

Mr. Leqve reviewed Minn. Stat. §360.066 subd. 1, which provides insight into addressing airport zoning; minimum standards and land uses related to reasonableness. The following, among other things, should be considered when determining what minimum airport zoning regulations should be adopted:

- The character of the flying operations
- The location of the airport
- The nature of the terrain within the airport hazard area
- The existing land uses and character of the neighborhood around the airport
- The uses to which the property to be zoned are planned and adaptable
- The social and economic costs of restricting land uses versus the benefits derived from a strict application of the standards of the commissioner

Chair King noted the key items are safety, economic impact, and potential land uses and that the MSP and STP Joint Airport Zoning Boards conducted safety studies for those airports to assist in their deliberations. He suggested that this Board request the same type of study be conducted for Flying Cloud Airport. Chair King asked for clarification on how the economic impact information was developed for the STP JAZB and if it would be appropriate to do the same for FCM.

Mr. Leque reviewed the process and analysis that was used for the safety study at STP. He noted that the FAA uses an accident probability of 10^{-7} or 1 accident per 10,000,000 operations at the airport. With regards to the economic study for the STP JAZB, the City of St. Paul conducted the analysis; Mr. Aho noted that the City of Eden Prairie staff is ready to move forward with the economic study. It was noted that MAC owns approximately 300 acres in Zone A and approximately 100 acres in Zone B and may want to pursue potential development opportunities for those areas.

Chair King suggested that MAC conduct the safety study and the City of Eden Prairie conduct the economic study. Board discussion followed regarding potential land uses and it was suggested that MAC staff, in coordination with City staff, prepare a report regarding potential land uses in Zones A and B for the Board's consideration.

8. **BOARD DIRECTION ON SPECIFIC ITEMS TO BE CONSIDERED IN THE ZONING EFFORT**

IT WAS MOVED BY PETERSON, SECONDED BY STENERSON, TO DIRECT MAC STAFF TO COMPLETE A SAFETY STUDY FOR THE FLYING CLOUD AIRPORT, DIRECT CITY OF EDEN PRAIRIE STAFF TO DEVELOP AN ECONOMIC IMPACT ANALYSIS, AND DIRECT MAC STAFF AND CITY STAFF TO DEVELOP POTENTIAL LAND USES FOR THE BOARD'S CONSIDERATION. THE MOTION CARRIED BY UNANIMOUS VOTE.

Chair King requested that Mn/DOT report on the technical data that was used to determine the dimensions of model zones and a summary of the number of variances for Non-MAC airports in the State.

IT WAS MOVED BY PETERSON, SECONDED BY AHO, TO INVITE MN/DOT TO PRESENT THE ANALYTICAL DATA USED TO DEVELOP THE MODEL ORDINANCE AND THE NUMBER OF VARIANCES FROM THE MODEL ORDINANCE THAT HAVE BEEN APPROVED AT THE NEXT BOARD MEETING. THE MOTION CARRIED BY UNANIMOUS VOTE.

9. **NEXT MEETING DATE**

The Board agreed to meet on the third Thursday of each month at 3:00 p.m. at the Eden Prairie City Center and that meetings could be added or deleted on an as needed basis.

IT WAS MOVED BY HELKAMP, SECONDED BY AHO, TO ADJOURN THE MEETING. THE MOTION CARRIED BY UNANIMOUS VOTE.

The meeting was adjourned at 4:25 p.m.

M E M O R A N D U M

HNTB

The HNTB Companies

TO: FCM Joint Airport Zoning Board
FROM: HNTB Corporation (HNTB)
DATE: November 6, 2009
SUBJECT: Analysis of Probability of Aircraft Accidents in Mn/DOT Safety Zones A and B for Runways 10R-28L, 10L-28R and 18-36 at Flying Cloud Airport

I. Background

At the August 13th, 2009 meeting of the Flying Cloud Airport Joint Airport Zoning Board (JAZB), the Board directed staff (MAC) to complete a safety study for the Flying Cloud Airport (FCM). MAC retained HNTB to prepare the study. The safety study in this memorandum will be based upon the following statute.

Minnesota law, Chapter 360.066, Subdivision 1. includes the following:

“**Reasonableness** Standards of the commissioner defining airport hazard areas and the categories of uses permitted and airport zoning regulations adopted under sections 360.011 to 360.076, shall be reasonable, and none shall impose a requirement or restriction which is not reasonably necessary to effectuate the purposes of sections 360.011 to 360.076. In determining what minimum airport zoning regulations may be adopted, the commissioner and a local airport zoning authority shall consider, among other things, the character of the flying operations expected to be conducted at the airport, the location of the airport, the nature of the terrain within the airport hazard area, the existing land uses and character of the neighborhood around the airport, the uses to which the property to be zoned are planned and adaptable, and the social and economic costs of restricting land uses versus the benefits derived from a strict application of the standards of the commissioner.”

The purpose of this memorandum is to help evaluate the reasonableness of the land use restrictions in the Mn/DOT's rules¹ pertaining to areas off the runway ends at Flying Cloud Airport (FCM) based upon the probability of an accident occurring in Mn/DOT Safety Zone A outside the runway protection zone (RPZ) and Mn/DOT Safety Zone B, the character of the flying operations expected to be conducted at the airport, the location of the airport, and the nature of the terrain within the airport hazard area. The analysis herein incorporates appropriate

¹ Minnesota Rules 8800.2400

information provided in the Mn/DOT *Airport Land Use Compatibility Manual* published in September 2006.

A. Definitions

Operation

An “operation” is defined as a takeoff/departure or landing/arrival of an aircraft at FCM.

FCM Accident

An “FCM accident” is defined as an occurrence associated with the act of operating an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage as the result of an FCM operation and a collision with the ground or an object on the ground located within four miles of FCM.

Incident

An “incident” is defined as an occurrence other than an accident that is associated with the act of operating an aircraft and that affects, or could affect, the safety of an operation. For example, if a maintenance vehicle hits an aircraft with no one on board with the intent to fly, then this is an incident even though there is substantial damage to the aircraft or serious injury to maintenance or other personnel.

FCM Accident Rate

The “FCM accident rate” is defined as the number of FCM accidents that have been reported to the National Transportation Safety Board (NTSB) during the past 20 years – divided by the total number of FCM operations during the past 20 years.

2025 Forecast

The “2025 forecast” is the number of based aircraft, and the associated number of operations on each runway predicted to occur, at FCM in the year 2025.

Probability of an Accident at FCM Runway End in 2025

The “Probability of an Accident at FCM Runway End in 2025” is equal to the FCM accident rate multiplied by the 2025 forecast of operations at the runway end.

Probability of an Accident in Mn/DOT Safety Zone in 2025

The probability of an accident occurring in a Mn/DOT Safety Zone off an FCM runway end in 2025 is equal to the Probability of an Accident at the FCM Runway End in 2025 multiplied by the percent of historical general aviation accidents throughout the United States that have occurred in an area the same size as the Mn/DOT Safety Zone, as reported to the NTSB².

II. Accident Probability Analysis Methodology

The accident probability analysis in this report uses an eight-step methodology, as follows:

1. Determine the appropriate data to be used in the analysis based on the factors to be considered stated in Minn. Stat. §360.066, subd. 1.

² This data was compiled by the University of California at Berkeley in 1993 and is the only available data for the location of general aviation accidents in the vicinity of a general aviation airport in the U.S.

2. Identify applicable probability standards.
3. Define the areas to be studied.
4. Compile the appropriate data to determine accident rates and locations.
5. Distribute accident data to the areas being analyzed.
6. Determine the number of future operations for the runway end being studied.
7. Calculate the accident probabilities in the study areas.
8. Compare the accident probabilities to the applicable probability standards.

III. Appropriate Data to be Used in the Analysis

The appropriate data to be used in the statistical analysis should best represent the conditions expected to be present at FCM in the analysis year (2025) – the fleet mix, airport instrumentation and airport operating procedures (i.e., the character of the flying operations expected to be conducted at the airport in accordance with Minn. Stat. §360.066, subd. 1). Data can be available at the national level and the local level. The issue is which data best represents the conditions at FCM – national data or site specific local data. This is also an issue in determining ground traffic impacts from a proposed land use in a city or neighborhood. The Institute of Transportation Engineers (ITE) compiles traffic generated by different land uses across the U.S. and publishes a *Trip Generation Handbook* and user guide.³ ITE states that there is a “need to collect local trip generation data to either validate the use of *Trip Generation* data for local use or establish a new trip generation rate”.

Aircraft accidents in the U.S. are reported to the National Transportation Safety Board (NTSB). The NTSB provides a general aviation (GA) accident rate per 100,000 flight hours for the previous 20 years. This data could be used for the accident rate at FCM in 2025 by attempting to estimate the number of flight hours per operation; however, this data is not representative of the operating conditions at FCM. It includes GA airports with short, unpaved runways, runways without a precision instrument landing system (ILS), airports without an Air Traffic Control Tower, airports that serve aircraft without sophisticated instrumentation, and airports located in rugged terrain.

Based on the above and the analysis in Subsections A and B below, it was determined that available site-specific local data is the appropriate data to be used in determining the accident rate for the analysis in this memorandum.

The following is an analysis of “the character of the flying operations expected to be conducted at the airport, the location of the airport, (and) the nature of the terrain within the airport hazard area” in accordance with Minn. Stat. §360.066, subd. 1.

A. Character of FCM Flying Operations

The character of flying operations is based on the types of aircraft operating at the airport, the purpose of their operations, their safety records and the airport facilities that influence their operations.

³ *Trip Generation Handbook, Second Edition, an ITE Recommended Practice, ITE June 2004.*

FCM is classified as a Minor Airport in the Metropolitan Council's Metropolitan Airport System Plan and is a secondary reliever of Minneapolis/St. Paul International Airport (MSP). It has an Air Traffic Control Tower (ATCT) and three runways. The longest runway is Runway 10R-28L. It is under construction and will be 5,000 feet in length with a precision instrument approach to Runway 10R. FCM provides the facilities and services to attract and serve general aviation and corporate aircraft that require a runway up to 5,000 feet. The existing and forecast fleet of based aircraft is given in **Table 1**. In 2007, 80% were single engine piston aircraft and 5.5% of the based aircraft were jets. The 2025 forecast of based aircraft has 71% single engine piston aircraft and 15% jets. The safety record of jets is significantly better than single engine piston aircraft. When considering the current NTSB records of accidents in 2008 through May it is noteworthy to consider that flights conducted for personal, aerial applications, instructional and other reasons are made primarily by non-jet aircraft and constituted about 97% of the accidents through May of 2008.

Table 1
FCM 2025 Based Aircraft Forecast

Year	Single Engine Piston	Multi-Engine Piston	Turbo-prop	Jets		Helicopter	Other	Total
				Microjet	Other			
2007	336	37	20	0	23	5	0	421
2010	326	36	21	3	27	7	0	420
2015	310	32	20	8	34	7	0	411
2020	296	29	20	15	38	8	0	406
2025	286	27	20	20	40	8	0	401

Source: HNTB, April 2009.

According to the NTSB's Annual Review of Aircraft Accident Data U.S. General Aviation, Calendar Year 2003, "in 2003, the highest proportion of flying time was associated with personal recreation/business operations, which accounted for the largest proportion of accidents, 69% (n = 1197), a percentage consistent with the 10-year average. Less than 1% of the accidents (n = 5) were corporate/executive operations, 5% were aerial application (n = 86), and 14.7%, instructional flying (n = 255)." The proportion of flight hours was higher than the proportion of accidents for corporate operations reflecting the relative safety of these types of flights.

General Aviation encompasses a wide range of operations, including personal recreation/business, corporate, flight instruction and aerial applications. National NTSB accident rates include all of these operations together. Personal recreation/business flights make up the bulk of GA activity, and typically use single and multi engine piston aircraft. Corporate flying includes business transportation with a professional crew and usually involves larger twin piston, turboprop and jet aircraft. The proportion of corporate flying is expected to continue to increase at FCM.

Based on the above, accident data specific to FCM is the appropriate data to be used in determining the accident rate at FCM. This eliminates the inaccuracies that would result from the use of national generalized GA data that include GA airports with short unpaved runways,

runways without an ILS, airports without an Air Traffic Control Tower, airports that serve aircraft without sophisticated instrumentation, and airports located in rugged terrain. Moreover, utilizing specific FCM accident data is in keeping with the statutory requirement to consider "the character of the flying operations expected to be conducted at the airport," due to the fact that the accident statistics at the airport are a direct result of the character of the flying operations conducted at the airport.

B. FCM Location and Nature of Terrain within Model State Safety Zones

FCM is located on a plateau north of the Minnesota River at an elevation of 906 feet above MSL (mean sea level). The plateau drops off sharply towards the Minnesota River (200 feet lower) to the south and east and into a ponding area to the west. Staring Lake, to the north, is approximately 100 feet lower than the airport. The airport location is generally good for airport operations; there are no features that would cause substantive turbulence or adverse wind conditions. When winds are strong out of the north, pilots landing on Runway 36 tend to come in high so as not to be effected by potential downdrafts from the Minnesota River Valley.

State Safety Zones A and B overlay these lower areas off the runways' ends. The terrain does not impact the approach slope to any of the runways. Higher than normal climb and descent rates are not necessary. The runways have standard approach and departure procedures.

IV. Applicable Probability Standard

The FAA Flight Standards Division employs a collision-risk model for some proposed Instrument Landing Systems to determine the probability of a collision with an object on the ground during landings. This model determines the probability of a collision involving aircraft regardless of whether injuries or deaths result from a collision. The FAA uses a threshold probability of 10^{-7} or one collision per 10,000,000 landings. That is, if the collision-risk analysis determines there could be more than one collision per 10 million landings, then the placement of the proposed object is not approved.

For purposes of this analysis, the threshold probability of 10^{-7} or one collision/accident per 10 million operations will be used as the standard for measuring the accident probabilities in the analysis areas and will be known as the FAA Collision Standard. An "accident" will be considered as a collision with the ground or with an object on the ground that results in substantial damage to the aircraft or serious injury to persons in the aircraft or on the ground.

V. Definition of Analysis Areas

Four analysis areas will be assessed, as listed below and shown in **Figure 1**. (Figures are located at the back of this memorandum following Appendix A.4)

1. The area within the airfield plus the FAA runway protection zone (RPZ)
2. Mn/DOT Model Safety Zone A outside the RPZ
3. Mn/DOT Model Safety Zone B
4. The area outside the airfield and Zones A and B (Off Airport).

A. On Airfield + RPZ

At each runway end, there is a runway protection zone (RPZ) that is to be clear of any structures except navigational aids and is trapezoidal in shape. The RPZ commences at the end of the runway's Primary Surface, which is 200 feet from the runway end. The length and width of the RPZ differ depending on the characteristics of the critical aircraft using the runway (weight and approach speed) and the type of landing approach available for the runway end (visual, non-precision or precision with visibility minimums). Runway 18-36 is designated as a "utility" runway, which means it serves small aircraft exclusively (aircraft under 12,500 pounds maximum gross take-off weight). The RPZ for Runway 18-36 is 250 feet inner width, 450 feet outer width and 1,000 feet in length. The RPZ for Runway 10L-28R is 500 feet inner width, 700 feet outer width and 1,000 feet in length. Runway 10R has a precision instrument landing system (ILS) with approach visibility minimums of ½ mile. This requires an RPZ of 1,000 feet inner width, 1,750 feet outer width and 2,500 feet long. Runway 28L has non-precision instrument approach capability with 1 mile visibility minimums. This requires an RPZ of 500 feet inner width, 700 feet outer width and 1,000 feet long. The runway RPZs are shown in **Figure 1** (all figures are in Appendix B of this Memorandum).

B. Land Use Safety Zones A and B

Mn/DOT has promulgated rules requiring airports in Minnesota to establish, by zoning for each runway end, two land use safety zones, State Safety Zones A and B, in which both land uses and densities are restricted. State Safety Zone A is to begin at the end of the Primary Surface (200 feet from the runway end) and extend for a distance equal to two-thirds the runway length, which includes the RPZ. State Safety Zone B is to begin at the end of State Safety Zone A and extend a distance equal to one-third the runway length. Together, the zones are to comprise a trapezoid with a total length equal to the runway length. The trapezoid follows the airspace approach zones of a runway as defined in subpart 3.D of Minnesota Rules 8800.2400

VI. Accident Frequency Data

Aircraft accident data was obtained from two sources for this analysis – the FAA and the National Transportation Safety Board (NTSB). This section presents the data specific to FCM. The number of aircraft accidents reported from 1989-2008 for operations at FCM are listed in **Table 2**. The use of the past 20 years of accident data is consistent with accident frequency data presented annually by the NTSB and with page 10 of Appendix 7 of the Minnesota Airport Land Use Compatibility Manual, which assessed data in a 20-year history. There were a total of 28 incidents at FCM from 1989-2008; all were accidents attributable to FCM, as discussed in Appendix A.1. Sixteen of the accidents occurred on the airfield; twelve occurred in the area considered airport vicinity. Of those twelve, two accidents occurred in the RPZs, one in a State Safety Zone A outside the RPZ and one in a State Safety Zone B. **Figure 2** shows the approximate locations of the accidents that were considered in this analysis and have occurred near the airport over the past 20 years. Location information was not available for three of the accidents and therefore are not depicted, and one accident occurred beyond the limits of the figure. The recent accident that occurred near the airport on 8/12/2009 is shown on **Figure 2** but is not included in the accident rate calculation because a full year of 2009 operation and accident data is not available. The accidents and incidents are described in the Appendix A.1. The majority of the accidents occurred on the airport and their locations are estimated based on the NTSB accident report. NTSB does not supply this information on their public web site.

Based on the 1989-2008 data, the accident rate is **0.7544 accidents per 100,000 operations**.

Table 2
Number of Accidents^A and Accident Rates at FCM (1989 – 2008)

Year	All Aircraft		
	No. of Accidents ^B	No. of Operations (x 100,000)	Accidents per 100,000 Operations
1989	1	2.077 ^C	0.481
1990	3	2.274	1.319
1991	1	1.865	0.536
1992	0	1.983	0.0
1993	1	2.186	0.457
1994	1	2.390	0.418
1995	3	2.163	1.387
1996	2	2.127	0.940
1997	1	1.982	0.505
1998	3	2.109	1.422
1999	2	1.927	1.038
2000	2	1.861	1.075
2001	2	1.856	1.078
2002	0	1.764	0.0
2003	1	1.558	0.642
2004	2	1.596	1.253
2005	1	1.577	0.634
2006	1	1.442	0.694
2007	1	1.182	0.846
2008	0	1.191	0.0
Total	28	37.112	
Average Accident Rate			0.75447

Sources: National Transportation Safety Board; Federal Aviation Administration; HNTB analysis.

^A “Accident” is an occurrence associated with the act of operating an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage as the result of an FCM operation and a collision with the ground or an object on the ground located within four miles of FCM.

^B See Appendix A.1 for a brief summary of the accident damage and injuries.

^C Since OPSNET records were only available since 1990, MAC records were used for 1989.

VII. Location and Distribution of Accident Data

Since there have been relatively few accidents reported in the Mn/DOT safety zones for FCM and since there is the possibility of an accident/crash in these areas in 2025, more generalized national location data was researched. An aircraft accident distribution study was done by the University of California at Berkeley for the *California Airport Land Use Planning Handbook (January 2002)*. The purpose of the study was to compile accident locations that had land use compatibility implications from the NTSB data base. The findings of that study were referred to and used in the Mn/DOT *Airport Land Use Compatibility Manual* and are used here to determine where accidents have occurred. The Berkeley study compiled 873 general aviation aircraft accidents that occurred between 1983 and 1992. It found that the number and location of reported accidents varied by runway length and displayed the locations for runways less than 4,000 feet, 4,000 to 5,999 feet and 6,000 feet or more. These accident locations are included in the Mn/DOT *Airport Land Use Compatibility Manual* as Figures D, E and F in Appendix 7, and are used in the HNTB analysis.

In order to determine the distribution of accidents for a runway end, the total number of accidents for the runway end must be known. The Berkeley accident location study did not provide the total accidents for the runway lengths. The purpose of the study was to provide the locations of accidents that have land-use compatibility implications. The 10-year NTSB records included over 11,000 incidents and/or accidents that occurred on or near the runway, but they were not researched because they did not have land-use compatibility implications. As stated on pages 8-5 to 8-7 of the January 2002 *California Land Use Compatibility Handbook*, compilation of NTSB accident-proximity data for the years 1990 through 2000 showed that 68 percent of GA accidents occur on the airport and 3 percent occur en route, which leaves 29 percent as airport-vicinity accidents. The accidents shown in Figures D and/or E in Appendix B of this Memorandum obtained from the Mn/DOT manual were superimposed on the appropriate FCM runway end as shown on **Figures 3, 4, 5 and 6**. The number of airport-vicinity accidents were counted and divided by 29 percent to obtain the total accidents. Because the parallel runways are closely spaced, arrival and departure accidents on each runway end overlap one another. That is, there are arrival and departure accidents on 10L-28R that occur in the analysis areas of 10R-28L and vice-versa, as shown in **Figures 3 and 4**. Therefore, the accidents for these runways are combined. The results are shown in **Table 3**.

Table 3
Determination of Number of Accidents at Runway End

Runway Length	Runway End	Airport Vicinity (29%)	Total	En Route (3%)	On Airfield (68%)	On Airfield + RPZ
Figure D (Less than 4,000 ft.) as shown in Figures 5 and 6	18	204	703	21	478	535
	36	211	728	22	495	552
Figure D Combined with Figure E (4,000 – 5,999 ft.) As shown in Figure 3	10L	357	1,231	37	837	893
	10R	357	1,231	37	837	891
Figure D Combined with Figure E As shown in Figure 4	28R	399	1,376	41	936	995
	28L	401	1,383	41	940	959

Sources: Mn/DOT *Airport Land Use Compatibility Manual*; *California Land Use Compatibility Handbook (January 2002)*; HNTB analysis

The number and percent of the accidents in each analysis area are presented in **Table 4**.

Table 4
Distribution of Accident Locations

Runway End	On Airfield + RPZ		State Safety Zone A outside RPZ		State Safety Zone B		Off Airport		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
10R	891	74.63	7	0.59	17	1.42	279	23.36	1,194	100.00
28L	959	71.52	149	11.11	19	1.42	214	15.95	1,341	100.00
10L	893	74.79	38	3.18	21	1.76	242	20.27	1,194	100.00
28R	995	74.52	34	2.55	11	0.82	295	22.10	1,335	100.00
18	535	78.46	33	4.84	15	2.20	99	14.51	682	100.00
36	552	78.18	33	4.68	15	2.13	106	15.02	706	100.00

Sources: Mn/DOT *Airport Land Use Compatibility Manual*; *California Land Use Compatibility Handbook (January 2002)*; HNTB analysis

VIII. Forecast of Operations

To determine the probability of an accident off a runway end, the expected number of operations must be known. The forecast of operations prepared in July 2008 at each runway end for the year 2025 is given in **Table 5**.

Table 5
FCM 2025 Forecast

Runway	Arrivals	Departures	Total Operations at Runway End ^A
10R	11,299	10,055	24,309
28L	14,759	13,009	24,814
10L	6,439	9,210	19,128
28R	11,759	12,689	20,969
18	9,078	8,599	12,454
36	3,605	3,376	12,204
Total	56,938	56,938	113,877

^A Operations at a runway end are the arrivals at that end plus the departures from the opposite end (e.g., for 10R, it is 11,299 + 13,009 = 24,309)

Sources: HNTB Forecast, April 2009; MAC Runway Use, August 2009.

IX. Calculation of Accident Probabilities

The probability of an accident occurring in an accident analysis area in 2025 is calculated by multiplying the applicable accident rate by the number of forecast operations in 2025, which is then multiplied by the percent of historical accidents distributed to the applicable analysis area. The probability of an accident in each analysis area is calculated by applying the overall probability of accidents on the ends of the runways in 2025 to the distribution of accidents presented in **Table 4**. The results of these calculations are presented in **Table 6**.

Table 6
Probability of an Accident in Runway End Analysis Areas in 2025

Runway End	2025 Forecast of Operations	On Airfield + RPZ	State Safety Zone A outside RPZ	State Safety Zone B	Off Airport	Total
10R	43,437 ^A	0.24456 (4 yrs.) ^B	0.00192 (521 yrs.)	0.00467 (214 yrs.)	0.07657 (13 yrs.)	0.32772 (3 yrs.)
28L	45,783 ^A	0.24704 (4 yrs.)	0.03837 (26 yrs.)	0.00489 (204 yrs.)	0.05511 (18 yrs.)	0.34542 (3 yrs.)
10L	43,437 ^A	0.24511 (4 yrs.)	0.01043 (96 yrs.)	0.00576 (174 yrs.)	0.06642 (15 yrs.)	0.32772 (3 yrs.)
28R	45,783 ^A	0.25742 (4 yrs.)	0.00880 (114 yrs.)	0.00285 (351 yrs.)	0.07635 (13 yrs.)	0.34542 (3 yrs.)
18	12,454	0.07372 (14 yrs.)	0.00454 (220 yrs.)	0.00207 (484 yrs.)	0.01363 (73 yrs.)	0.09396 (11 yrs.)
36	12,204	0.07198 (14 yrs.)	0.00431 (232 yrs.)	0.00196 (511 yrs.)	0.01383 (72 yrs.)	0.09207 (11 yrs.)

^A Parallel runway operations are combined.

^B Average number of years between an accident assuming 2025 forecast operations at the runway end remain constant.

For example, the estimated number/overall probability of an annual accident that could occur for the Runway 10R end is 0.32772 ($0.75447 \times 43,437 / 100,000$). Land use in Safety Zone A outside the RPZ would have an annual probability of 0.00192 accidents per 43,437 operations or one accident every 521 years (assuming 43,437 operations each year). Land use in State Safety Zone B would have an annual probability of 0.00467 accidents per 43,437 operations or one accident every 214 years. All the probabilities are calculated for 2025 forecast traffic levels. Any increase or decrease in operations off the west end of Runway 10R-28L would proportionally increase or decrease the probability of an accident.

As shown in **Table 6**, there is a higher probability of an accident/crash in the Off Airport area than in Safety Zone A outside the RPZ and Safety Zone B at each runway end. This is due to the size of the Off Airport area; the probability of a crash at a site within the area would be lower. All the probabilities are calculated for 2025 forecast traffic levels. Any increase or decrease in operations off the ends of the runways would proportionally increase or decrease the probability of an accident.

The average number of years between an accident in Safety Zone A outside the RPZ varies from 26 years for the Runway 28L end to 521 years for the Runway 10R end, assuming the 2025 forecast operations at the runway ends remain constant. The average number of years between an accident in Safety Zone B varies from 174 years for the Runway 10L end to 511 years for the Runway 36 end, assuming the 2025 forecast operations at the runway ends remain constant.

It is important to recognize that the probabilities in each analysis area presented in **Table 6** assume an above ground object equal to the total size of each analysis area. An object/structure on a specific site within an analysis area would have a much lower probability of a collision by an aircraft. The purpose of the Mn/DOT safety standards is to protect the lives and property of users of the airport and of occupants of land in its vicinity.⁴ The only existing occupants of land in the analysis areas are the residential areas in State Safety Zone B at the Runway 10R and 28R ends and the residential and park areas at the 28L end. Based on Figure 3.2, Land Use Guide Plan Map 2030, in the adopted Eden Prairie Comprehensive Plan Update 2007, land use with occupants in the analysis areas expected by 2025 is shown in **Figures 7 and 8** (none are planned at the Runway 18-36 ends). Inspection of **Figures 7 and 8** shows there are two (2) accidents from the Berkeley study in the land use area with occupants in 10L Zone B, four (4) in 10R Zone B, three (3) in 28R Zone B, ten (10) in 28L Zone B and three (3) in 28L Zone A. The probability of an accident in these areas is given in **Table 7**. The average number of years between accidents in these areas varies from 388 years to 1,821 years, assuming the 2025 forecast operations at the runway ends remain constant.

⁴ Minnesota Law, Chapter 360.062(a)

Table 7
Probability of an Accident in Existing and Planned Occupant Areas within the
Mn/DOT Safety Zones in 2025

Runway End	2025 Forecast Per 100,000 Operations	State Safety Zone A outside RPZ		State Safety Zone B	
		Probability	Avg. Yrs. Between Accident	Probability	Avg. Yrs. Between Accident
10R	0.43437 ^A			0.001098 (0.43437 x 0.75447 x 4/1,194)	910
28L	0.45783 ^A	0.0007727 (0.45783 x 0.75447 x 3/1,341)	1,294	0.002576 (0.45783 x 0.75447 x 10/1,341)	388
10L	0.43437 ^A			0.0005494 (0.43437 x 0.75447 x 2/1,194)	1,821
28R	0.45783 ^A			0.0007762 (0.45783 x 0.75447 x 3/1,335)	1,288

^A Parallel runway operations are combined.
Sources: Figures 3, 4, 7 and 8; Table 4; HNTB analysis.

X. Comparison of FCM Accident Probabilities to the FAA Collision Standard

The probability of an accident in each analysis area based on the forecast of operations in **Tables 6 and 7** is converted to 10,000,000 operations by multiplying the values in **Tables 6 and 7** by 10,000,000 divided by the number of operations forecast at each runway end. The results are except for Safety Zone A outside the RPZ at the 10R end and Safety Zone B at the 28R end, which are below the Standard. The probability of an accident in the residential areas is well below the FAA Collision Standard.

It is important to note that if the 2025 forecasted number of operations was increased or decreased, the comparison of accident probabilities for the runway ends in 2025 to the FAA Collision Standard outlined in **Table 8** remains unchanged. This is due to the fact that these probabilities are based upon 10,000,000 operations instead of the forecast number, in accordance with the FAA Collision Standard of one accident per 10 million operations.

Table 8
Comparison of Accident Probabilities for the Runway Ends in 2025
to the FAA Collision Standard of One Accident per 10 Million Operations

Runway End	On Airfield + RPZ	State Safety Zone A outside RPZ	State Safety Zone B	Off Airport	FAA Collision Standard
10R	56.30	0.44	1.07	17.63	1.00
10R Occupant Area in E.P. 2030 Plan			0.253		1.00
28L	53.93	8.38	1.07	12.04	1.00
28L Occupant Area in E.P. 2030 Plan		0.169	0.563		1.00
10L	56.43	2.40	1.33	15.29	1.00
10L Occupant Area in E.P. 2030 Plan			0.126		1.00
28R	56.23	1.92	0.62	16.68	1.00
28R Occupant Area in E.P. 2030 Plan			0.170		1.00
18	59.19	3.65	1.66	10.95	1.00
36	58.98	3.53	1.60	11.33	1.00

Sources: NTSB 1988-2007 data; *California Airport Land Use Planning Handbook (January 2002)* data; Figure 3.2, Land Use Guide Plan Map 2030, Eden Prairie Comprehensive Plan Update 2007; HNTB analysis.

XI. Risk

According to the FAA, risk is the composite of predicted severity and likelihood of the potential effect of a hazard. The FAA published a *Safety Management System Manual (Version 1.1)* in May 21, 2004, which is applicable to air traffic control (ATC) and navigation services in the National Airspace System. Excerpts from the Manual are presented in Appendix A.2. As presented in Table 4.3 of the Manual, the likelihood of the most severe consequence from an occurrence is “extremely remote” if the probability is equal to or less than 1 in 10,000,000 operations, and is “extremely improbable” if it occurs less than once every 100 years. For development in the existing and planned occupant areas in Mn/DOT Safety Zones at each FCM runway end, the likelihood of fatalities from an accident is extremely remote based on the FAA criteria – since each is less than 1 in 10,000,000 operations and would occur less than once every 100 years⁵.

Risk is measured in probability of a certain level of consequence (e.g., probability of fatalities). An aircraft accident in the vicinity of FCM would have different consequences. For example, if the pilot has some control of the aircraft and there is enough altitude and an open space to carry out the emergency operation, he/she may do it safely. However, if the area where the pilot can

⁵ The least occurrence in an occupant area is 388 years, which is 0.26 occurrences every 100 years.

land has buildings and structures, he/she may not be able to land safely and the consequences can be severe. If the pilot has no control, even with open spaces, there is the possibility of additional consequences to the accident if the aircraft strikes a building or a structure. The Berkeley study identified that in only 5 percent of the accidents in the vicinity of airports, the pilot had no control of the aircraft.

The potential severity of an off-airport aircraft accident is highly dependent upon the nature of the land use at the accident site. Three characteristics are most important -- intensity of use; type of use (residential or non-residential); and sensitivity of use. Uses that attract a large assembly of people are the most severe. Uses that are populated 24 hours a day and 365 days a year (e.g., hospitals and nursing homes) are more likely to result in a fatality than uses that are not.

XII. The Concept of "Acceptable Risk"

In striking a balance between land use restrictions based on safety and the social and financial costs to the community, the concept of "acceptable risk" should be discussed. A discussion of the concept of acceptable airport-related risk taken from the California Department of Transportation (Caltrans) *Airport Land Use Handbook, December 1993*, is presented in Appendix A.3. Mn/DOT representatives have stated that the Mn/DOT State Safety Zones and land use restrictions therein are historically based on the 1952 *Report to the President's Airport Commission*, chaired by General Doolittle.⁶ The Mn/DOT minimum standard for land use in Safety Zone A is the same as that for the FAA RPZ -- no structure or use that creates, attracts, or brings together an assembly of persons therein. In other words, Safety Zone A is ideally to have zero risk to a person or structure as the result of an aircraft crash in the zone -- that is, *absolute safety* for individuals in Safety Zone A outside the RPZ (the RPZ is regulated by the FAA).⁷

As presented in the [1993] Caltrans report, "With respect to airport-related risks, the assessment presented in the 1952 *Report to the President's Airport Commission*, chaired by General Doolittle, remains valid today. The report remarks that:

"Absolute safety for the individual is an ideal which has ever been sought but never attained. Because man does not have full control over his environment, the very function of living has inherent hazards which become more pronounced as the scheme of living grows more complex. Thus, since absolute safety is a theoretical concept, one can speak only of relative risk (pages 47-48)."

The report goes on to say that:

"... 'calculated risk' is an American concept which gives mobility to the whole social structure. The phrase simply means a willingness to embark deliberately on a course of action which offers prospective rewards outweighing its estimated dangers" (page 49)."

⁶ May 15, 2008 meeting of the St. Paul Downtown Airport Joint Airport Zoning Board

⁷ Minnesota Law, Chapter 360.062, grandfathers existing land uses that are not airport hazards, but they become nonconforming uses under the Mn/DOT Rules.

Based on the above, the Mn/DOT land use compatibility standards appear to be inconsistent with the Doolittle report. Mn/DOT has the most restrictive airport safety zoning standards in the United States. As presented in Appendix A.4, it is (as of 2002) the only state with laws or rules that restrict commercial, industrial, and residential uses in airport safety zones other than the RPZ. Only five states other than Minnesota had some form of airport-related land use safety zoning.

XIII. Findings

A. Assessment of Minn. Stat. §360.066, subd. 1 Variables in the Context of FCM

Character of Flying Operations Expected at FCM

- The character of flying operations is based on the types of aircraft operating at the airport, the purposes of their operations and their safety records;
- There are fewer accidents by jet aircraft than single engine piston (SEP) aircraft;
- The expected proportion of based aircraft at FCM in 2025 is 15% jets and 71% SEP;
- FCM provides the facilities and services to attract and serve aircraft that require a runway less than or equal to 5,000 feet;
- Accident rates and associated probabilities are directly related to the character of the flying operations at a given airport.

Location of FCM and Nature of Terrain in State Safety Zones A and B

- The airport location is generally good for airport operations; there are no features that cause substantive turbulence or adverse wind conditions;
- State Safety Zones A and B overlay relatively flat terrain to the west and east, the Minnesota River Valley to the south and Staring Lake to the north. Higher than normal climb and descent rates are not necessary. The runways have standard approach and departure procedures.

B. Probability of Accident Compared to the FAA Collision Standard

State Safety Zone A outside the RPZ

- The average number of years between an accident at the runway ends varies from 26 years for the Runway 28L end to 521 years for the Runway 10R end, assuming the 2025 forecast operations at the runway ends remain constant.
- Assuming an above-ground object equal to the total size of Zone A outside the RPZ, the probability of an aircraft accident at the Runway 10R end in 2025 is less than the FAA Collision Standard of 1.0 accidents per 10,000,000 operations and greater than the Standard at the Runway 18, 36, 10L, 28R and 28L ends.

State Safety Zone B

- The average number of years between an accident at the runway ends varies from 174 years for the Runway 10L end to 511 years for the Runway 36 end, assuming the 2025 forecast operations at the runway ends remain constant.
- Assuming an above-ground object equal to the total size of Zone B, the probability of an aircraft accident at the Runway 28R end in 2025 is less than the FAA Collision Standard

of 1.0 accidents per 10,000,000 operations and greater than the Standard at the Runway 18, 36, 10L, 10R and 28L ends.

- There is a higher probability of an aircraft accident/crash in the Off Airport area than in Safety Zone A outside the RPZ and Safety Zone B at each runway end.

Occupant Areas in State Safety Zones

- Minnesota Law states that the purpose of the Mn/DOT safety standards is to protect the lives and property of users of the airport and of occupants of land in its vicinity.
- The probabilities of an aircraft accident in the areas where people could use/occupy the land based on the Land Use Guide Plan Map 2030 in the *Eden Prairie Comprehensive Plan Update 2007* are as follows:
 - 0.253 per 10,000,000 operations in Runway 10R State Safety Zone B
 - 0.169 per 10,000,000 operations in Runway 28L State Safety Zone A
 - 0.563 per 10,000,000 operations in Runway 28L State Safety Zone B
 - 0.126 per 10,000,000 operations in Runway 10L State Safety Zone B
 - 0.170 per 10,000,000 operations in Runway 28R State Safety Zone B

These probabilities are well below the FAA Collision Standard of one (1.0) accident per 10,000,000 operations.

- The least accident occurrence in an occupant area in a State Safety Zone is 388 years, which is 0.26 occurrences every 100 years.
- The likelihood of a fatality from an accident in the occupant areas in the State Safety Zones is extremely remote based on FAA Risk Criteria – since the probability of each accident is less than 1.0 per 10,000,000 operations and would occur less than once every 100 years in these areas.

C. Accident Severity and Pilot Control

- The potential severity of an off-airport aircraft accident is highly dependent upon the nature of the land use at the accident site. Three characteristics are most important—intensity of use; type of use (residential or non-residential); and sensitivity of use. Uses that attract a large assembly of people are the most severe. Uses that are populated 24 hours a day and 365 days a year (e.g., hospitals and nursing homes) are more likely to result in a fatality than uses that are not.
- The Berkeley study found that the pilot had control of the aircraft in 95 percent of the accidents that occurred in the vicinity of GA airports – only 5 percent had no control.

D. General Conclusion from the Findings

- While the findings of this study do not establish that strict application of the Mn/DOT Modeling Zoning Ordinance is required to provide a reasonable standard of safety around FCM, they do support additional consideration be given to land use controls around the airport beyond what might be applied when the accident probability within a State Safety Zone is less than 1 accident in 10 million operations.

Appendix A

- A.1 NTSB Accident Data for FCM
- A.2 FAA Risk Criteria
- A.3 The Concept of Acceptable Risk
- A.4 Survey of Airport Land Use Safety Zoning by other States

A.1 NTSB Accident Data for FCM

The following is a summary of the incident reports in the NTSB record for FCM between 1989 and 2008. These are incidents located within 20,000 feet of a runway end.

#	Event Date	Make / Model	Event Severity	Type of Operation	Description
1	8/12/2009 ¹	Beech E18S	Substantial Damage 2 Fatalities	Part 91: General Aviation	Aircraft collided with terrain following loss of control after take-off.
2	7/15/2007	Mooney M20J	Substantial Damage Minor Injuries	Part 91: General Aviation	Aircraft collided with terrain following loss of control during take-off.
3	10/27/2006	Bellanca 7ECA	Substantial Damage No Injuries	Part 91: General Aviation	Aircraft hit a sign during landing.
4	7/4/2005	Piper PA-32-300	Substantial Damage No Injuries	Part 91: General Aviation	Aircraft hit a sign during landing.
5	10/9/2004	Buss Rotorway Exec	Substantial Damage No Injuries	Part 91: General Aviation	Helicopter lost power during landing approach. Hit crops in field.
6	1/19/2004	Piper PA-46-500TP	Substantial Damage No Injuries	Part 91: General Aviation	Gear-up forced landing following loss of power during take-off.
7	7/2/2003	Debay Dragonfly Mark II	Substantial Damage Serious Injuries	Part 91: General Aviation	Lost power and hit trees and terrain after take-off.
8	7/19/2001	Mooney M-20R	Substantial Damage 1 Fatality	Part 91: General Aviation	Lost power and hit trees and terrain after take-off.
9	7/17/2001	Beech B19	Substantial Damage Minor Injuries	Part 91: General Aviation	Bounced while landing. Veered off runway. Nose gear collapsed.
10	10/20/2000	Piper PT-46	Substantial Damage No Injuries	Part 91: General Aviation	Bounced while landing. Propeller hit ground.
11	6/8/2000	Piper PA-28-161	Substantial Damage Minor Injuries	Part 91: General Aviation	Lost power on take-off. Tried to return. Hit trees and landed in swamp.
12	8/30/1999	Piper PA-24-180	Substantial Damage No Injuries	Part 91: General Aviation	Landed gear up.

13	7/31/1999	Cessna 310N	Substantial Damage No Injuries	Part 91: General Aviation	Landing gear collapsed while landing. Veered off runway, hitting taxiway sign.
14	11/25/1998	Piper PA-28- R200	Substantial Damage No Injuries	Part 91: General Aviation	Landed then lost steering and veered off runway and hit VASI.
15	9/8/1998	Culver- Revolution MINI 500	Substantial Damage No Injuries	Part 91: General Aviation	Helicopter lost power while hover taxiing on airport. Hit ground.
16	2/8/1998	Beech C-23	Substantial Damage Minor Injuries	Part 91: General Aviation	Hit hangar, fence, ditch and highway during go-around procedure.
17	11/20/1997	Mooney M20K	Substantial Damage No Injuries	Part 91: General Aviation	Hit runway edge lights while landing.
18	9/8/1996	Cessna 182	Substantial Damage No Injuries	Part 91: General Aviation	Ran out of fuel, lost power then landed short of runway.
19	8/21/1996	Beech C-23	Substantial Damage No Injuries	Part 91: General Aviation	Landed hard on runway.
20	12/22/1995	Beech 58	Substantial Damage No Injuries	Part 91: General Aviation	Landed short of runway.
21	12/10/1995	Beech B90	Substantial Damage No Injuries	Part 91: General Aviation	Hit a hangar during taxiing.
22	7/26/1995	Cessna 550	Substantial Damage No Injuries	Part 91: General Aviation	Veered off end of runway while landing.
23	2/13/1994	Piper PA-38- 112	Substantial Damage Serious Injuries	Part 91: General Aviation	Hit power lines during landing.
24	12/23/1993	Beech C23	Substantial Damage No Injuries	Part 91: General Aviation	Lost power while landing wing hit terrain.
25	12/10/1991	Cessna 140	Substantial Damage No Injuries	Part 91: General Aviation	Aircraft swerved off the runway and nosed over.

26	4/22/1990	Lake LA-4-200	Substantial Damage No Injuries	Part 91: General Aviation	Landing gear hit deer on runway while landing. Cartwheeled to a stop.
27	4/16/1990	Cessna 210	Substantial Damage Minor Injuries	Part 91: General Aviation	Veered off runway during landing. Tried go-around, aircraft bounced and wing hit, cartwheeled to stop.
28	3/30/1990	Bellanca 8KCAB	Substantial Damage No Injuries	Part 91: General Aviation	Flat tire caused aircraft to veer off runway during landing. Nosed over.
29	8/6/1989	Stinson L-5	Substantial Damage No Injuries	Part 91: General Aviation	Veered off runway during takeoff due to crosswinds.

¹Since 2009 operations data is not yet available; accidents from 2009 are not included in the accident rate.

An “accident” is defined as an occurrence associated with the act of operating an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage as the result of a collision with the ground or an object on the ground (since the FAA Probability Standard is based on collisions). An “FCM accident” is an “accident” due to an FCM operation that was located within five miles of FCM. An “incident” is defined as an occurrence other than an accident that is associated with the act of operating an aircraft and that affects, or could affect, the safety of an operation.

The analysis in this memorandum considers FCM accidents during the past 20 years (1989 – 2008). The use of the past 20 years of accident data is consistent with the accident frequency data presented annually by the NTSB and with page 10 of Appendix 7 of the Mn/DOT *Airport Land Use Compatibility Manual*.

A.2 FAA Risk Criteria

The FAA published a *Safety Management System Manual (Version 1.1)* in May 21, 2004, which is applicable to air traffic control (ATC) and navigation services in the National Airspace System (NAS). The following pages are taken from the *Safety Management System (SMS) Manual*.

Table 4.2 - Severity Definitions

	No Safety Effect	Minor	Major	Hazardous	Catastrophic
General		Does not significantly reduce system safety. Required actions are within operator's capabilities. Includes (see below):	Reduces the capability of the system or operators to cope with adverse operating conditions to the extent that there would be a (see below):	Reduces the capability of the system or the operator's ability to cope with adverse conditions to the extent that there would be a (see below):	Total loss of systems control such that (see below):
Air Traffic Control	Slight increase in ATC workload	Slight reduction in ATC capability, or significant increase in ATC workload	Reduction in separation as defined by a low/moderate severity operational error (as defined in FAA Order 7210.56), or significant reduction in ATC capability	Reduction in separation as defined by a high severity operational error (as defined in FAA Order 7210.56), or a total loss of ATC (ATC Zero)	Collision with other aircraft, obstacles, or terrain
Flying Public¹²	<ul style="list-style-type: none"> - No effect on flight crew - Has no effect on safety - Inconvenience 	<ul style="list-style-type: none"> - Slight increase in workload - Slight reduction in safety margin or functional capabilities - Minor illness or damage - Some physical discomfort 	<ul style="list-style-type: none"> - Significant increase in flight crew workload - Significant reduction in safety margin or functional capability - Major illness, injury, or damage - Physical distress 	<ul style="list-style-type: none"> - Large reduction in safety margin or functional capability - Serious or fatal injury to small number - Physical distress/excessive workload 	Outcome would result in: <ul style="list-style-type: none"> - Hull loss - Multiple fatalities

¹² For more information regarding these definitions, refer to FAA Advisory Circular 25.1309-1A, *System Design Analysis*, 06-21-88.

4.40 *What is likelihood, and how is it related to risk assessment?*

Remember that risk is the composite of the predicted severity and likelihood of the outcome or effect (harm) of the hazard in the worst credible system state. Likelihood is an expression of how often an event is expected to occur.

Severity must be considered in the determination of likelihood. Likelihood is determined by how often the resulting harm can be expected to occur at the worst credible severity. When determining likelihood, the worst credible system states will usually determine the worst credible severity.

Likelihood definitions should be tailored to the domain and service. Table 4.3 provides likelihood definitions that could be used in this step or could be used as information to support developing definitions that work for the change to be assessed.

NAS Systems' likelihood definitions (first three columns) are currently in use when acquiring new systems. Flight Procedures definitions (the fourth column) are used by Flight Standards (AFS) in assessing flight procedures. ATC Operational definitions (the last two columns) are proposed likelihood definitions for use in assessing ATC operations (e.g., airspace changes, ATC procedures and standards, etc.).

Appendix C contains information and guidance on applying SRM to ATC procedural changes.

Table 4.3 - Likelihood Definitions

	NAS Systems		Flight Procedures	ATC Operational		
	Quantitative	Qualitative		Per Facility	NAS-wide	
		Individual Item/System				ATC Service/NAS Level System
Frequent	Probability of occurrence per operation/ operational hour is equal to or greater than 1×10^{-3}	Expected to occur about once every 3 months for an item	Continuously experienced in the system	Probability of occurrence per operation/ operational hour is equal to or greater than 1×10^{-5}	Expected to occur more than once per week	Expected to occur more than every 1-2 days
Probable	Probability of occurrence per operation/ operational hour is less than 1×10^{-3} , but equal to or greater than 1×10^{-5}	Expected to occur about once per year for an item	Expected to occur frequently in the system		Expected to occur about once every month	Expected to occur about several times per month
Remote	Probability of occurrence per operation/ operational hour is less than or equal to 1×10^{-5} but equal to or greater than 1×10^{-7}	Expected to occur several times in life cycle of an item	Expected to occur numerous times in system life cycle	Probability of occurrence per operation/ operational hour is less than or equal to 1×10^{-5} but equal to or greater than 1×10^{-7}	Expected to occur about once every year	Expected to occur about once every few months
Extremely Remote	Probability of occurrence per operation/ operational hour is less than or equal to 1×10^{-7} but equal to or greater than 1×10^{-9}	Unlikely to occur, but possible in an item's life cycle	Expected to occur several times in the system life cycle	Probability of occurrence per operation/ operational hour is less than or equal to 1×10^{-7} but equal to or greater than 1×10^{-9}	Expected to occur about once every 10-100 years	Expected to occur about once every 3 years
Extremely Improbable	Probability of occurrence per operation/ operational hour is less than 1×10^{-9}	So unlikely that it can be assumed that it will not occur in an item's life cycle	Unlikely to occur, but possible in system life cycle	Probability of occurrence per operation/ operational hour is less than 1×10^{-9}	Expected to occur less than once every 100 years	Expected to occur less than once every 30 years

Phase 4: Assess the Risk

4.41 *What is a risk matrix?*

An estimation of risk is determined using the predictive risk matrix in Figure 4.9.

The risk levels used in the matrix can be defined as:

- **High risk** – Unacceptable risk - proposal cannot be implemented unless hazards are further mitigated so that risk is reduced to medium or low level and AOV approves the mitigating controls. Tracking and management are required. Catastrophic hazards that are caused by: (1) single-point events or failures, (2) common cause events or failures, or (3) undetectable latent events in combination with single point or common cause events are considered high risk, even if extremely remote. (Note: high risk is unacceptable at the time of hazard closure. However, for short periods of time, high risk may exist while mitigation plans are put into affect.)
- **Medium risk** – Acceptable risk - minimum acceptable safety objective; proposal may be implemented, but tracking and management are required.
- **Low risk** – Target - acceptable without restriction or limitation; hazards are not required to be actively managed but are documented.

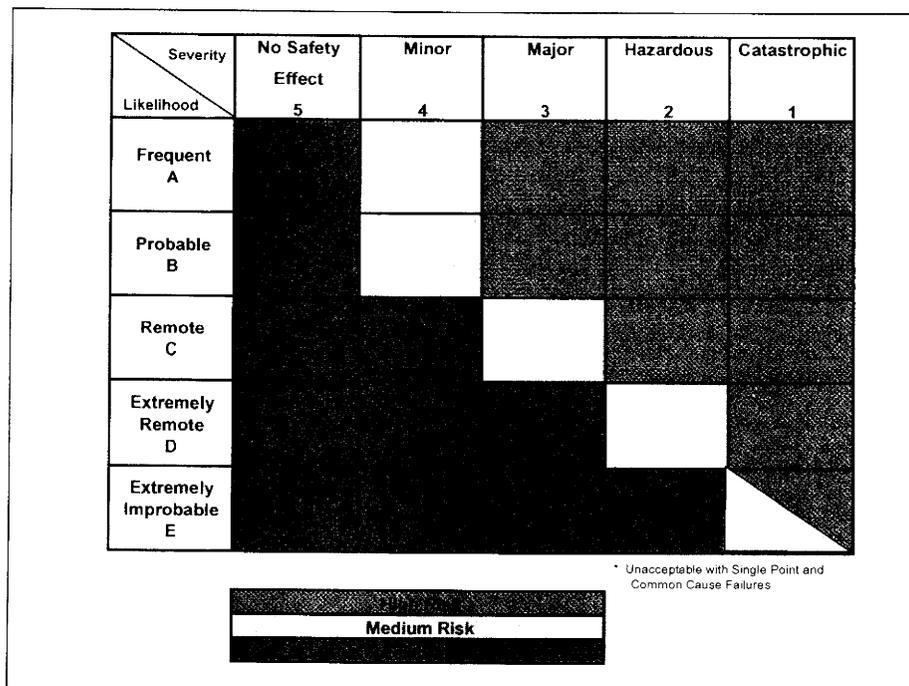


Figure 4.9 - Predictive Risk Matrix

A.3 The Concept of Acceptable Risk

The following discussion is taken from Airport Land Use Handbook, December 1993, prepared for California Department of Transportation by Hodges and Shutt in association with Flight Safety Institute, Chris Hunter & Associates, and University of California, Berkeley, Institute of Transportation.

“Definition of appropriate safety zones is one side of the safety compatibility equation. The other, even more difficult side is establishment of suitable land use criteria to be applied within each zone. As stated in Chapter 3, the basic objective of safety compatibility criteria is to minimize the risks associated with potential aircraft accidents. This objective has two components:

- To protect people and property on the ground when accidents occur; and
- To minimize injury to the occupants of aircraft involved in accidents.

For both of these components, the fundamental question to be answered when attempting to set land use development criteria is *how much risk is acceptable?* Answering this question is made particularly difficult by the fact that aircraft accidents occur infrequently and, for any specific location, probably will never happen. Yet, when an accident does take place, the consequences can be great.

The balancing side to the question of acceptable risk is *how much protection can be afforded?* When an airport is situated in a rural area, well away from development pressures, the cost – to the landowner, the community, and the airport – for a high degree of protection may be low. Important land use development can usually be redirected toward areas where the prospects of an aircraft accident are minimal. At the other end of the spectrum, the need for developable land around urban area airports typically is such that avoidance of only the most risky forms of development – those in the most accident-prone locations or ones which greatly increase the potential severity – may be affordable. The problem with accepting the latter concept, of course, is that an aircraft accident in a developed area hardly ever results in pressure to eliminate the conflicting land use; rather the pressure inevitably is to restrict or close the airport.

Some perspective on this tradeoff can perhaps be gained from a study which examined the implications of another type of hazard – the threat of volcanic eruption (William Spangle and Associates – 1987). A volcanic eruption can reasonably be considered an ultimate example of an event which occurs with very low frequency, but can have catastrophic results when it does occur. One of the responses considered in the report was whether anything at all should be done to protect against such an event given its extreme rarity. On the other hand, the report notes that “the potential for a major catastrophe which could be averted begs for some kind of public response” (page 86). As for where to strike the balance between acceptable risk and affordable protection, the report concludes: “Do what you can, politically and fiscally, to reduce the exposure and provide for effective emergency response and that becomes, by definition, acceptable risk. An official who proposes to go farther than his constituents want will find out quickly what the limits are” (page 86).

With respect to airport-related risks, the assessment presented in the 1952 *Report to the President's Airport Commission*, chaired by General Doolittle, remains valid today. The report remarks that:

“Absolute safety for the individual is an ideal which has ever been sought but never attained. Because man does not have full control over his environment, the very function of living has inherent hazards which become more pronounced as the scheme of living grows more complex. Thus, since absolute safety is a theoretical concept, one can speak only of relative risk” (pages 47-48).

The report goes on to say that:

“... ‘calculated risk’ is an American concept which gives mobility to the whole social structure. The phrase simply means a willingness to embark deliberately on a course of action which offers prospective rewards outweighing its estimated dangers” (page 49).”

A.4 Survey of Airport Land Use Safety Zoning by other States

The following are the states with airport land use safety zoning in 2002 and the role of the DOT in the adoption of the zoning.

States with Land Use Safety Zoning Outside the FAA RPZ (Other than Height Restrictions)

State	Responsibility for Adoption	Basis for Zoning Regulations	Applicability	Role of DOT
California (2002)	County establishes Airport Land Use Commission (ALUC) that adopts the zoning	1993 GA study recommendations; zones are based on the actual locations of accidents; major discussion of risk, including its measurement and criteria	General Aviation and Major Airports	Develops handbook that must be used by ALUCs as guidance
Washington	Local Government	1993 California study	General Aviation Airports	Consultation
New Jersey	Affected Municipalities	DOT Standards (zone is 3000' in length from runway end; commercial, industrial and residential uses are permitted outside RPZ)	General Aviation Airports	Adopt Standards
Florida	Local Government	Statute; public and private schools cannot be constructed along the extended runway centerlines	All Public Airports	Guidance; prohibited from establishing land use regulations or disapproving local government zoning regulations.
Maryland	Maryland Aviation Administration (MAA)	MAA; prohibits uses that would interfere with aircraft operations, and frequent or significant congregation of people in designated clear zones (e.g., RPZ)	All State-Owned Airports	Enforcement
Other Studies				
Denver, Colorado Council of Gov'ts	Local Government (not mandatory)	1993 California study statistics	General Aviation Airports	None

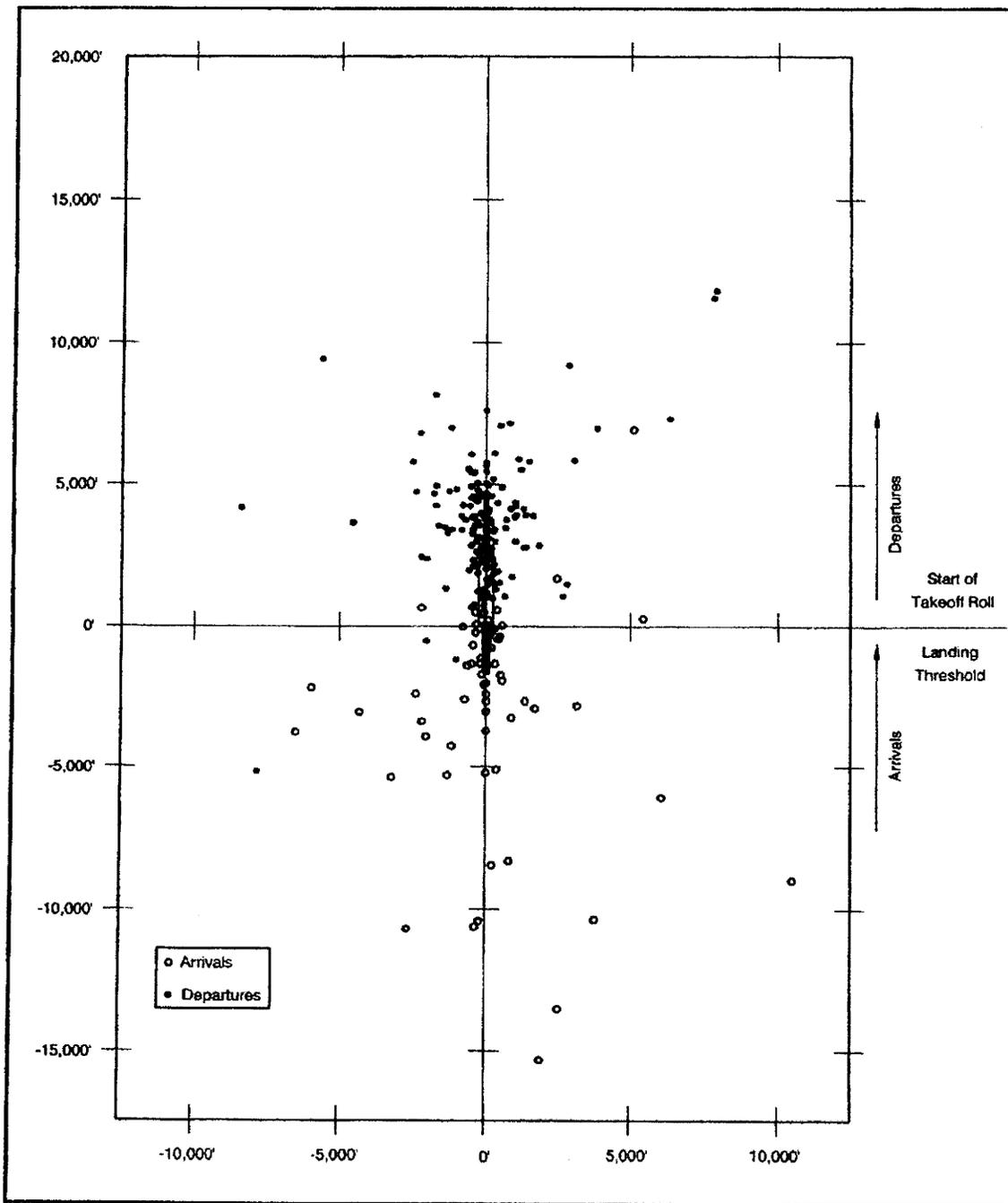
Source: HNTB survey, 2002.

Appendix B

List of Figures

- Figure D Accidents on Runways Less than 4,000 Feet
- Figure E Accidents on Runways of 4,000 to 5,999 Feet
- Figure 1 FCM Analysis Areas
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- Figure 3 Historical National GA Arrival and Departure Accident Locations Superimposed on Runway 10R & 10L Ends
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- Figure 5 Historical National GA Arrival and Departure Accident Locations Superimposed on Runway 18 End
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- Figure 7 Occupant Areas in State Safety Zones at Runway 10R & 10L Ends
- Figure 8 Occupant Areas in State Safety Zones at Runway 28L & 28R Ends

Figure D

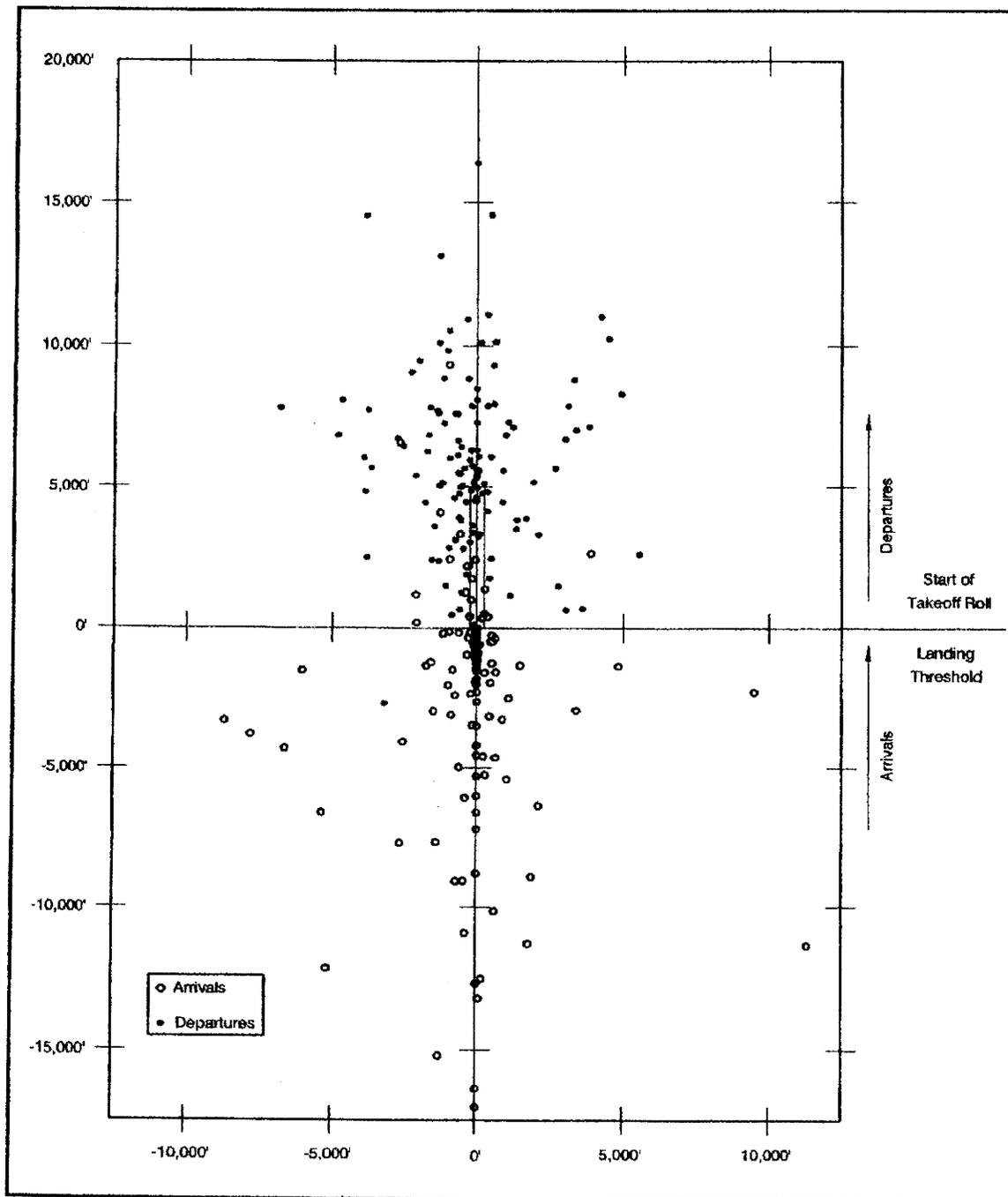


Accidents on Runways of Less than 4,000 Feet

California Airport Land Use Planning Handbook (January 2002)



Figure E



Accidents on Runways of 4,000 to 5,999 Feet

California Airport Land Use Planning Handbook (January 2002)



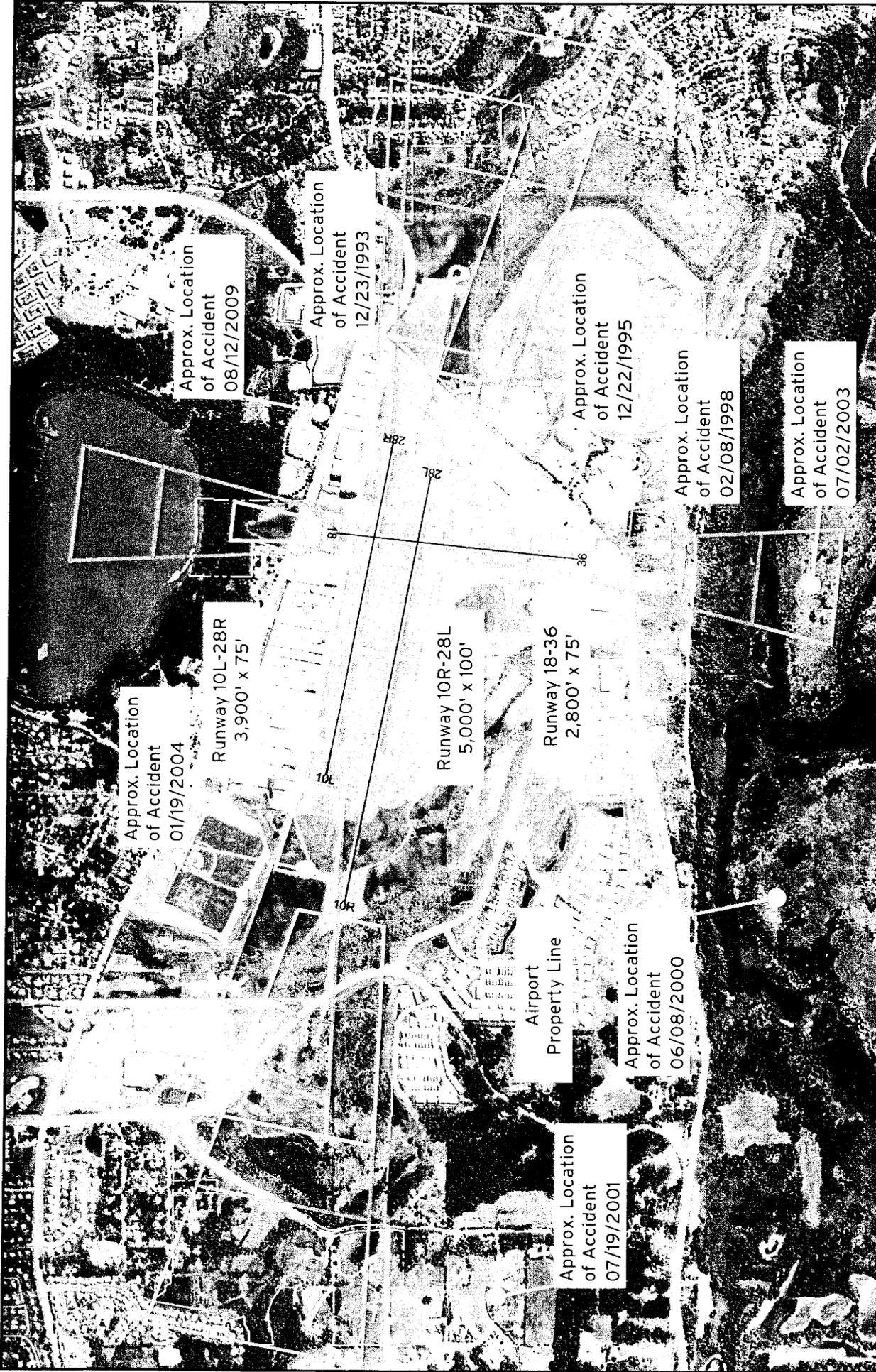
FAA Runway Protection Zone
 Mn/DOT State Safety Zone A
 Outside Runway Protection Zone
 Mn/DOT State Safety Zone B

	Runway 10R	Runway 28L	Runway 10L	Runway 28R	Runway 18	Runway 36
FAA Runway Protection Zone	2,500' x 1,000' x 1,750'	1,000' x 500' x 700'	1,000' x 500' x 700'	1,000' x 500' x 700'	1,000' x 250' x 450'	1,000' x 250' x 450'
Mn/DOT State Safety Zone A	3,333' x 1,000' x 2,000'	3,333' x 1,000' x 2,000'	2,600' x 500' x 1,280'	2,600' x 500' x 1,280'	1,867' x 500' x 1,060'	1,867' x 500' x 1,060'
Mn/DOT State Safety Zone B	1,667' x 2,000' x 2,500'	1,667' x 2,000' x 2,500'	1,300' x 1,280' x 1,670'	1,300' x 1,280' x 1,670'	933' x 1,060' x 1,340'	933' x 1,060' x 1,340'

Dimensions: Length x Inner Width x Outer Width

Figure 1: FCM Analysis Areas

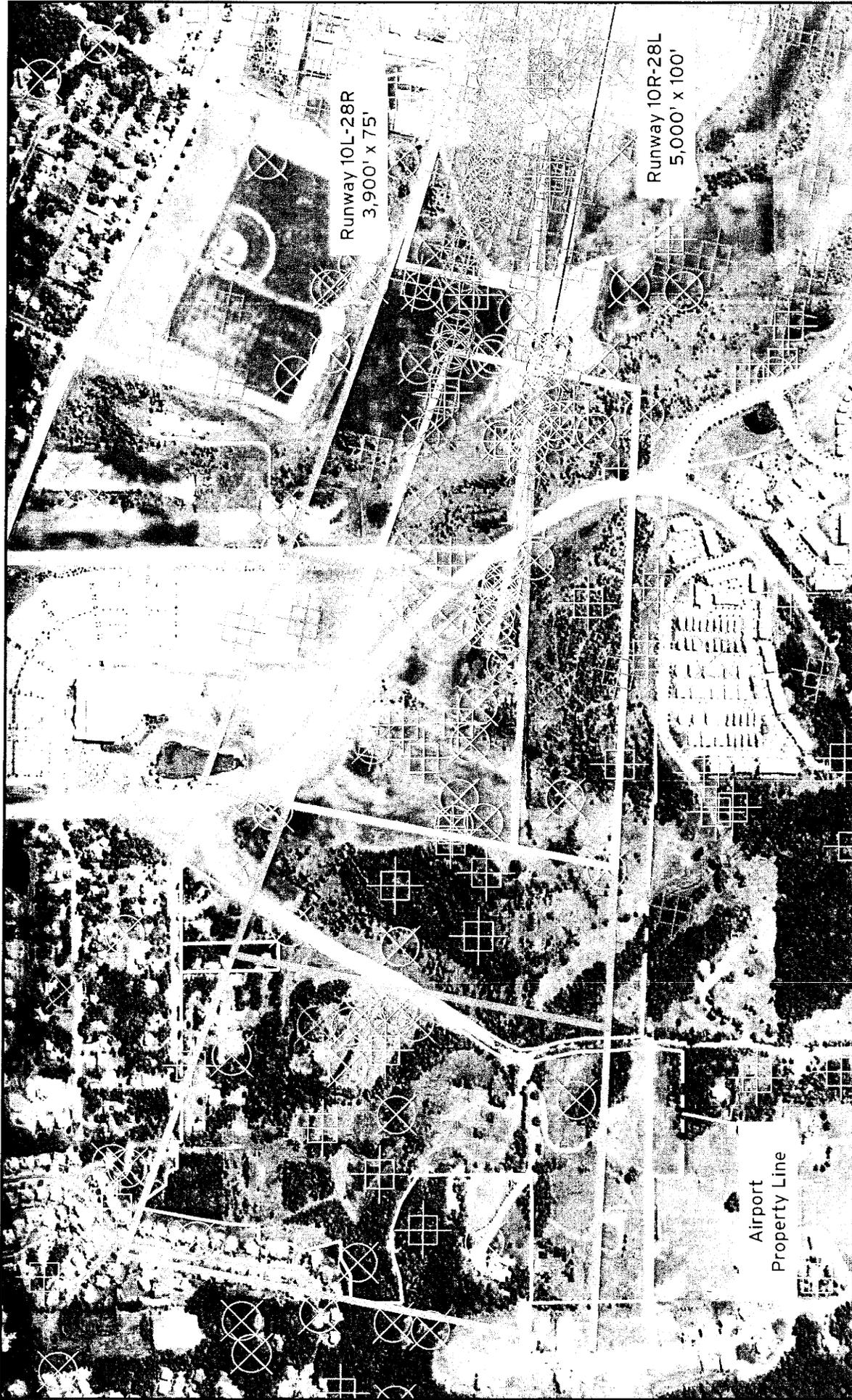
Source: HNTB Analysis, September 2009
Aerial Photo: 2008



FAA Runway Protection Zone ——— Mn/DOT State Safety Zone B
 Mn/DOT State Safety Zone A
 Outside Runway Protection Zone

Note:
 • Location of accidents 10/09/2004, 09/08/1996 and 04/16/1990 was not clear in NTSB accident report.
 • Accident 02/13/1994 is located outside the limits of the figure.

Figure 2: 1989-2009 FCM Related Accidents Located in Mn/DOT Safety Zones or Off Airport
 Source: NTSB and HNTB Analysis, September 2009
 Aerial Photo: 2008



- FAA Runway Protection Zone
- Mn/DOT State Safety Zone A
- Outside Runway Protection Zone
- Mn/DOT State Safety Zone B

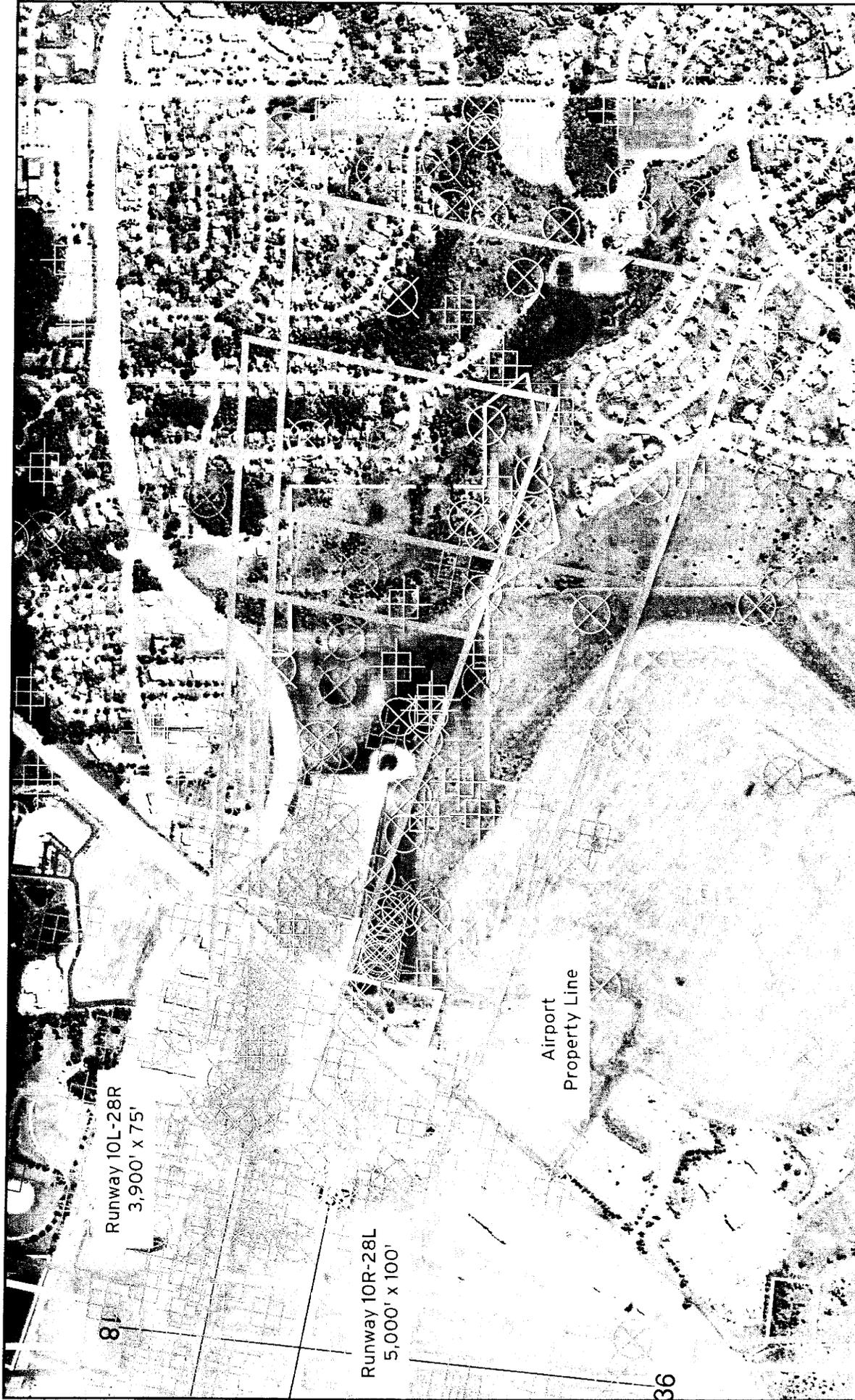
Rwy 10R Arrivals

Rwy 10L Arrivals

Rwy 28L Departure

Rwy 28R Departure

Figure 3: Historic National GA Arrival and Departure Accident Locations Superimposed on Runway 10R & 10L Ends



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Figure 4: Historic National GA Arrival and Departure Accident Locations Superimposed on Runway 28L & 28R Ends

Source: California Land Use Compatibility Handbook 01/2002
Aerial Photo: 2008

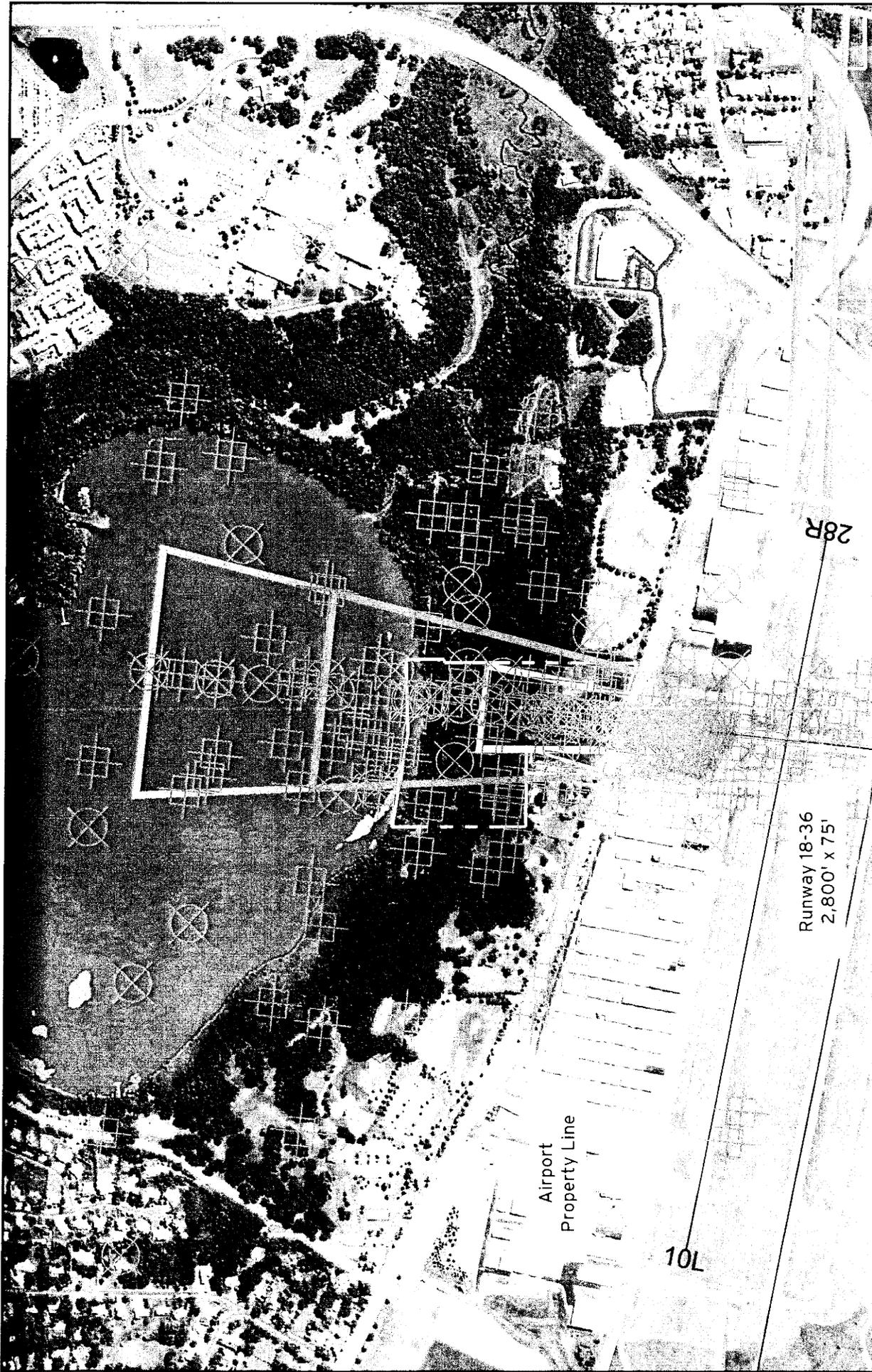


Figure 5: Historic National GA Arrival and Departure Accident Locations Superimposed on Runway 18 End
 Source: California Land Use Compatibility Handbook 01/2008
 Aerial Photo: 2008



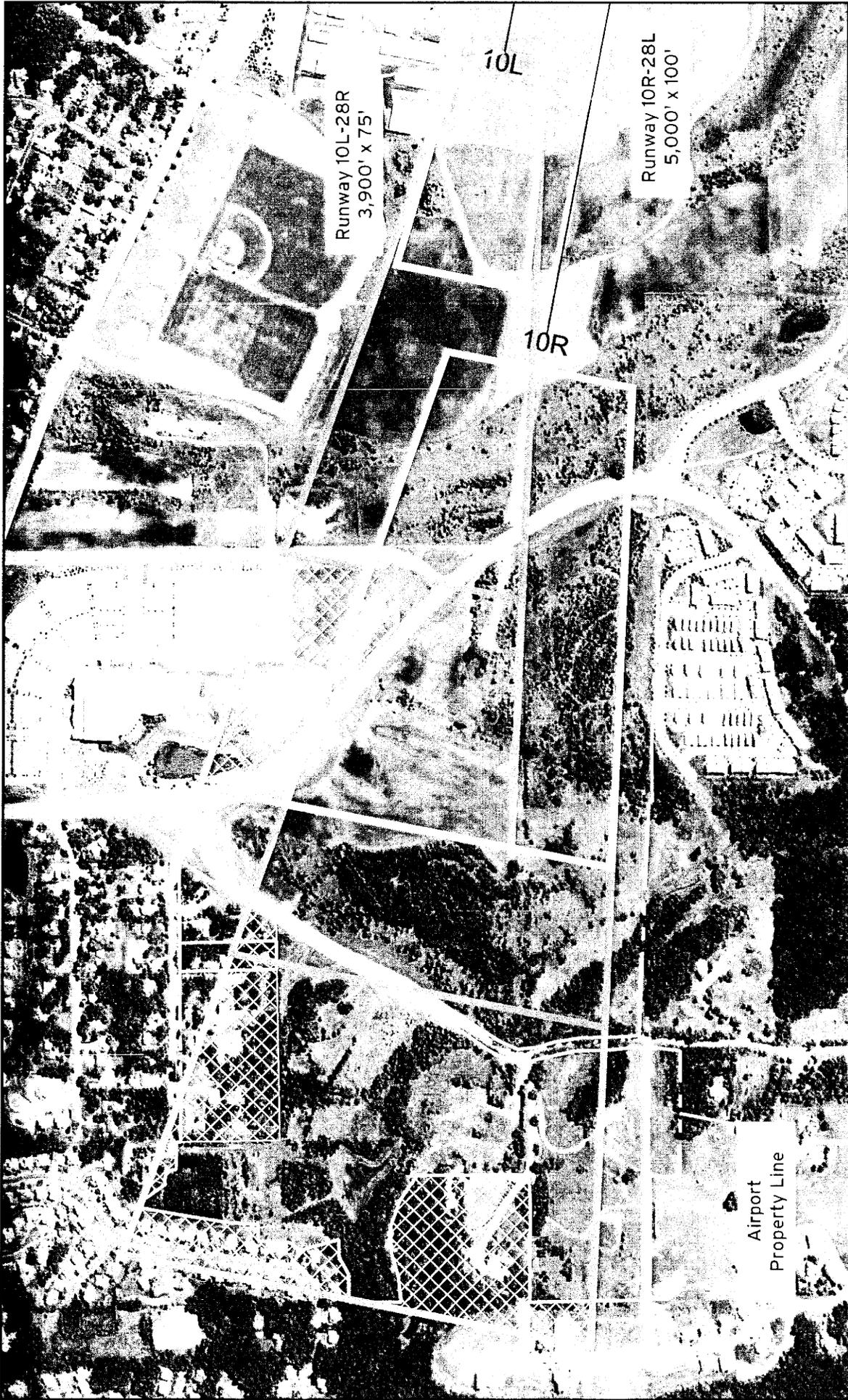
Runway 18-36
2,800' x 75'

Airport
Property Line

——— Mn/DOT State Safety Zone B
 ——— Mn/DOT State Safety Zone A
 Outside Runway Protection Zone

 Rwy 36 Arrivals
 Rwy 18 Departure

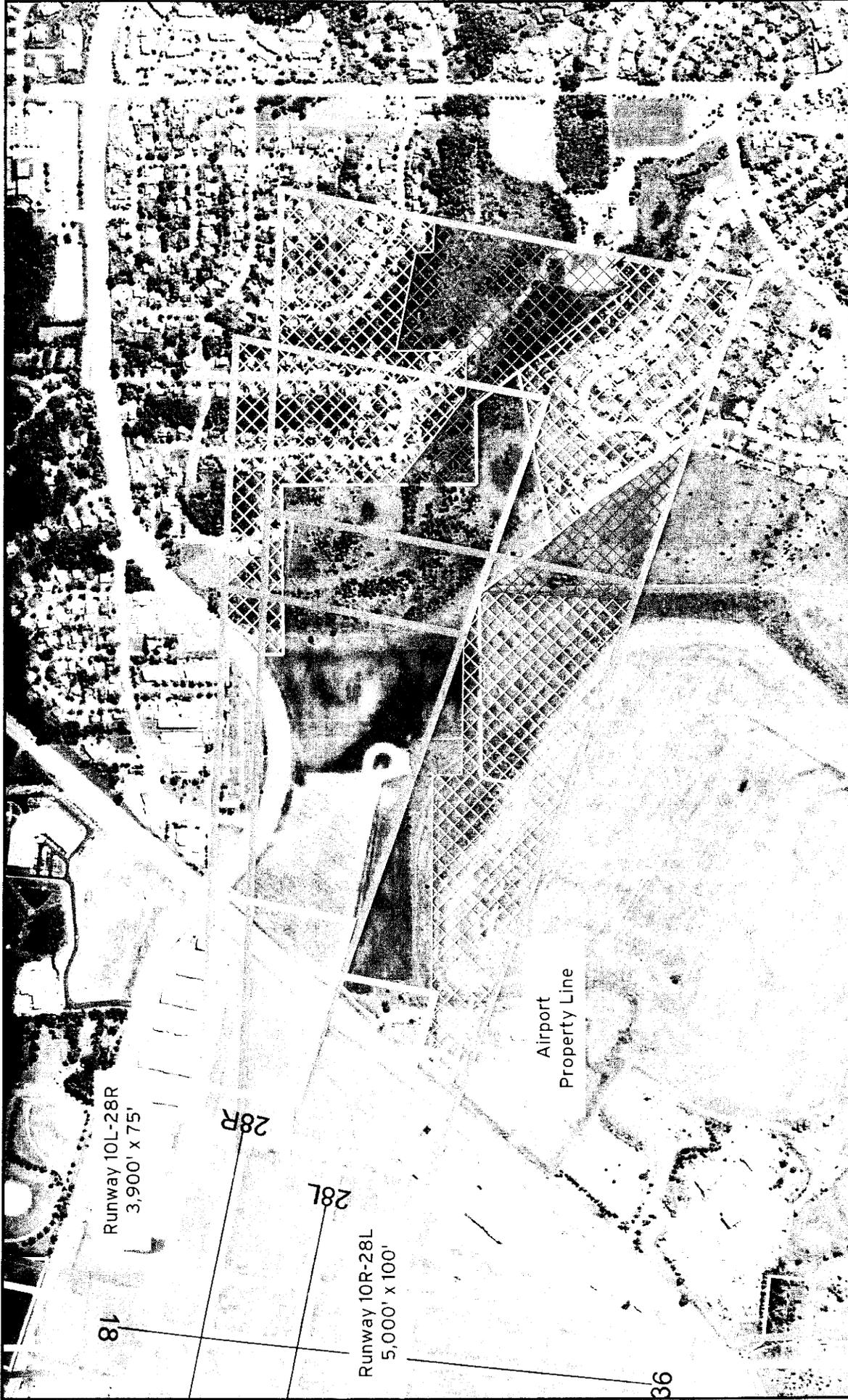
Figure 6: Historic National GA Arrival and Departure Accident Locations Superimposed on Runway 36 End
 Source: California Land Use Compatibility Handbook 01/2002
 Aerial Photo: 2008



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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> — FAA Runway Protection Zone — Mn/DOT State Safety Zone A — Outside Runway Protection Zone — Mn/DOT State Safety Zone B | <ul style="list-style-type: none"> Residential Land Use Church / Cemetery Land Use Park / Open Space Land Use Industrial Land Use |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Figure 7: Occupant Areas in State Safety Zones at Runway 10R & 10L Ends

Source: Land Use Guide Plan Map 2030,
Eden Prairie Comprehensive Plan Update 2007
Aerial Photo: 2008



- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <p>— FAA Runway Protection Zone</p> <p>— Mn/DOT State Safety Zone A</p> <p>— Outside Runway Protection Zone</p> <p>— Mn/DOT State Safety Zone B</p> | <p>Residential Land Use</p> <p>Church / Cemetery Land Use</p> <p>Park / Open Space Land Use</p> <p>Industrial Land Use</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|

Figure 8: Occupant Areas in State Safety Zones at Runway 28L & 28R Ends

Accident Probability Analysis Flying Cloud Airport (FCM)

JAZB Presentation
November 19, 2009

HNTB

Minnesota Law, Chapter 360.066, Subdivision 1

“Reasonableness Standards of the commissioner defining airport hazard areas and the categories of uses permitted and airport zoning regulations adopted under sections 360.011 to 360.076, shall be reasonable, and none shall impose a requirement or restriction which is not reasonably necessary to effectuate the purposes of sections 360.011 to 360.076. *In determining what minimum airport zoning regulations may be adopted, the commissioner and a local airport zoning authority shall consider, among other things, the character of the flying operations expected to be conducted at the airport, the location of the airport, the nature of the terrain within the airport hazard area, the existing land uses and character of the neighborhood around the airport, the uses to which the property to be zoned are planned and adaptable, and the social and economic costs of restricting land uses versus the benefits derived from a strict application of the standards of the commissioner.*”

HNTB

Calculation of Accident Probability

- Probability of accident in FCM Area Z = (FCM historical accident rate) x (2025 forecast operations at runway end) x (% of historical accidents located in Area Z)
- Will not predict fatalities

HNTB

Eight Step Methodology

1. Determine appropriate data considering MN Statute
2. Identify applicable probability standard
3. Define the areas to be analyzed
4. Compile accident data to determine accident rates and locations
5. Distribute location data to the areas being analyzed
6. Determine 2025 operations for each runway end
7. Calculate the accident probabilities in study areas
8. Compare the accident probabilities to the applicable probability standard

HNTB

Character of FCM Flying Operations

- FCM role – Minor Airport – divert GA operations from MSP
- FCM has ATCT and ILS
- Based Aircraft
 - 2007 - 6% jets; 80% SEP
 - 2025 - 15% jets; 71% SEP
- NTSB records show jets with fewer accidents than SEP

HNTB

FCM Location and Nature of Terrain

- FCM location is generally good for airport operations
 - no features that cause substantive turbulence or adverse wind conditions
- Flat terrain off primary runway ends
- Standard approach and departure procedures
 - higher than normal climb and descent rates are not needed

HNTB

Appropriate Data

- NTSB 20-year GA accident rates based on all types of GA airports
 - not representative of FCM characteristics
 - NTSB rates based on flight hours
- Use available data specific to FCM
 - FCM accidents and operations

HNTB

Applicable Probability Standard

- FAA uses a threshold probability of one collision per 10 million occurrences
- Study uses 1.0 accidents per 10 million operations as the applicable probability standard, i.e., the FAA Collision Standard

HNTB

Analysis Areas

- The area within the airfield and the RPZ
- Mn/DOT Safety Zone A outside the RPZ
- Mn/DOT Safety Zone B
- Off airport

HNTB

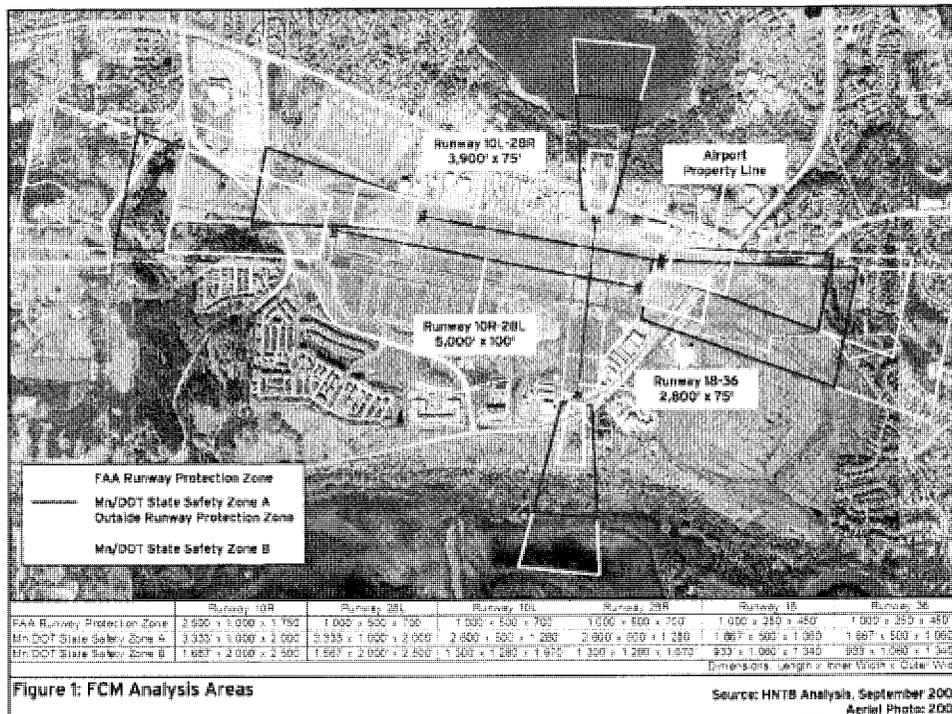


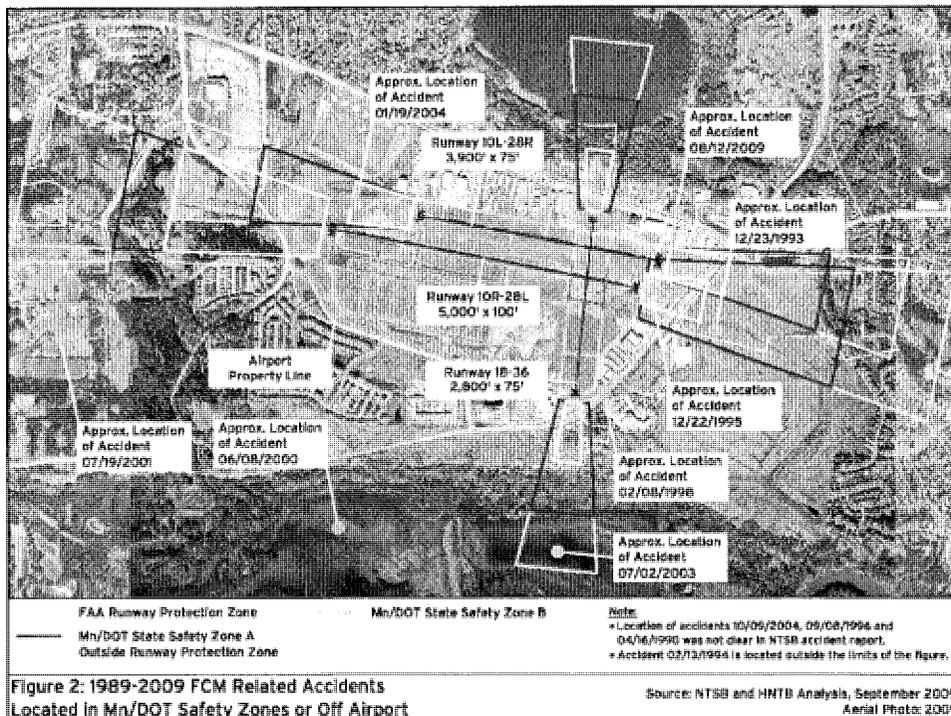
Figure 1: FCM Analysis Areas

Source: HNTB Analysis, September 2009
Aerial Photo: 2009

FCM Accident Rate

- NTSB reports accident rates for past 20 years
- Accident is an FCM operation that results in substantial aircraft damage or serious injury from collision with the ground
- 28 accidents and 3,711,200 operations from 1989 to 2008
- 0.75447 accidents per 100,000 operations
- Two accidents within RPZs, one in a State Safety Zone A outside the RPZ and one in a State Safety Zone B

HNTB



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Number of Accidents and Accident Rates at FCM (1989 – 2008)

Year	All Aircraft		
	No. of Accidents	No. of Operations (x 100,000)	Accidents per 100,000 Operations
1989	1	2.077 ^c	0.481
1990	3	2.274	1.319
1991	1	1.865	0.536
1992	0	1.983	0.0
1993	1	2.186	0.457
1994	1	2.390	0.418
1995	3	2.163	1.387
1996	2	2.127	0.940
1997	1	1.982	0.505
1998	3	2.109	1.422
1999	2	1.927	1.038
2000	2	1.861	1.075
2001	2	1.856	1.078
2002	0	1.764	0.0
2003	1	1.558	0.642
2004	2	1.596	1.253
2005	1	1.577	0.634
2006	1	1.442	0.694
2007	1	1.182	0.846
2008	0	1.191	0.0
Total	28	37.112	
Average Accident Rate			0.75447

HNTB

Location and Distribution of Accidents

- Need total number of historical accidents for each runway end and % of total located in the analysis areas
- Based on Berkeley Study and Caltrans Airport Land Use Planning Handbook, January 2002
- Berkeley Study did not determine total accidents – only determined accident locations with land use compatibility implications from NTSB 1983 – 1992 accident records

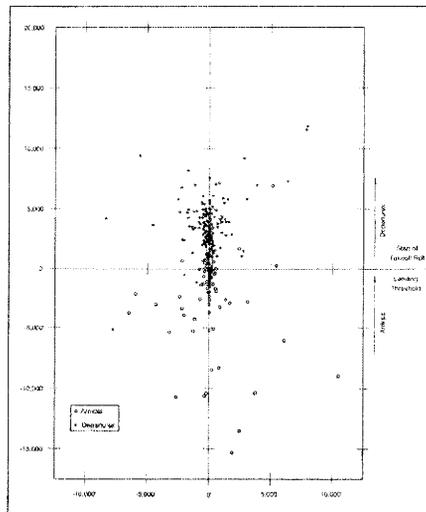
HNTB

Location and Distribution of Accidents

- Caltrans compiled 1990 – 2000 NTSB accident records and found 68% on airport, 3% en route and 29% in airport vicinity
- Berkeley Study found the number and location of GA accidents vary by runway length
 - Runways 6,000' and longer
 - Runways 4,000' to 5,999'
 - Runways less than 4,000'
- Applied the Caltrans 29% to the Berkeley data to determine the total for each runway end

HNTB

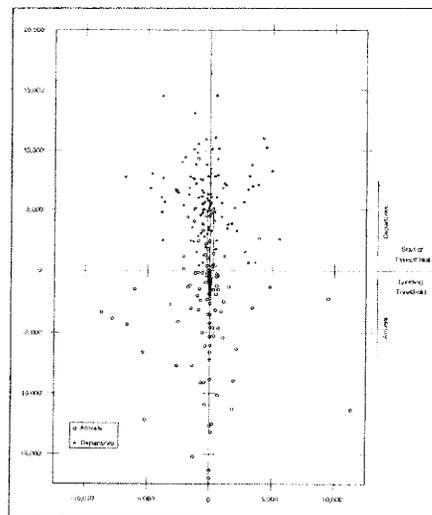
Figure D



Accidents on Runways of Less than 4,000 Feet

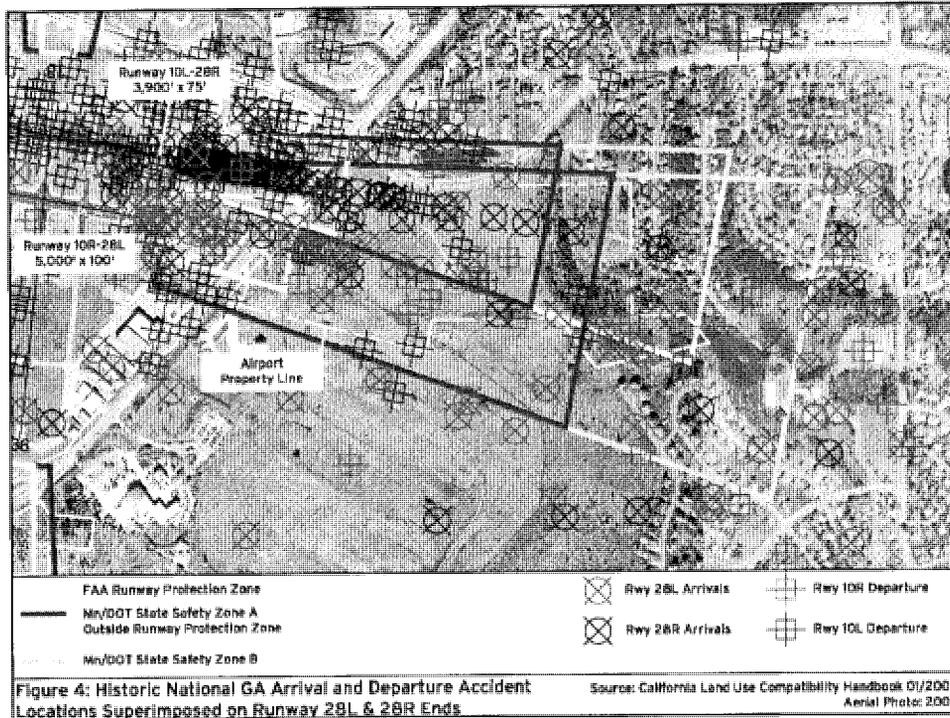
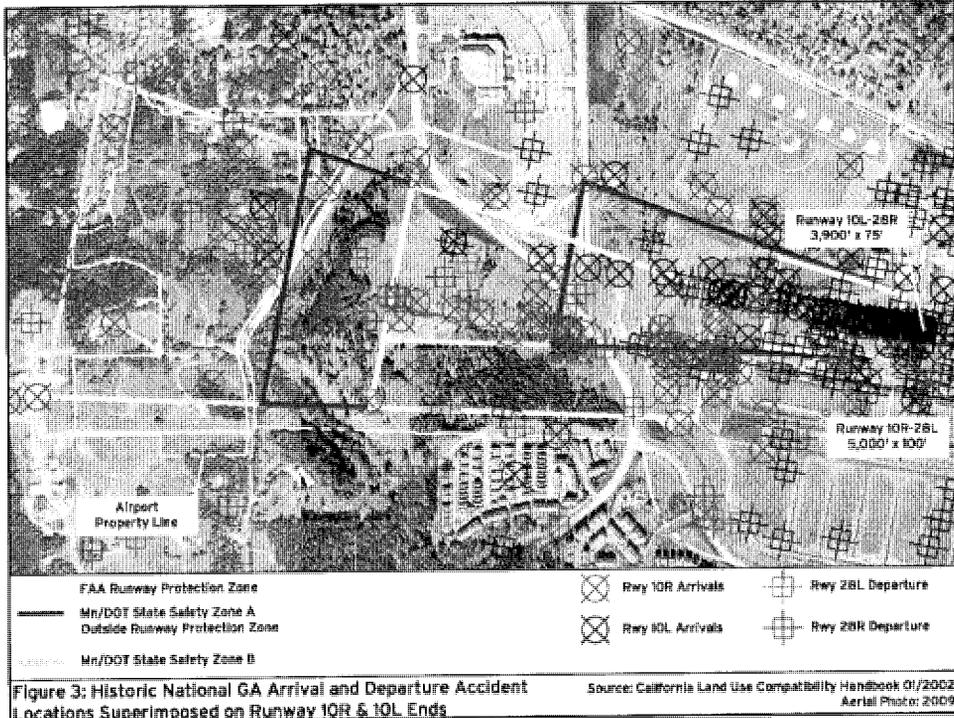
California Airport Land Use Planning Handbook, January 2000

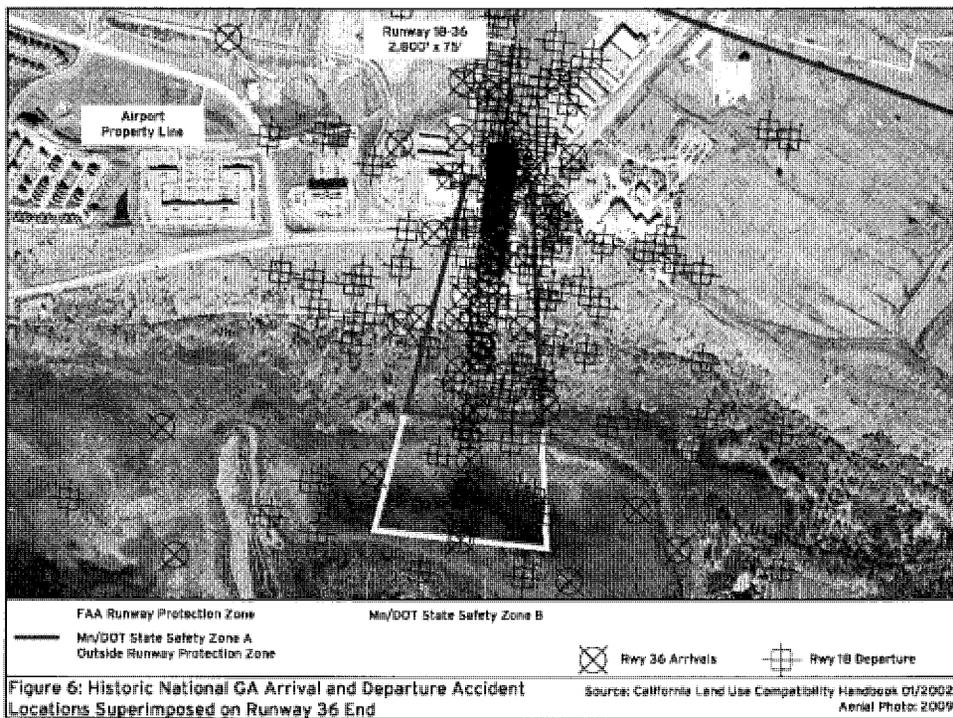
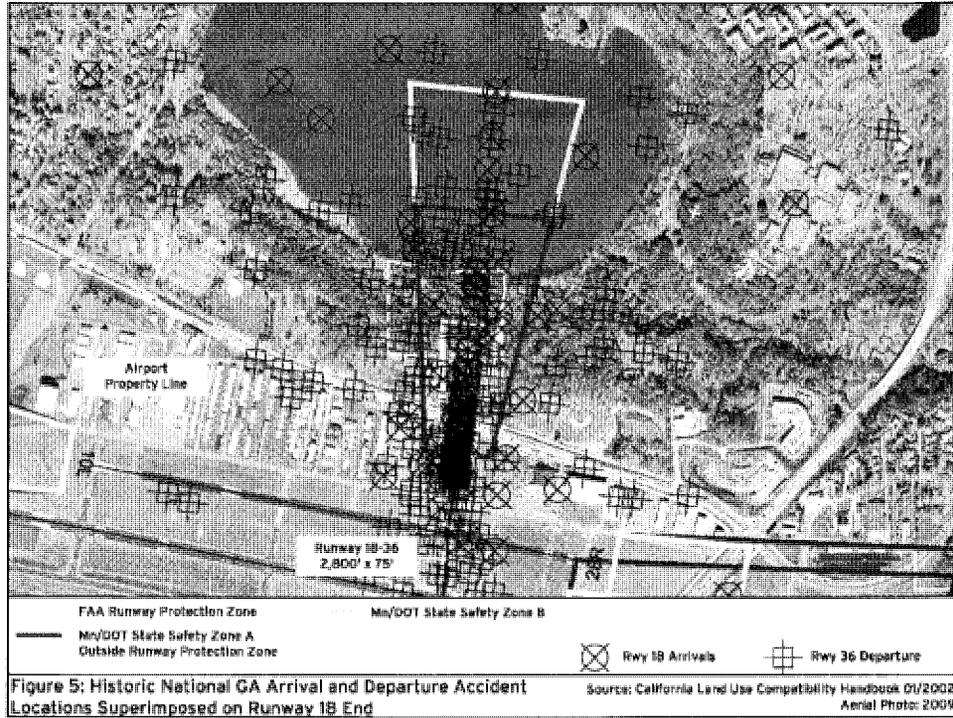
Figure E



Accidents on Runways of 4,000 to 5,999 Feet

California Airport Land Use Planning Handbook, January 2000





Determination of Number of Accidents at Runway End

Runway Length	Runway End	Airport Vicinity (29%)	Total	En Route (3%)	On Airport (68%)	On Airport + RPZ
Figure D (Less than 4,000)	18	204	703	21	478	535
	36	211	728	22	495	552
Figure D Combined with Figure E (4,000 – 5,999 ft.)	10L	357	1,231	37	837	893
	10R	357	1,231	37	837	891
Figure D Combined with Figure E	28R	399	1,376	41	936	995
	28L	401	1,383	41	940	959

HNTB

Distribution of Accident Locations

Runway End	On Airport + RPZ		State Safety Zone A - outside RPZ		State Safety Zone B		Off Airport		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
10R	891	74.63	7	0.59	17	1.42	279	23.36	1,194	100
28L	959	71.52	149	11.11	19	1.42	214	15.95	1,341	100
10L	893	74.79	38	3.18	21	1.76	242	20.27	1,194	100
28R	995	74.52	34	2.55	11	0.82	295	22.10	1,335	100
18	535	78.46	33	4.84	15	2.20	99	14.51	682	100
36	552	78.18	33	4.68	15	2.13	106	15.02	706	100

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FCM 2025 Forecast

Runway	Arrivals	Departures	Total Operations at Runway End
10R	11,299	10,055	24,309
28L	14,759	13,009	24,814
10L	6,439	9,210	19,128
28R	11,759	12,689	20,969
18	9,078	8,599	12,454
36	3,605	3,376	12,204
Total	56,938	56,938	113,877

HNTB

Probability of an Accident in Runway End Analysis Areas in 2025

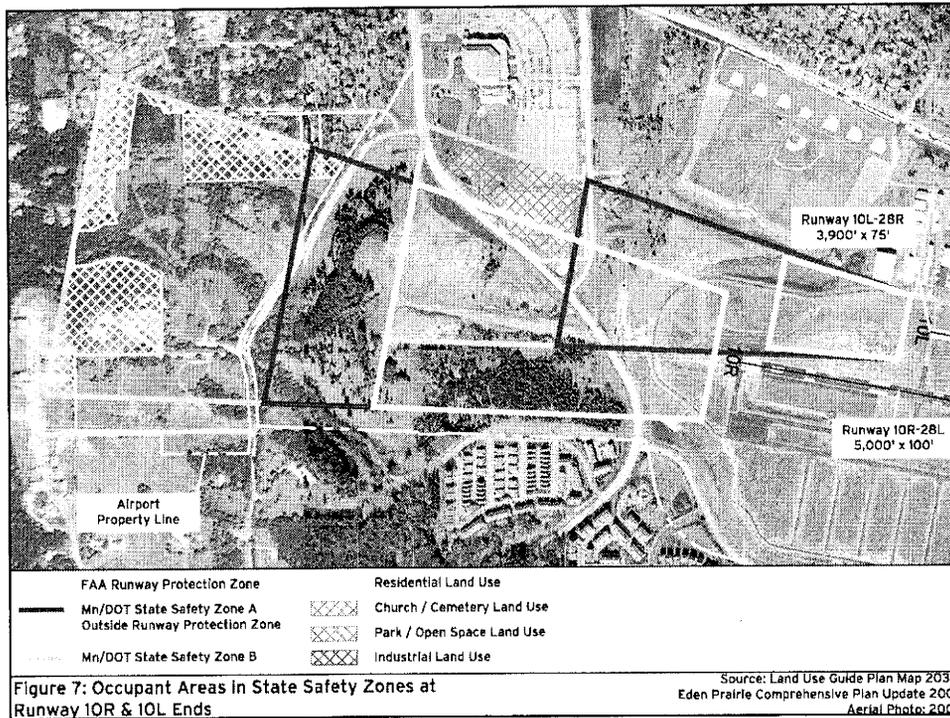
Runway End	2025 Forecast of Operations	On Airport + RPZ	State Safety Zone A - outside RPZ	State Safety Zone B	Off Airport	Total
10R	43,437	0.24456 (4 yrs.)	0.00192 (521 yrs.)	0.00467 (214 yrs.)	0.07657 (13 yrs.)	0.32772 (3 yrs.)
28L	45,783	0.24704 (4 yrs.)	0.03837 (26 yrs.)	0.00489 (204 yrs.)	0.05511 (18 yrs.)	0.34542 (3 yrs.)
10L	43,437	0.24511 (4 yrs.)	0.01043 (96 yrs.)	0.00576 (174 yrs.)	0.06642 (15 yrs.)	0.32772 (3 yrs.)
28R	45,783	0.25742 (4 yrs.)	0.00880 (114 yrs.)	0.00285 (351 yrs.)	0.07635 (13 yrs.)	0.34542 (3 yrs.)
18	12,454	0.07372 (14 yrs.)	0.00454 (220 yrs.)	0.00207 (484 yrs.)	0.01363 (73 yrs.)	0.09396 (11 yrs.)
36	12,204	0.07198 (14 yrs.)	0.00431 (232 yrs.)	0.00196 (511 yrs.)	0.01383 (72 yrs.)	0.09207 (11 yrs.)

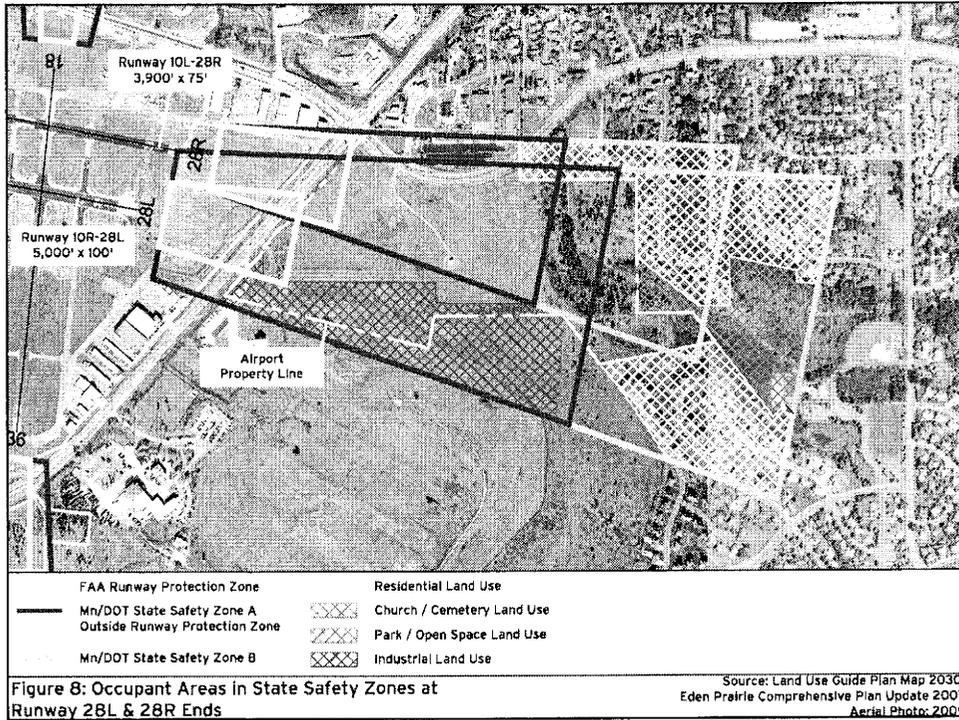
HNTB

Minnesota Law, Chapter 360.066, Subdivision 1

"Reasonableness Standards of the commissioner defining airport hazard areas and the categories of uses permitted and airport zoning regulations adopted under sections 360.011 to 360.076, shall be reasonable, and none shall impose a requirement or restriction which is not reasonably necessary to effectuate the purposes of sections 360.011 to 360.076. *In determining what minimum airport zoning regulations may be adopted, the commissioner and a local airport zoning authority shall consider, among other things, the character of the flying operations expected to be conducted at the airport, the location of the airport, the nature of the terrain within the airport hazard area, the existing land uses and character of the neighborhood around the airport, the uses to which the property to be zoned are planned* and adaptable, and the social and economic costs of restricting land uses versus the benefits derived from a strict application of the standards of the commissioner."

HNTB





Probability of an Accident in Existing and Planned Occupant Areas in 2025

Runway End	2025 Forecast Per 100,000 Operations	State Safety Zone A outside RPZ		State Safety Zone B	
		Probability	Avg. Yrs. Between Accident	Probability	Avg. Yrs Between Accident
10R	0.43437			0.001098	910
28L	0.45783	0.0007727	1,294	0.002576	388
10L	0.43437			0.0005494	1,821
28R	0.45783			0.0007762	1,288

Comparison of Accident Probabilities to FAA Collision Standard

Runway End	On Airfield + RPZ	State Safety Zone A outside RPZ	State Safety Zone B	Off Airport	FAA Collision Standard
10R	56.30	0.44	1.07	17.63	1.00
10R Occupant Area			0.253		1.00
10L	56.43	2.40	1.33	15.29	1.00
10L Occupant Area			0.126		1.00

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Comparison of Accident Probabilities to FAA Collision Standard

Runway End	On Airfield + RPZ	State Safety Zone A outside RPZ	State Safety Zone B	Off Airport	FAA Collision Standard
28L	53.93	8.38	1.07	12.04	1.00
28L Occupant Area		0.169	0.563		1.00
28R	56.23	1.92	0.62	16.68	1.00
28R Occupant Area			0.170		1.00
18	59.19	3.65	1.66	10.95	1.00
36	58.98	3.53	1.60	11.33	1.00

HNTB

FAA Risk Criteria

- Risk is the composite of predicted severity and likelihood of the potential effect of a hazard
- The likelihood of the most severe consequence (fatality) from an occurrence is:
 - “extremely remote” if the probability is equal to or less than 1 in 10,000,000 operations; and is
 - “extremely improbable” if it occurs less than once every 100 years

HNTB

FAA Risk Criteria

- Likelihood of fatality from an accident in existing and planned occupant areas in Safety Zone A outside the RPZ and Safety Zone B at each runway end is either “extremely remote” or “extremely improbable” based on the FAA criteria
 - Each is less than 1 in 10,000,000 operations and would occur less than once every 100 years
 - Assumes 100% of the analysis area is fully developed and there is at least one fatality from each accident (very conservative assumptions)
- Least occurrence in a safety zone occupant area is 388 years, which is 0.26 occurrences every 100 years

HNTB

Findings

HNTB

Character of Flying Operations Expected at FCM

- Character of flying operations is based on the types of aircraft, the purposes of their operations and safety records
- Fewer accidents by jet aircraft than single engine piston (SEP) aircraft
- Expected proportion of based aircraft at FCM in 2025 is 15% jets and 71% SEP
- FCM provides facilities and services to attract and serve corporate aircraft that require a runway less than or equal to 5,000 feet
- Accident rates and associated probabilities directly related to the character of flying operations at a given airport

HNTB

FCM Location and Nature of Terrain in Safety Zones A & B

- Airport location generally good for airport operations; no features that cause substantive turbulence or adverse wind conditions
- State Safety Zones A and B overlay relatively flat terrain to the west and east, the Minnesota River Valley to the south, and Staring Lake to the north
- Standard approach and departure procedures
- Normal climb and descent rates
- Location and terrain around the airport do not pose safety risks

HNTB

Probability of Accident in Safety Zone A Outside RPZ

- The average number of years between an accident at the runway ends varies from 26 years for the Runway 28L end to 521 years for the Runway 10R end, assuming the 2025 forecast operations at the runway ends remain constant
- Assuming an above-ground object equal to the total size of Zone A outside the RPZ, the probability of an aircraft accident at the Runway 10R end in 2025 is less than the FAA Collision Standard of 1.0 accidents per 10,000,000 operations and greater than the Standard at the Runway 18, 36, 10L, 28R and 28L ends
- There is a higher probability of an aircraft accident/crash in the Off Airport area than in Safety Zone A outside the RPZ at each runway end

HNTB

Probability of Accident in State Safety Zone B

- The average number of years between an accident at the runway ends varies from 174 years for the Runway 10L end to 511 years for the Runway 36 end, assuming the 2025 forecast operations at the runway ends remain constant
- Assuming an above-ground object equal to the total size of Zone B, the probability of an aircraft accident at the Runway 28R end in 2025 is less than the FAA Collision Standard of 1.0 accidents per 10,000,000 operations and greater than the Standard at the Runway 18, 36, 10L, 10R and 28L ends
- There is a higher probability of an aircraft accident/crash in the Off Airport area than in Safety Zone B at each runway end

HNTB

Probability of Accident in Occupant Areas in State Safety Zones

- Minnesota Law states that the purpose of the Mn/DOT safety standards is to protect the lives and property of users of the airport and of occupants of land in its vicinity.
- The probabilities of an aircraft accident in the areas where people could use/occupy the land based on the Land Use Guide Plan Map 2030 in the Eden Prairie Comprehensive Plan Update 2007 are as follows:
 - 0.253 per 10,000,000 operations in Rwy 10R Safety Zone B
 - 0.169 per 10,000,000 operations in Rwy 28L Safety Zone A
 - 0.563 per 10,000,000 operations in Rwy 28L Safety Zone B
 - 0.126 per 10,000,000 operations in Rwy 10L Safety Zone B
 - 0.170 per 10,000,000 operations in Rwy 28R Safety Zone B
- These probabilities are well below the FAA Collision Standard of 1.0 accidents per 10,000,000 operations.

HNTB

Likelihood of Fatality in Occupant Areas in State Safety Zones

- The least accident occurrence in an occupant area in a State Safety Zone is 388 years, which is 0.26 occurrences every 100 years
- The likelihood of a fatality from an accident in the occupant areas in the Safety Zones is “extremely remote” based on FAA Risk Criteria – since the probability of each accident is less than 1.0 per 10,000,000 operations and “extremely improbable” since it would occur less than once every 100 years

HNTB

Accident Severity and Pilot Control

- Potential severity of off-airfield accident highly dependent upon nature of land use at accident site
 - Intensity, type and sensitivity of use
- Uses that attract large assembly of people are the most severe
- Uses populated 24 hours a day, 365 days a year (e.g., hospitals and nursing homes) more likely to result in fatality
- The Berkeley study found that the pilot had control of the aircraft in 95 percent of the accidents that occurred in the vicinity of GA airports – only 5 percent had no control

HNTB

Conclusion

- The findings of this study suggest that strict application of the Mn/DOT Modeling Zoning Ordinance is not required to provide a reasonable standard of safety around FCM; however, they also suggest that consideration be given to land use controls beyond what might otherwise be adopted when the accident probability is less than 1 in 10 million operations

HNTB

Discussion

HNTB

November 13, 2009

Memo

To: Scott H. Neal, City Manager

From: Michael D. Franzen, City Planner
Scott Kipp, Senior Planner

Subject: FCM PROPOSED LAND DEVELOPMENT SITES – STAFF ANALYSIS

BACKGROUND

This analysis is completed independent of safety zones. The analysis is a comparison to code requirements and the guide plan.

SITE 1

- This site is 6.53 acres.
- It is relatively flat.
- It is adjacent to existing commercial and industrial uses.
- Commercial, office or industrial uses would be compatible.
- The proposed building footprint (113,778sf) is a 40 site coverage. It would require a two story building and structured parking to meet parking requirements and setbacks.
- A one story footprint (57,150 sf) could meet parking and setbacks.

SITE 2

- This is a 2 acre site.
- It is relatively level.
- It is adjacent to airport property.
- There is a City park across the street.
- Office or industrial uses would be compatible.
- The propose building footprint (36,416) is a 40 % site coverage. It would require a two story building and structured parking to meet setback and parking requirements.
- A one story footprint (28,575 sf) could meet parking and setbacks.

SITE 3

- This is a 11 acre site.
- Commercial development not permitted under terms of 2002 Final Agreement
- Future site of Flying Cloud Fields
- It is relatively level to gently rolling.
- It is adjacent to airport property and residential to the north.

- The propose building footprint (82,000 sf) is a 18 % site coverage. There is enough room to meet parking and setback requirements.

SITE 4

- This is a 56.86 acre site.
- East of Eden Prairie Road there is a steep slope for most of the area. Excessive grading and retaining walls would be need to create level building areas. It is adjacent to airport property. West of Eden Prairie Road the slope is moderate but would require grading and retaining walls to provide a level building area.
- East of Eden Prairie Road is the Airport. West of Eden Prairie Road is residential. There is a City park across the street.
- Office uses would be compatible.
- The propose building footprint (1,486,093 sf) is a 60% site coverage. It would require a multi story buildings and structured parking to meet setback and parking requirements.
- A one story footprint (445,872 sf) could meet parking and setbacks. This footprint will be less due to slopes and the need to transition to residential areas to the west.

SITE 5

- This is a 10.5 acre site.
- Portion not permitted under 2002 Final Agreement
- Future site of Cedar Hills Park
- It is relatively level to gently rolling.
- It is adjacent to airport property and residential to the west and south.
- Park use and Residential would be compatible.
- The guide plan would allow up to 2.5 units per acre or 26 units. This amount will be somewhat less due to topography.

SITE 6

- This is a 5.04 acre site.
- It is a steep slope and significant grading and retaining walls would be need to provide level building area.
- This is Airport property to the north and office to the south.
- Office uses would be compatible.
- The propose building footprint (87,816 sf) is a 40% site coverage. It would require a multi story buildings and structured parking to meet setback and parking requirements.
- A one story footprint (43,908 sf) could meet parking and setbacks. This footprint will be less due to slopes.

SUMMARY

1. All of the proposed sites will require a guide plan change and rezoning through a public hearing process.
2. Most of the uses proposed are not compatible with surrounding existing uses.
3. The 1.8 million square feet of development will have impacts on roads and intersections and may require improvements based on a traffic study.
4. The 1.8 million square feet of development will have sewer and water capacity.
5. The amount of development proposed is more than the code would permit.
6. The amount of development will be less than proposed due to topography.
7. The amount of development proposed will require multistory buildings and structures parking to meet setback and parking requirements.

Airport Zoning Ordinances that Deviate from State of Minnesota Airport Zoning Standards

Minnesota Rules 8800.1200-8800.2400

136 publicly owned airports

MAC Airports excluded

Deviation from Strict Application of MN Standards – 13%

Irregularly shaped safety zones
Safety zones that total less than the full length of runway
Density restriction in Zone B not in accordance with standards
Trapezoidal width not in accordance with standards
Zone C with two horizontal surface heights (i.e, 100' and 150')

Deviation from practice or policy – 14.6%

Zoned for Precision on one end/Non-Precision on the other
Runway extension before ordinance update – zoned for an insufficient length
Crosswind not zoned

Deviation from procedure – 3%

Ordinance unfiled with County
Zoned without Commissioner's Order
Inconsistent multiple zoning ordinances for each jurisdiction at one airport

Exceeds Standards – 10.8%

Exceed density restrictions in Zone B
Zoned for additional length
Greater land use restrictions than standard
Additional Zones – Noise, B1
Updated ordinance keeping more restrictive Rules (i.e 100' horizontal surface)

Note: Ordinances were reviewed using MN Rules in effect at the time the ordinance was adopted.



Minnesota
Department of Transportation
Transportation Building
St. Paul, Minnesota 55155

Phone _____

LAND USE SAFETY ZONING

- A. PURPOSE: To encourage those land uses that are safely compatible with the airport.
1. Airports and that area within one mile of an airport represents 1/2 of one percent of the land mass in Minnesota, and about 70% of recorded aircraft accidents are occurring within that small percentage of area.
 2. Accidents on or within one mile of an airport occur during takeoff or landing operations, when aircraft are operating at lower altitudes and near critical stall speeds.
 3. A pilot's options as to where to make a forced landing become extremely limited when operating at low altitudes and slower speeds.
 4. In the interest of safety, open spaces to accommodate forced landings should be encouraged in areas where aircraft are known to be operating at these critical speeds and altitudes, i.e. approach areas to airport runways.
- B. CONCEPT OF LAND USE SAFETY ZONE SIZE
1. Width -- Federal Aviation Regulations, Part 77.
 2. Flared Sides -- Federal Aviation Regulations, Part 77.
 3. Length -- Proportioned to runway length.
 - a. Longer runways attract more activity.
 - b. Longer runways attract larger more sophisticated aircraft.
 - c. The larger the aircraft and the more the activity, the greater the frequency of longer and flatter approaches and departures.
- C. CONCEPT OF SEGMENTS
1. On an approach or departure, the closer the operation is to the runway, the more critical the situation because of diminished altitude and speed.
 2. Logic then follows that land use safety restrictions can transition from very restrictive (Zone A) to no restrictions.
 3. Reality dictates that due to the complexities of zoning the number of transitions be limited to one. (Zone B)

D. CONCEPT OF USE RESTRICTIONS

1. Zone A. Critical area. A troubled aircraft in need of this area will normally have no maneuvering potential. From a safety standpoint, no development should be permitted.
2. Zone B. Transitional area. A troubled aircraft in need of this area will normally be operating with enough speed and altitude to provide some minor maneuvering potential in the straight ahead direction. From a safety standpoint, development should be controlled so as to provide reasonable open space in which to maneuver a forced landing.

E. MISCELLANEOUS CONSIDERATIONS

1. Why should runway length determine land use safety zone length?
 - a. The Minnesota zoning statute provides the authority to zone in the approach areas to runways out to a distance of two miles.
 - b. The longest runways in Minnesota are about two miles in length.
 - c. Tying runway length to land use safety zone length is consistent with law.
 - d. The longest runways maximize the use of the zoning authority, and shorter runways may use proportionately less of the zoning authority.
 - e. It's simple, reasonable, and equitable.
2. Why split Zone A and Zone B on a 2/3 - 1/3 ratio of runway length?
 - a. Most smaller Minnesota airports, particularly the smaller paved airports, have acquired clear zone protection out to a distance of 2000 feet from the primary surface.
 - b. Typically, the smallest airports having clear zone protection are airports with about a 3000 foot paved primary runway.
 - c. This well established airport situation tends to create a basis for determining an acceptable level of safety in the more simple case; 3000 foot runway with 2000 foot clear zone. That's a 2/3 ratio..
 - d. The area ratio of Zone A to Zone B more closely approximates a simple 50/50 split.

1973 Aircraft Accidents in Minnesota

In 1973 there were 13 fewer aircraft accidents than in 1972; 80 in 1973 and 93 in 1972, according to the Department's records. This is a 16% decline.

Fatal Accidents

A preliminary report by the National Transportation Safety Board (NTSB) on fatal aircraft accidents in 1973, quoted in Aviation Insurance News (February, 1974), shows an increase in fatal accidents but a decrease in fatalities. According to the NTSB preliminary figures, there were 701 fatal accidents and 1,340 fatalities. In 1972 there were 683 fatal accidents and 1,400 fatalities.

In Minnesota there were nine fatal accidents in 1973, the same number as in 1972. The number of fatalities decreased from 21 in 1972 to 18 in 1973. Since 1965 Minnesota has averaged nine fatal accidents and 15 fatalities per year.

According to the NTSB, there were .199 fatal general aviation accidents per million miles flown in 1972.¹ In Minnesota there were approximately .100 fatal general aviation accidents per million miles flown² in 1972.

Probable Causes of Aircraft Accidents³

There were 22 separate causes listed on the preliminary accident reports. The cause listed most frequently was power failure. Twelve

1 NTSB Annual Report to Congress, 1972. Appendix F, page 56.

2 Estimate of miles flown based on 1972 Aircraft Owner's Survey: Minnesota Department of Aeronautics.

3 Causes listed from MDA preliminary accident reports.

accidents (15% of the total) were attributed to power failure. The second most frequent cause was loss of directional control in a cross wind. This was given as the cause in nine accidents (11%). Seven accidents (9%) involved collisions with objects (trees, powerlines, etc.) while in flight. Table I summarizes the accidents by cause.

Location of Accidents

Thirty-three accidents (41%) happened at public use airports, two (2.5%) occurred at private strips, two (2.5%) on lakes and 43 (54%) happened away from an airport.

Aircraft Damage

Sixty-two Minnesota accidents (77%) resulted in substantial damage to the aircraft involved. In ten accidents (13%) the aircraft were destroyed. Seven accidents (9%) resulted in only minor damage and one accident involved no damage to the aircraft.

The reports of aircraft damage in the NTSB's Aircraft Accident Reports (brief format) for 1972 indicate that in 75% of the accidents there was substantial damage to the aircraft and in 24% the aircraft was destroyed. In .6% there was minor damage and in .4% there was no damage to the aircraft.

Phase of Operation

Landing was the phase of operation in which most accidents occurred in Minnesota, accounting for 38 accidents (48%). Twenty accidents (25%) happened in flight. Takeoffs accounted for 17 accidents (22%) and other phases (i.e. taxiing, etc.) accounted for four accidents (5%).

Forty-six percent of the accidents in the NTSB's Aircraft Accident Reports (brief format) for 1972 happened during the landing phase, 41% happened in flight, 17% during takeoff, and 5% in other operations such as taxiing.

In a special study of approach and landing accidents, the NTSB found that about 55% of all aircraft accidents over the past 15 years happened during the approach and landing phase of operation. Twelve and one-half percent of general aviation fatalities in a five-year period occurred during this phase of flight.⁴

Types of Aircraft

There were forty-seven different types of aircraft involved in the 80 accidents. No single type of aircraft accounted for more than seven accidents. The Cessna 180 was involved in seven accidents, the Cessna 150 in five and the PA-28 in four. Table II summarizes the accidents by type of aircraft for those types of aircraft involved in more than one accident.

⁴ Special Study Report on Approach and Landing Accident Prevention Forum. National Transportation Safety Board, 1972, page 1.

DEPARTMENT AERONAUTICS

Office Memorandum

TO : File

DATE: 11/17/75

FROM : D. J. Nybakken

SUBJECT: Aircraft Accident Data--Proximity to Airports

The following is a table summarizing data extracted from the NTSB "Annual Review of Aircraft Accident Data" for the years 1965 through 1973:

YEAR	ON AIRPORT	IN TRAFFIC PATTERN	0-1 MILE	1-2 MILES	2-3 MILES	3-4 MILES	4-5 MILES	OVER 5 MILES	UNKNOWN NOT REPORTED	TOTALS
1973	2035	170	413	143	117	67	50	1143	166	4304
1972	2037	239	369	152	130	107	51	1154	58	4297
1971	2353	241	329	131	129	108	27	1293	37	4648
1970	2338	296	350	137	116	100	40	1270	65	4712
1969	2362	455	230	136	116	88	39	1283	58	4767
1968	2556	602	178	151	119	72	25	1211	54	4968
1967	3642	394	259	150	128	91	30	1326	95	6115
1966	3433	240	346	143	106	94	28	1268	54	5712
1965	3107	155	301	81	53	38	17	1412	32	5196
TOTALS	23,863	2,792	2,775	1,224	1,014	765	307	11,360	619	44,719
%	53.36	6.24	6.21	2.74	2.27	1.71	.69	25.40	1.38	100%

65.81% of all aircraft accidents occur on or within one mile of airport property

**FLYING CLOUD AIRPORT
JOINT AIRPORT ZONING BOARD**

**Thursday, November 19, 2009
Eden Prairie City Center – Heritage Rooms 3 & 4
8080 Mitchell Road, Eden Prairie, MN**

MINUTES

Rick King, Chair, called the Flying Cloud Airport Joint Airport Zoning Board meeting to order at 3:05 p.m. The following were attendance:

Members: Rick King, Chair
Glen Markegard, City of Bloomington
Kate Aanenson, City of Chanhassen
Brad Aho, City of Eden Prairie
Jon Duckstad, City of Eden Prairie
Joseph Helkamp, City of Shakopee
Julie Klima, City of Shakopee
Molly Sigel, Metropolitan Airports Commission
Sherry Stenerson, Metropolitan Airports Commission

Others: Scott Neal, Scott Kipp, City of Eden Prairie; Audrey Wald, Larry Dallam, HNTB; Deb Sorenson, Mn/DOT; Glen Orcutt, Federal Aviation Administration; Chauncey Case, Metropolitan Council; Tom Anderson, Cameron Boyd, Jenn Felger, Roy Fuhrmann, Eric Johnson, Chad Leque, Dennis Probst, Bridget Rief, MAC Staff

1. APPROVAL OF MEETING AGENDA

IT WAS MOVED BY HELKAMP, SECONDED BY DUCKSTAD, TO APPROVE THE AGENDA AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

2. APPROVAL OF AUGUST 13, 2009 FCM JAZB MEETING MINUTES

IT WAS MOVED BY DUCKSTAD, SECONDED BY HELKAMP, TO APPROVE THE MINUTES OF THE AUGUST 13, 2009 FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD MEETING AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

3. REVIEW OF SAFETY STUDY FOR FLYING CLOUD AIRPORT

Larry Dallam, HNTB, gave a presentation on the Safety Study that was prepared for the Flying Cloud Airport as directed by the Board. Mr. Dallam reviewed the methodology used to calculate the accident probabilities and the results of the analysis.

Based on the analysis, Mr. Dallam presented the following findings:

- FCM's location and the terrain around the airport do not pose safety risks.
- Probability of Accident in Safety Zone A Outside RPZ: The average number of years between an accident at the runway ends varies from 26 years for Runway 28L end to 521 years for the Runway 10R end, assuming the 2025 forecast operations at the runway ends remain constant.
- Assuming an above-ground object equal to the total size of Zone A outside the RPZ, the probability of an accident at the Runway 10R end in 2025 is less than the FAA Collision Standard of 1.0 accidents per 10,000,000 operations and greater than the Standard at the Runway 18, 36, 10L, 28R and 28L ends.
- There is a higher probability of an aircraft accident/crash in the Off Airport area than in Safety Zone A outside the RPZ at each runway end.
- Probability of Accident in Safety Zone B: The average number of years between an accident at the runway ends varies from 174 years for the Runway 10L end to 511 years for the Runway 36 end, assuming the 2025 forecast operations at the runway ends remain constant.
- Assuming an above-ground object equal to the total size of Zone B, the probability of an aircraft accident at the Runway 28R end in 2025 is less than the FAA Collision Standard of and greater than the Standard at the Runway 18, 36, 10L, 10R and 28L ends.
- There is a higher probability of an aircraft accident/crash in the Off Airport area than in Safety Zone B at each runway end.
- Probability of Accident in Occupant Areas in State Safety Zones: The probabilities of an aircraft accident in the areas where people could use/occupy the land based on the Eden Prairie Comprehensive Plan are as follows:
 - 0.253 per 10,000,000 operations in Runway 10R Safety Zone B
 - 0.169 per 10,000,000 operations in Runway 28L Safety Zone A
 - 0.563 per 10,000,000 operations in Runway 28L Safety Zone B
 - 0.126 per 10,000,000 operations in Runway 10L Safety Zone B
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- These probabilities are well below the FAA Collision Standard of 1.0 accidents per 10,000,000 operations.
- The lowest accident occurrence in an occupant area in a State Safety Zone is 388 years, which is 0.26 occurrences every 100 years.
- The likelihood of a fatality from an accident in the occupant areas in the Safety Zones is "extremely remote" based on FAA Risk Criteria since the probability of each accident is less than 1.0 per 10,000,000 operations and "extremely improbable" since it would occur less than once every 100 years.
- Accident Severity and Pilot Control: Potential severity of off-airfield accident highly dependent upon nature of land use at accident site.

Mr. Dallam concluded his presentation by stating that the findings of the study suggest that strict application of the Mn/DOT Model Zoning Ordinance is not required to provide a reasonable standard of safety around FCM, however it is suggested that consideration be given to land use controls beyond what might otherwise be adopted when the accident probability is less than 1 in 10 million operations.

During the presentation, Board members asked questions regarding the data used in the Berkeley study, the number of operations for FCM from 1989 to 2008 (3,711,200), and whether the Board will consider areas in the vicinity of the airport or if they are limited to the safety zones at the ends of the runway. Chair King clarified that the Board's scope is Safety Zones A and B and that the Board has no jurisdiction in the other areas surrounding the airport.

Discussion also occurred regarding the potential for a reduced accident rate in the future due to airport improvements and aircraft technology and whether there is any correlation in the Berkeley Study with those pilots maintaining control and the location of impact.

Chair King clarified that HNTB's recommendation is that there seems to be some flexibility around the standard Mn/DOT model for zoning and that land use controls in those areas be considered by the Board.

4. REVIEW OF POTENTIAL MAC PROPERTY DEVELOPMENT

Eric Johnson, MAC staff, reviewed the available land around the airport that is MAC owned and development opportunities associated with those properties. He noted that the potential options do not take into account all of the safety zone issues but rather looks at the best potential development opportunities around the airport without consideration of airport zoning issues.

Mr. Johnson reviewed the various areas for potential development and responded to questions from the Board. It was noted that some of the properties are not located in the safety zones. He stated that there are ongoing discussions with the City regarding the ballfields. Staff will be meeting with the FAA for their feedback since based on the appraisals, some of the proposed land rents are significantly higher than what the City is currently paying. Staff would like to talk to the FAA regarding their views as to the value of good will of the City keeping the use of the ballfields and if the potential for commercial development to incur more sizeable land rent could offset the City rent costs.

Scott Kipp, City of Eden Prairie staff, distributed a memo to the Board regarding the development options outlining the City's concerns and requirements. He noted that the memo was based on an earlier version of the development options.

Chair King stated that further work between the City and MAC is required. He requested that the two groups get together before the next meeting to discuss the issues taking into account the 2002 agreement between the City and the MAC. The Board agreed.

5. Mn/DOT REPORT

Deb Sorenson, Mn/DOT, presented information regarding the technical data behind the Model Ordinance Safety Zone dimensions and development restrictions. She stated that the safety zones were based not on the probability of an accident happening but rather on having space available when an accident did happen. The intent of the legislation is to encourage compatible land uses. Ms. Sorenson provided background information on how the lengths of the zones in the model ordinance were determined.

Ms. Sorenson also reported on the State Zoning Ordinances that deviate from the State Airport Zoning Standards. She noted that out of 136 publicly owned airports (MAC airports excluded), approximately 13% of the ordinances deviate from the strict standards of the Model Ordinance, 14.6% deviate from practice or policy, 3% deviate from procedure, and 10.8% exceed the standards. It was noted that MSP and Crystal airports deviate from the standards. Dennis Probst, MAC staff, reported that zoning is in place at 3 of the MAC owned airports (MSP, Crystal, and Lake Elmo). The St. Paul Downtown Airport zoning process is currently underway and MAC intends to update the Crystal and Lake Elmo ordinances as well as develop ordinances for Anoka County-Blaine and Airlake airports.

6. NEXT MEETING

Chair King discussed the accident probability ratios at FCM which differ from STP and MSP. Mr. Leque discussed the reasonableness outlined in State Statutes and stated that work needs to be done to determine the social and economic impacts by any ordinance that is implemented. He indicated additional land use work needs to be done to get a better picture of potential developments that could go forward without any zoning impacts and then determine what zoning is required to strike a reasonable balance to maintain the economic viability while maintaining a reasonable standard of safety. He stated the information that was provided in the safety study is very helpful in framing various options for the Board's consideration. Mr. Aho stated that the previous agreement between the MAC and the City must also be taken into consideration.

Mr. Kipp clarified that the Board's focus will be on the safety zones and some of the land uses that have been defined as potential development sites are issues between the City and the MAC and should not be part of the Board's considerations. Ms. Sigel stated that the Board's role is very specific and that if staff provides additional information regarding proposed land use, it should be explained as to what the Board is to do with that information, where the Board has a role in decision making, and how the decisions will actually impact the land that might be used. She also asked about the land the City owns and how it is

being used because some of the property under discussion is directly adjacent to it.

Mr. Leqve stated that the role of this Board is not to get into a detailed development discussion or to determine what fits the City in terms of use of available property. The Board will need to make some assumptions as to what might happen in those areas in order to get a financial picture of the impacts in order to answer the reasonableness question. Mr. Johnson responded to a question regarding the timeline for future developments noting that it will require coordination between the City and MAC to determine what makes the most sense. Mr. Probst noted that the difference at FCM compared to other airports is that there is no underlying City zoning on the property that has the potential for development partly because it is MAC owned. Therefore, there is an extra step to understand what is acceptable and desirable by the City as the Board determines whether to modify the model zones. Ms. Stenerson stated that it would be helpful to get a better understanding of the properties surrounding the MAC owned properties.

Chair King stated that once the Board has a better understanding of the land use around the airport it should be able to discuss the impacted zones. He also asked whether additional time is needed before the next scheduled meeting to pull that information together.

Mr. Leqve noted that the intent is to try to provide further definition on what the economic impacts are, based on mutually agreeable development options between MAC and the City with the model ordinance applied to those areas. This would be followed by development of options that attempt to strike the balance between the safety needs and the economic impacts for the Board's consideration.

The Board agreed to cancel the December meeting in order to allow additional time to gather the best possible information. The next meeting of the Board was scheduled for January 21st (this meeting was subsequently changed to January 28, 2010).

Chair King also asked the Board to consider changing the start time of the meetings to 4:00 p.m. The Board agreed.

IT WAS MOVED BY HELKAMP, SECONDED BY DUCKSTAD TO ADJOURN. THE MOTION CARRIED BY UNANIMOUS VOTE.

The meeting was adjourned at 4:50 p.m.

Flying Cloud Airport Joint Airport Zoning Board

Meeting Agenda

Thursday, January 28, 2010

4:00 P.M.

Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie

Agenda Items

1. Chair Remarks
2. Approval of Meeting Agenda
3. Approval of November 19, 2009 FCM JAZB Meeting Minutes
4. Public Comments
5. Review of City of Eden Prairie Economic Analysis
6. Review of Additional Safety Analysis in the Context of Existing and Future Possible Land Uses in the State Safety Zones
7. Next Meeting Date

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- There is a higher probability of an aircraft accident/crash in the Off Airport area than in Safety Zone A outside the RPZ at each runway end.
- Probability of Accident in Safety Zone B: The average number of years between an accident at the runway ends varies from 174 years for the Runway 10L end to 511 years for the Runway 36 end, assuming the 2025 forecast operations at the runway ends remain constant.
- Assuming an above-ground object equal to the total size of Zone B, the probability of an aircraft accident at the Runway 28R end in 2025 is less than the FAA Collision Standard of and greater than the Standard at the Runway 18, 36, 10L, 10R and 28L ends.
- There is a higher probability of an aircraft accident/crash in the Off Airport area than in Safety Zone B at each runway end.
- Probability of Accident in Occupant Areas in State Safety Zones: The probabilities of an aircraft accident in the areas where people could use/occupy the land based on the Eden Prairie Comprehensive Plan are as follows:
 - 0.253 per 10,000,000 operations in Runway 10R Safety Zone B
 - 0.169 per 10,000,000 operations in Runway 28L Safety Zone A
 - 0.563 per 10,000,000 operations in Runway 28L Safety Zone B
 - 0.126 per 10,000,000 operations in Runway 10L Safety Zone B
 - 0.170 per 10,000,000 operations in Runway 28R Safety Zone B
- These probabilities are well below the FAA Collision Standard of 1.0 accidents per 10,000,000 operations.
- The lowest accident occurrence in an occupant area in a State Safety Zone is 388 years, which is 0.26 occurrences every 100 years.
- The likelihood of a fatality from an accident in the occupant areas in the Safety Zones is "extremely remote" based on FAA Risk Criteria since the probability of each accident is less than 1.0 per 10,000,000 operations and "extremely improbable" since it would occur less than once every 100 years.
- Accident Severity and Pilot Control: Potential severity of off-airfield accident highly dependent upon nature of land use at accident site.

Mr. Dallam concluded his presentation by stating that the findings of the study suggest that strict application of the Mn/DOT Model Zoning Ordinance is not required to provide a reasonable standard of safety around FCM, however it is suggested that consideration be given to land use controls beyond what might otherwise be adopted when the accident probability is less than 1 in 10 million operations.

During the presentation, Board members asked questions regarding the data used in the Berkeley study, the number of operations for FCM from 1989 to 2008 (3,711,200), and whether the Board will consider areas in the vicinity of the airport or if they are limited to the safety zones at the ends of the runway. Chair King clarified that the Board's scope is Safety Zones A and B and that the Board has no jurisdiction in the other areas surrounding the airport.

Discussion also occurred regarding the potential for a reduced accident rate in the future due to airport improvements and aircraft technology and whether there is any correlation in the Berkeley Study with those pilots maintaining control and the location of impact.

Chair King clarified that HNTB's recommendation is that there seems to be some flexibility around the standard Mn/DOT model for zoning and that land use controls in those areas be considered by the Board.

4. REVIEW OF POTENTIAL MAC PROPERTY DEVELOPMENT

Eric Johnson, MAC staff, reviewed the available land around the airport that is MAC owned and development opportunities associated with those properties. He noted that the potential options do not take into account all of the safety zone issues but rather looks at the best potential development opportunities around the airport without consideration of airport zoning issues.

Mr. Johnson reviewed the various areas for potential development and responded to questions from the Board. It was noted that some of the properties are not located in the safety zones. He stated that there are ongoing discussions with the City regarding the ballfields. Staff will be meeting with the FAA for their feedback since based on the appraisals, some of the proposed land rents are significantly higher than what the City is currently paying. Staff would like to talk to the FAA regarding their views as to the value of good will of the City keeping the use of the ballfields and if the potential for commercial development to incur more sizeable land rent could offset the City rent costs.

Scott Kipp, City of Eden Prairie staff, distributed a memo to the Board regarding the development options outlining the City's concerns and requirements. He noted that the memo was based on an earlier version of the development options.

Chair King stated that further work between the City and MAC is required. He requested that the two groups get together before the next meeting to discuss the issues taking into account the 2002 agreement between the City and the MAC. The Board agreed.

5. Mn/DOT REPORT

Deb Sorenson, Mn/DOT, presented information regarding the technical data behind the Model Ordinance Safety Zone dimensions and development restrictions. She stated that the safety zones were based not on the probability of an accident happening but rather on having space available when an accident did happen. The intent of the legislation is to encourage compatible land uses. Ms. Sorenson provided background information on how the lengths of the zones in the model ordinance were determined.

Ms. Sorenson also reported on the State Zoning Ordinances that deviate from the State Airport Zoning Standards. She noted that out of 136 publicly owned airports (MAC airports excluded), approximately 13% of the ordinances deviate from the strict standards of the Model Ordinance, 14.6% deviate from practice or policy, 3% deviate from procedure, and 10.8% exceed the standards. It was noted that MSP and Crystal airports deviate from the standards. Dennis Probst, MAC staff, reported that zoning is in place at 3 of the MAC owned airports (MSP, Crystal, and Lake Elmo). The St. Paul Downtown Airport zoning process is currently underway and MAC intends to update the Crystal and Lake Elmo ordinances as well as develop ordinances for Anoka County-Blaine and Airlake airports.

6. NEXT MEETING

Chair King discussed the accident probability ratios at FCM which differ from STP and MSP. Mr. Leque discussed the reasonableness outlined in State Statutes and stated that work needs to be done to determine the social and economic impacts by any ordinance that is implemented. He indicated additional land use work needs to be done to get a better picture of potential developments that could go forward without any zoning impacts and then determine what zoning is required to strike a reasonable balance to maintain the economic viability while maintaining a reasonable standard of safety. He stated the information that was provided in the safety study is very helpful in framing various options for the Board's consideration. Mr. Aho stated that the previous agreement between the MAC and the City must also be taken into consideration.

Mr. Kipp clarified that the Board's focus will be on the safety zones and some of the land uses that have been defined as potential development sites are issues between the City and the MAC and should not be part of the Board's considerations. Ms. Sigel stated that the Board's role is very specific and that if staff provides additional information regarding proposed land use, it should be explained as to what the Board is to do with that information, where the Board has a role in decision making, and how the decisions will actually impact the land that might be used. She also asked about the land the City owns and how it is

being used because some of the property under discussion is directly adjacent to it.

Mr. Leqve stated that the role of this Board is not to get into a detailed development discussion or to determine what fits the City in terms of use of available property. The Board will need to make some assumptions as to what might happen in those areas in order to get a financial picture of the impacts in order to answer the reasonableness question. Mr. Johnson responded to a question regarding the timeline for future developments noting that it will require coordination between the City and MAC to determine what makes the most sense. Mr. Probst noted that the difference at FCM compared to other airports is that there is no underlying City zoning on the property that has the potential for development partly because it is MAC owned. Therefore, there is an extra step to understand what is acceptable and desirable by the City as the Board determines whether to modify the model zones. Ms. Stenerson stated that it would be helpful to get a better understanding of the properties surrounding the MAC owned properties.

Chair King stated that once the Board has a better understanding of the land use around the airport it should be able to discuss the impacted zones. He also asked whether additional time is needed before the next scheduled meeting to pull that information together.

Mr. Leqve noted that the intent is to try to provide further definition on what the economic impacts are, based on mutually agreeable development options between MAC and the City with the model ordinance applied to those areas. This would be followed by development of options that attempt to strike the balance between the safety needs and the economic impacts for the Board's consideration.

The Board agreed to cancel the December meeting in order to allow additional time to gather the best possible information. The next meeting of the Board was scheduled for January 21st (this meeting was subsequently changed to January 28, 2010).

Chair King also asked the Board to consider changing the start time of the meetings to 4:00 p.m. The Board agreed.

IT WAS MOVED BY HELKAMP, SECONDED BY DUCKSTAD TO ADJOURN. THE MOTION CARRIED BY UNANIMOUS VOTE.

The meeting was adjourned at 4:50 p.m.

Date: January 28, 2010

Memo:

To: Scott H. Neal, City Manager

From: Michael D. Franzen, City Planner
Scott A. Kipp, Senior Planner

Subject: Development of Land within Safety Zones

Background:

The City Staff was asked to evaluate the development potential of land within safety zones in the following categories.

- Land and building value
- Employment
- City tax

Development Alternatives

Staff looked at four development alternatives.

1. Development according to the City's 2008 adopted Guide Plan.
2. State Model Ordinance.
3. Development on MAC property.
4. Maximum development.

Alternative 1 - Development according to the City's 2008 adopted Guide Plan.

Land and building value – **\$11,700,000**

Employment – **0**

City Tax – **\$33,930**

All MAC property is currently guided Airport. The definition of airport according to the 2008 adopted guide plan is:

- A-1 which is devoted primarily to aircraft takeoff, landing and taxing operations and hangars.
- A-2 which is devoted to airport safety, park/open space, agriculture, and aircraft navigation structures.

- The guide plan shows no development at the airport.
- Private residential developable land in the B zone west of Eden Prairie Road is 11.86 acres and 11 units are possible.
- Private residential developable land in the B zone east of Highway 212 and south of Pioneer Trail is 5 acres and 10 units are possible.
- MAC shows 102.80 acres of land proposed for other than airport use. Approximately 21.22 acres is in area A-1. Approximately 81.58 acres of this total is in area A-2.

Alternative 2 – State Model Ordinance

Office land and building value – **\$39,204,000**

Employment– **1,633**

City Tax – **\$137,214**

- Total acres 67.
- 42 acres is future park as identified in the Final Agreement.
- 25 net acres, at a .30 floor area ratio, is 326,700 square feet.
- Development is assumed as one story office.
- Building and land value \$120.00/square foot.
- Employment ratio: 4 employees for every 1,000 square feet of building.

Alternative 3 - Development on MAC property

Office land and building value – **\$160,870,520**

Employment– **5,373**

City Tax – **\$563,846**

- Total acres 102.80
- 102.80 net acres, at a .30 floor area ratio, is 1,343,390 square feet of building.
- Development is assumed as one story office.
- Building and land value \$120.00/square foot.
- Employment ratio: 4 employees for every 1,000 square feet of building.

Alternative 4 – Maximum development (Alternative 1 + Alternative 3)

Residential land and building value – \$11,700,000

Employment – 0

City Tax – \$33,930

Office land and building value – \$160,870,520

Employment– 5,373

City Tax – \$563,846

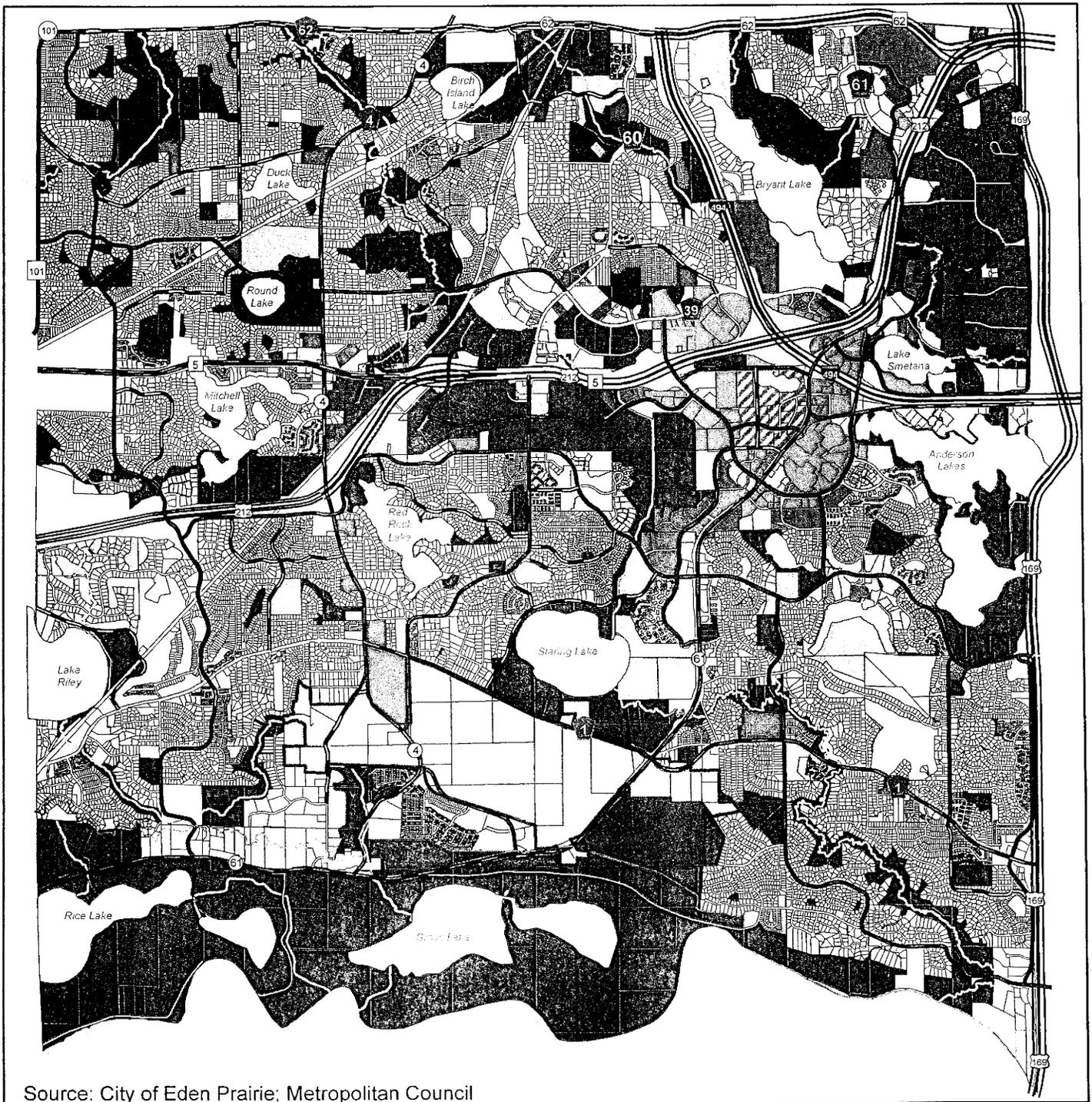
Residential

- Private residential developable land in the B zone west of Eden Prairie Road is 11.86 and 11 units are possible.
- Private residential developable land in the B zone east of Highway 212 and south of Pioneer Trail is 5 acres and 10 units are possible.

Office

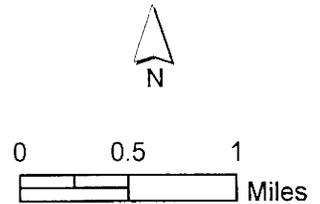
- 173.46 total acres.
- 42.00 acres is future park as identified in the Final Agreement.
- 28.66 acres is VOR.
- 102.80 net acres.
- 102.80 acres, at a .30 floor area ratio, is 1,343,390 square feet of building.
- Employment ratio: 4 employees for every 1,000 square feet of building.
- Development is assumed as one story office.
- Building and land value \$120.00/square foot.

	Value (\$)	Employment	City tax (\$)
Alternative 1	11,700,000	0	33,390
Alternative 2	29,204,000	1,633	137,214
Alternative 3	160,870,520	5,373	563,846
Alternative 4	172,570,520	5,373	597,236



Source: City of Eden Prairie; Metropolitan Council

- | | | | |
|----------------------------------------------|-------------------------|---------------------|--------------------|
| Rural Residential .10 Units/Acre | Industrial | Public/Quasi-Public | Airport Property |
| Low Density Residential 1-2.5 Units/Acre | Neighborhood Commercial | Golf Course | MUSA line |
| Medium Density residential 2.5-10 Units/Acre | Community Commercial | Church/ Cemetery | Creeks |
| High Density Residential 10-40 Units/Acre | Regional Commercial | Open Water | Principal Arterial |
| Office | Town Center | Right-Of-Way | A Minor Arterial |
| Airport | Park/Open Space | | B Minor Arterial |
| | | | Major Collector |
| | | | Minor Collector |

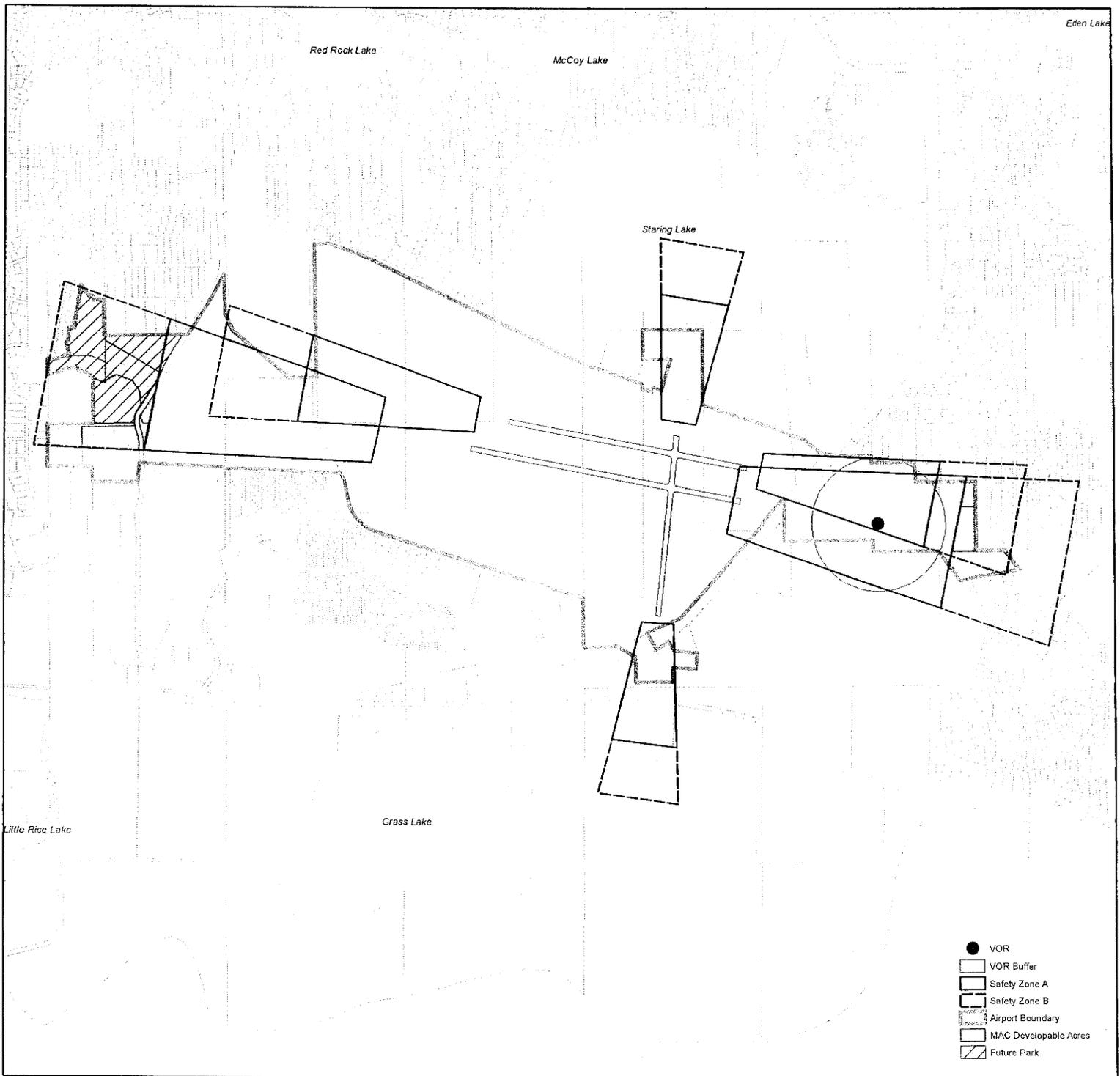


LAND USE GUIDE PLAN MAP 2030

COMPREHENSIVE PLAN UPDATE 2008

October 20, 2009

Figure 3.2

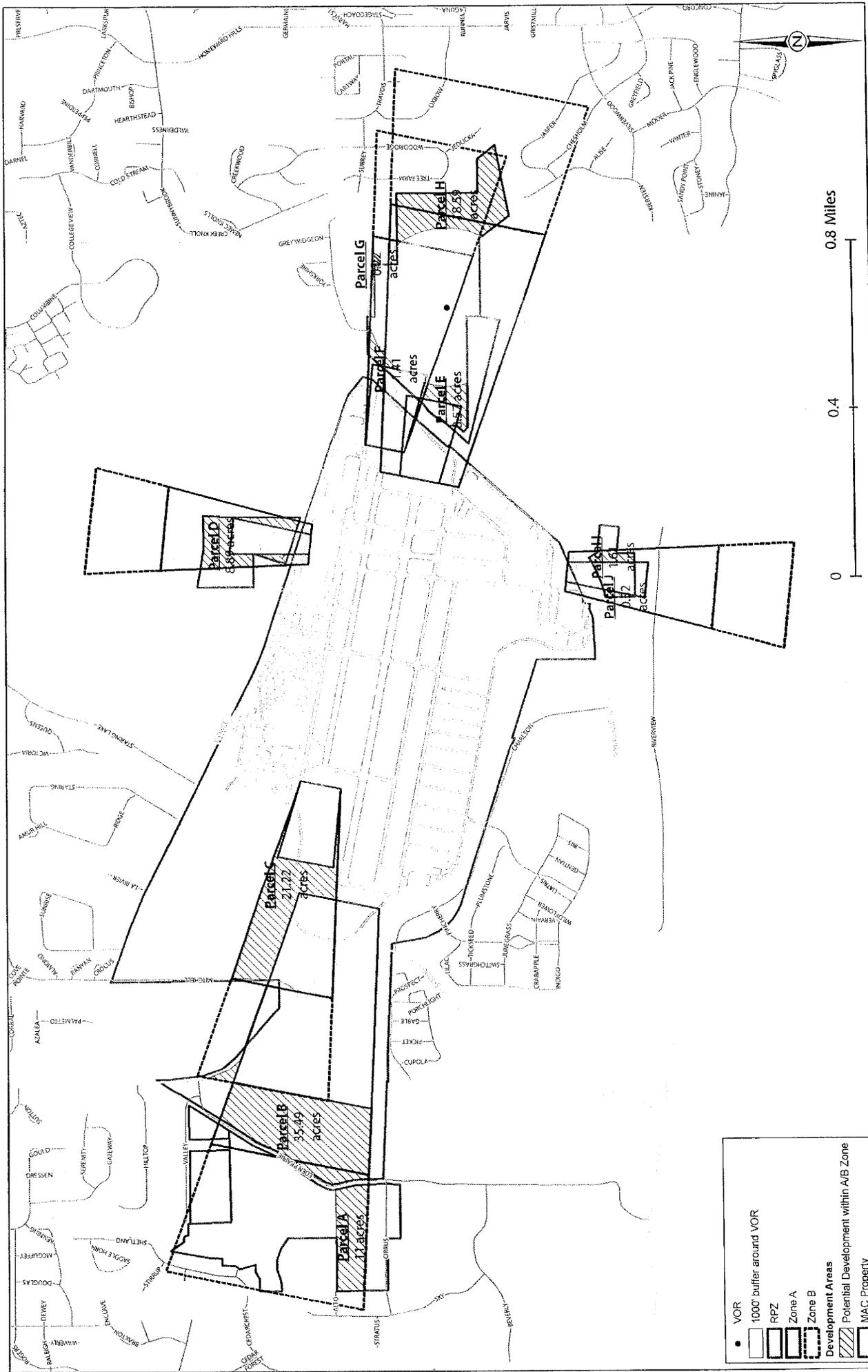


STATE MODEL ORDINANCE

January 28, 2010

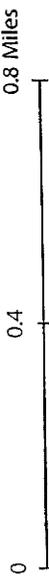
ANALYSIS

ALTERNATIVE 2



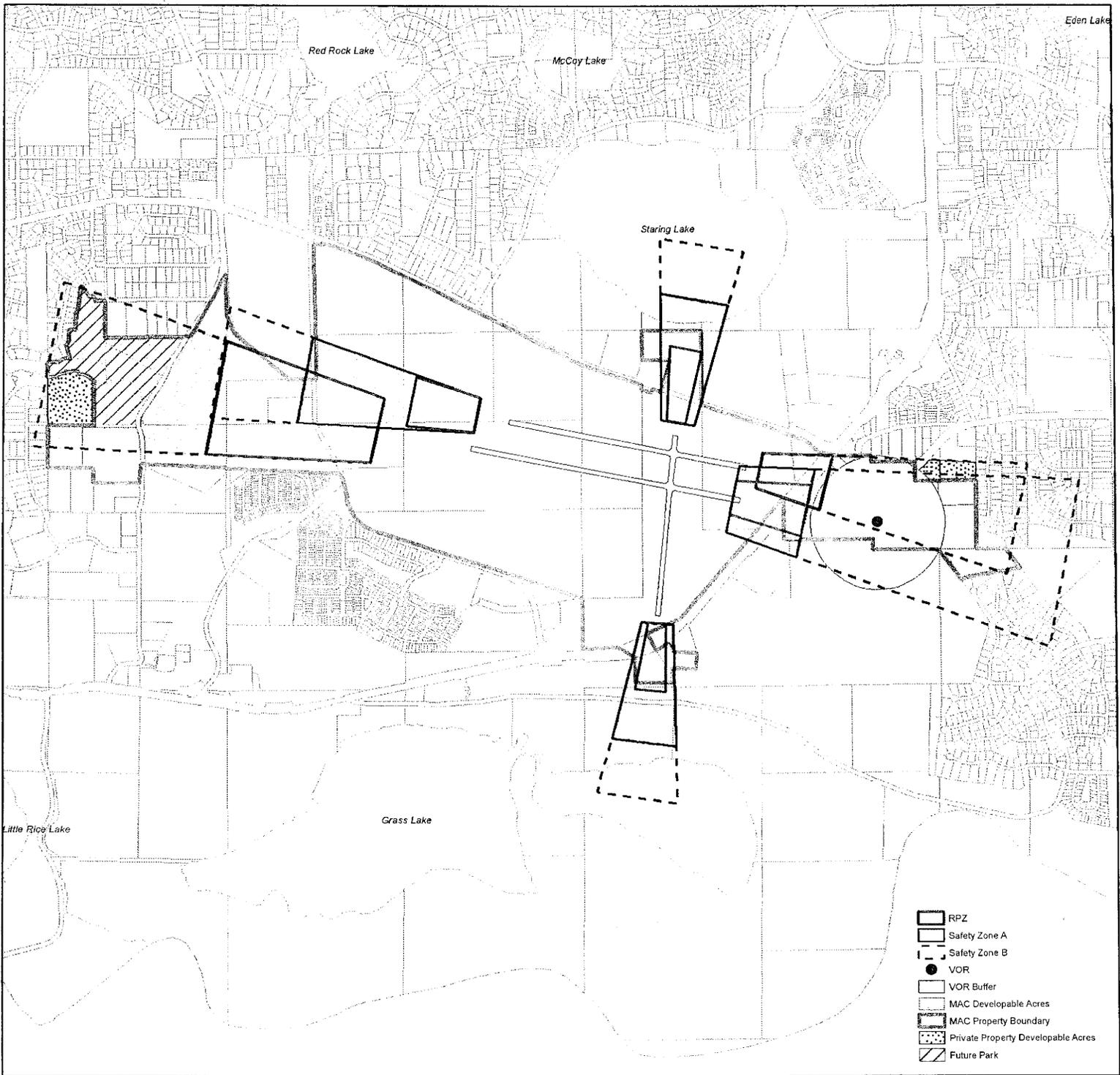
Legend

- VOR
- 1000' buffer around VOR
- RPZ
- Zone A
- Zone B
- ▨ Development Areas
- ▨ Potential Development within A/B Zone
- ▨ MAC Property



Development on MAC Property

Alternative 3

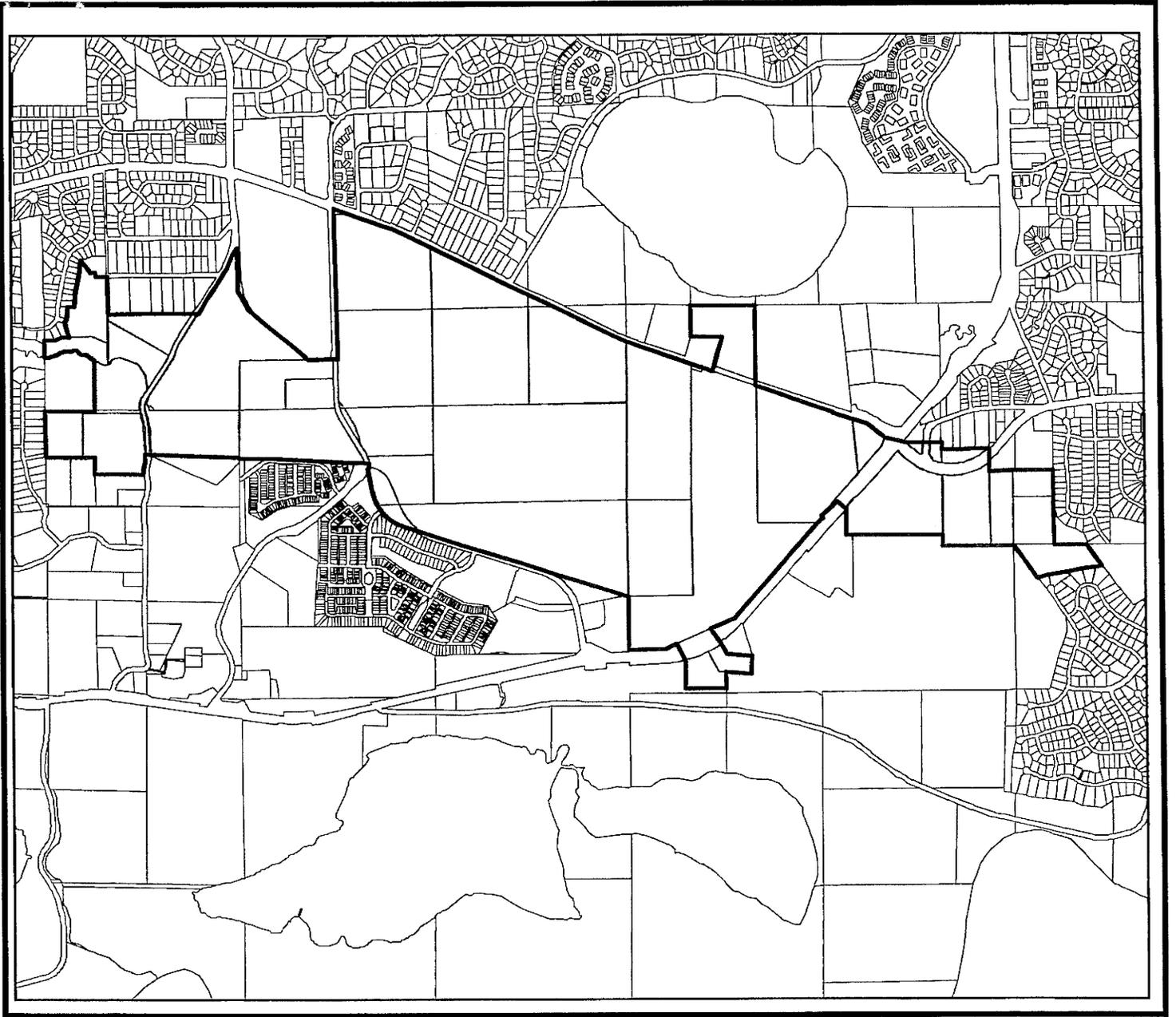


MAXIMUM DEVELOPMENT

January 28, 2010

ANALYSIS

ALTERNATIVE 4



-  A-1
-  A-2
-  Airport Boundary



0 750 1,500 3,000
Feet



AIRPORT

COMPREHENSIVE PLAN UPDATE 2007

July 28, 2009

Figure 3.4

MEMORANDUM

TO: FCM Joint Airport Zoning Board (JAZB)

FROM: Chad E. Leque, Manager – Aviation Noise and Satellite Programs

SUBJECT: **FLYING CLOUD AIRPORT ZONING BACKGROUND, SAFETY STUDY SUMMARY, AND EXISTING AND FUTURE LAND USE CONSIDERATIONS IN RUNWAY SAFETY ZONES**

DATE: January 21, 2010

At the August 13, 2009 Flying Cloud Airport (FCM) Joint Airport Zoning Board (JAZB) meeting staff briefed the Board on the background of federal and state zoning criteria. Based on statutory guidance, and past practices at other MAC airports, the Board directed staff to conduct an FCM safety study to determine the existing safety characteristics of the airport. In addition the Board directed City of Eden Prairie staff to conduct an economic analysis of the prospective development opportunities in the areas affected by the state model zones, including coordination with MAC staff on the possible non-aeronautical development of MAC properties located in the zones. At the November 19, 2009 JAZB meeting, representatives from HNTB presented the FCM Safety Study findings, MAC staff presented MAC properties around the airport being considered for development and City staff presented a preliminary study of the MAC property development feasibility.

As part of the Board discussion on November 19th, MAC and Eden Prairie staff were directed to meet again to discuss the property development opportunities in the respective safety zones and prepare an economic study detailing the economic impacts of the application of the State Model Zones on the prospective MAC owned non-aeronautical development areas, as well as other prospective development areas in the zones. Additionally, the Board directed MAC staff to prepare additional information, in consideration of the safety study findings, that could aid in the Board's evaluation of zoning options that might be available, aside from the adoption of the State Model Ordinance, that would meet the reasonableness standard as spelled out in the statutory requirement under Minn. Stat. §360.066, subd. 1.

At the January 28, 2010 FCM JAZB meeting Eden Prairie City staff will provide a presentation on the findings of their economic analysis of properties located within the State Model Safety Zones. Additionally, MAC staff will provide a review of airport zoning background from the federal and state perspectives, a review of zoning board actions at other MAC airports (Minneapolis/St. Paul International Airport and St. Paul Downtown Airport) based on safety and economic study findings, a summary of the FCM Safety Study results, additional relevant accident data information, and analysis of the disposition of existing and possible future land uses in the context of safety zones around FCM.

This information is being provided for the Board's consideration in formalizing direction to MAC staff on the development of a Draft FCM Zoning Ordinance Document at the January 28, 2010 Board meeting.

1. AIRPORT ZONING BACKGROUND

1.1 Federal Zoning Requirements

At the Federal level, the Federal Aviation Administration (FAA) is the agency primarily responsible for land use compatibility around airports. Although the FAA does not play a direct role in the zoning and land use planning practices around United States airports, it provides critical land use planning guidance, technical assistance and funding to airports. In this capacity, the FAA issues a variety of regulations and guidance documents under federal law that affects land use planning around airports.

FAA land use guidance focuses on two areas: (1) runway protection zones; and (2) airspace protection.

1.1.1 Federal Runway Protection Zones

Runway Protection Zones (RPZs) are defined in FAA Advisory Circular 150/5300-13, *Airport Design*. The intent of RPZs is to provide safety for people and property on the ground in the vicinity of runway ends at airports. The FAA accomplishes this goal through land use controls in RPZs designed to maintain areas near the ends of airport runways that are free of incompatible objects and activities. RPZs are trapezoid shapes centered on the approximate extended runway centerline radiating from the end of a runway. The dimensions of the RPZ are a function of the type of aircraft using the runway and approach visibility minima associated with the runway end.

1.1.2 Federal Airspace Protection

Federal Aviation Regulation Part 77, *Objects Affecting Navigable Airspace*, establishes standards for determining obstructions to navigable airspace and the effects of such obstructions on the safe and efficient use of that airspace.

The height limitations associated with Part 77 are defined in terms of imaginary surfaces in the airspace surrounding an airport. These surfaces extend from about 2 to 3 miles from the airport, except for runways with precision instrument approaches, in which case the surfaces extend approximately 9.5 miles from the runway end. The various imaginary surfaces include the primary surface, transitional surface, horizontal surface, conical surface and the approach surface.

Under Part 77, the FAA has established a process for reviewing and evaluating proposed structures in the vicinity of airports. FAA Advisory Circular (AC) 7460 establishes an airspace review process and provides information to individuals wishing to erect or alter structures that may affect navigable airspace around an airport. In administering 14 CFR Part 77, the FAA's main objective is to ensure the safe and efficient use of navigable airspace around airports.

The FAA has established five different thresholds for evaluating whether a structure may affect navigable airspace around an airport. If any one of these thresholds is reached, the FAA requests that an individual wishing to erect or alter a structure seek the FAA's approval before commencing construction. One of the FAA thresholds applies if a structure is within "20,000 feet of an airport or seaplane base with at least one runway more than 3,200 feet in length and the object would exceed a slope of 100:1 horizontally (100 feet horizontally for each 1 foot vertically) from the nearest point of the nearest runway."¹

¹ Federal Aviation Administration Advisory Circular 70/7460.2k, pg 2.

After receiving a request for approval, the FAA will typically issue one of the following three determinations:

- **Determination of No Hazard to Air Navigation** – “The subject construction does not exceed obstruction standards and marking/lighting is not required.”
- **Conditional Determination** – “The proposed construction/alteration would be acceptable contingent upon implementing mitigating measures (marking and lighting etc.)”
- **Objectionable** – “The proposed construction/alteration is determined to be a hazard and is thus objectionable. The reasons for this determination are outlined to the proponent.”

By establishing threshold criteria and then requiring a detailed airspace hazard analysis, the FAA process provides a safety buffer. In certain circumstances, the FAA’s detailed airspace hazard analysis results in FAA approval for developments near airports that may be in excess of the general height limitations set forth in 14 CFR Part 77.

2. State of Minnesota Runway Safety Areas and Airspace Protection

On January 1, 1946, the State of Minnesota enacted its first model airport zoning ordinance. By 1958 the State designated Safety Zones A, B and C as part of the model airport zoning standard. In 1973, local protective airport zoning was made a condition for receiving federal and state funds. Minnesota is one of the few states that have land use safety controls for airports that go beyond the requirements of FAA regulations.

2.1.1 State Model Zoning Ordinance Runway Safety Zones

State Safety Zone A is a trapezoidal shape at the end of a runway, beginning at the edge of the primary surface and flaring outward to a distance of approximately 2/3 of the runway length. State Safety Zone B is a trapezoidal shape, with the same flare as Zone A, extending outward from the end of Zone A to a distance of approximately 1/3 of the runway length. The extent of State Safety Zone C is coincidental with the extent of the horizontal airspace surface.

Under Minnesota law, Zone A must not contain buildings, temporary structures, exposed transmission lines, or other similar above-ground land use structural hazards. Land uses in Zone A are restricted to those uses that will not create, attract, or bring together an assembly of persons. Permitted uses in Zone A include, but are not limited to, agriculture (seasonal crops), horticulture, animal husbandry, raising of livestock, wildlife habitat, light outdoor recreation (non-spectator), cemeteries, and automobile parking.

Zone B uses are restricted as follows:

- Each use must be on a site whose area is not less than 3 acres.
- Each use must not create, attract, or bring together a site population that would exceed 15 times that of the site acreage.
- Each site must have no more than one building plot upon which any number of structures may be erected.

- A building plot must be a single, uniform, and non-contrived area, whose shape is uncomplicated and whose area must not exceed minimum ratios with respect to the total site area.
- The following uses are specifically prohibited in Zone B: Churches, hospitals, schools, theaters, stadiums, hotels, motels, trailer courts, campgrounds, and other places of frequent public or semi-public assembly.

In Zone C no use may be made of any land that creates or causes interference with the operations of radio or electronic facilities on the airport or with radio or electronic communications between the airport and aircraft. In addition, Zone C prohibits land uses that make it difficult for pilots to distinguish between airport lights and other lights, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, or otherwise endanger the landing, taking off, or maneuvering of aircraft. All structure heights in Zone C are limited to 150 feet above the primary surface at the airport.

2.1.2 State Model Zoning Ordinance Airspace Protection

The State Model Zoning Ordinance height restrictions are predicated directly on the FAA's Part 77 imaginary airspace surfaces. However, the extent of the airspace zoning area is defined by the provisions of Minn. Stat. §360.066, subd. 1(b), which states the following:

“For the purpose of promoting health, safety, order, convenience, prosperity, general welfare and for conserving property values and encouraging the most appropriate use of land, the municipality may regulate the location, size and use of buildings and the density of population in that portion of an airport hazard area under approach zones for a distance not to exceed two miles from the airport boundary and in other portions of an airport hazard area may regulate by land use zoning for a distance not to exceed one mile from the airport boundary, and by height-restriction zoning for a distance not to exceed 1-1/2 miles from the airport boundary.”

3. **REVIEW OF ZONING BOARD ACTIONS AT OTHER MAC AIRPORTS**

3.1 Minneapolis/St. Paul International Airport Zoning Ordinance

Minnesota Statutes establish that airports in the state must adopt airport zoning ordinances. To do this, the statutes spell out the formation of a Joint Airport Zoning Board (JAZB) comprised of two members from each jurisdiction with land use control in the areas affected by airport zoning, as well as the airport proprietor.

The Minneapolis/St. Paul International Airport (MSP) JAZB met to discuss and recommend a revised MSP zoning ordinance in light of the construction of Runway 17-35. An important part of this process was balancing the land use controls needed to provide safety while at the same time considering the social and economic impacts related to prospective land use controls. Minn. Stat. §360.066, subd. 1 is particularly instructive when addressing the question of zoning around complex urbanized airports such as the MAC's system of airports. The statute also addresses the concept of “reasonableness” when balancing the variables to be considered in the zoning process. Specifically, Minn. Stat. §360.066, subd. 1 states:

“**Reasonableness** Standards of the commissioner defining airport hazard areas and the categories of uses permitted and airport zoning regulations adopted under

sections 360.011 to 360.076, shall be reasonable, and none shall impose a requirement or restriction which is not reasonably necessary to effectuate the purposes of sections 360.011 to 360.076. In determining what minimum airport zoning regulations may be adopted, the commissioner and a local airport zoning authority shall consider, among other things, the character of the flying operations expected to be conducted at the airport, the location of the airport, the nature of the terrain within the airport hazard area, the existing land uses and character of the neighborhood around the airport, the uses to which the property to be zoned are planned and adaptable, and the social and economic costs of restricting land uses versus the benefits derived from a strict application of the standards of the commissioner.”

Consistent with the guidance provided in Minn. Stat. §360.066, subd. 1, the MSP JAZB focused its discussion on the land use controls that were necessary to ensure a reasonable degree of safety around MSP. Based on the substantial property development and/or structural modification restrictions that would be placed on the largely urbanized and developed areas around the airport, the MSP JAZB turned its focus to safety. The MSP JAZB directed staff to conduct a risk analysis to provide the Board with further clarification on the question of zoning requirements necessary to ensure a “reasonable standard of safety.”

In short, the analysis found that within State Zones A and B but outside the federal RPZ, the accident probability at MSP was less than the FAA standard of one accident in 10 million operations. Additionally, based on the accident rate calculations, the MSP JAZB determined that the likelihood of a fatality from an accident in State Safety Zones A and B outside the RPZ is extremely remote or extremely improbable, based on FAA criteria.

In addition to the risk analysis, the MSP JAZB focused on addressing the economic considerations as the statute requires. The Board relied on the analysis and information that was provided by the respective cities with jurisdiction over the land uses, and concluded that there were significant financial costs associated with implementation of the State Model Zoning Ordinance.

In summary, based on the findings of the Safety Study and the Economic Analysis, the Board adopted the following changes to the State Model Zoning Ordinance:

- Safety Zone A – is co-terminus with the Federal Runway Protection Zone (RPZ).
- Safety Zone B – use restrictions do not include site acre/structure limitations and site-area-to-building-plot-area ratios and population criteria with a maximum zone distance from the airport of 7,000 feet.
- Exemption for Established Residential Neighborhoods – allows for the improvement, expansion and development of new residential uses in and adjacent to Established Residential Neighborhoods in Safety Zone B.

The Commissioner of Transportation approved the MSP Joint Airport Zoning Board’s recommended ordinance.

3.2 St. Paul Downtown Airport (STP) Joint Airport Zoning Board (JAZB)

The St. Paul Downtown Airport (STP) JAZB held its first meeting on May 1, 2008 and has conducted seven meetings since, culminating in the publication of a Draft STP Zoning Ordinance on July 1, 2009 for public review and comment and a public hearing on July 23, 2009.

The Board's fundamental goal is to develop a zoning ordinance for review and approval by the Commissioner of Transportation and for subsequent adoption by the Board and then by local municipalities. In pursuit of this goal, the Board focused its attention on the following:

- Mn/DOT Model Ordinance
- STP's unique characteristics in the context of existing and planned land uses around the airport
- Maintaining a "reasonable standard of safety" while considering the social and financial costs to the community

As part of the Board's discussions, as was the case with the MSP JAZB, it was established that Minn. Stat. §360.066, subd. 1 is particularly instructive when addressing the question of zoning around complex urbanized airports such as STP, and the concept of "reasonableness" when balancing the statutorily recognized variables to be considered in the zoning process.

As part of its deliberations, the Board received a presentation from Mn/DOT Aeronautics Staff on the State Model Zoning Ordinance and related safety criteria. It also received a summary of a land use analysis that was conducted by Staff detailing the existing and planned land use around STP that would be impacted by the application of the State Model Zoning Ordinance and resulting airspace zones.

Consistent with the guidance provided in Minn. Stat. §360.066, subd. 1, the Board focused its discussion on the land use analysis which detailed the existing land uses, the character of the neighborhoods around the airport, and the future planned/zoned uses that would be affected by adoption of the State Model Zoning Ordinance. Based on the substantial property development and/or structural modification restrictions that would be placed on the largely urbanized and developed areas around the airport, the Board turned its focus to the safety standards that result in the state safety zone dimensions and the related land use restrictions that are outlined in the State Model Zoning Ordinance. Based on the information provided by Mn/DOT staff at the meeting on this issue, the Board directed staff to conduct a risk analysis to provide the Board with further clarification on the question of zoning requirements necessary to ensure a "reasonable standard of safety." Specifically, the study was to address the risk of accidents occurring in the model safety zones, the character of the flying operations expected to be conducted at the airport, the location of the airport, and the nature of the terrain within the airport hazard area.

In short, the analysis found that in all cases around STP, within State Zones A and B, outside the federal Runway Protection Zone (RPZ), the accident probability was less than the Federal Aviation Administration (FAA)'s standard of one accident in 10 million operations. Additionally, based on the accident rate calculations, it was determined that the likelihood of fatality from an accident in State Safety Zones A and B outside the RPZ at each runway end is "extremely remote" or "extremely improbable" based on FAA criteria.

Following completion of the safety study the Board focused on addressing the economic considerations. Per Minn. Stat. §360.066, subd. 1, when determining the reasonableness of a

minimum standard at an airport, the economic question focuses on an analysis of the uses for which the property to be zoned are planned and adaptable, and the social and economic costs of restricting land uses. Therefore, the Board relied on the analysis and information that was provided by the respective cities that have jurisdiction over the land uses in question, which in this case is the City of St. Paul.

The City of St. Paul Department of Planning and Economic Development conducted the economic impact analysis utilizing the Fiscal Impact Model. The analysis was based on the development restrictions that are outlined in the State Model Zoning Ordinance. The City's analysis found that there are 7,333 potential lost job opportunities and a potential loss of \$2,441,332 in property taxes if the provisions of the State Model Zoning Ordinance were enacted.

Based on the findings of the Safety Study and the Economic Analysis, the Board recommended the following changes to the State Model Zoning Ordinance for purposes of the first public hearing on STP:

1. Safety Zone A – is co-terminus with the Federal Runway Protection Zone (RPZ).
2. Safety Zone B – use restrictions do not include site acre/structure limitations and site-area-to-building-plot-area ratios and population criteria.
3. Exemption for Established Residential Neighborhoods – allows for the improvement, expansion and development of new residential uses in and adjacent to Established Residential Neighborhoods in Safety Zone B.
4. Airspace and Safety Zoning Limits – incorporates additional zoning limit criteria based on terrain slope characteristics.

In consideration of the similarities between the findings of the safety and economic analyses conducted at Minneapolis/St. Paul International Airport (MSP) and STP as part of the respective JAZB deliberations carried out for each airport, the elements of the Draft STP Zoning Ordinance listed in points 1 – 3 above are consistent with the provisions of the MSP Zoning Ordinance.

Because STP is located in a valley along the Mississippi River the airport has terrain elevations that increase rapidly to the north and southwest of the airport. These terrain features were a major consideration in determining the runway layout at the airport. This is evident when looking at the runway configurations and the manner in which the runway headings avoid the areas of elevated terrain. However, because of the elevation of these areas, and the horizontal airspace surface height criteria of 150 feet above the primary surface (which is the elevation of the runway), as much as 3,640 acres of existing urban development would be located in areas where the allowable structure height above ground would be zero under the State Model Zoning Ordinance. This is due to the fact that the terrain elevation in these areas is actually more than 150 feet above the primary surface at the airport. Considering that these areas are not located in proximity to the runway ends or predominant flight patterns, and that the present urban development characteristics in these areas do not impact the current safe operation of the airport, a terrain slope criterion was incorporated in the airspace and safety zoning extents in the Draft STP Zoning Ordinance.

The STP JAZB is presently in the process of evaluating options for addressing the public comments received on the draft document. Among other things, one option being evaluated is leveraging the FAA's 7460 review process to streamline the cities' implementation and administration of the airspace zoning requirements. The first submission of the draft STP Zoning Ordinance to the Commissioner of Transportation is anticipated in mid-2010.

4. SUMMARY OF FLYING CLOUD AIRPORT SAFETY STUDY RESULTS

4.1 FCM Safety Study Background

On July 16, 2009 the Flying Cloud Airport (FCM) Joint Airport Zoning Board (JAZB) held its first meeting. At that meeting it was detailed that the major considerations by the Board in determining a zoning ordinance for the airport are:

- Mn/DOT Model Ordinance
- FCM's unique characteristics in the context of existing and planned land uses around the airport
- Maintaining a "reasonable standard of safety" while considering the social and financial costs to the community

As part of the Board's discussions on July 16th it was explained that Minn. Stat. §360.066, subd. 1 is particularly instructive when addressing the question of zoning around complex urbanized airports such as FCM, and specifically the concept of "reasonableness" when balancing the statutorily recognized variables to be considered in the zoning process.

On August 13, 2009 the FCM JAZB conducted its second meeting. At this meeting the Board received a summary of a land use analysis that was conducted by MAC staff detailing the existing and planned land uses around FCM that would be impacted by the application of the State Model Zoning Ordinance and the airspace zones. Additionally, the Board received a presentation from Mn/DOT Aeronautics staff on the Mn/DOT Model Zoning Ordinance.

Consistent with the guidance provided in Minn. Stat. §360.066, subd. 1, the Board focused its discussion on MAC staff's land use analysis which detailed the existing land uses, the character of the neighborhoods around the airport, and the future planned/zoned uses that would be affected by adoption of the State Model Zoning Ordinance. Based on the substantial property development and/or structural modification restrictions that would be placed on existing and possible future development areas around the airport, the Board turned its focus to the safety standards that result in the state safety zone dimensions and the related land use restrictions that are outlined in the state model zoning ordinance. As part of this discussion the Board questioned the Mn/DOT representatives on the specific safety criteria that result in the safety zone dimensions and the related development restrictions.

Based on the information provided at the meeting on the issue of foundational safety criteria, the Board directed MAC staff to conduct a safety study to provide the Board with further clarification on the question of zoning requirements necessary to ensure a "reasonable standard of safety."

Consistent with the Board's direction the MAC retained the HNTB Corporation to conduct the analysis, and at the November 19, 2009 FCM JAZB meeting the analysis was presented to board members by HNTB representatives.²

² As part of the STP JAZB efforts, the analytical methodology utilized was independently evaluated by Dr. Manuel Ayres, Jr. with Applied Research Associates to provide additional expertise in the area of statistical analysis, risk calculation and critique in the development of the updated analysis. Dr. Ayres is a member of the Transportation Research Board (TRB) and served as a member of a TRB committee that studied the issue of aircraft/airport compatibility related to safety around airports. enhanced accident distribution methodology that more accurately reflects the methodology utilized by the University of California at Berkeley in their study of accident locations that have land use implications as included in the California Airport Land Use Planning Handbook published in January 2002 and the Mn/DOT Airport Land Use Compatibility Manual published in September 2006.

4.2 FCM Safety Study Findings

The FCM Safety Study considered the character of the flying operations at the airport and the surrounding terrain. The study analyzed accident data specific to FCM, as well as 2025 forecasted operations for the airport. As was done in the case of MSP and STP, the probability standard used in the study was one accident per 10 million operations.³ The analysis focused on the areas included within the State A Zone outside the RPZ and the State B Zones off each runway at FCM. It is important to point out that the application of the FAA's probability standard in this manner is extremely conservative because it assumes that the entire area within each of the zones is covered by a structure.

The study detailed that from 1989 to 2008 there were 28 aircraft accidents at FCM.⁴ Based on that information the average accident rate per 100,000 operations at FCM is 0.75447. Because the historical accident numbers at FCM are so low, additional data were needed to adequately establish accident location and distribution assumptions for the probability calculations. As such, the accident location data that were provided in University of Berkeley Study and the January 2002 Caltrans Airport Land Use Planning Handbook were used for purposes of the probability calculations in each of the safety zones.

The runway length specific accident locations from the University of Berkeley Study and the January 2002 Caltrans Airport Land Use Planning Handbook were superimposed on the respective runways at FCM and a count of accidents within each of the safety zones and the occupant areas within the zones was conducted. The probability of an accident occurring in the respective zones in 2025 was calculated by multiplying the accident rate of 0.75447 by the number of forecast operations per runway in 2025, which was then multiplied by the percentage of the total accidents on a given runway that were located in the zone of interest. The total number of operations off each end of the parallel runways were combined for purposes of this analysis.

The accident probabilities were then converted to 10,000,000 operations by multiplying the probabilities by 10,000,000 divided by the number of operations forecasted at each runway end (note that the numbers were combined on each end of the parallel runways). Table 4.1 provides a comparison of the accident probabilities, per runway end in each of the respective Zones to the FAA Standard of one accident per 10 million operations, as well as the number of years between accidents.

³ When determining the acceptability of a prospective structure around an airport, the FAA uses a threshold probability of 1 collision per 10 million operations. Said another way, if the probability of an aircraft colliding with the structure is less than one time in 10 million operations then the structure is considered to be safe.

⁴ An accident is defined as an occurrence that results in substantial aircraft damage or serious injury from collision with the ground.

**Table 4.1
Comparison of Accident Probabilities for the Runway Ends in 2025 to the FAA Collision
Standard of One Accident per 10 Million Operations and Years between Accidents**

Runway End	On Airfield + RPZ	State Safety Zone A outside RPZ	State Safety Zone B	Off Airport	FAA Collision Standard
10R	56.30 (4 yrs.)	0.44 (521 yrs.)	1.07 (214 yrs.)	17.63 (13 yrs.)	1.00
10R Occupant Area in E.P. 2030 Plan			0.253 (910 yrs.)		1.00
28L	53.93 (4 yrs.)	8.38 (26 yrs.)	1.07 (204 yrs.)	12.04 (18 yrs.)	1.00
28L Occupant Area in E.P. 2030 Plan		0.169 (1,294 yrs.)	0.563 (388 yrs.)		1.00
10L	56.43 (4 yrs.)	2.40 (96 yrs.)	1.33 (174 yrs.)	15.29 (15 yrs.)	1.00
10L Occupant Area in E.P. 2030 Plan			0.126 (1,821 yrs.)		1.00
28R	56.23 (4 yrs.)	1.92 (114 yrs.)	0.62 (351 yrs.)	16.68 (13 yrs.)	1.00
28R Occupant Area in E.P. 2030 Plan			0.170 (1,288 yrs.)		1.00
18	59.19 (14 yrs.)	3.65 (220 yrs.)	1.66 (484 yrs.)	10.95 (73 yrs.)	1.00
36	58.98 (14 yrs.)	3.53 (232 yrs.)	1.60 (511 yrs.)	11.33 (72 yrs.)	1.00

Sources: NTSB 1988-2007 data; *California Airport Land Use Planning Handbook* (January 2002) data; Figure 3.2, Land Use Guide Plan Map 2030, Eden Prairie Comprehensive Plan Update 2007; HNTB analysis.

In all of the present and future planned occupant areas within the State Safety Zones (outside the RPZ) and in Zone A for Runway 10L and Zone B for Runway 28R the accident probabilities are below the FAA standard of one accident in 10 million operations. In the remaining State A Zones (outside the RPZ) and State B Zones at the airport the probability is greater than one accident in 10 million operations. Based on the findings of the accident probability analysis it is reasonable to conclude that measures to control land use around the airport should include controls beyond what might be considered acceptable at airports, such as MSP and STP, where the accident probabilities within all of the safety zones are below the one accident in 10 million operations threshold.

5. ADDITIONAL RELEVANT ACCIDENT DATA/INFORMATION

In addition to considering the above analysis findings, it is also instructive to consider additional aircraft accident information that can aid in the zoning analysis process for FCM. Because the

findings of the safety study indicate that additional consideration is warranted beyond what might be applied at facilities with lower accident probability numbers, more detailed consideration needs to be given to the specific characteristics of aircraft accidents. Specifically, pilot control and crash site characteristics are important variables when attempting to determine the nature of land use that is acceptable in the areas around an airport.

5.1 Pilot Control

One important question when evaluating the degree to which land use should be controlled around FCM is the degree to which pilots can determine the exact impact location of the aircraft. The Berkeley Study found that in 95% of aircraft accidents around General Aviation (GA) airports the pilot had control of the aircraft prior to impact. In the Airport Land Use Compatibility Manual published by the Minnesota Department of Transportation in September 2006, the following is stated on page 17 of Appendix 7:

“...In many accidents the pilot has some control of the aircraft and has the ability to avoid some obstacles. If the aircraft is small enough and the population density is low enough, in many cases the pilot can avoid structures, automobiles, etc...”

The above facts indicate that the location of distinct open spaces in the proximity of the extended runway centerline beyond the RPZ, large enough to allow a pilot to locate clearly, and contain the extent of the crash site, could be beneficial from a safety perspective.

5.2 Aircraft Crash Sites

The analysis of acceptable land uses in the vicinity of FCM and the topic of contiguous open space must be evaluated in the context of the typical characteristics of aircraft crash sites. As detailed in the Airport Land Use Compatibility Manual published by the Minnesota Department of Transportation in September 2006, on page 17 of Appendix 7:

“As part of Caltrans’ development of their Airport Land Use Planning Handbook, they developed an accident location database. The 2002 handbook provides some idea of the crash size for general aviation accidents. Caltrans determined that the median swath length for general aviation accidents is only about 100 feet...”

“...The average wingspan for general aviation aircraft is approximately 40 feet. If we assume that the average swath width for general aviation aircraft is similar to the wingspan then the average crash site size is in the vicinity of 4,000 square feet, i.e. 100 feet of length times 40 feet of width.”

Additionally, Federal Aviation Administration AC 150/5210-6C provides the equation for calculating the theoretical critical fire area (TCA) for aircraft crashes. These calculations are used to determine the area around a crash site that must be isolated from fire. The equation, where L = aircraft fuselage length and W = aircraft fuselage width, is as follows:

$$TCA = L \times (100' + W), \text{ when } L \text{ is } > 65 \text{ feet}$$

-or-

$$TCA = L \times (40' + W), \text{ when } L \text{ is } < 65 \text{ feet}$$

The largest design aircraft at FCM is the Cessna Citation III, a midsized corporate jet. The Citation III has a fuselage length of 50 feet and a wing span of 53 feet. When applying the

above equation the resulting TCA is 4,650 square feet. It is important to note that this is a conservative calculation because the wingspan was used rather than the fuselage width. Attachment A provides a depiction of a 5,000 square foot circle to scale on the map to provide perspective. It is important to point out that the flight crews of this type of, and larger, corporate jet aircraft typically have extensive flight and training backgrounds resulting in fewer aircraft accidents as compared to small general aviation aircraft. As detailed in the November 5, 2009 FCM Safety Study Memorandum, according to national 2003 NTSB data 69% of accidents were recreation operations (small general aviation aircraft), 14.7% were flight instruction, 5% were aerial application and less than 1% were corporate/executive operations.

The design aircraft for Runway 18/36 at FCM is the Beach Baron 58. With a fuselage width of approximately 10 feet and a length of approximately 30 feet the TCA for that aircraft is 1,500 square feet. Based on the 2025 FCM operations forecast, over 60% of the aircraft operations at FCM would result in a TCA of approximately 2,000 square feet or less. The Airport Land Use Compatibility Manual published by the Minnesota Department of Transportation in September 2006, states the following on page 17 of Appendix 7:

“Population density has a major affect on the likelihood of a groundling fatality. In many accidents the pilot has some control of the aircraft and has the ability to avoid some obstacles. If the aircraft is small enough and the population density is low enough, in many cases the pilot can avoid structures, automobiles, etc. A 2,000 square foot accident site from a general aviation crash will miss humans in many cases.”

6. ANALYSIS OF THE DISPOSITION OF EXISTING AND POSSIBLE FUTURE LAND USES IN THE CONTEXT OF SAFETY ZONES AROUND FCM

When evaluating the need for land use controls around the airport it is important to also consider the existing land uses in the safety zones and possible future development areas. Because the MAC owns a significant portion of the land contained in State Safety Zones A and B at FCM there are unique considerations relative to existing and prospective land uses. This section will evaluate the existing, and future land uses in the safety zones and further safety analysis of prospective MAC owned non-aeronautical development areas in the safety zones.

6.1 Effect of the Park Property Agreement and a Navigation Aide Clear Zone on the Land Use Composition within the State Safety Zones around FCM

In an effort to develop FCM in a manner acceptable to the City of Eden Prairie the MAC negotiated an agreement with the City detailing a number of specifics related to the development and operation of FCM. One of the items included in the agreement was that the MAC would provide a large (approximately 42 acres) parcel of land, west of Eden Prairie Road, in the Runway 10R State Safety Zone B for Park use by the City. In addition, the MAC relocated the VHF Omni-Range Beacon (VOR) at FCM to a site located in the Runway 28R State A Zone resulting in the VOR clear area covering much of the Runways 28R and 28L State Safety Zone A areas. From the perspective of providing open space in the safety zones around FCM, these uses of MAC property in the safety zones are significant. For instance, if the State A and B Zones are consolidated into one zone beyond the respective RPZs off each runway end, by virtue of the park agreement, the overlapping of RPZs with State Zones on other runways and the water areas off the ends of Runway 18/36, a minimum of 20% of the respective State Zones are dedicated open space.

The following table provides a breakdown of the respective open space acreages by virtue of the park agreement, VOR clear area, overlapping of RPZs with state zones on other runways,

and water areas. The acreages are contiguous and assumes Zones A and B are combined into one area beyond the respective RPZs.

**Table 6.1
Acreage Totals and Percentages in the State Safety Zones by Virtue of Park Agreement, Overlapping PRZs and Open Water Areas**

Runway	Contiguous Open Space Type	Acreage of Type	Percent of Total Acreage
10R	Park Area per Agreement	41.63	20.74
10L	RPZ Clear Zone	47.80	49.25
28R	RPZ Clear Zone	0.24	0.25
28L	RPZ Clear Zone	8.00	3.99
28L	VOR Clear Area	65.38	32.49
28R	VOR Clear Area	40.14	41.15
36	Water	20.93	35.35
18	Water	37.28	63.28

Attachment A provides a map depicting the land uses in the safety zones around FCM.

6.2 Accident Probabilities on Prospective MAC Owned Non-Aeronautical Development Parcels within the State Safety Zones

As is detailed in Attachment A there are certain parcels of MAC property located in State Safety Zones A and B around FCM that are considered possible locations for non-aeronautical development. The purpose of these developments is to ensure the future financial viability of the MAC reliever airport system by diversifying revenue streams in an effort to off-set a portion of rates and charges from reliever airport businesses and tenants.

Attachment B provides a map depicting the location of prospective MAC owned non-aeronautical development parcels with the accident locations that fall within each of the parcels, based on the accident location data that was provided in the University of Berkeley Study and the January 2002 Caltrans Airport Land Use Planning Handbook. This analysis utilizes the same accident location data utilized by HNTB in its November 5, 2009 FCM Safety Study. By applying the same calculations relative to these areas and accident location data, as was done by HNTB in the FCM Safety Study, the following accident probabilities were determined for each of the prospective development parcels.

Table 6.2
Comparison of Accident Probabilities for Prospective MAC Owned Non-Aeronautical Development Parcels in 2025 to the FAA Collision Standard of One Accident per 10 Million Operations and Years between Accidents

MAC Owned Development Parcel	Probability of Accident within Development Parcels (without Accounting for Pilot Control and Adjacent Open Spaces)	Probability of Impacting a Structure (Applying Pilot Control Assumption and Accounting for Adjacent Open Spaces)	FAA Collision Standard
A	0.06	0.00	1.00
B	0.44	0.02	1.00
C	1.20	0.06	1.00
D	2.10	0.11	1.00
E	0.39	0.02	1.00
F	0.17	0.01	1.00
G	0.00	0.00	1.00
H	0.56	0.03	1.00
I	0.21	0.01	1.00
J	0.11	0.01	1.00

Sources: NTSB 1988-2007 data; *California Airport Land Use Planning Handbook (January 2002)* data; Figure 3.2, Land Use Guide Plan Map 2030; MAC analysis.

The above table provides two probability calculations. The first calculation provides the probability of an aircraft accident anywhere on the respective MAC owned development properties. This calculation does not account for the pilot control variable and the adjacent large contiguous open spaces. Moreover, this calculation makes an assumption that the entire parcel is covered by structures. The second calculation is the probability of impacting a structure within the respective development parcels, taking into account pilot control and the adjacent large contiguous open spaces as provided by the park agreement, VOR clear area, overlapping of RPZs with state zones on other runways, and water areas.

The probability of aircraft actually impacting structures in the prospective MAC owned non-aeronautical development areas is well below the FAA Collision Standard of one collision per 10 million operations in all cases.

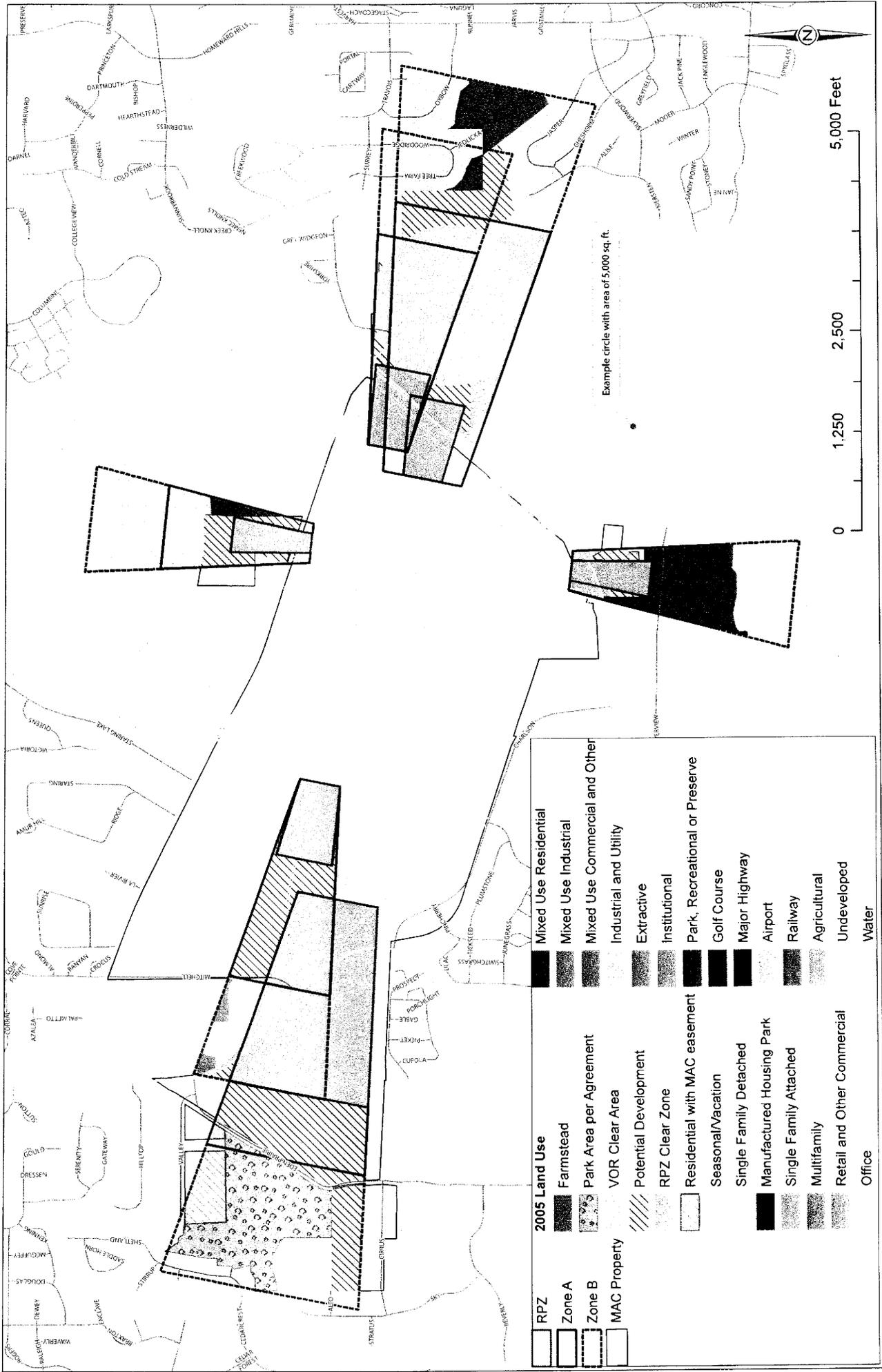
7. SUMMARY

Based on the analysis contained in this memorandum, the following points detail the main considerations in the development of the provisions for a draft FCM zoning ordinance:

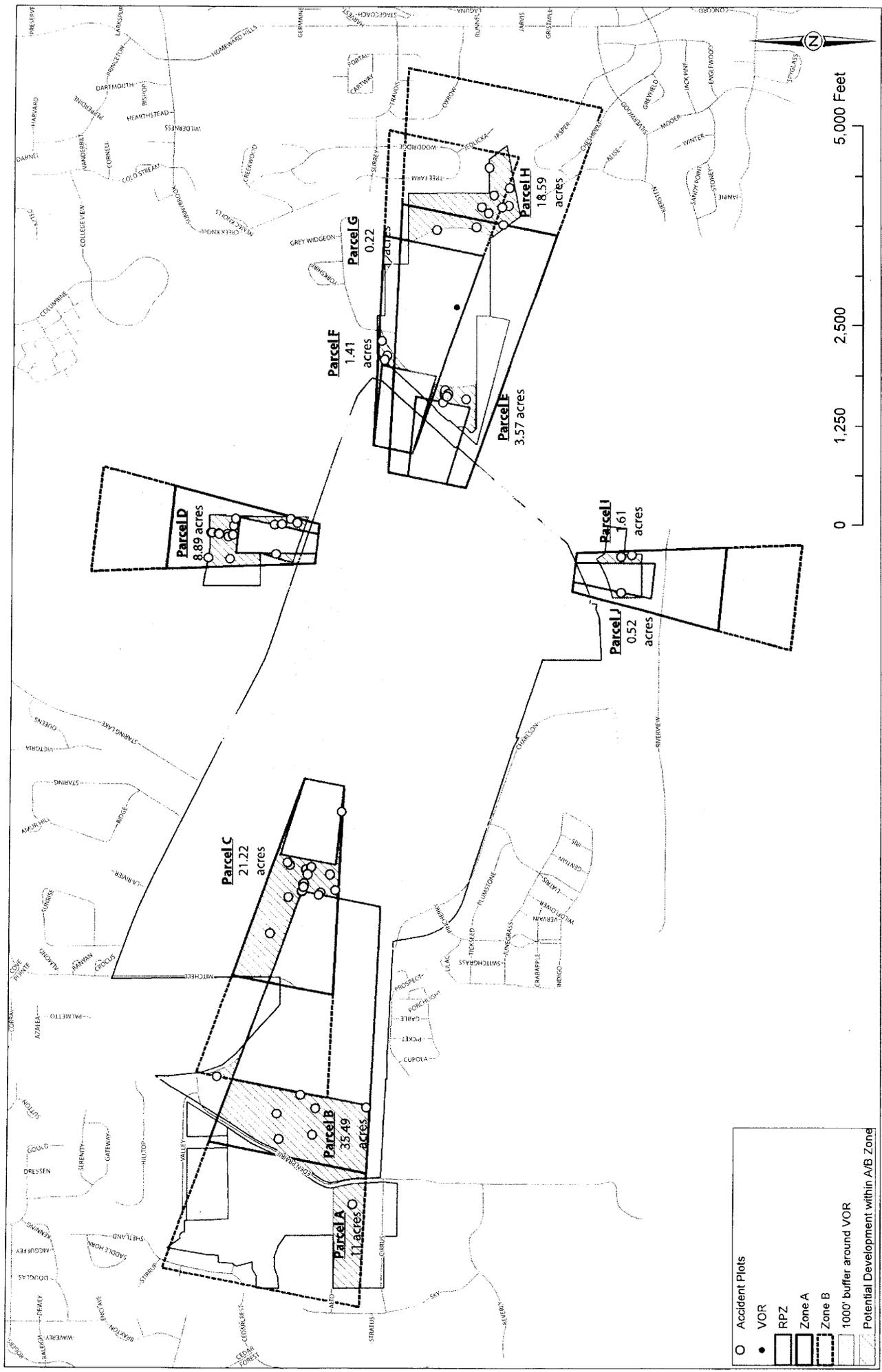
- Based on the findings of the November 5, 2009 HNTB FCM Safety Study the probability of an aircraft accident in the areas where people could use/occupy the land based on the Land Use Guide Plan Map 2030 in the Eden Prairie Comprehensive Plan Update is well below the FAA collision standard of one accident per 10 million operations.
- The Berkeley Study found that in 95% of aircraft accidents around General Aviation (GA) airports the pilot had control of the aircraft prior to impact.
- By virtue of the park agreement, VOR clear area, overlapping of RPZs with state safety zones on other runways, and water areas, when considering the A and B safety zones as one area outside the RPZ on each runway end, maximum contiguous open area acreages in the respective runway safety zones range from 20.93 acres to 65.38 acres.

- A conservative estimate of the crash site area for the largest design aircraft at FCM (Citation III) is 5,000 square feet.
- The RPZ areas, along with providing a minimum of 20 acres of contiguous open space in the remaining State Safety Zones, are more than adequate to ensure adequate clear areas in proximity to the extended runway centerlines around FCM based on the pilot control statistics and crash site characteristics.
- Based on the probability calculations for impacting a structure (applying pilot control assumption and accounting for adjacent open spaces provided by virtue of the park agreement, VOR clear area, overlapping of RPZs with state safety zones on other runways, and water areas) the probability of impacting a structure on all of the prospective MAC owned non-aeronautical development properties is well below the FAA Collision Standard of one in 10 million operations.
- Based on the findings of the November 5, 2009 HNTB FCM Safety Analysis, and the findings of the analyses contained in this memorandum, the following are substantiated points for consideration in providing direction on the framework for the development of a draft FCM Zoning Ordinance:
 - The present draft ordinance provisions at STP provide a potential foundation for the FCM zoning ordinance including:
 - Safety Zone A – is co-terminus with the Federal Runway Protection Zone (RPZ).
 - Safety Zone B – use restrictions do not include site acre/structure limitations and site- area-to-building-plot-area ratios and population criteria.
 - Leveraging the FAA 7460 review process as the initial screening process for the approval of structures in the vicinity of the airport that meet the FAA's 7460 review criteria.
- If substantiated by safety and economic analyses, allow for the improvement, expansion and development of new residential uses in existing and planned residential land use areas in Safety Zone B. These residential uses would be treated as conforming uses in the zoning ordinance.
- Based on the findings of the HNTB FCM Safety Analysis and the analyses contained in this memorandum, an additional zoning provision in Zone B could be developed such that a minimum of 20% of the total Zone B acreage or 20 acres, whichever is greater, is contiguous open space as an added margin of safety.

At the January 28, 2010 FCM JAZB meeting MAC staff will be requesting action from the Board on the general framework to begin the process of developing a draft FCM Zoning Ordinance for review by the JAZB at the next Board meeting.



2005 Land Use	
	RPZ
	Zone A
	Zone B
	MAC Property
	Farmstead
	Park Area per Agreement
	VOR Clear Area
	Potential Development
	RPZ Clear Zone
	Residential with MAC easement
	Seasonal/Vacation
	Single Family Detached
	Manufactured Housing Park
	Single Family Attached
	Multifamily
	Retail and Other Commercial
	Office
	Mixed Use Residential
	Mixed Use Industrial
	Mixed Use Commercial and Other
	Industrial and Utility
	Extractive
	Institutional
	Park, Recreational or Preserve
	Golf Course
	Major Highway
	Airport
	Railway
	Agricultural
	Undeveloped
	Water



Legend

- Accident Plots
- VOR
- RPZ
- ▨ Zone A
- ▨ Zone B
- ▨ 1000' buffer around VOR
- ▨ Potential Development within A/B Zone

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Flying Cloud Airport (FCM) Joint Airport Zoning Board (JAZB)

Simple Example
of Airport Zoning

C Zone

FCM JAZB Meeting - January 28, 2010

Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

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Outline

- Airport zoning background from the federal and state perspectives
- Review of zoning board actions at other MAC airports based on safety and economic study findings
- Summary of the FCM Safety Study results
- Additional relevant accident data information
- Analysis of the disposition of existing and possible future land uses in the context of safety zones around FCM
- Possible framework for Board Direction on Draft FCM Zoning Ordinance

Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

Federal Land Use Restrictions: RPZ

- Runway Protection Zones (RPZs) are defined in FAA Advisory Circular 150/5300-13, *Airport Design*.
- The intent of RPZs is to provide safety for people and property on the ground in the vicinity of runway ends at airports.
- The FAA accomplishes this goal through land use controls in RPZs designed to maintain areas near the ends of airport runways that are free of incompatible objects and activities.
- RPZs are trapezoid shapes centered on the approximate extended runway centerline radiating from the end of a runway.
- The dimensions of the RPZ are a function of the type of aircraft using the runway and approach visibility minima associated with the runway end.
- At most airports around the U.S. the Federal RPZ is the only airport safety land use control in place.



Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

Runway Safety Zones - Federal Runway Protection Zone (RPZ)

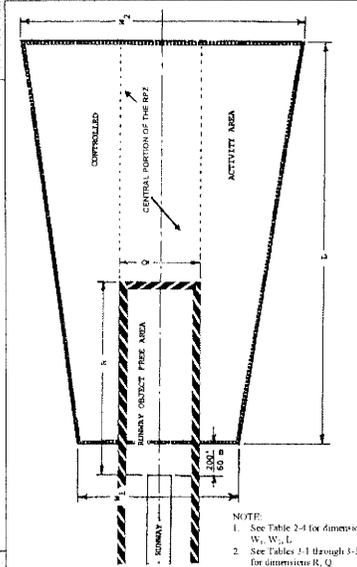
Federal Guidance:

- FAA Advisory Circular 150/5300-13

Table 2-4. Runway protection zone (RPZ) dimensions

Approach Visibility Minimums ¹	Facilities To Serve	Length L, Feet (meters)	Dimensions		RPZ acres
			Inner Width W _i , feet (meters)	Outer Width W _o , feet (meters)	
Visual Aid ²	Rwy 18 Rwy 36 Small Aircraft Exclusively	1,000 (300)	250 (75)	450 (135)	8,035
	Rwy 10L Aircraft Rwy 28L Approach Rwy 28R Categories A & B ³	1,000 (300)	500 (150)	700 (210)	13,770
Not lower than 1/2 Mile (1,000 m)	Approach Categories C & D	1,700 (510)	500 (150)	1,000 (300)	29,465
	All Aircraft	1,700 (510)	1,000 (300)	1,510 (453)	48,978
Lower than Rwy 10R	All Aircraft	2,500 (750)	1,000 (300)	1,750 (525)	78,911

¹ The RPZ dimensional standards are for the runway end with the specified approach visibility minimums. The departure RPZ dimensional standards are equal to or less than the approach RPZ dimensional standards. When a RPZ is longer than 200 feet (60 m) beyond the runway end, separate approach and departure RPZs should be provided. Refer to Appendix 14 for approach and departure RPZs.



NOTE:
1. See Table 2-4 for dimension W_i, W_o, L.
2. See Tables 1-1 through 1-3 for dimensions R, Q.



Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

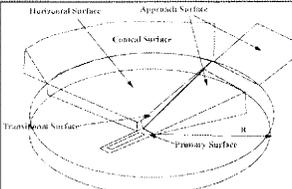
Federal Structure Height Restrictions

- Federal Aviation Regulation Part 77, *Objects Affecting Navigable Airspace*, establishes standards for determining obstructions to navigable airspace and the effects of such obstructions on the safe and efficient use of that airspace.
- The height limitations associated with Part 77 are defined in terms of imaginary surfaces in the airspace surrounding an airport.
- The various imaginary surfaces include the primary surface, transitional surface, horizontal surface, conical surface and the approach surface.



Imaginary Surfaces

- **Primary Surface** – aligned (longitudinally) with each runway and extends from 200 ft from each runway end with a width of 120 ft to 1,000 ft depending on the runway's classification.
- **Approach Surface** – longitudinally centered with the runway and extends beyond the primary surface at a slope and to a distance based on runway classification.
- **Horizontal Surface** – horizontal plane 150 ft. above the established airport elevation. Constructed by swing arcs around the end of the primary surface with a radius of either 5,000 ft or 10,000 ft based on the runway's classification.
- **Conical Surface** – 20:1 surface extending 4,000 ft beyond the horizontal surface.
- **Transitional Surface** – constructed to join approach and horizontal or approach and transitional surfaces.



FCM Airspace Surface Dimensions by Runway

Surface	Runway 18	Runways 36, 28L, 10L, 28R	Runway 10R
Width of Primary Surface	500 ft	500 ft	1,000 ft
Radius of Horizontal Surface	5,000 ft	5,000 ft	10,000 ft
Width of Approach Surface at Outer Edge	1,500 ft	3,500	15,000 ft
Approach Surface Length	5,000 ft	5,000 ft	50,000 ft
Approach Slope	20:1	34:1	50:1*

* Last 40,000 ft the slope is 40:1



7460 Review: Federal Review of Proposed Structures around Airports



- Under Part 77, the FAA has established a process for reviewing and evaluating proposed structures in the vicinity of airports.
- FAA Advisory Circular (AC) 7460 establishes an airspace review process and provides information to individuals wishing to erect or alter structures that may affect navigable airspace around an airport.
- In administering 14 CFR Part 77, the FAA's main objective is to ensure the safe and efficient use of navigable airspace around airports.
- The FAA has established five different thresholds for evaluating whether a structure may affect navigable airspace around an airport. If any one of these thresholds is reached, the FAA requests that an individual wishing to erect or alter a structure seek the FAA's approval before commencing construction.
- For Example: one of the FAA thresholds applies if a structure is within "20,000 feet of an airport or seaplane base with at least one runway more than 3,200 feet in length and the object would exceed a slope of 100:1 horizontally (100 feet horizontally for each 1 foot vertically) from the nearest point of the nearest runway."



7460 Airspace Review Findings



- After receiving a request for approval, the FAA will typically issue one of the following three determinations:
 - **Determination of No Hazard to Air Navigation** – "The subject construction does not exceed obstruction standards and marking/lighting is not required."
 - **Conditional Determination** – "The proposed construction/alteration would be acceptable contingent upon implementing mitigating measures (marking and lighting etc.)"
 - **Objectionable** – "The proposed construction/alteration is determined to be a hazard and is thus objectionable. The reasons for this determination are outlined to the proponent."
- In certain circumstances, the FAA's detailed airspace hazard analysis results in FAA approval for developments near airports that may be in excess of the general height limitations set forth in 14 CFR Part 77.



Why Are We Here?



Minn. Stat. §360.062:

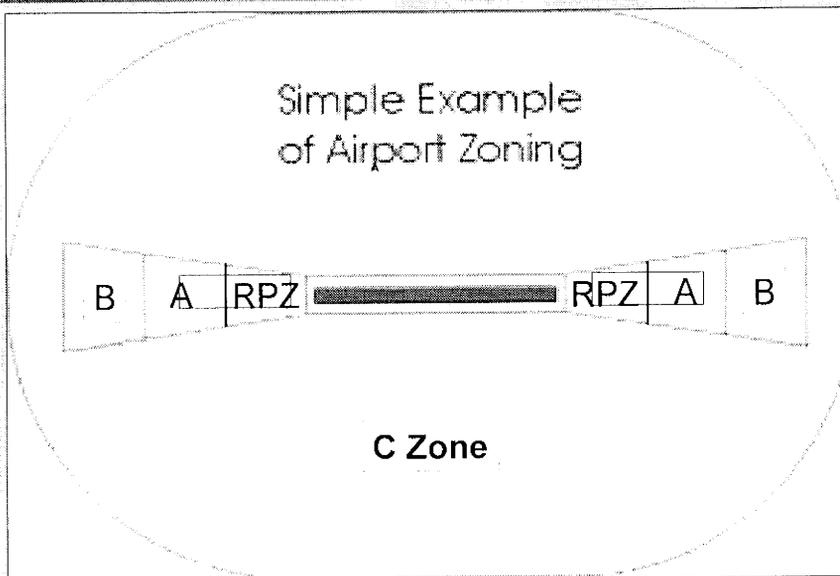
- Establishes that **“airport hazards”** endanger lives, property and airport utility and should be prevented with consideration given to avoiding the disruption of existing land uses based on social and financial costs.

Minn. Stat. §360.063, subd. 3:

- In an effort to prevent the creation or establishment of “airport hazards,” the statute states that **“the Metropolitan Airports Commission shall request creation of one joint airport zoning board for each airport operated under its authority.”**
- Establishes that **“A joint board shall have as members two representatives appointed by the municipality owning or controlling the airport and two from the county or municipality, or in case more than one county or municipality is involved two from each county or municipality, in which the airport hazard is located, and in addition a chair elected by a majority of the members so appointed.”**



State Model Zoning Ordinance



Fundamental Goal of the Board



GOAL:

Develop FCM Zoning Ordinance for Review and Approval by the Commissioner of Transportation, for Subsequent Adoption by the Board and then by Local Municipalities

Major Considerations:

- MnDOT Model Ordinance – Minnesota Rule 8800.1200 and Minnesota Rule 8800.2400
- FCM's unique characteristics in the context of existing and planned land uses around the airport
- Maintaining a "reasonable standard of safety" while considering the social and financial costs to the community
- Minn. Stat. §360.066, subd. 1 is especially instructive when addressing the question of zoning around complex urbanized airports such as FCM



Minn. Stat. §360.066, subd. 1



- When addressing airport zoning minimum standards and land uses related to reasonableness, the statute instructs that:

*"Standards of the commissioner defining airport hazard areas and the categories of uses permitted and airport zoning regulations adopted under sections 360.011 to 360.076, shall be reasonable, and none shall impose a requirement or restriction which is not reasonably necessary to effectuate the purposes of sections 360.011 to 360.076. In determining what minimum airport zoning regulations may be adopted, the commissioner and a local airport zoning authority shall consider, among other things, **the character of the flying operations expected to be conducted at the airport, the location of the airport, the nature of the terrain within the airport hazard area, the existing land uses and character of the neighborhood around the airport, the uses to which the property to be zoned are planned and adaptable, and the social and economic costs of restricting land uses versus the benefits derived from a strict application of the standards of the commissioner.**"*



MSP and STP Zoning Efforts

- In all cases in the State A and B Zones around MSP and STP the accident probability was less than 1 accident per 10 million operations
- In the cases of both MSP and STP there were significant economic impacts to implementation of the Model Zoning Ordinance – for instance implementation at STP resulted in 7,333 lost job opportunities and potential annual lost property taxes of \$2,441,332
- As part of the STP JAZB efforts, the analytical methodology utilized was independently evaluated by Dr. Manuel Ayres, Jr. with Applied Research Associates to provide additional expertise in the area of statistical analysis, risk calculation and critique in the development of the updated analysis. Dr. Ayres is a member of the Transportation Research Board (TRB) and served as a member of a TRB committee that studied the issue of aircraft/airport compatibility related to safety around airports.
- In the case of STP significant terrain challenges exist



Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

MSP Zoning Ordinance: Modifications from Model Ordinance

- Based on the findings of the Safety Study and the Economic Analysis, the Board adopted the following notable changes to the State Model Zoning Ordinance:
 - Safety Zone A – is co-terminus with the Federal Runway Protection Zone (RPZ).
 - Safety Zone B – use restrictions do not include site acre/structure limitations and site-area-to-building-plot-area ratios and population criteria with a maximum zone distance from the airport of 7,000 feet.
 - Exemption for Established Residential Neighborhoods – allows for the improvement, expansion and development of new residential uses in and adjacent to Established Residential Neighborhoods in Safety Zone B.
 - Allows pond developments along the bluff line of the Minnesota River in Zone B
- The Commissioner of Transportation approved the MSP Joint Airport Zoning Board's recommended ordinance.



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Joint Airport Zoning Board (JAZB)

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STP Zoning Ordinance: Possible Modifications from Model Ordinance

- Based on the findings of the Safety Study and the Economic Analysis, the STP Board is considering adoption of the MSP modifications in addition to the following notable changes to the State Model Zoning Ordinance:
 - Airspace and Safety Zoning Limits – incorporates additional zoning limit criteria based on terrain slope characteristics.
 - Part 77 review built into the zoning ordinance allowable structure heights due to terrain challenges.
 - Leveraging Part 77 review process prior to Board of Adjustment involvement and addressing trees separately from inanimate structures with approach surveys every five years.
 - Allowing possible Saint's Stadium Development in Zone B.
 - Allowing above ground fuel storage tanks in areas that are separated by at least 1,000 feet from residential areas and/or areas that have high population density anytime during the day.
 - Allows Pond developments within ¼ mile of the Mississippi River bluff line in Zone B with required design approval to ensure no bird attraction.
 - Capital Grounds Exemption
- STP JAZB is awaiting FAA findings relative to preapproval of structure heights possibly in excess of Part 77 surfaces in certain areas around airport to be built into the draft ordinance.


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FCM Safety Study Results

Comparison of Accident Probabilities for the Runway Ends in 2025 to the FAA Collision Standard of One Accident per 10 Million Operations and Years between Accidents

Runway End	On Airfield + RPZ	State Safety Zone A outside RPZ	State Safety Zone B	Off Airport	FAA Collision Standard
10R	56.30 (4 yrs.)	0.44 (521 yrs.)	1.07 (214 yrs.)	17.63 (13 yrs.)	1.00
10R Occupant Area in E.P. 2030 Plan			0.253 (910 yrs.)		1.00
28L	53.93 (4 yrs.)	8.38 (26 yrs.)	1.07 (204 yrs.)	12.04 (18 yrs.)	1.00
28L Occupant Area in E.P. 2030 Plan		0.169 (1,294 yrs.)	0.563 (388 yrs.)		1.00
10L	56.43 (4 yrs.)	2.40 (96 yrs.)	1.33 (174 yrs.)	15.29 (15 yrs.)	1.00
10L Occupant Area in E.P. 2030 Plan			0.126 (1,821 yrs.)		1.00
28R	56.23 (4 yrs.)	1.92 (114 yrs.)	0.62 (351 yrs.)	16.68 (13 yrs.)	1.00
28R Occupant Area in E.P. 2030 Plan			0.170 (1,288 yrs.)		1.00
18	59.19 (14 yrs.)	3.65 (220 yrs.)	1.66 (484 yrs.)	10.95 (73 yrs.)	1.00
36	58.98 (14 yrs.)	3.53 (232 yrs.)	1.60 (511 yrs.)	11.33 (72 yrs.)	1.00


 Flying Cloud Airport (FCM)
 Joint Airport Zoning Board (JAZB)

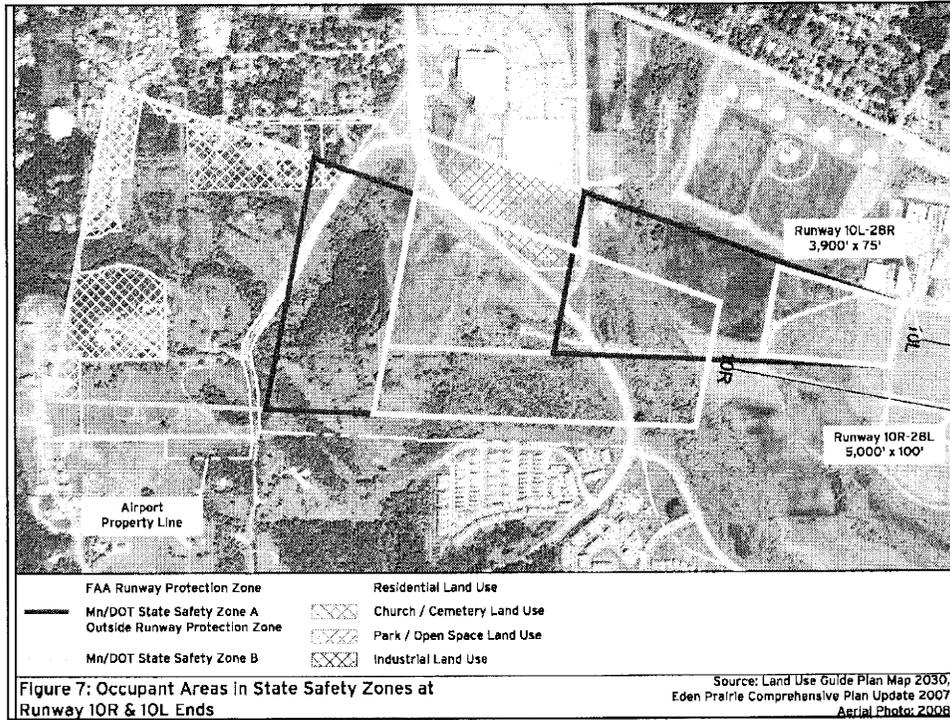


Figure 7: Occupant Areas in State Safety Zones at Runway 10R & 10L Ends

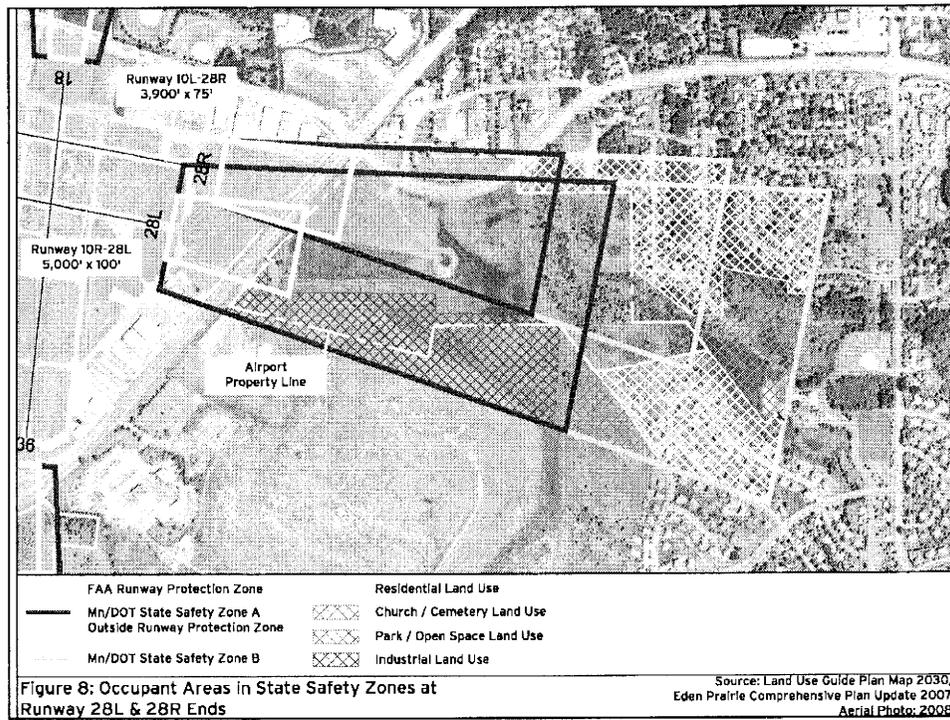


Figure 8: Occupant Areas in State Safety Zones at Runway 28L & 28R Ends

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FCM Safety Study: Other Relevant Findings

- The potential severity of an off-airport aircraft accident is highly dependent upon the nature of the land use at the accident site. Three characteristics are most important—intensity of use; type of use (residential or non-residential); and sensitivity of use. Uses that attract a large assembly of people are the most severe. Uses that are populated 24 hours a day and 365 days a year (e.g., hospitals and nursing homes) are more likely to result in a fatality than uses that are not.
- The Berkeley study found that the pilot had control of the aircraft in 95% of the accidents that occurred in the vicinity of General Aviation (GA) airports – only 5% had no control.
- While the findings of this study do not establish that strict application of the Mn/DOT Modeling Zoning Ordinance is required to provide a reasonable standard of safety around FCM, they do support additional consideration be given to land use controls around the airport beyond what might be applied when the accident probability within a State Safety Zone is less than 1 accident in 10 million operations.



Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

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Additional Accident Data/Information: Pilot Control

- One important question when evaluating the degree to which land use should be controlled around FCM is the degree to which pilots can determine the exact impact location of the aircraft.
- The Berkeley Study found that in 95% of aircraft accidents around General Aviation (GA) airports the pilot had control of the aircraft prior to impact.
- In the Airport Land Use Compatibility Manual published by the Minnesota Department of Transportation in September 2006 states on page 17 of Appendix 7:
 - “ ... In many accidents the pilot has some control of the aircraft and has the ability to avoid some obstacles. If the aircraft is small enough and the population density is low enough, in many cases the pilot can avoid structures, automobiles, etc...”
- The above facts indicate that the location of distinct open spaces in the proximity of the extended runway centerline beyond the RPZ, large enough to allow a pilot to locate clearly and to contain the extent of the crash site, could be beneficial from a safety perspective.



Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

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Additional Accident Data/Information: Aircraft Crash Sites



- The analysis of acceptable land uses in the vicinity of FCM and the topic of contiguous open space must be evaluated in the context of the typical characteristics of aircraft crash sites.
- As detailed in the Airport Land Use Compatibility Manual published by the Minnesota Department of Transportation in September 2006, on page 17 of Appendix 7:
 - “As part of Caltrans’ development of their Airport Land Use Planning Handbook, they developed an accident location database. The 2002 handbook provides some idea of the crash size for general aviation accidents. Caltrans determined that the median swath length for general aviation accidents is only about 100 feet...”
 - “... The average wingspan for general aviation aircraft is approximately 40 feet. If we assume that the average swath width for general aviation aircraft is similar to the wingspan then the average crash site size is in the vicinity of 4,000 square feet, i.e. 100 feet of length times 40 feet of width.”



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Additional Accident Data/Information: Aircraft Crash Sites (Cont.)



- Federal Aviation Administration AC 150/5210-6C provides the equation for calculating the theoretical critical fire area (TCA) for aircraft crashes.
- These calculations are used to determine the area around a crash site that must be isolated from fire.
- The equation, where L= aircraft fuselage length and W = aircraft fuselage width, is as follows:

$$TCA = L \times (100' + W), \text{ when } L \text{ is } > 65 \text{ feet}$$

-or-

$$TCA = L \times (40' + W), \text{ when } L \text{ is } < 65 \text{ feet}$$
- The largest design aircraft at FCM is the Cessna Citation III, a midsized corporate jet. The Citation III has a fuselage length of 50 feet and a wing span of 53 feet.
- When applying the above equation the resulting TCA is 4,650 square feet. It is important to note that this is a conservative calculation because the wingspan was used rather than the fuselage width.
- As detailed in the November 5, 2009 FCM Safety Study Memorandum, according to national 2003 NTSB data 69% of accidents were recreation operations (small general aviation aircraft), 14.7% were flight instruction, 5% were aerial application and less than 1% were corporate/executive operations.



Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

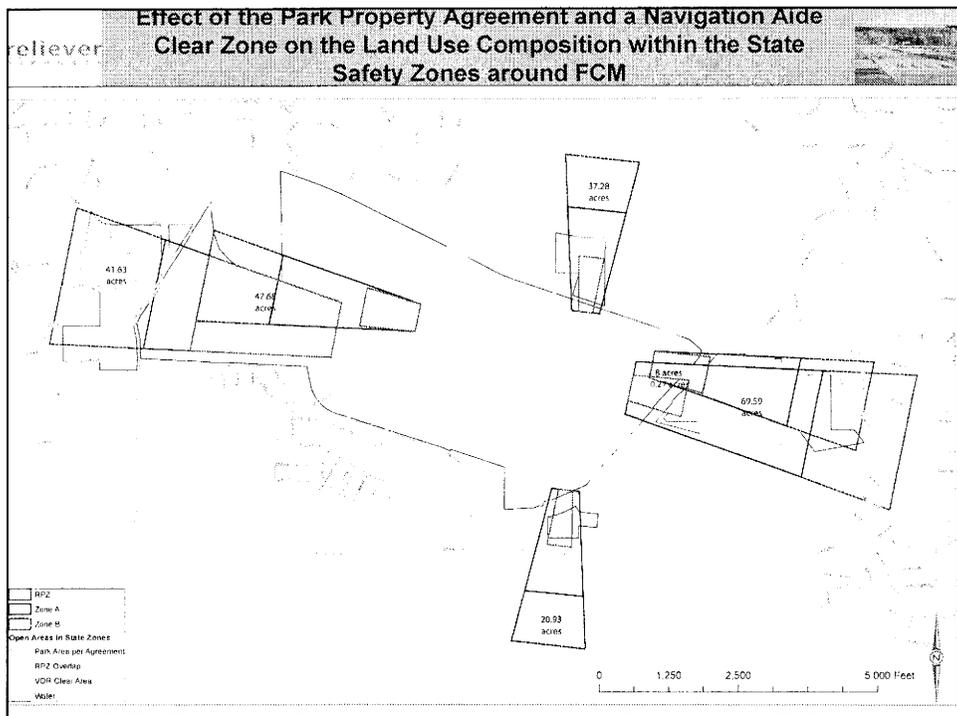
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Additional Accident Data/Information: Aircraft Crash Sites (Cont.)

- The design aircraft for Runway 18/36 at FCM is the Beach Baron 58, which has a fuselage width of approximately 10 feet and a length of approximately 30 feet.
- The TCA for the Beach Baron 58 is 1,500 square feet.
- Based on the 2025 FCM operations forecast, over 60% of the aircraft operations at FCM would result in a TCA of approximately 2,000 square feet or less.
- The Airport Land Use Compatibility Manual published by the Minnesota Department of Transportation in September 2006, states the following on page 17 of Appendix 7:

“Population density has a major affect on the likelihood of a grounding fatality. In many accidents the pilot has some control of the aircraft and has the ability to avoid some obstacles. If the aircraft is small enough and the population density is low enough, in many cases the pilot can avoid structures, automobiles, etc. A 2,000 square foot accident site from a general aviation crash will miss humans in many cases.”

Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

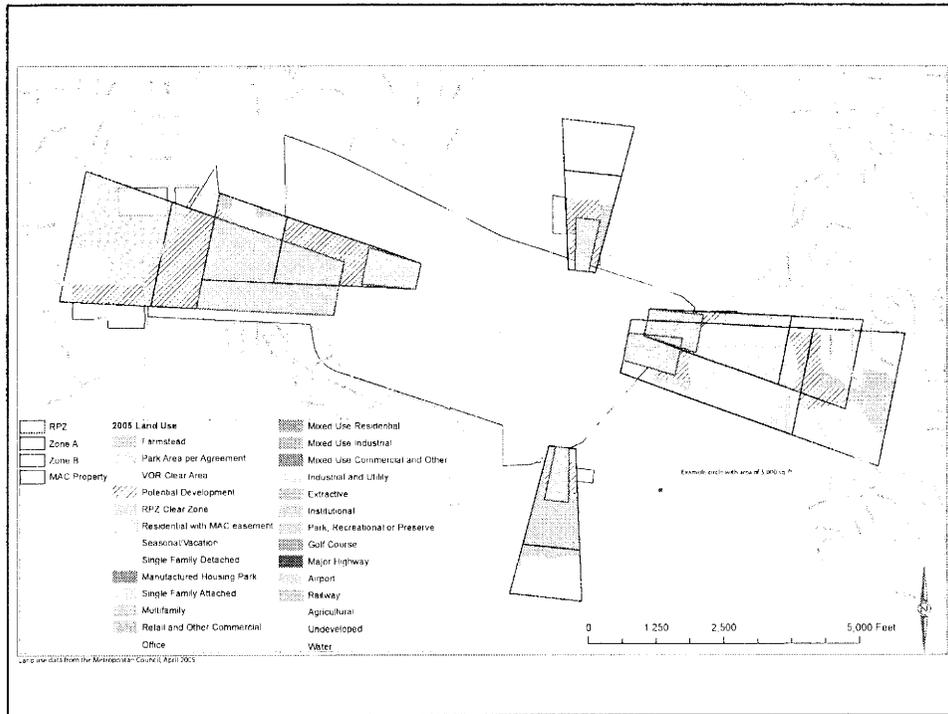
Effect of the Park Property Agreement, Navigation Aide Clear Zone and Water on the Land Use Composition within the State Safety Zones around FCM

Acreage Totals and Percentages in the State Safety Zones by Virtue of Park Agreement, Overlapping PRZs and Open Water Areas

Runway	Contiguous Open Space Type	Acreage of Type	Percent of Total Acreage
10R	Park Area per Agreement	41.63	20.74%
10L	RPZ Clear Zone	47.80	49.25%
28R	RPZ Clear Zone	0.24	0.25%
28L	RPZ Clear Zone	8.00	3.99%
28L	VOR Clear Area	65.38	32.49%
28R	VOR Clear Area	40.14	41.15%
36	Water	20.93	35.35%
18	Water	37.28	63.28%

Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

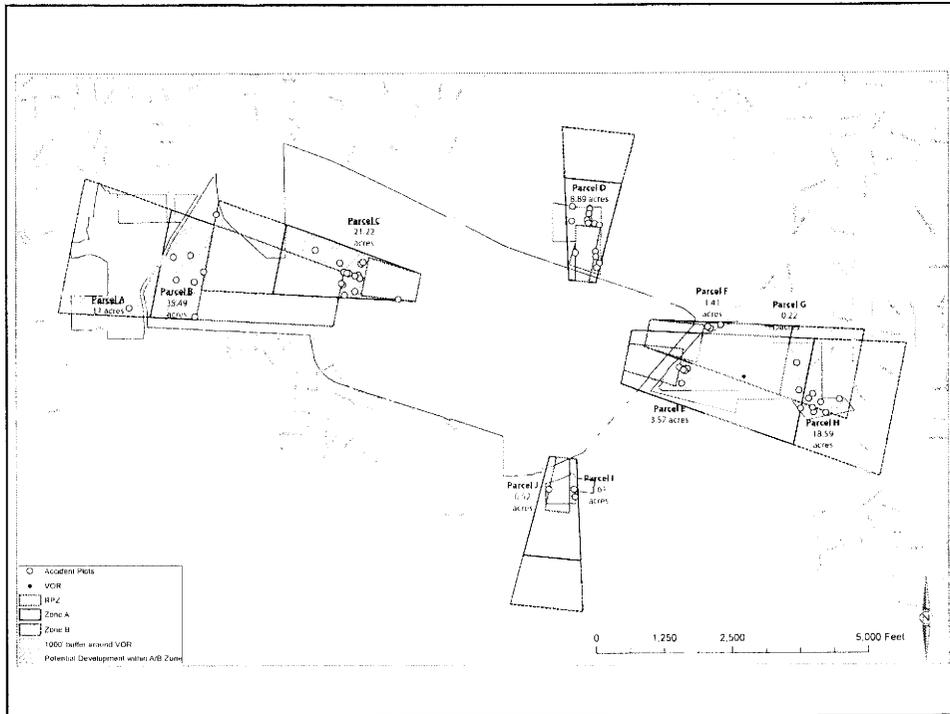
- MAC-Owned Prospective Non-Aeronautical Development Parcels within the State Safety Zones**
- There are certain parcels of MAC property located in State Safety Zones A and B around FCM that are considered possible locations for non-aeronautical development.
 - The purpose of these developments is to ensure the future financial viability of the MAC reliever airport system by diversifying revenue streams in an effort to off-set a portion of rates and charges from reliever airport businesses and tenants.
- Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)



Accident Probability Analysis of MAC-Owned Possible Non-Aeronautical Development Parcels

- Analysis was conducted based on the accident locations that fall within each of the parcels, based on the accident location data that were provided in the University of Berkeley Study and the January 2002 Caltrans Airport Land Use Planning Handbook.
- This analysis utilizes the same accident location data utilized by HNTB in its November 5, 2009 FCM Safety Study.
- Applied the same calculations relative to these areas and accident location data, as was done by HNTB in the FCM Safety Study, with additional consideration given to the pilot control information and the unique land uses in Zones A and B around FCM by virtue of the park property agreement, VOR clear Zone, RPZ over lap with adjacent State Safety Zones and Water.


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Accident Probability Analysis of MAC-Owned Possible Non-Aeronautical Development Parcels (Cont.)

- The next table provides two probability calculations.
- The first calculation provides the probability of an aircraft accident anywhere on the respective MAC-owned development properties. This calculation does not account for the pilot control variable and the adjacent large contiguous open spaces. Moreover, this calculation makes an assumption that the entire parcel is covered by structures.
- The second calculation is the probability of impacting a structure within the respective development parcels, taking into account pilot control and the adjacent large contiguous open spaces as provided by the park agreement, VOR clear area, overlapping of RPZs with state zones on other runways, and water areas.


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Accident Probability Analysis of MAC-Owned Possible Non-Aeronautical Development Parcels (Cont.)

Comparison of Accident Probabilities for Prospective MAC-Owned Non-Aeronautical Development Parcels in 2025 to the FAA Collision Standard of One Accident per 10 Million Operations and Years between Accidents

MAC-Owned Development Parcel	Probability of Accident within Development Parcels (without Accounting for Pilot Control and Adjacent Open Spaces)	Probability of Impacting a Structure (Applying Pilot Control Assumption and Accounting for Adjacent Open Spaces)	FAA Collision Standard
A	0.06	0.00	1.00
B	0.44	0.02	1.00
C	1.20	0.06	1.00
D	2.10	0.11	1.00
E	0.39	0.02	1.00
F	0.17	0.01	1.00
G	0.00	0.00	1.00
H	0.56	0.03	1.00
I	0.21	0.01	1.00
J	0.11	0.01	1.00

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Accident Probability Analysis of MAC-Owned Possible Non-Aeronautical Development Parcels (Cont.)

Analysis Conclusion:

The probability of aircraft actually impacting structures in the prospective MAC-owned non-aeronautical development areas is well below the FAA Collision Standard of one collision per 10 million operations in all cases.

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Summary Points for Board Consideration in Providing Staff Direction on Development of Draft FCM Zoning Ordinance

- Based on the findings of the November 5, 2009 HNTB FCM Safety Study the probability of an aircraft accident in the areas where people could use/occupy the land based on the Land Use Guide Plan Map 2030 in the Eden Prairie Comprehensive Plan Update is well below the FAA collision standard of one accident per 10 million operations.
- The Berkeley Study found that in 95% of aircraft accidents around General Aviation (GA) airports the pilot had control of the aircraft prior to impact.
- By virtue of the park agreement, VOR clear area, overlapping of RPZs with state safety zones on other runways, and water areas, when considering the A and B safety zones as one area outside the RPZ on each runway end, maximum contiguous open area acreages in the respective runway safety zones range from 20.93 acres to 65.38 acres.
- A conservative estimate of the crash site area for the largest design aircraft at FCM (Citation III) is 5,000 square feet.

 Flying Cloud Airport (FCM)
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Summary Points for Board Consideration in Providing Staff Direction on Development of Draft FCM Zoning Ordinance (Cont.)

- The RPZ areas, along with providing a minimum of 20 acres of contiguous open space in the remaining State Safety Zones, are more than adequate to ensure adequate clear areas in proximity to the extended runway centerlines around FCM based on the pilot control statistics and crash site characteristics.
- Based on the probability calculations for impacting a structure (applying pilot control assumption and accounting for adjacent open spaces provided by virtue of the park agreement, VOR clear area, overlapping of RPZs with state safety zones on other runways, and water areas) the probability of impacting a structure on all of the prospective MAC-owned non-aeronautical development properties is well below the FAA collision standard of one in 10 million operations.

 Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

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Possible Framework for Board Direction On Draft FCM Zoning Ordinance

- The following draft ordinance provisions being considered at STP provide a potential foundation for the FCM zoning ordinance including:
 - Safety Zone A – is co-terminus with the Federal Runway Protection Zone (RPZ).
 - Safety Zone B – use restrictions do not include site acre/structure limitations and site- area-to-building-plot-area ratios and population criteria.
 - Leveraging the FAA 7460 review process as the initial screening process for the approval of structures in the vicinity of the airport that meet the FAA's 7460 review criteria.
- Based on the safety and economic analyses, allow for the improvement, expansion and development of new residential uses in existing and planned residential land use areas in Safety Zone B. These residential uses would be treated as conforming uses in the zoning ordinance.
- Based on the findings of the HNTB FCM Safety Analysis and the analyses contained in this memorandum, an additional zoning provision in Zone B could be developed such that a minimum of 20% of the total Zone B acreage or 20 acres, whichever is greater, is maintained as contiguous open space as an added margin of safety.



Flying Cloud Airport (FCM)
Joint Airport Zoning Board (JAZB)

**FLYING CLOUD AIRPORT
JOINT AIRPORT ZONING BOARD**

**Thursday, January 28, 2010
Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie, MN**

MINUTES

Rick King, Chair, called the Flying Cloud Airport Joint Airport Zoning Board meeting to order at 4:05 p.m. The following were in attendance:

Members: Rick King, Chair
Glen Markegard, City of Bloomington
Steve Peterson, City of Bloomington
Kate Aanenson, City of Chanhassen
Jon Duckstad, City of Eden Prairie
Joseph Helkamp, City of Shakopee
Molly Sigel, Metropolitan Airports Commission

Others: Scott Kipp, Michael Franzen, Janet Jeremiah, City of Eden Prairie; Deb Sorenson, Mn/DOT; Chauncey Case, Elaine Koutsoukos, Metropolitan Council; John Krack, RAAC; Tom Anderson, Cameron Boyd, Roy Fuhrmann, Eric Johnson, Chad Leqve, Amanda Nyren, Dennis Probst, MAC Staff

1. CHAIR REMARKS

Chair King opened the meeting by reviewing the fundamental goal of the Board to develop a zoning ordinance for review and approval by the Commissioner of Transportation for subsequent adoption by the Board and then by local communities. He reviewed the major considerations for the Board in determining a zoning ordinance and stated that the focus of the Board's deliberations should be on the specific elements of a zoning ordinance and not on possible developments that might be acceptable on property in the zones, including MAC owned property.

2. APPROVAL OF MEETING AGENDA

IT WAS MOVED BY HELKAMP, SECONDED BY MARKEGARD, TO APPROVE THE AGENDA AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

3. APPROVAL OF NOVEMBER 19, 2009 FCM JAZB MEETING MINUTES

IT WAS MOVED BY HELKAMP, SECONDED BY SIGEL, TO APPROVE THE MINUTES OF THE NOVEMBER 19, 2009 FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD MEETING AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

4. **REVIEW OF CITY OF EDEN PRAIRIE ECONOMIC ANALYSIS**

Scott Kipp, City of Eden Prairie Staff, presented information regarding the development potential within safety zones. He reviewed the following four development alternatives evaluated by City Staff:

Alternative 1 - Development according to the City's 2008 adopted Guide Plan

- Land and building value - \$11,700,000
- Employment – 0
- City Tax - \$33,930

Alternative 2 - State Model Ordinance

- Office land and building value - \$39,204,000
- Employment – 1,633
- City Tax - \$137,214

Alternative 3 - Development on MAC property

- Office land and building value - \$160,870,520
- Employment – 5,373
- City Tax - \$563,846

Alternative 4 - Maximum development (Alternative 1 and Alternative 3)

- Residential land and building value - \$11,700,000
- Employment – 0
- City Tax - \$33,930

- Office land and building value - \$160,870,520
- Employment – 5,373
- City Tax - \$563,846

Discussion followed regarding the economic analysis and comments were made that the information presented was very conservative. It was requested that the City bring a revised economic analysis to the next meeting.

5. **PUBLIC COMMENTS**

No public comments were received.

6. **REVIEW OF ADDITIONAL SAFETY ANALYSIS IN THE CONTEXT OF EXISTING AND FUTURE POSSIBLE LAND USES IN THE STATE SAFETY ZONES**

Chad Leque, MAC Staff, presented information on the following:

- Airport zoning background from the Federal and State perspectives
- Review of zoning board actions at other MAC airports based on safety and economic study findings

- Summary of the FCM Safety Study results
- Additional relevant accident data information
- Analysis of the disposition of existing and possible future land uses in the context of safety zones around FCM
- Possible framework for Board Direction on Draft FCM Zoning Ordinance

The Board then made the following considerations in providing direction to MAC Staff on the specifics to be included in the Draft FCM Zoning Ordinance:

- Based on the findings of the November 5, 2009 HNTB FCM Safety Study, the probability of an aircraft accident in the areas where people could use/occupy the land based on the Land Use Guide Plan Map 2030 in the Eden Prairie Comprehensive Plan Update is well below the FAA collision standard of one accident per 10 million operations.
- The Berkeley Study found that in 95% of aircraft accidents around General Aviation (GA) airports the pilot had control of the aircraft prior to impact.
- By virtue of the park agreement, VOR clear area, overlapping of RPZs with State Safety Zones on other FCM runways, and water areas, when considering the A and B safety zones as one area outside the RPZ on each runway end, maximum contiguous open area acreages in the respective runway safety zones range from 20.93 acres to 65.38 acres.
- A conservative estimate of the crash site area for the largest design aircraft at FCM (Citation III) is 5,000 square feet.
- The RPZ areas, along with providing a minimum of 20 acres of contiguous open space in the remaining State Safety Zones, provide adequate clear areas in proximity to the extended runway centerlines around FCM based on the pilot control statistics and crash site characteristics.
- Based on the probability calculations for impacting a structure (applying pilot control assumption and accounting for adjacent open spaces provided by virtue of the park agreement, VOR clear area, overlapping of RPZs with state safety zones on other runways, and water areas) the probability of impacting a structure on all of the prospective MAC-owned non-aeronautical development properties is well below the FAA Collision Standard of one in 10 million operations.

IT WAS MOVED BY HELKAMP, SECONDED BY PETERSON, THAT MAC STAFF PREPARE A DRAFT FCM ZONING ORDINANCE IN A MANNER CONSISTENT WITH THE MAIN POINTS CONTAINED IN THE STP AND MSP ZONING ORDINANCES IN ADDITION TO THE FOLLOWING:

- **LEVERAGE THE FAA 7460 REVIEW PROCESS AS THE INITIAL SCREENING PROCESS FOR THE APPROVAL OF STRUCTURES IN THE VICINITY OF THE AIRPORT THAT MEET THE FAA'S 7460 REVIEW CRITERIA.**
- **ALLOW FOR THE IMPROVEMENT, EXPANSION AND DEVELOPMENT OF NEW RESIDENTIAL USES IN EXISTING AND**

PLANNED RESIDENTIAL LAND USE AREAS IN SAFETY ZONE B. THESE RESIDENTIAL USES SHOULD BE TREATED AS CONFORMING USES IN THE ZONING ORDINANCE.

- AN ADDITIONAL ZONING PROVISION IN ZONE B DEVELOPED SUCH THAT A MINIMUM OF 20% OF THE TOTAL ZONE B ACREAGE OR 20 ACRES, WHICHEVER IS GREATER, IS CONTIGUOUS OPEN SPACE AS AN ADDED MARGIN OF SAFETY.

AND COME BACK TO THE NEXT MEETING WITH A DRAFT FCM ZONING ORDINANCE FOR THE BOARD'S CONSIDERATION. THE MOTION CARRIED BY UNANIMOUS VOTE.

The Board also requested that Mr. Leqve's powerpoint presentation be attached to the meeting minutes.

Mr. Leqve also reviewed the steps involved in the JAZB process before final approval of an ordinance by the Commissioner of Transportation.

7. **NEXT MEETING DATE**

The Board agreed to cancel the February 18th meeting to allow staff time to prepare and provide the Board with a draft ordinance for its consideration. The next meeting is scheduled for 4:00 p.m. on March 18, 2010.

IT WAS MOVED BY HELKAMP, SECONDED BY PETERSON TO ADJOURN. THE MOTION CARRIED BY UNANIMOUS VOTE.

The meeting was adjourned at 5:48 p.m.

Flying Cloud Airport Joint Airport Zoning Board

Meeting Agenda

Thursday, March 18, 2010

4:00 P.M.

Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie

Agenda Items

1. Approval of Meeting Agenda
2. Approval of January 28, 2010 FCM JAZB Meeting Minutes
3. Public Comments
4. Updated City of Eden Prairie Economic Analysis
5. Draft FCM Zoning Ordinance
6. Establish Public Review and Public Hearing Plan

**FLYING CLOUD AIRPORT
JOINT AIRPORT ZONING BOARD**

**Thursday, January 28, 2010
Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie, MN**

MINUTES

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Joseph Helkamp, City of Shakopee
Molly Sigel, Metropolitan Airports Commission

Others: Scott Kipp, Michael Franzen, Janet Jeremiah, City of Eden Prairie; Deb Sorenson, Mn/DOT; Chauncey Case, Elaine Koutsoukos, Metropolitan Council; John Krack, RAAC; Tom Anderson, Cameron Boyd, Roy Fuhrmann, Eric Johnson, Chad Leque, Amanda Nyren, Dennis Probst, MAC Staff

1. CHAIR REMARKS

Chair King opened the meeting by reviewing the fundamental goal of the Board to develop a zoning ordinance for review and approval by the Commissioner of Transportation for subsequent adoption by the Board and then by local communities. He reviewed the major considerations for the Board in determining a zoning ordinance and stated that the focus of the Board's deliberations should be on the specific elements of a zoning ordinance and not on possible developments that might be acceptable on property in the zones, including MAC owned property.

2. APPROVAL OF MEETING AGENDA

IT WAS MOVED BY HELKAMP, SECONDED BY MARKEGARD, TO APPROVE THE AGENDA AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

3. APPROVAL OF NOVEMBER 19, 2009 FCM JAZB MEETING MINUTES

IT WAS MOVED BY HELKAMP, SECONDED BY SIGEL, TO APPROVE THE MINUTES OF THE NOVEMBER 19, 2009 FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD MEETING AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

4. **REVIEW OF CITY OF EDEN PRAIRIE ECONOMIC ANALYSIS**

Scott Kipp, City of Eden Prairie Staff, presented information regarding the development potential within safety zones. He reviewed the following four development alternatives evaluated by City Staff:

Alternative 1 - Development according to the City's 2008 adopted Guide Plan

- Land and building value - \$11,700,000
- Employment – 0
- City Tax - \$33,930

Alternative 2 - State Model Ordinance

- Office land and building value - \$39,204,000
- Employment – 1,633
- City Tax - \$137,214

Alternative 3 - Development on MAC property

- Office land and building value - \$160,870,520
- Employment – 5,373
- City Tax - \$563,846

Alternative 4 - Maximum development (Alternative 1 and Alternative 3)

- Residential land and building value - \$11,700,000
- Employment – 0
- City Tax - \$33,930

- Office land and building value - \$160,870,520
- Employment – 5,373
- City Tax - \$563,846

Discussion followed regarding the economic analysis and comments were made that the information presented was very conservative. It was requested that the City bring a revised economic analysis to the next meeting.

5. **PUBLIC COMMENTS**

No public comments were received.

6. **REVIEW OF ADDITIONAL SAFETY ANALYSIS IN THE CONTEXT OF EXISTING AND FUTURE POSSIBLE LAND USES IN THE STATE SAFETY ZONES**

Chad Leqve, MAC Staff, presented information on the following:

- Airport zoning background from the Federal and State perspectives
- Review of zoning board actions at other MAC airports based on safety and economic study findings

- Summary of the FCM Safety Study results
- Additional relevant accident data information
- Analysis of the disposition of existing and possible future land uses in the context of safety zones around FCM
- Possible framework for Board Direction on Draft FCM Zoning Ordinance

The Board then made the following considerations in providing direction to MAC Staff on the specifics to be included in the Draft FCM Zoning Ordinance:

- Based on the findings of the November 5, 2009 HNTB FCM Safety Study, the probability of an aircraft accident in the areas where people could use/occupy the land based on the Land Use Guide Plan Map 2030 in the Eden Prairie Comprehensive Plan Update is well below the FAA collision standard of one accident per 10 million operations.
- The Berkeley Study found that in 95% of aircraft accidents around General Aviation (GA) airports the pilot had control of the aircraft prior to impact.
- By virtue of the park agreement, VOR clear area, overlapping of RPZs with State Safety Zones on other FCM runways, and water areas, when considering the A and B safety zones as one area outside the RPZ on each runway end, maximum contiguous open area acreages in the respective runway safety zones range from 20.93 acres to 65.38 acres.
- A conservative estimate of the crash site area for the largest design aircraft at FCM (Citation III) is 5,000 square feet.
- The RPZ areas, along with providing a minimum of 20 acres of contiguous open space in the remaining State Safety Zones, provide adequate clear areas in proximity to the extended runway centerlines around FCM based on the pilot control statistics and crash site characteristics.
- Based on the probability calculations for impacting a structure (applying pilot control assumption and accounting for adjacent open spaces provided by virtue of the park agreement, VOR clear area, overlapping of RPZs with state safety zones on other runways, and water areas) the probability of impacting a structure on all of the prospective MAC-owned non-aeronautical development properties is well below the FAA Collision Standard of one in 10 million operations.

IT WAS MOVED BY HELKAMP, SECONDED BY PETERSON, THAT MAC STAFF PREPARE A DRAFT FCM ZONING ORDINANCE IN A MANNER CONSISTENT WITH THE MAIN POINTS CONTAINED IN THE STP AND MSP ZONING ORDINANCES IN ADDITION TO THE FOLLOWING:

- **LEVERAGE THE FAA 7460 REVIEW PROCESS AS THE INITIAL SCREENING PROCESS FOR THE APPROVAL OF STRUCTURES IN THE VICINITY OF THE AIRPORT THAT MEET THE FAA'S 7460 REVIEW CRITERIA.**
- **ALLOW FOR THE IMPROVEMENT, EXPANSION AND DEVELOPMENT OF NEW RESIDENTIAL USES IN EXISTING AND**

PLANNED RESIDENTIAL LAND USE AREAS IN SAFETY ZONE B. THESE RESIDENTIAL USES SHOULD BE TREATED AS CONFORMING USES IN THE ZONING ORDINANCE.

- AN ADDITIONAL ZONING PROVISION IN ZONE B DEVELOPED SUCH THAT A MINIMUM OF 20% OF THE TOTAL ZONE B ACREAGE OR 20 ACRES, WHICHEVER IS GREATER, IS CONTIGUOUS OPEN SPACE AS AN ADDED MARGIN OF SAFETY.

AND COME BACK TO THE NEXT MEETING WITH A DRAFT FCM ZONING ORDINANCE FOR THE BOARD'S CONSIDERATION. THE MOTION CARRIED BY UNANIMOUS VOTE.

The Board also requested that Mr. Leqve's powerpoint presentation be attached to the meeting minutes.

Mr. Leqve also reviewed the steps involved in the JAZB process before final approval of an ordinance by the Commissioner of Transportation.

7. **NEXT MEETING DATE**

The Board agreed to cancel the February 18th meeting to allow staff time to prepare and provide the Board with a draft ordinance for its consideration. The next meeting is scheduled for 4:00 p.m. on March 18, 2010.

IT WAS MOVED BY HELKAMP, SECONDED BY PETERSON TO ADJOURN. THE MOTION CARRIED BY UNANIMOUS VOTE.

The meeting was adjourned at 5:48 p.m.

Date: March 4, 2010

Memo:

To: Scott H. Neal, City Manager

From: Michael D. Franzen, City Planner
Scott A. Kipp, Senior Planner

Subject: Development of land within safety zones using state model ordinance criteria, including:

- Ratio of site area to building plot area
- Building plot area
- Maximum site population

Background:

The State Model Ordinance has criteria for determining the amount of development.

- 3 acre minimum site area
- 12:1 ratio of site area to building plot area
- 10,900 square foot building plot area
- 45 maximum site population (15 persons/acre)

Using this criteria staff re-evaluated the development and population potential for each of the 4 alternatives.

1. Development according to the City's 2008 adopted Guide Plan
2. State Model Ordinance
3. Development on MAC property
4. Maximum development

1/28/10
JAZB PRESENTATION

3/18/10
JAZB PRESENTATION

**Alternative 1 –
Development according to the City's 2008 adopted Guide Plan**

Building square footage:	0	0
Population:	52	52
Housing Units:	21	21
Value:	\$11,700,000	\$11,700,000
City Tax	\$33,930	\$33,930

**Alternative 2 –
State Model Ordinance**

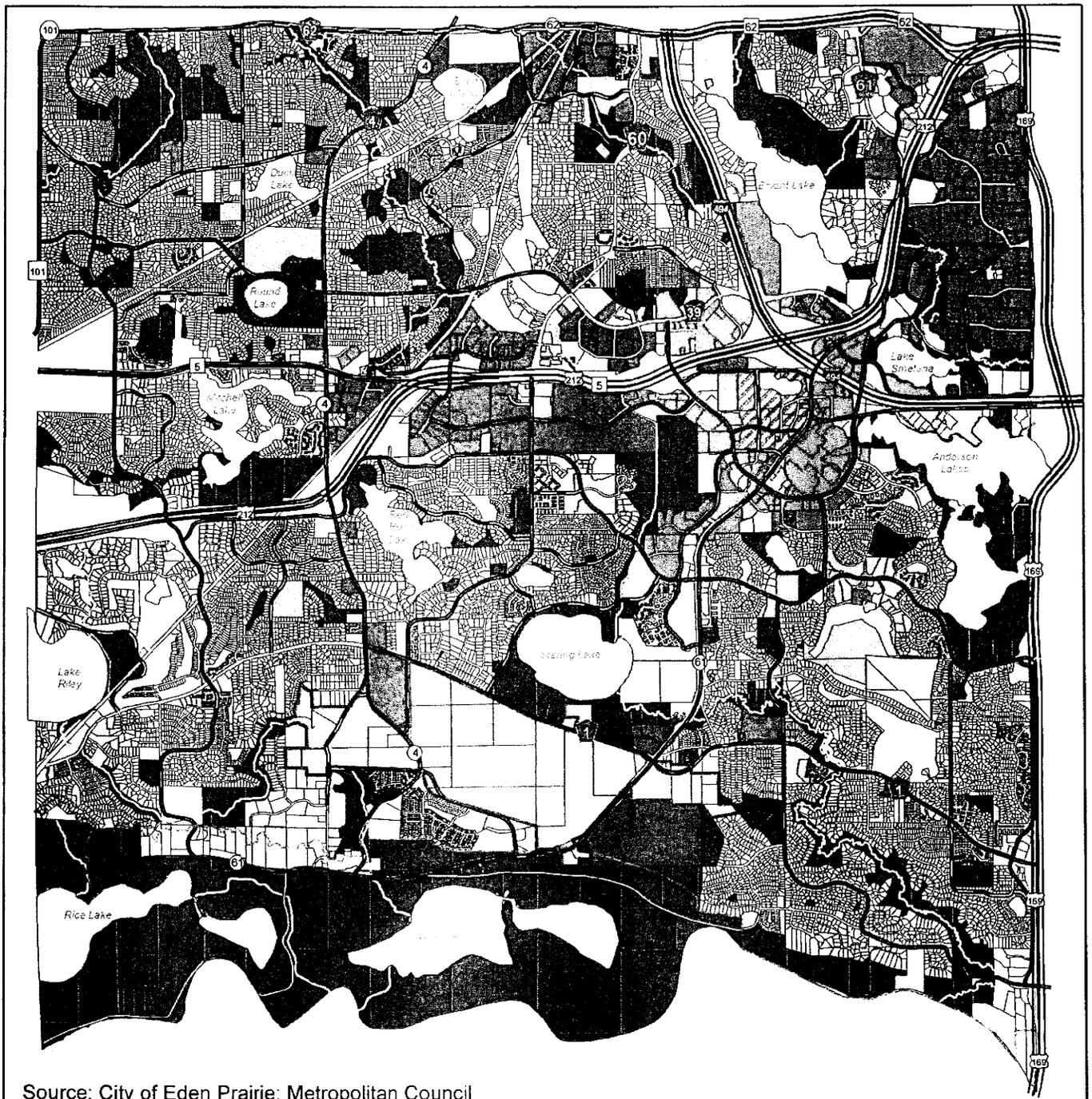
Building square footage:	326,700	90,833
Population:	1,633	375
Housing Units:	0	0
Value:	\$39,204,000	\$10,899,960
City Tax	\$137,214	\$38,180

**Alternative 3 –
Development on MAC property**

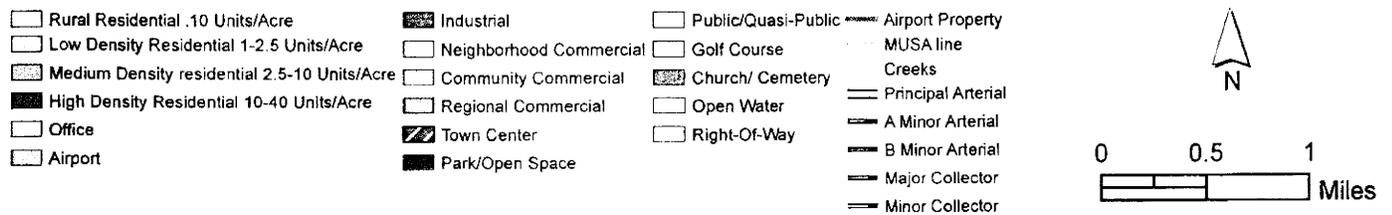
Building square footage:	1,343,390	373,506
Population:	5,373	1,542
Housing Units:	0	0
Value:	\$160,870,520	\$44,820,720
City Tax	\$563,846	\$156,783

**Alternative 4 –
Maximum development (Alternative 1 + Alternative 3)**

Building square footage:	1,343,390	373,506
Population:	5,373	1,542
Housing Units:	21	21
Commercial Value:	\$160,870,520	\$44,820,720
Residential Value:	\$11,700,000	\$11,700,000
City commercial tax	\$33,930	\$33,930
City residential tax	\$563,846	\$156,783



Source: City of Eden Prairie; Metropolitan Council

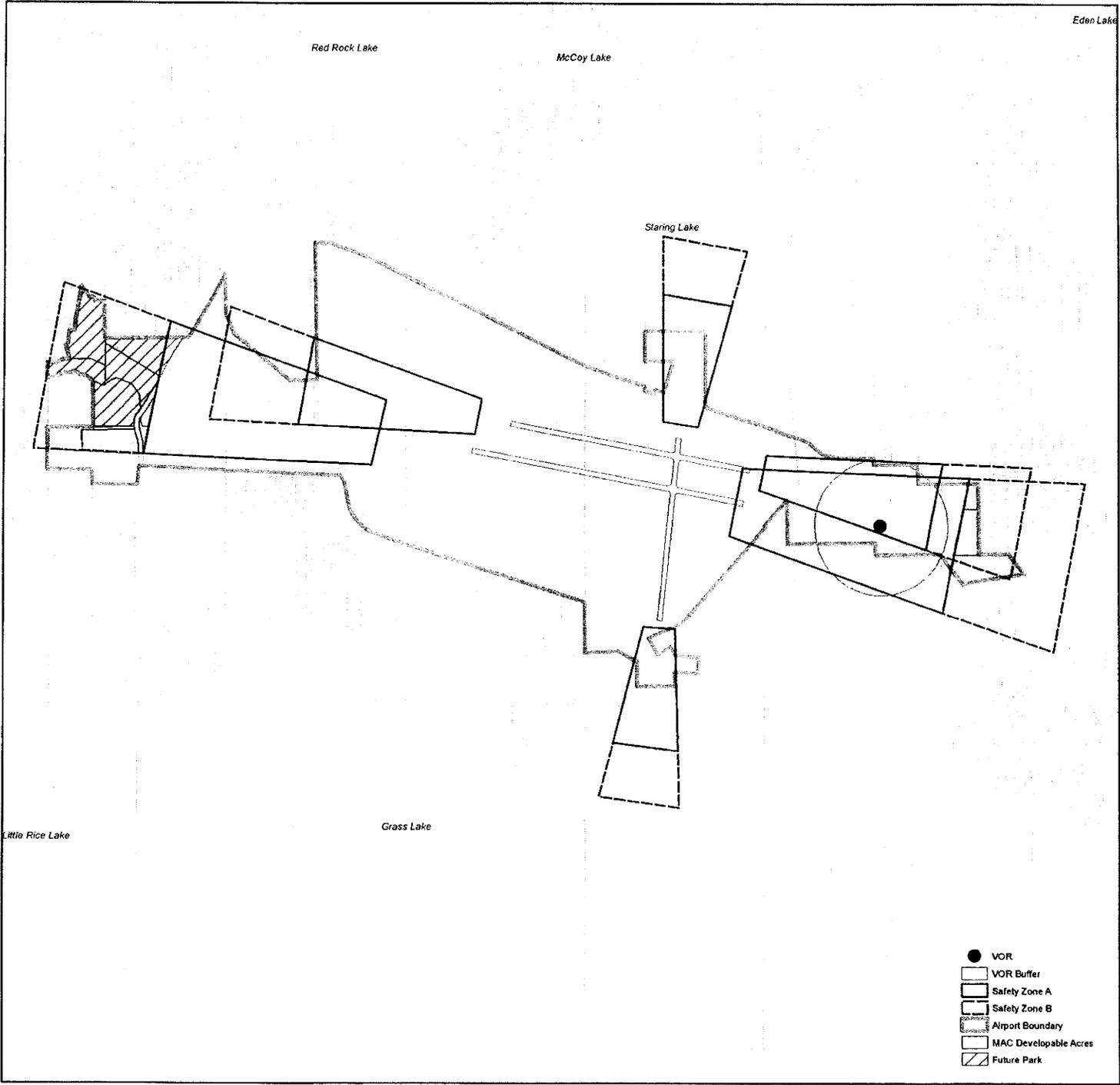


LAND USE GUIDE PLAN MAP 2030

COMPREHENSIVE PLAN UPDATE 2008

October 20, 2009

Figure 3.2

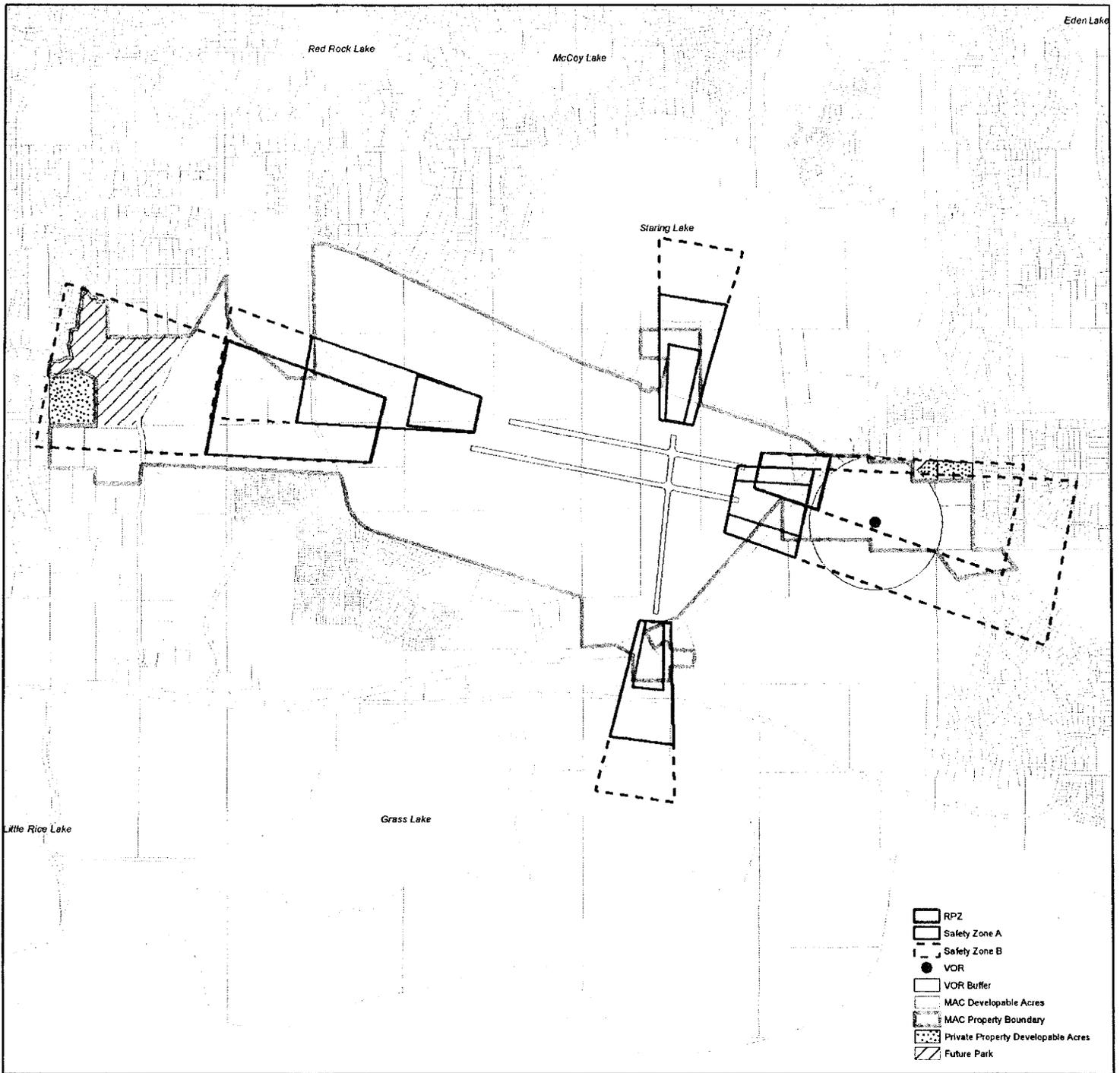


STATE MODEL ORDINANCE

January 28, 2010

ANALYSIS

ALTERNATIVE 2

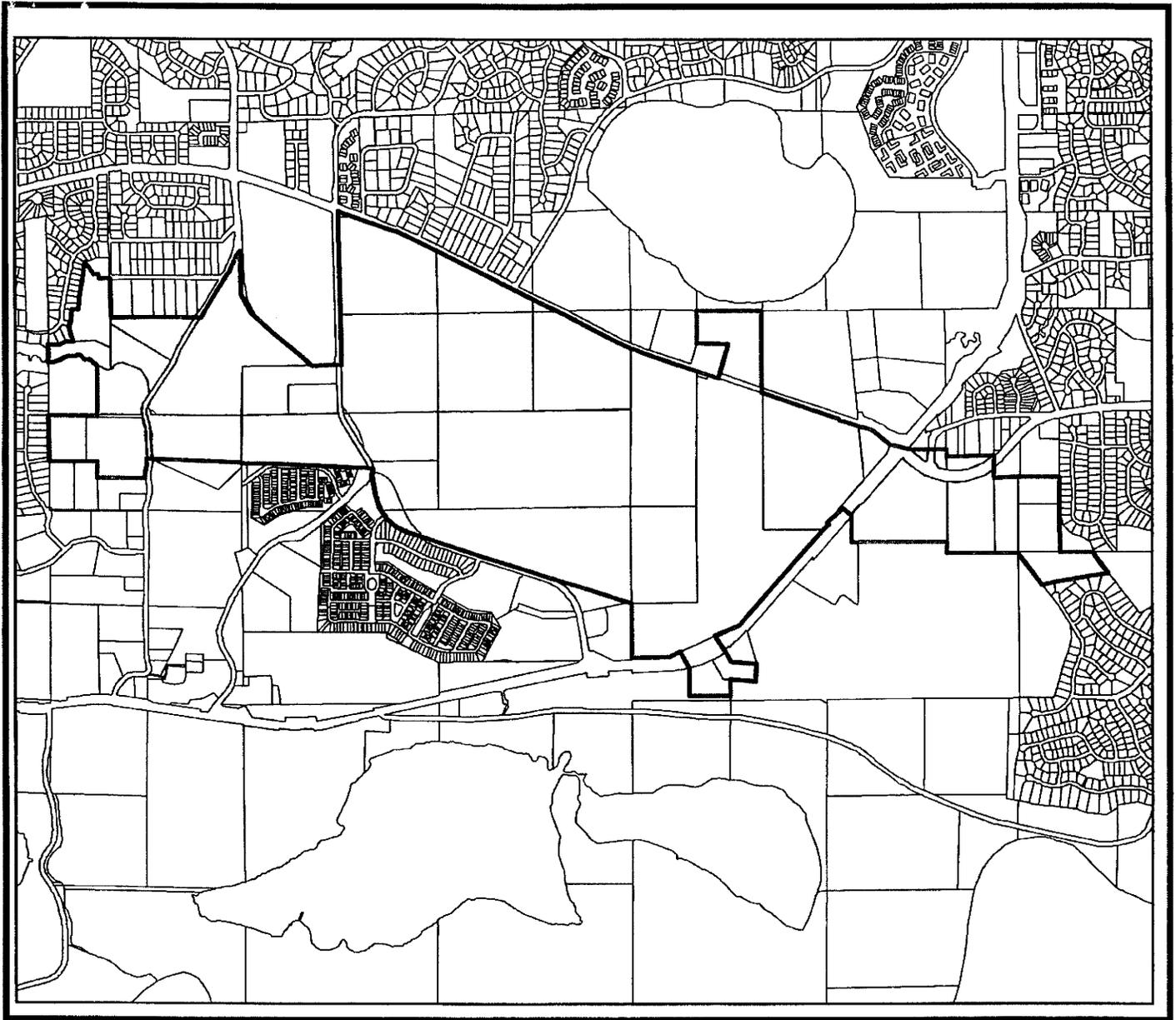


MAXIMUM DEVELOPMENT

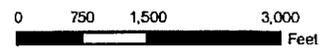
January 28, 2010

ANALYSIS

ALTERNATIVE 4



-  A-1
-  A-2
-  Airport Boundary



AIRPORT

COMPREHENSIVE PLAN UPDATE 2007

July 28, 2009

Figure 3.4

MEMORANDUM

TO: Flying Cloud Joint Airport Zoning Board

FROM: Chad E. Leqve, Manager – Aviation Noise and Satellite Programs

SUBJECT: DRAFT FCM ZONING ORDINANCE

DATE: March 11, 2010

Background

On July 16, 2009 the FCM Joint Airport Zoning Board (JAZB) held its first meeting. At that meeting, it was detailed that the major considerations by the Board in determining a zoning ordinance for the airport are:

- Mn/DOT Model Ordinance
- FCM's unique characteristics in the context of existing and planned land uses around the airport
- Maintaining a "reasonable standard of safety" while considering the social and financial costs to the community

As part of the Board's discussions on July 16th it was determined that Minn. Stat. §360.066, subd. 1 is particularly instructive when addressing the question of zoning around complex urbanized airports such as FCM, and specifically the concept of "reasonableness" when balancing the statutorily recognized variables to be considered in the zoning process.

On August 13, 2009 the FCM JAZB conducted its second meeting. At this meeting the Board received a summary of a land use analysis that was conducted by MAC staff detailing the existing and planned land uses around FCM that would be impacted by the application of the State Model Zoning Ordinance and the airspace zones. Additionally, the Board received a presentation from Mn/DOT Aeronautics staff on the Mn/DOT Model Zoning Ordinance.

Consistent with the guidance provided in Minn. Stat. §360.066, subd. 1, the Board focused its discussion on MAC staff's land use analysis which detailed the existing land uses, the character of the neighborhoods around the airport, and the future planned/zoned uses that would be affected by adoption of the State Model Zoning Ordinance. Based on the substantial property development and/or structural modification restrictions that would be placed on existing and possible future development areas around the airport, the Board turned its focus to the safety standards that result in the state safety zone dimensions and the related land use restrictions that are outlined in the State Model Zoning Ordinance. As part of this discussion the Board questioned the Mn/DOT representatives on the specific safety criteria that result in the safety zone dimensions and the related development restrictions.

Based on the information provided at the meeting on the issue of foundational safety criteria, the Board directed MAC staff to conduct a safety study to provide the Board with further clarification on the question of zoning requirements necessary to ensure a "reasonable standard of safety."

Consistent with the Board's direction the MAC retained the HNTB Corporation to conduct the safety analysis, and at the November 19, 2009 FCM JAZB meeting the analysis was presented to Board members by HNTB representatives.

The study analyzed accident data specific to FCM, as well as 2025 forecasted operations for the airport. The probability standard used in the study was one accident per 10 million operations.¹ The analysis focused on the areas included within the State A Zone outside the RPZ and the State B Zones off each runway at FCM. It is important to point out that the application of the FAA's probability standard in this manner is extremely conservative because it assumes that the entire area within each of the zones is covered by a structure.

In all of the present and future planned occupant areas within the State Safety Zones (outside the RPZ) and in Zone A for Runway 10L and Zone B for Runway 28R, the accident probabilities are below the FAA standard of one accident in 10 million operations. In the remaining State A Zones (outside the RPZ) and State B Zones at the airport the probability is greater than one accident in 10 million operations. Based on the findings of the accident probability analysis the Board found it reasonable to conclude that measures to control land use around the airport should include controls beyond what might be considered acceptable at airports where the accident probabilities within the safety zones are below the one accident in 10 million operations threshold.

Additional analysis was conducted that considered pilot control statistics, crash site characteristics, and large contiguous open spaces as provided by the park agreement, VOR clear area, overlapping of RPZs with state zones on other runways, and water areas. Based on this analysis it was determined that the probability of an aircraft impacting structures in the prospective MAC owned non-aeronautical development areas is well below the FAA Collision Standard of one collision per 10 million operations in all cases.

Draft FCM Ordinance

After considering MAC staff's additional safety analysis and the City of Eden Prairie's economic study, which included MAC-owned property around the airport for prospective non-aeronautical development, at its January 28, 2010 meeting the FCM JAZB directed MAC staff to prepare a draft FCM Zoning Ordinance Document.

The following points detail the main considerations by the FCM JAZB in providing direction to MAC staff on the specifics to be included in the Draft FCM Zoning Ordinance:

- Based on the findings of the November 5, 2009 HNTB FCM Safety Study, the probability of an aircraft accident in the areas where people could use/occupy the land based on the Land Use Guide Plan Map 2030 in the Eden Prairie Comprehensive Plan Update is well below the FAA collision standard of one accident per 10 million operations.
- The Berkeley Study found that in 95% of aircraft accidents around General Aviation (GA) airports the pilot had control of the aircraft prior to impact.
- By virtue of the park agreement, VOR clear area, overlapping of RPZs with State Safety Zones on other FCM runways, and water areas, when considering the A and B safety zones as one area outside the RPZ on each runway end, maximum contiguous open area acreages in the respective runway safety zones range from 20.93 acres to 65.38 acres.
- A conservative estimate of the crash site area for the largest design aircraft at FCM (Citation III) is 5,000 square feet.
- The RPZ areas, along with providing a minimum of 20 acres of contiguous open space in the remaining State Safety Zones, provide adequate clear areas in proximity to the extended runway centerlines around FCM based on the pilot control statistics and crash site characteristics.

¹ When determining the acceptability of a prospective structure around an airport, the FAA uses a threshold probability of one collision per 10 million operations. Said another way, if the probability of an aircraft colliding with the structure is less than one time in 10 million operations then the structure is considered to be safe.

- Based on the probability calculations for impacting a structure (applying pilot control assumption and accounting for adjacent open spaces provided by virtue of the park agreement, VOR clear area, overlapping of RPZs with state safety zones on other runways, and water areas) the probability of impacting a structure on all of the prospective MAC-owned non-aeronautical development properties is well below the FAA Collision Standard of one in 10 million operations.

Based on the above points, the FCM JAZB directed MAC staff to draft an FCM Zoning Ordinance consistent with the following provisions:

- Consistent with the STP Draft, and MSP, Zoning Ordinances:
 - Safety Zone A – is co-terminus with the Federal Runway Protection Zone (RPZ).
 - Safety Zone B – use restrictions do not include site acre/structure limitations and site-area-to-building-plot-area ratios and population criteria.
- Leverage the FAA 7460 review process as the initial screening process for the approval of structures in the vicinity of the airport that meet the FAA's 7460 review criteria including a separate process for addressing trees.
- An additional zoning provision in Zone B developed such that a minimum of 20% of the total Zone B acreage or 20 acres, whichever is greater, is contiguous open space as an added margin of safety.
- Allow for the improvement, expansion and development of new residential uses in existing and planned residential land use areas in Safety Zone B. These residential uses should be treated as conforming uses in the zoning ordinance.

The attached Draft FCM Zoning Document is notated to highlight substantive changes from the State Model Zoning Ordinance. Additionally, a copy for the State Model Zoning Ordinance is attached for reference.

At the March 18, 2010 FCM JAZB meeting the Board will review the draft FCM Zoning Ordinance, focusing on the zoning provisions in the context of the State Model Zoning Ordinance and the MSP and STP documents. At the March 18, 2010 FCM JAZB meeting staff will be seeking direction from the Board on the Draft FCM Zoning Ordinance.

Next Step: First Public Comment Period and Public Hearing

The airport zoning process includes two opportunities for public review and comment. First, the process requires that the initial draft of a zoning ordinance be provided for public review and comment with a 30-day comment period including a public hearing. After the first comment period has closed, the JAZB considers the comments, responses and any possible modification to the ordinance prior to submittal of the draft document for the first review by the Commissioner of Transportation. After the Commissioner reviews the first draft document the JAZB then considers the draft and the comments that were received from the Commissioner. The document may then be modified again and a second 30-day public comment period with a public hearing is conducted on the document. After the second public comment period, the JAZB again considers the comments received and finalizes the draft zoning ordinance for final submittal to the Commissioner of Transportation for review and approval. Once approved by the Commissioner, the ordinance is then provided to the respective city councils for adoption.

In order to move to the next step in the zoning process, the Board must approve a Draft FCM Zoning Ordinance for purposes of public review and comment, as well as determine specifics

related to the public comment period. Specifically, the Board must determine comment period and hearing dates, public notice content, locations to view drafts, how copies of the draft ordinance can be obtained by the public, publications to be used, schedule for publications, written notice, and public hearing specifics. The following are recommendations in each of these areas for the Board's consideration.

- **Public Comment Period and Hearing Dates:** A public comment period beginning on April 1, 2010 and running through the close of business on April 30, 2010, with a public hearing on April 22, 2010 at Eden Prairie City Hall; an open house for the public from 5:00 pm – 6:30 pm, a public hearing presentation at 6:30 pm with public comments beginning at 7:00 pm.
- **Public Notice Content:** The public notice could include the following information:
 - a general description of the Board and its intended action;
 - a brief description of the draft zoning ordinance available for review and comment;
 - a description of the affected area;
 - locations where the documents may be reviewed;
 - how copies of the documents may be obtained;
 - the dates of the comment period;
 - the name and address of the Board Secretary as the person to whom written comments should be sent; and
 - the date, time, and location of the public hearing.
- **Locations to View Drafts:** Draft Ordinance could be available for viewing at:
 - the main office of the Metropolitan Airports Commissions (MAC);
 - the city hall of each member city of the Board;
 - the MAC web site; and
 - the web site of any city members of the Board who choose to post the notice and draft zoning document.

The document would be placed in these locations no later than March 26, 2010.

- **Obtaining Copies of the Draft Ordinance:** The draft zoning document would be available free of charge at the main office of the MAC.
- **Publications to be Used:** The Draft Ordinance notice would be published in the following:
 - Pioneer Press (general circulation);
 - Star Tribune (general circulation); and
 - State Register.
- **Schedule for Publications:** Publication dates would be:
 - On March 31, 2010 publish notice in the Star Tribune and Pioneer Press
 - On April 8, 12 and 16, 2010 publish notice in the Star Tribune and Pioneer Press
 - On April 5 and 12, 2010 publish notice in the State Register twice
- **Written Notice:** Written notice would be mailed to the governing boards of all of the affected cities and Hennepin County and Scott County no later than March 31, 2010. The Metropolitan Airports Commission should also mail written notice to its official mailing list by the same date. MAC staff would request from the City of Eden Prairie the mailing addresses for the owners of all of the properties located within Zones A and B for purposes of distributing the notice to affected property owners.
- **Public Hearing:** The following points detail public hearing details:

- Board's Role - the entire Board would sit and hear the testimony.
- Chair - the Board's Chair would serve as the Chair for the public hearing.
- MAC Staff - MAC staff would provide a briefing prior to receiving public comment detailing the Board's deliberations and a summary of the Proposed Draft Zoning Ordinance.
- Open House Format - MAC staff would have boards detailing the major points of the Draft Ordinance available for viewing by the public prior to staff's informational briefing and the public comment portion of the hearing.
- Place and Time - April 22, 2010 at Eden Prairie City Hall, with an open house for the public from 5:00 pm – 6:30 pm, a public hearing presentation at 6:30 pm with public comments beginning at 7:00 pm.
- Recording the Meeting - a court reporter to record the meeting and preparation of a transcript for the Board's official record.
- Sign In - All speakers will sign in with their names and addresses.

At the March 18, 2010 FCM JAZB meeting staff will be seeking direction from the Board on the above detailed plan related to the establishment of a public comment period and hearing date for the Draft FCM Zoning Ordinance.

- **Public Comment Period and Hearing Dates:** A public comment period beginning on April 4, 2010 and running through the close of business on April 30, 2010, with a public hearing on April 22, 2010 at Eden Prairie City Hall; an open house for the public from 5:00 pm – 6:30 pm, a public hearing presentation at 6:30 pm with public comments beginning at 7:00 pm.
- **Public Notice Content:** The public notice could include the following information:
 - a general description of the Board and its intended action;
 - a brief description of the draft zoning ordinance available for review and comment;
 - a description of the affected area;
 - locations where the documents may be reviewed;
 - how copies of the documents may be obtained;
 - the dates of the comment period;
 - the name and address of the Board Secretary as the person to whom written comments should be sent; and
 - the date, time, and location of the public hearing.
- **Locations to View Drafts:** Draft Ordinance could be available for viewing at:
 - the main office of the Metropolitan Airports Commissions (MAC);
 - the city hall of each member city of the Board;
 - the MAC web site; and
 - the web site of any city members of the Board who choose to post the notice and draft zoning document.

The document would be placed in these locations no later than March 26, 2010.
- **Obtaining Copies of the Draft Ordinance:** The draft zoning document would be available free of charge at the main office of the MAC.
- **Publications to be Used:** The Draft Ordinance notice would be published in the following:
 - Pioneer Press (general circulation);
 - Star Tribune (general circulation); and
 - Eden Prairie News;
 - Eden Prairie Sun Current; and
 - State Register.
- **Schedule for Publications:** Publication dates would be:
 - On March 31, 2010 publish notice in the Star Tribune and Pioneer Press
 - On April 8, 12, 15, 19 and 23, 2010 publish notice in the Star Tribune and Pioneer Press
 - On April 16, 2010 in Eden Prairie News and Eden Prairie Sun Current
 - On April 5 and 12, 2010 publish notice in the State Register twice
- **Written Notice:** Written notice would be mailed to the governing boards of all of the affected cities and Hennepin County and Scott County no later than March 31, 2010. The Metropolitan Airports Commission should also mail written notice to its official mailing list by the same date. MAC staff would request from the City of Eden Prairie the mailing addresses for the owners of all of the properties located within Zones A and B for purposes of distributing the notice to affected property owners.
- **Public Hearing:** The following points detail public hearing details:
 - **Board's Role** - the entire Board would sit and hear the testimony.

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- o Chair - the Board's Chair would serve as the Chair for the public hearing.
- o MAC Staff - MAC staff would provide a briefing prior to receiving public comment detailing the Board's deliberations and a summary of the Proposed Draft Zoning Ordinance.
- o Open House Format - MAC staff would have boards detailing the major points of the Draft Ordinance available for viewing by the public prior to staff's informational briefing and the public comment portion of the hearing.
- o Place and Time - April 22 29, 2010 at Eden Prairie City Hall, with an open house for the public from 5:00 pm – 6:30 pm, a public hearing presentation at 6:30 pm with public comments beginning at 7:00 pm.
- o Recording the Meeting - a court reporter to record the meeting and preparation of a transcript for the Board's official record.
- o Sign In - All speakers will sign in with their names and addresses.

At the March 18, 2010 FCM JAZB meeting staff will be seeking direction from the Board on the above detailed plan related to the establishment of a public comment period and hearing date for the Draft FCM Zoning Ordinance.

DRAFT
3/11/2010

**Flying Cloud Airport
Zoning Ordinance**

Adopted _____, 2010

Adopted by the
Flying Cloud Airport Joint Airport Zoning Board

Contact Person:
Flying Cloud Joint Airport Zoning Board
c/o JAZB Secretary
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, Minnesota 55450

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**FLYING CLOUD AIRPORT
ZONING ORDINANCE
ADOPTED BY THE
FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD**

AN ORDINANCE REGULATING AND RESTRICTING THE HEIGHT OF STRUCTURES AND OBJECTS OF NATURAL GROWTH, AND OTHERWISE REGULATING THE USE OF PROPERTY, IN THE VICINITY OF THE FLYING CLOUD AIRPORT BY CREATING THE APPROPRIATE ZONES AND ESTABLISHING THE BOUNDARIES THEREOF; PROVIDING FOR CHANGES IN THE RESTRICTIONS AND BOUNDARIES OF SUCH ZONES; DEFINING CERTAIN TERMS; REFERRING TO THE FLYING CLOUD AIRPORT ZONING MAP; PROVIDING FOR ENFORCEMENT; ESTABLISHING A BOARD OF ADJUSTMENT; AND IMPOSING PENALTIES.

THEREFORE, IT IS HEREBY ORDAINED BY THE FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD PURSUANT TO THE AUTHORITY CONFERRED BY MINNESOTA STATUTES §§ 360.061 – 360.074, THAT THE FLYING CLOUD AIRPORT ZONING ORDINANCE BE EFFECTIVE AS FOLLOWS:

SECTION I. PURPOSE AND AUTHORITY

The FLYING CLOUD Airport Joint Airport Zoning Board, created and established by joint action of the Metropolitan Airports Commission and the Cities of Eden Prairie, Bloomington, Shakopee, and Chanhassen, pursuant to the provisions and authority of Minnesota Statutes § 360.063, hereby finds and declares that:

- A.** An Airport Hazard endangers the lives and property of users of the Airport and property or occupants of land in its vicinity, and also, if of the obstructive type, in effect reduces the size of the area available for the landing, takeoff, and maneuvering of aircraft, thus tending to destroy or impair the utility of the Airport and the public investment therein.
- B.** The creation or establishment of an Airport Hazard is a public nuisance and an injury to the region served by the Airport.

- C. For the protection of the public health, safety, order, convenience, prosperity, and general welfare, and for the promotion of the most appropriate use of land, it is necessary to prevent the creation or establishment of Airport Hazards.
- D. The social and economic costs of disrupting land uses around the Airport, however, often outweigh the benefits of a reduction in Airport Hazards requiring a balance between the social and economic costs to surrounding communities and the benefits of strict regulation.
- E. The prevention of these Airport Hazards should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.
- F. Preventing the creation or establishment of Airport Hazards and eliminating, removing, altering, mitigating, or marking and lighting of existing Airport Hazards are public purposes for which political subdivisions may raise and expend public funds, levy assessments against land, and acquire land and property interests therein.

SECTION II. TITLE AND SHORT TITLE

This ordinance shall be known as the "Flying Cloud Airport Zoning Ordinance" or the "FCM Zoning Ordinance."

SECTION III. DEFINITIONS AND RULES OF CONSTRUCTION

- A. **Definitions.** As used in this Flying Cloud Airport Zoning Ordinance, unless otherwise expressly stated, or unless the context clearly indicates a different meaning, the words and phrases in the following list of definitions shall have the meanings indicated. All words and phrases not defined shall have their common meaning.
 - 1. ***Above-ground Fuel Tank.*** "Above-ground Fuel Tank" means a container, vessel, or other enclosure designed to contain or dispense fuel that is located above the ground surface, that is not contained within a building or structure, and that is not part of or connected to a boat, motor vehicle, or rail car.
 - 2. ***Airport.*** "Airport" means Flying Cloud Airport located in Ramsey County, Minnesota.
 - 3. ***Airport Boundary.*** "Airport Boundary" means the boundary shown on Exhibit A – Airport Boundary, attached hereto and made a part hereof.

- 4. Airport Hazard.** "Airport Hazard" means any Structure, Tree, or use of land that obstructs the airspace required for, or is otherwise hazardous to, the flight of aircraft in landing or taking off at the Airport; and any use of land that is hazardous to Persons or property because of its proximity to the Airport.
- 5. Airport Zoning Permit.** "Airport Zoning Permit" means zoning permits as required under Section IX.
- 6. Airspace Surfaces.** "Airspace Surfaces" means the surfaces established in Section IV.A.
- 7. Airspace Zones.** "Airspace Zones" means the land use zones established in Section IV.A.
- 8. Board of Adjustment.** "Board of Adjustment" means the body established in Section XIII.A.
- 9. Bluff.** "Bluff" means a steep cliff, embankment, hill, or outcropping along a river or stream, with an average slope of eighteen (18) percent or greater measured over a horizontal distance of fifty (50) feet or more, and that rises at least twenty-five (25) feet above the ordinary high water mark of the river or stream.
- 10. Commissioner.** "Commissioner" means the Commissioner of the Minnesota Department of Transportation or, if either the position of Commissioner or the Minnesota Department of Transportation shall no longer exist or serve its present functions, such successor state official or officials or entity or entities as shall either singularly or collectively perform or serve such functions.
- 11. Dwelling.** "Dwelling" means any building or portion thereof designed or used as a residence or sleeping place of one or more Persons.
- 12. Effective Date.** "Effective Date" means the effective date set forth in Section XIX.
- 13. Permitted Residential Areas.** "Permitted Residential Areas" means the areas listed on Exhibit B – Legal Descriptions of Parcels in Permitted Residential Areas and shown on Exhibit C – Map of Permitted Residential Areas, both attached hereto and made a part hereof, all of which have been designated based on the following criteria/findings related to each listed neighborhood:
 - a. Low accident probability;

- b. Aircraft accident and site characteristics;
- c. Adjacency to large open areas;
- d. Economic effects of residential use restrictions and/or designation of existing residential uses as non-conforming; and
- l. Other material factors deemed relevant by the governmental unit in distinguishing the area in question as a Permitted Residential Area.

14. FAA. "FAA" means the Federal Aviation Administration or, if the Federal Aviation Administration shall no longer exist or serve its present functions, such successor federal entity or entities as shall either singularly or collectively perform or serve such functions.

15. FAA 7460 Obstruction Evaluation. Established FAA process for conducting aeronautical studies conducted under the provisions of Title 14 CFR, Part 77 (for proposed construction or alteration) or Federal Aviation Act of 1958 (for existing structures), or any successor to this process.

16. FCM Zoning Map. "FCM Zoning Map" means the Flying Cloud Airport Zoning Map as defined in Section VI.C.

17. Fuel. "Fuel" means any petroleum product, including natural gas, used to produce heat or power by burning.

18. Lot. "Lot" means a designated parcel, tract, or area of land established by plat or subdivision, or otherwise permitted by law.

19. Low Density Residential Structure. "Low Density Residential Structure" means a single-family or two-family home.

20. Low Density Residential Lot. "Low Density Residential Lot" means a single Lot located in an area which is zoned for single-family or two-family residences and in which the predominant land use is such type of residences.

21. 21.Nonconforming Use. "Nonconforming Use" means any pre-existing Structure or use of land which is inconsistent with the provisions of this FCM Zoning Ordinance or an amendment hereto.

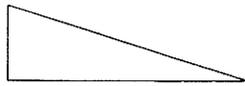
22. Nursing Home. "Nursing Home" means a building or structure where aged or infirm people reside on a twenty-four (24) hour basis in order to receive nursing care and related services and includes assisted living facilities licensed by the Minnesota

Department of Health to provide individualized home care services or home care management services to facility residents either by the management or by providers under contract with the management.

- 23. Person.** "Person" means any individual, firm, partnership, corporation, company, association, joint stock association, or body politic, and includes a trustee, receiver, assignee, administrator, executor, guardian, or other representative.
- 24. Planned.** "Planned" means proposed future Airport developments and improvements indicated on a planning document having the approval of the FAA, the Minnesota Department of Transportation, Office of Aeronautics, and the Metropolitan Airports Commission.
- 25. Precision Instrument Runway.** "Precision Instrument Runway" means a Runway having an existing instrument approach procedure utilizing an instrument landing system (ILS), or a precision approach radar (PAR), and a Runway for which a precision instrument approach procedure is Planned.
- 26. Runway.** "Runway" means any existing or Planned paved surface of the Airport which is specifically designated and used or Planned to be used for the landing and/or taking off of aircraft. The individual Runways at the Airport are defined in this FCM Zoning Ordinance based on the compass heading of landing aircraft.
- 27. Runway 10R-28L.** "Runway 10R-28L" means the 5,000-foot runway. Runway 10R is a Precision Instrument Runway and Runway 28L is a Non-precision Runway. Both the Runway 10R and 28L ends are within the City of Eden Prairie.
- 28. Runway 10L-28R.** "Runway 10L-28R" means the 3,900-foot Non-precision Runway at the Airport whose 10L and 28R ends are within the City of Eden Prairie.
- 29. Runway 18-36.** "Runway 18-36" means the 2,691-foot runway. Runway 18 is a Visual Runway and Runway 36 is a Non-Precision Runway. Both the Runway 18 and 36 Ends are within the City of Eden Prairie.
- 30. Runway Protection Zone.** "Runway Protection Zone" means a zone mandated by FAA regulations that is longitudinally centered on the extended centerline at each end of Runways 10R-28L, 10L-28R, 18-36, whose inner edge is at the same width and elevation as, and coincides with, the end of the Primary Surfaces for Runways 10L-28R

and 10R; starts at a width of 500 feet for Runway 28L and 250 feet for Runways 18-36; and that extends outward a horizontal distance of 1,000 feet expanding uniformly to a width of 700 feet for Runways 10L-28R and 28L; extends outward a horizontal distance of 1,000 feet expanding uniformly to a width of 450 feet for Runways 18-36; extends outward a horizontal distance of 2,500 feet expanding uniformly to a width of 1,750 feet for Runway 10R. .

- 31. Safety Zones.** "Safety Zones" means the land use zones established in Section V.A.
- 32. School.** "School" means any private or public educational institution for people in kindergarten through grade twelve (12) and any private or public day care or pre-school facility that enrolls more than fifty (50) children.
- 33. Slope.** "Slope" means an incline from the horizontal expressed in an arithmetic ratio of horizontal magnitude to vertical magnitude.



Slope = 3:1 = 3 ft. horizontal to 1 ft. vertical

- 34. Structure.** "Structure" means anything anchored, attached, built, constructed, erected, gathered, located, placed, or piled on the ground or in or over a water body, whether temporary or permanent, moveable or immovable, including antennae, buildings, canopies, cranes, decks, derricks, docks, edifices, equipment, fences, overhead transmission lines, patios, piers, piles, ponds, posts, roadways, signs, smokestacks, towers, utility poles, wires, and anything attached to any of the foregoing either temporarily or permanently.
- 35. Tree.** "Tree" means any object of natural growth.
- 36. Zoning Administrator.** "Zoning Administrator" means the public official in each affected municipality and at the Metropolitan Airports Commission as set forth in Section XII.B.
- B. Rules Of Construction.** In the construction of this FCM Zoning Ordinance, the following rules shall be observed and applied, except where the context clearly indicates otherwise.
- 1. Computing Time.** In computing the period of time within which an act is to be done, the first calendar day from which the designated period of time begins to run shall not

be included. The last day of the period shall be included, unless it is a Saturday, a Sunday, or a legal holiday, in which case the period shall run until the end of the next day which is not a Saturday, Sunday, or legal holiday.

2. **Conflicts Between Ordinance Provisions.** If a provision of this FCM Zoning Ordinance conflicts with any other provision of this FCM Zoning Ordinance, the more restrictive provision shall prevail.
3. **Height.** "Height" shall be expressed as elevation in feet above Mean Sea Level, North American Vertical Datum, 1988 Adjustment, except in reference to maximum construction height without an Airport Zoning Permit when it shall be expressed as distance in feet above curb level or above natural grade, as the context and Section IX.B.1. require, or as distance in feet above ground shown on the Maximum Construction Heights Without Permit Plates in the FCM Zoning Map.
4. **Including, Not Limited To.** The word "including" means including but not limited to.
5. **Land To Include Water Surfaces And Bodies.** The word "land" shall include water bodies and surfaces for the purpose of establishing Airspace Zones and Safety Zones.
6. **May, Permissive.** The word "may" is permissive.
7. **Shall, Mandatory.** The word "shall" is mandatory and not discretionary.
8. **Singular And Plural.** The singular shall include the plural, and the plural the singular.
9. **Tense.** The present tense shall include the future.

SECTION IV. AIRSPACE OBSTRUCTION ZONING

A. **Airspace Surfaces And Zones.** In order to carry out the purpose of this FCM Zoning Ordinance as set forth in Section I., the following Airspace Surfaces and Airspace Zones are hereby established, subject to the airspace zoning limits in Section VI.A.

1. **Primary Surface.** An imaginary surface longitudinally centered on each Runway extending two hundred (200) feet beyond each end of Runways 10L-28R, 10R-28L, 18-36, and having a width of five hundred (500) feet for Runways 10L-28R, and 18-36 and one thousand (1,000) feet for Runway 10R-28L. The elevation of any point on the

Primary Surface is the same as the elevation of the nearest point on the Runway centerline.

2. **Primary Zone.** All that land which lies directly under a Primary Surface.
3. **Horizontal Surface.** An imaginary surface that is one thousand fifty-six (1,056) feet above mean sea level, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the Primary Surface of each Runway and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is five thousand (5,000) feet for Runways 18-36 and ten thousand (10,000) feet for Runways 10L-28R and 10R-28L.
4. **Horizontal Zone.** All that land which lies directly under the Horizontal Surface.
5. **Conical Surface.** An imaginary surface extending upward and outward from the periphery of the Horizontal Surface at a Slope of twenty (20) to one (1) for a horizontal distance of four thousand (4,000) feet as measured radially outward from the periphery of the Horizontal Surface.
6. **Conical Zone.** All that land which lies directly under the Conical Surface.
7. **Precision Instrument Approach Surface.** An imaginary surface longitudinally centered on the extended centerline at the end of Runway 10R. The inner edge of this surface is at the same width and elevation as, and coincides with, the end of the Primary Surface. This surface inclines upward and outward at a Slope of fifty (50) to one (1) for a horizontal distance of ten thousand (10,000) feet expanding uniformly to a width of four thousand (4,000) feet, then continues upward and outward for an additional horizontal distance of forty thousand (40,000) feet at a Slope of forty (40) to one (1) expanding uniformly to an ultimate width of sixteen thousand (16,000) feet.
8. **Precision Instrument Approach Zone.** All that land which lies directly under a Precision Instrument Approach Surface.
9. **Approach Surface.** An imaginary surface longitudinally centered on the extended centerline at each end of Runways 10L-28R, 28L and 18-36. The inner edge of this surface is at the same width and elevation as, and coincides with, the end of the Primary Surface. For Runways 10L-28R, 28L, this surface inclines upward and outward at a Slope of thirty-four (34) to one (1) for a horizontal distance of ten thousand

(10,000) feet expanding uniformly to a width of three thousand five hundred (3,500) feet. For Runway 18-36, this surface inclines upward and outward at a Slope of twenty (20) to one (1) for a horizontal distance of five thousand (5,000) feet expanding uniformly to a width of one thousand two hundred and fifty (1,250) feet for Runway 18 and two thousand (2,000) feet for Runway 36.

10. Approach Zone. All that land which lies directly under an Approach Surface.

11. Transitional Surface. An imaginary surface extending upward and outward at right angles to the centerline and extended centerline of Runways 10L-28R, 10R-28L, 18-36 at a Slope of seven (7) to one (1) from both sides of each Primary Surface and from both sides of each Precision Instrument Approach Surface for 10R and the Approach Surfaces of 10L-28R, 28L, and 18-36 until it intersects the Horizontal Surface or the Conical Surface.

12. Transitional Zone. All that land which lies directly under a Transitional Surface.

B. Height Restrictions: Except as otherwise provided in this FCM Zoning Ordinance, and except as necessary and incidental to Airport operations, the following height restrictions shall apply. Where a Lot is beneath more than one Airspace Surface, the height of the more restrictive (lower) Airspace Surface shall control.

1. Structures. No new Structure shall be constructed or established; and no existing Structure shall be altered, changed, rebuilt, repaired, or replaced in any Airspace Zone so as to project above any Airspace Surface. Nor shall any equipment used to accomplish any of the foregoing activities be allowed to project above any Airspace Surface.

2. Trees. No Tree shall be allowed to grow or be altered, repaired, replaced, or replanted in any Airspace Zone so as to project above any Airspace Surface. Nor shall any equipment used to accomplish any of the foregoing activities be allowed to project above any Airspace Surface.

a. Public Nuisance; Order. If the whole or any part of any tree shall be determined to be an airport hazard by the FAA, or any successor entity, after proper investigation. the Metropolitan Airports Commission's Executive Director or his designee may issue an order in writing for the owner or owners, agent or occupant of the

Comment [cel1]: The State Model Zoning Ordinance addresses the issue of tree height via a permitting process. This ordinance proposes to address tree height based on the FAA's determination of actual hazard, and provides a mechanism for removal of such hazardous trees.

property upon which such hazardous tree is located, to forthwith cause such hazardous tree, or portion thereof if the removal of a portion will remove the hazard, to be taken down and removed; such order to be mailed to the last known address of such owner, agent or occupant.

- b. Removal. If within ten (10) days after said order has been mailed, as above provided for, the owner or owners, agent or occupant of the property upon which such hazardous tree is located neglects or refuses to comply with said order, or has failed to file a notice of appeal from said order with said Executive Director, then said Executive Director or his designee(s) may enter upon said premises and take down or remove said tree or portion thereof declared to be hazardous, and to do any and all things which in his opinion may be necessary for the protection of life, limb or property.
- c. Assessment of Expense. If, after the notice hereinbefore provided for has been given, the owner, agent or occupant has failed to remove such hazardous tree or portion thereof, and it becomes necessary for the Metropolitan Airports Commission to remove same, said Executive Director or his designee shall mail a statement of the expense of such removal to the owner, agent or occupant of the property from which such tree or portion thereof has been removed, and if within thirty (30) days therefrom the owner, agent or occupant has not remitted to the Commission for the expense incurred by the Commission in said removal, the Executive Director or his designee may forthwith recover the amount of such expense from the owner or owners of said property in any civil court of competent jurisdiction, in the manner provided by law.

SECTION V. LAND USE SAFETY ZONING

A. Safety Zones. In order to carry out the purpose of this FCM Zoning Ordinance, as set forth in Section I., the following Safety Zones are hereby established, subject to the safety zoning limits in Section VI.B.

- 1. Safety Zone A.** All land in that portion of the Precision Instrument Approach Zones of Runways 10R and the Approach Zones of 10L-28R, 18-36, and 28L, beginning at, and coinciding with, the end of the Primary Surfaces for Runways 10R, 10L-28R; and that extends outward a horizontal distance of 1,000 feet expanding uniformly to a width of

Comment [cel2]: State Safety Zone A is changed from the State Model Zoning Ordinance to be coterminous with the RPZ.

700 feet for Runways 10L, 28L and 28R starting at a width of 500 feet for Runway 28L; extends outward a horizontal distance of 2,500 feet expanding uniformly to a width of 1,750 feet for Runway 10R; and that starts at a width of 250 feet and extends outward a horizontal distance of 1,000 feet expanding uniformly to a width of 450 feet for Runways 18-36 (which is coincident with the Runway Protection Zone).

- 2. Safety Zone B.** All land in that portion of the Precision Instrument Approach Zone of Runway 10R and Approach Zone of Runway 28L beginning at and coinciding with the Primary Surface of the Runway at a width of 1,000 feet, extending outward a distance of five thousand (5,000) feet and expanding uniformly to an ultimate width of two thousand five hundred (2,500) feet, less the area encompassing State Safety Zone A (RPZ); and is all land in that portion of the Approach Zone of Runway 10L and Runway 28R beginning at and coinciding with the Primary Surface of the Runway, extending outward a distance of three thousand nine hundred (3,900) feet and expanding uniformly to an ultimate width of one thousand six hundred seventy (1,670) feet less the area encompassing State Safety Zone A (RPZ); and is all land in that portion of the Approach Zone of Runways 18-36 beginning at and coinciding with the end of the Primary Surface of the Runway at a width of 500 feet, extending outward a distance of two thousand eight hundred (2,800) feet and expanding uniformly to an ultimate width of one thousand three hundred forty (1,340) feet less the area encompassing State Safety Zone A (RPZ).
- 3. Safety Zone C.** All land enclosed within the perimeter of the Horizontal Zone, except that land within Safety Zone A and Safety Zone B.

B. Land Use Restrictions

- 1. General Restrictions.** Subject at all times to the height restrictions set forth in Section IV.B., no use shall be made of any land in any of the Safety Zones that creates or causes interference with the operations of radio or electronic facilities on the Airport or with radio or electronic communications between Airport and aircraft, makes it difficult for pilots to distinguish between Airport lights and other lights, results in glare in the eyes of pilots using the Airport, impairs visibility in the vicinity of the Airport, or otherwise endangers the landing, taking off, or maneuvering of aircraft.

2. **Safety Zone A Restrictions.** Subject at all times to the height restrictions set forth in Section IV.B. and to the general restrictions contained in Section V.B.1., areas designated as Safety Zone A for each end of Runways 10R-28L, 10L-28R, 18-36 shall contain no Structures or Trees, except Structures related to Airport operations or air navigation as allowed in a Runway Protection Zone by Federal laws and regulations or by FAA advisory circulars shall be permitted.

3. **Safety Zone B Restrictions.** Subject at all times to the height restrictions in Section IV.B. and to the general restrictions in Section V.B.1., all land uses shall be permitted in Safety Zone B for each end of Runways 10R-28L, 10L-28R, 18-36, except for the following uses which shall be specifically prohibited: amphitheatres, campgrounds, churches, fuel storage tank farms and Above-ground Fuel Tanks, gasoline stations, hospitals, Nursing Homes, residential uses (including low, medium, and high density residential uses), Schools, stadiums, theaters, trailer courts, and ponds or other uses that might attract waterfowl or other birds such as putrescible waste disposal operations, wastewater treatment facilities and associated settling ponds, and dredge spoil containment areas; provided, however, the prohibition on ponds or other uses that might attract waterfowl or other birds shall not apply to areas below an elevation of eight hundred sixty five (865) feet above mean sea level along any Bluff of the Minnesota River.

In Safety Zone B for each end of Runways 10R-28L, 10L-28R, 36-18, a minimum of 20% of the total Zone B acreage or 20 acres, whichever is greater, shall be maintained as contiguous open space.

4. **Safety Zone C Restrictions.** No land use in Safety Zone C shall violate the height restrictions set forth in Section IV.B. or the general restrictions contained in Section V.B.1.

5. **Permitted Residential Areas**

a. Property located in the permitted Residential Areas shall be subject to the height restrictions of Section IV.B. and the general restrictions of Section V.B.1. but shall not be subject to the Safety Zone A restrictions of Section V.B.2. or the Safety Zone B restrictions of Section V.B.3. In addition, such Structure, Lot, or use shall

Comment [cel3]: State Safety Zone B restrictions are changed from the State Model Zoning Ordinance such that use restrictions do not include site acre/structure limitations and site-area-to-building-plot-area ratios and population criteria as well as allowing for ponding along the Minnesota River Valley bluff line.

Comment [cel4]: The concept of Permitted Residential Areas is a change from the State Model Zoning Ordinance Established Residential Neighborhood provisions.

be deemed a conforming use that shall not be prohibited under this FCM Zoning Ordinance.

- b. In Safety Zone B in Permitted Residential Areas, existing low, medium, and high density residential uses may be improved and expanded, and new low, medium, and high density residential uses may be developed, all subject to the height restrictions of Section IV.B. and the general restrictions of Section V.B.1.
- c. Land uses in Permitted Residential Areas that violate any of the following restrictions are prohibited as safety hazards and must be acquired, altered, or removed at public expense:
 - i. any Structure which a Person customarily uses as a principal residence and which is located entirely inside Safety Zone A within 1,000 feet of the end of a Primary Zone;
 - ii. any Structure which a Person customarily uses as a principal residence and which is located entirely within Safety Zones A or B and which penetrates a Precision Instrument Approach Surface;
 - iii. any land use in Safety Zone A or B which violates any of the following standards:
 - (1) the land use must not create or cause interference with the operation of radio or electronic facilities on the Airport or with radio or electronic communications between the Airport and aircraft;
 - (2) the land use must not make it difficult for pilots to distinguish between Airport lights and other lights; or
 - (3) the land use must not result in glare in the eyes of pilots using the Airport or impair visibility in the vicinity of the Airport;
 - iv. any isolated Low Density Residential Lot on which any Structure, if built, would be prohibited by Section V.B.5.c., subsections i., ii., or iii.; and
 - v. any other land use that the Commissioner determines, pursuant to Minnesota Rules 8800.2400, subp. 6.E.(5)(e), constitutes a material danger to the landing, taking off, or maneuvering of aircraft or to the safety of Persons on the ground.

SECTION VI. AIRPORT ZONING LIMITS AND FCM ZONING MAP

- A. Airspace Zoning Limits.** No Airspace Zone shall extend more than two miles from the Airport Boundary under the Precision Instrument Approach Surfaces or more than one and one-half miles from the Airport Boundary outside the Precision Instrument Approach Surfaces. Exhibit D – Airport Boundary and Airspace Zoning Limits and Exhibit E – Airport Boundary and Airspace Contours, attached hereto and made a part hereof, show these limits.
- B. Safety Zoning Limits.** The Safety Zoning Limits shall not extend beyond one (1) mile from the airport boundary. Safety Zone B will define the extent of the zoning limits in areas where Safety Zone B extends beyond one (1) mile from the airport boundary. Exhibit F – Airport Boundary and Safety Zoning Limits, attached hereto and made a part hereof, shows these limits.
- C. FCM Zoning Map.** The locations and boundaries of the Airspace Surfaces, Airspace Zones, and Safety Zones and the maximum construction heights without an Airport Zoning Permit established by this FCM Zoning Ordinance are set forth on the Flying Cloud Airport Zoning Map consisting of seventy-nine (72) plates – Airspace Zones, Plates A-1 to A-24; Safety Zones, Plates SZ-1 to SZ-24; and Maximum Construction Heights Without Permit, Plates MCH-1 to MCH-24 prepared by the Metropolitan Airports Commission, attached hereto and made a part hereof. These plates, together with such amendments thereto as may from time to time be made, and all notations, references, elevations, heights, data, surface and zone boundaries, and other information thereon, shall be and the same are hereby adopted as part of this FCM Zoning Ordinance.

SECTION VII. NONCONFORMING USES

- A. FCM Zoning Ordinance.** The provisions of this FCM Zoning Ordinance shall not be construed to require the removal, lowering, other change, or alteration of any Structure, or otherwise interfere with the continuance of any Nonconforming Use in existence but not conforming to the provisions of this FCM Zoning Ordinance on the Effective Date. Nothing herein contained shall require any change in the construction, alteration, or intended use of any Structure, the construction or alteration of which was begun prior to the Effective Date, and was diligently prosecuted and completed within two (2) years of the Effective Date.

SECTION VIII. AIRPORT ZONING PERMITS

Comment [cel5]: Permitting would not be the mechanism for regulating trees under this ordinance, as is the case with the State Model Zoning Ordinance.

A. Permit Required. The following activities shall not take place on a Lot in any Airspace Zone or Safety Zone unless an Airport Zoning Permit shall have been granted therefore by the Zoning Administrator for the jurisdiction in which the Lot is located.

- 1. Existing Structures.** Except as specifically provided in Section IX.B., no existing Structure shall be altered, changed, rebuilt, repaired, or replaced.
- 2. New Structures.** Except as specifically provided in Section IX.B., no Structure shall be newly constructed or otherwise established.
- 3. Nonconforming Structures.** No nonconforming Structure shall be altered, changed, rebuilt, repaired, or replaced.
- 5. Nonconforming Use.** No Nonconforming Use shall be changed or converted to another Nonconforming Use.

B. Exception To Permit Requirement.

- 1. Maximum Construction Height Without A Permit.** No Airport Zoning Permit shall be required for an existing Structure to be altered, changed, rebuilt, repaired, or replaced on a Lot or for a new Structure to be constructed or otherwise established on a Lot, if the highest point on the Structure or on any equipment used to accomplish any of the foregoing activities, whichever is higher, measured in feet from curb level or from natural grade at a point ten (10) feet away from the front center of the Structure, whichever is lower, does not exceed the maximum construction height above ground without an Airport Zoning Permit shown for the Lot on the applicable Maximum Construction Heights Without Permit Plate in the FCM Zoning Map. The permitting process will require an FAA 7460 Obstruction Evaluation for all structures with proposed heights in excess of the maximum allowable construction height with out a permit.
- 2. No Violation Of Height Or Land Use Restriction Permitted.** Nothing in this Section IX.B. shall be construed as permitting or intending to permit a violation or a greater violation of any provision of this FCM Zoning Ordinance.

- C. Permit Application.** An Airport Zoning Permit application for activities on a Lot shall be made in the manner and on the form established by the Zoning Administrator of the jurisdiction in which the Lot is located as designated in Section XII.B.
- D. Permit Standard.** An Airport Zoning Permit shall be granted unless the Zoning Administrator determines that granting the permit (1) would allow a conforming Structure or use to violate any provision of this FCM Zoning Ordinance or (2) would permit a nonconforming Structure or a Nonconforming Use to become a greater violation of any provision of this FCM Zoning Ordinance. Any Airport Zoning Permit granted may be granted subject to any reasonable conditions that the Zoning Administrator may deem necessary to effectuate the purpose of this FCM Zoning Ordinance. In making any determination, the Zoning Administrator need not give public notice of, or hold a public hearing on, the Airport Zoning Permit application or the determination.
- E. Abandoned Or Deteriorated Nonconforming Uses.** Whenever a Zoning Administrator determines that a nonconforming Structure has been abandoned or more than eighty percent (80%) torn down, deteriorated, or decayed, no Airport Zoning Permit shall be granted that would allow such Structure to exceed the height restrictions of Section IV.B. or otherwise violate any provision of this FCM Zoning Ordinance. Whether application is made for an Airport Zoning Permit or not, a Zoning Administrator may order the owner of a nonconforming Structure, at the owner's expense, to lower, remove, reconstruct, or equip the same in the manner necessary to conform to the provisions of this FCM Zoning Ordinance. In the event the owner of the nonconforming Structure shall neglect or refuse to comply with such order for ten (10) days after receipt of written notice of such order, the Zoning Administrator may, by appropriate legal action, proceed to have the nonconforming Structure lowered, removed, reconstructed, or equipped and assess the cost and expense thereof against the land on which the Structure is, or was, located. Unless such an assessment is paid within ninety (90) days from the service of notice thereof on the owner of the land, the sum shall bear interest at the rate of eight percent (8%) per annum from the date the cost and expense is incurred until paid, and shall be collected in the same manner as are general taxes, all as authorized by Minnesota Statutes § 360.067.

SECTION IX. VARIANCES

Comment [cel6]: The State's Model Zoning Ordinance does not leverage the FAA 7460 process as is done here.

- A. FAA 7460 Obstruction Evaluation.** Any proposed structure with a height in excess of the maximum allowable building height without a permit that has been analyzed by the FAA as part of a 7460 Obstruction Evaluation and has been determined by the FAA not to be a hazard to air navigation and not requiring changes to airport or aircraft operations will not require a variance.
- B. Variance Application.** Any Person desiring to construct or establish a new Structure; to alter, change, rebuild, repair, or replace an existing Structure; to allow a Tree to grow higher; to alter, repair, replace, or replant a Tree; or to use his or her property in violation of any provision of this FCM Zoning Ordinance may apply to the Board of Adjustment for a variance from such provision. A variance application shall be made by sending the application on the form provided by the Board of Adjustment by certified United States Mail to (1) the members of the Board of Adjustment and (2) the Board of Adjustment at the mailing address specified in Section XIII.C. The applicant shall also mail a copy of the application by regular United States Mail to the Zoning Administrator of the jurisdiction in which the Structure or property is located, as designated in Section XII.B. The Board of Adjustment may charge a fee for processing the application.
- C. Failure Of Board To Act.** If the Board of Adjustment fails to grant or deny the variance within four (4) months after the last Board member receives the variance application, the variance shall be deemed to be granted by the Board of Adjustment, but not yet effective. When the variance is granted by reason of the failure of the Board of Adjustment to act on the variance, the Person receiving the variance shall send notice that the variance has been granted by certified United States Mail to (1) the Board of Adjustment at the mailing address specified in Section XIII.C. and (2) the Commissioner. The applicant shall include a copy of the original application for the variance with the notice to the Commissioner. The variance shall be effective sixty (60) days after this notice is received by the Commissioner, subject to any action taken by the Commissioner pursuant to Minnesota Statutes § 360.063, subd. 6.a.
- D. Variance Standard.** A variance shall be granted where it is found that a literal application or enforcement of the provisions of this FCM Zoning Ordinance would result in practical difficulty or unnecessary hardship and relief granted would not be contrary to the public

interest but do substantial justice and be in accordance with the spirit of this FCM Zoning Ordinance and Minnesota Statutes Chapter 360. Any variance granted may be granted subject to any reasonable conditions that the Board of Adjustment, or the Commissioner acting under Section XI.B., may deem necessary to effectuate the purpose of this FCM Zoning Ordinance.

SECTION X. HAZARD MARKING AND LIGHTING

- A. Nonconforming Uses.** The owner of any nonconforming Structure is hereby required to permit the installation, operation, and maintenance thereon of such markers and lights as shall be deemed necessary by a Zoning Administrator to indicate to the operators of aircraft in the vicinity of the Airport the presence of such Airport Hazards. Such markers and lights shall be installed, operated, and maintained at the expense of the Metropolitan Airports Commission.
- B. Permits And Variances.** Any Airport Zoning Permit or variance granted by a Zoning Administrator or the Board of Adjustment may, if such action is deemed advisable to effectuate the purpose of this FCM Zoning Ordinance and be reasonable in the circumstances, be granted subject to a condition that the owner of the Structure in question, at the owner's expense, install, operate, and maintain thereon such markers and lights as may be necessary to indicate to pilots the presence of an Airport Hazard.

SECTION XI. ZONING ADMINISTRATOR

- A. Duties.** It shall be the duty of each Zoning Administrator to administer and enforce the provisions of this FCM Zoning Ordinance. Applications for Airport Zoning Permits shall be made to a Zoning Administrator as provided herein. A Zoning Administrator may charge a fee for processing the application. Airport Zoning Permit applications shall be considered and acted upon by the Zoning Administrator in accordance with the provisions of this FCM Zoning Ordinance and within the timelines established by Minnesota Statutes § 15.99, as it may be amended. The Zoning Administrator shall remind each applicant that it is the responsibility of the applicant to record any conditions of an Airport Zoning Permit, if required by law.

- B. Designated Zoning Administrators.** For the purpose of this FCM Zoning Ordinance, the Zoning Administrator shall be the official entitled as follows: the Eden Prairie Zoning Administrator for lands located in the City of Eden Prairie; the Bloomington Zoning Administrator for lands located in the City of Bloomington; the Shakopee Zoning Administrator for lands located in the City of Shakopee; the Chanhassen Zoning Administrator for lands located in the City of Chanhassen; and the Executive Director, Metropolitan Airports Commission, (or his or her designee) for unincorporated lands located in Hennepin County. In the event that one (1) or more of the above described Zoning Administrators does not administer this FCM Zoning Ordinance, the Flying Cloud Airport Joint Airport Zoning Board hereby appoints the Executive Director, Metropolitan Airports Commission, (or his or her designee) to administer this FCM Zoning Ordinance in the municipality or municipalities. If any official position designated above as a Zoning Administrator ceases to exist or to perform or serve its present function, the successor position as designated by the applicable entity shall become the Zoning Administrator for that entity and shall perform or serve such functions.

SECTION XII. BOARD OF ADJUSTMENT

- A. Establishment Of Board And Selection Of Chair.** There is hereby established a Board of Adjustment that shall consist of five (5) members appointed by the Metropolitan Airports Commission, and each shall serve for a term of three (3) years and until a successor is duly appointed and qualified. Of the members first appointed, one (1) shall be appointed for a term of one (1) year, two (2) for a term of two (2) years, and two (2) for a term of three (3) years. Upon their appointment, the members shall select a chair to act at the pleasure of the Board of Adjustment. Members shall be removable by the Metropolitan Airports Commission for cause, upon written charges, after a public hearing.
- B. Board Powers.** The Board of Adjustment shall have the power to hear and decide appeals from any order, requirement, decision, or determination made by any Zoning Administrator or the Metropolitan Airports Commission's Executive Director in the enforcement of this FCM Zoning Ordinance and to hear and grant or deny variances.

C. Board Procedures

- 1. Rules, Meetings, And Records.** The Board of Adjustment shall adopt rules for its governance and procedure in harmony with the provisions of this FCM Zoning Ordinance. Meetings of the Board of Adjustment shall be held at the call of the chair and at such other times as the Board of Adjustment may determine. The chair, or in his or her absence the acting chair, may administer oaths and compel the attendance of witnesses. All hearings of the Board of Adjustment shall be public. The Board of Adjustment shall keep minutes of its proceedings showing the vote of each member upon each question or, if absent or failing to vote, indicating such fact, and shall keep records of its examinations and other official actions, all of which shall immediately be filed in the offices of the Executive Director, Metropolitan Airports Commission, and the Zoning Administrator of the jurisdiction in which the affected Structure or Lot is located.
- 2. Written Findings And Conclusions.** The Board of Adjustment shall make written findings of fact and conclusions of law giving the facts upon which it acted and its legal conclusions from such facts in affirming, modifying, or reversing an order, requirement, decision, or determination of a Zoning Administrator or the Metropolitan Airports Commission's Executive Director and in granting or denying a variance.
- 3. Majority Vote Required.** The concurring vote of a majority of the members of the Board of Adjustment shall be sufficient to affirm, modify, or reverse an order, requirement, decision, or determination of a Zoning Administrator or the Metropolitan Airports Commission's Executive Director, to decide to grant or deny a variance, or to act on any other matter upon which the Board of Adjustment is required to pass under this FCM Zoning Ordinance.
- 4. Mailing Address.** The mailing address for the Board of Adjustment is:

FCM Zoning Ordinance Board of Adjustment
c/o Executive Director
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

SECTION XIII. APPEALS

- A. Who May Appeal.** Any Person aggrieved, or any taxpayer affected by any order, requirement, decision, or determination of a Zoning Administrator made in administration of this FCM Zoning Ordinance may appeal to the Board of Adjustment. Such appeals may also be made by any governing body of a municipality or county, or any joint airport zoning board, which is of the opinion that an order, requirement, decision, or determination of a Zoning Administrator is an improper application of this FCM Zoning Ordinance as it concerns such governing body or board.
- B. Commencement Of Appeals.** All appeals hereunder must be commenced within thirty (30) days of a Zoning Administrator's decision by filing with the Zoning Administrator a notice of appeal specifying the grounds thereof. The Zoning Administrator shall forthwith transmit to the Board of Adjustment the notice of appeal and all papers constituting the record upon which the order, requirement, decision, or determination appealed from was taken.
- C. Stay Of Proceedings.** An appeal shall stay all proceedings in furtherance of the order, requirement, decision, or determination appealed from, unless the Zoning Administrator certifies to the Board of Adjustment, after the notice of appeal has been filed with it, that by reason of the facts stated in the certificate a stay would, in the Zoning Administrator's opinion, cause imminent peril to life or property. In such case, proceedings shall not be stayed except by order of the Board of Adjustment on notice to the Zoning Administrator and on due cause shown.
- D. Appeal Procedures.** The Board of Adjustment shall fix a reasonable time for hearing an appeal, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. At the hearing, any party may appear in Person, by agent, or by attorney.
- E. Decision.** The Board of Adjustment may, in conformity with the provisions of this FCM Zoning Ordinance, affirm or reverse, in whole or in part, or modify the order, requirement, decision, or determination appealed from and may make such order, requirement, decision, or determination, as may be appropriate under the circumstances and, to that end, shall have all the powers of a Zoning Administrator.

SECTION XIV. JUDICIAL REVIEW

Any Person aggrieved, or any taxpayer affected by, any decision of the Board of Adjustment, or any governing body of a municipality or county, or any joint airport zoning board, which is of the opinion that an order, requirement, decision, or determination of the Board of Adjustment is illegal, may seek judicial review as provided in Minnesota Statutes § 360.072. The petitioner must exhaust the remedies provided in this FCM Zoning Ordinance before availing himself or herself of the right to seek judicial review as provided by this Section XV.

SECTION XV. PENALTIES AND OTHER REMEDIES

Every Person who violates any provision of this FCM Zoning Ordinance, any zoning approval granted hereunder, any condition of any zoning approval granted hereunder, or any order, requirement, decision, or determination of a Zoning Administrator or the Board of Adjustment shall be guilty of a misdemeanor and shall be punished by a fine, imprisonment, or both of not more than the fine and imprisonment established for misdemeanors by state law. Each day a violation continues to exist shall constitute a separate offense for purpose of the penalties and remedies specified in this section. This FCM Zoning Ordinance may also be enforced through such proceedings for injunctive relief and other relief as may be proper under Minnesota Statutes § 360.073, as it may be amended, and other applicable law.

SECTION XVI. RELATION TO OTHER LAWS, REGULATIONS, AND RULES

- A. Compliance Required.** In addition to the requirements of this FCM Zoning Ordinance, all Structures, Trees, and uses shall comply with all other applicable city, local, regional, state, or federal laws, regulations, and rules, including Minnesota Statutes §§ 360.81-360.91 – Regulation Of Structure Heights, Minnesota Rules 8800.1100 – Regulation Of Structure Heights, and 14 Code of Federal Regulations Part 77 – Objects Affecting Navigable Airspace.
- B. Conflicts With Other Regulations.** Where a conflict exists between any provision of this FCM Zoning Ordinance and any city, local, regional, state, or federal law, regulation, or rule applicable to the same area, whether the conflict be with respect to the height of Structures or Trees, the use of land, or any other matter, the more stringent law, regulation, or rule shall govern and prevail.

- C. Current Versions And Citations.** All references to city, local, regional, state, and federal laws, regulations, and rules in this FCM Zoning Ordinance are intended to refer to the most current version and citation. If such references are no longer valid due to repeal or renumbering, the new laws, regulations, or rules intended to replace those cited, regardless of the citation, shall govern.

SECTION XVII. SEVERABILITY

- A. Effect Of Taking.** In any case in which the provisions of this FCM Zoning Ordinance, although generally reasonable, are held by a court to interfere with the use or enjoyment of a particular Structure, Lot, or Tree to such an extent, or to be so onerous in their application to such a Structure, Lot, or Tree, as to constitute a taking or deprivation of that property in violation of the constitution of this state or the constitution of the United States, such holding shall not affect the application of this FCM Zoning Ordinance as to other Structures, Lots, and Trees, and, to this end, the provisions of this FCM Zoning Ordinance are declared to be severable.
- B. Validity Of Remaining Provisions.** Should any section or provision of this FCM Zoning Ordinance be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of this FCM Zoning Ordinance as a whole or any part thereof other than the parts so declared to be unconstitutional or invalid.

SECTION XVIII. EFFECTIVE DATE

This FCM Zoning Ordinance shall take effect on the ____ day of ____, 2010. Copies thereof shall be filed with the Commissioner and the Registers of Deeds for Hennepin County, Minnesota.

Passed and adopted after public hearings by the Flying Cloud Airport Joint Airport Zoning Board this day of ____, 2010.

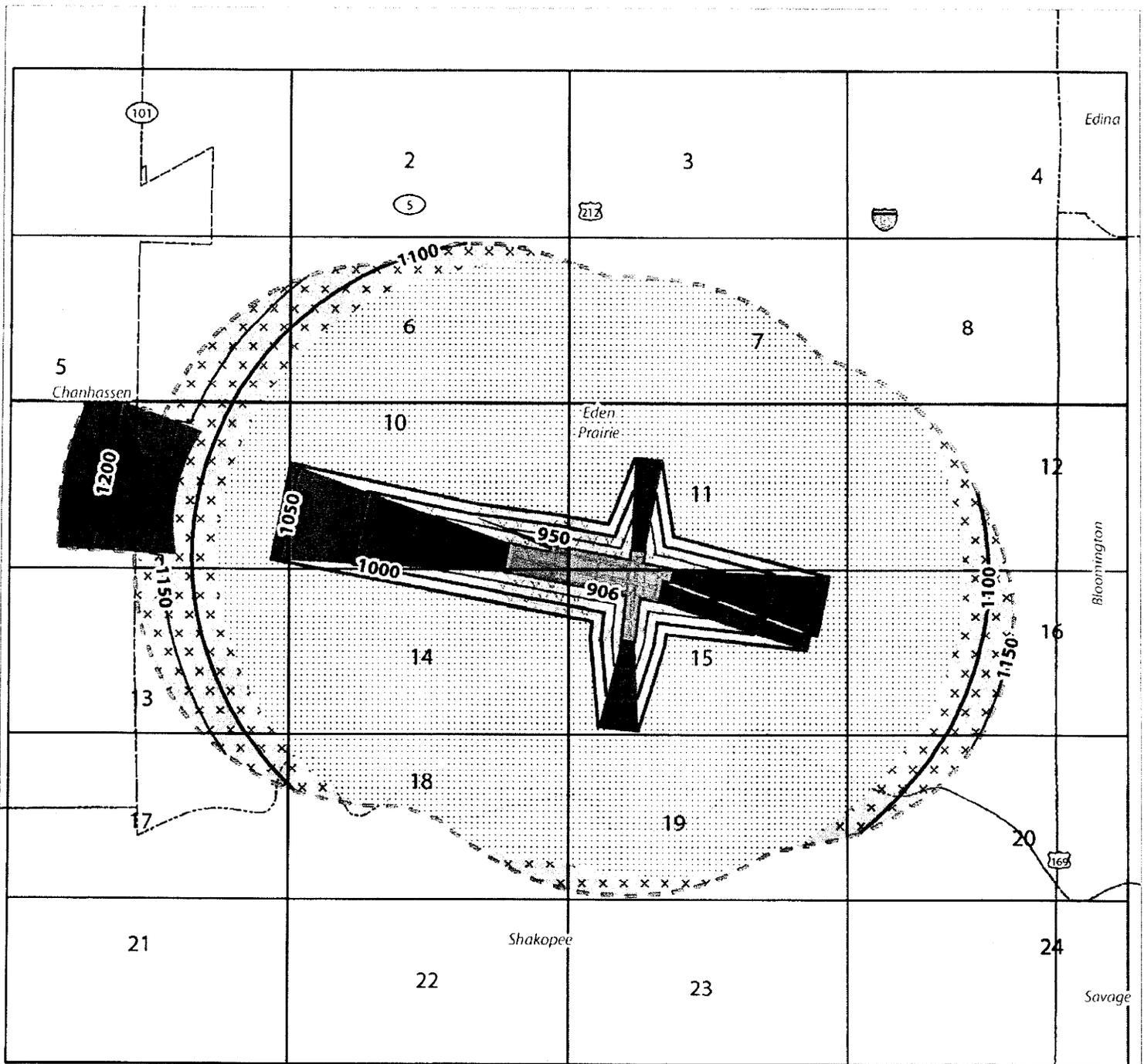
I hereby certify that this is a complete, true, and correct copy of the *Flying Cloud Airport Zoning Ordinance* as adopted by the Flying Cloud Airport Joint Airport Zoning Board on ____, 2010.

Jenn Felger, Secretary
Flying Cloud Airport Joint Airport Zoning Board

Date: _____, 2010

Subscribed and sworn to before me this ____ day of _____, 2010 by Jenn Felger, Secretary of the
Flying Cloud Airport Joint Airport Zoning Board.

Notary Public

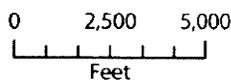


FCM Airspace Zones Within Airspace Zoning Limits

Index Sheet

- Airspace Zoning Limit
- 906' Contour
- 50' Contour
- 100' Contour
- 1056' Contour
- Approach Surface
- Conical Surface
- Horizontal Surface
- Primary Surface
- Transitional Surface
- Municipal Boundaries
- MAC Property
- FCM Pavement

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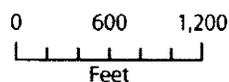




FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 2

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- Airspace Zoning Limit
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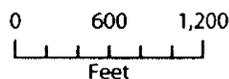


FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 3

- Airspace Zoning Limit
- 906' Contour
- 50' Contour
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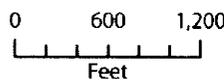


FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 4

- Airspace Zoning Limit
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- 50' Contour
- 100' Contour
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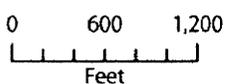


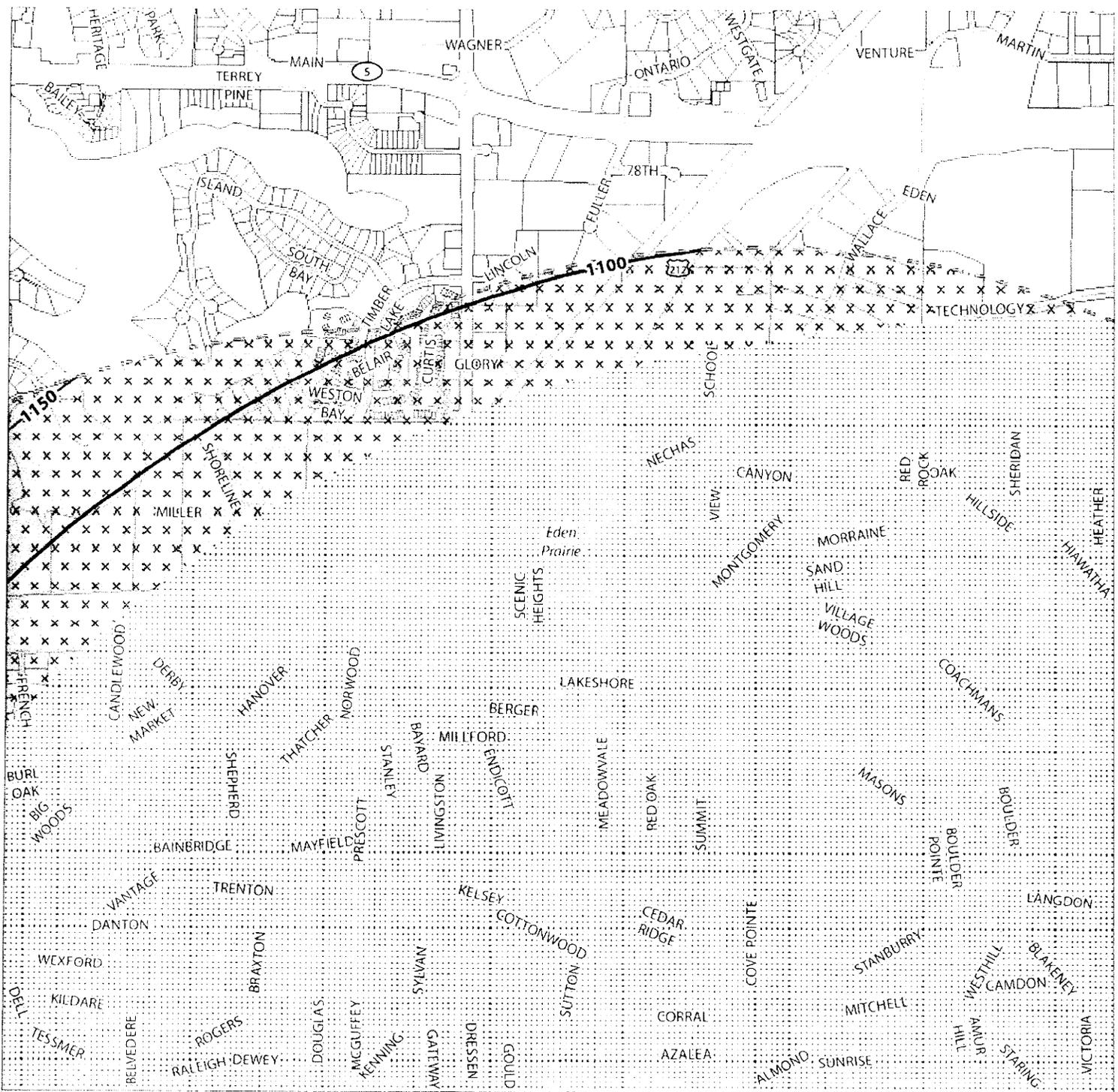
FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 5

- Airspace Zoning Limit
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- Approach Surface
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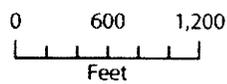


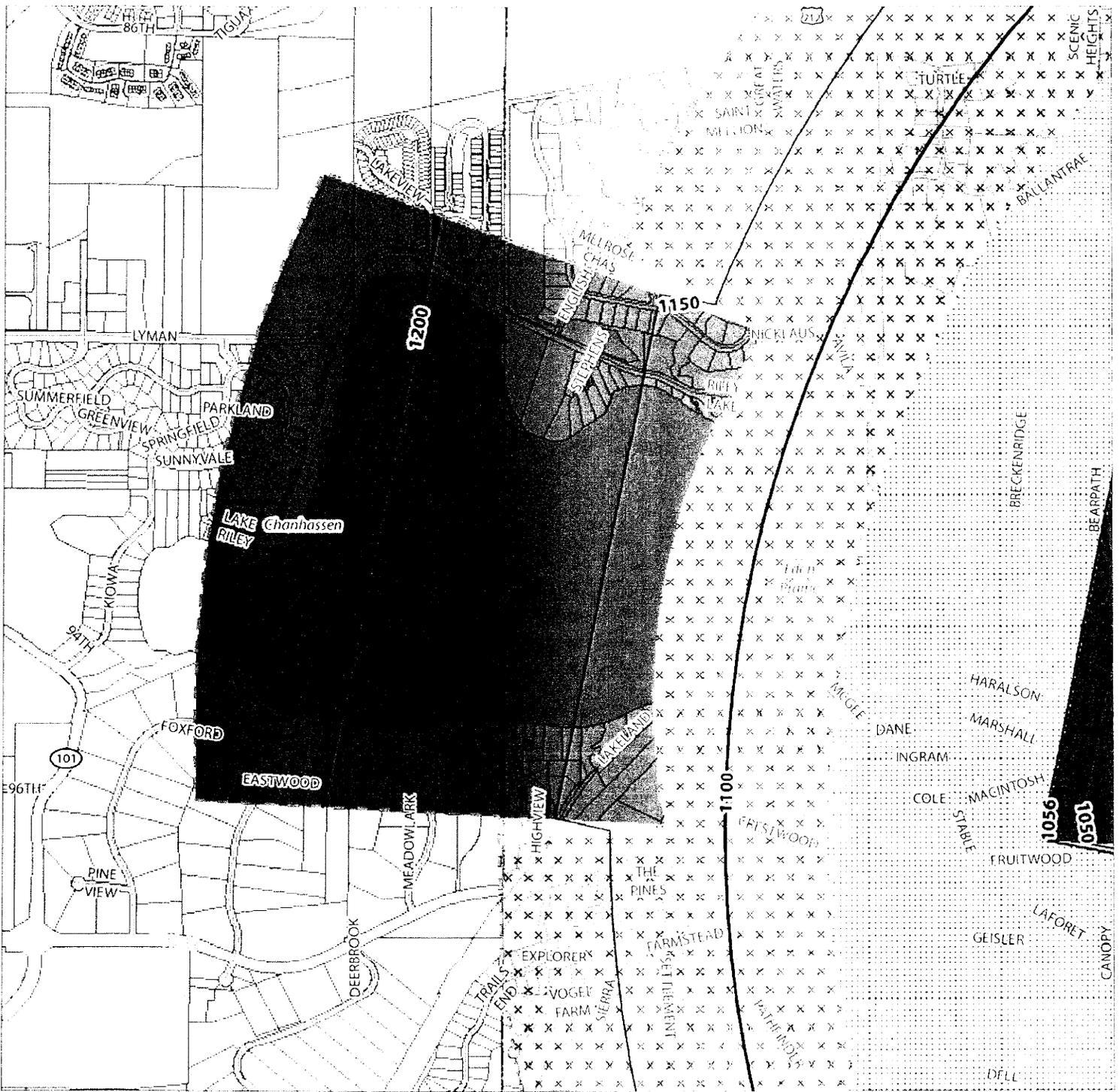
FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 6

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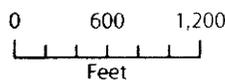




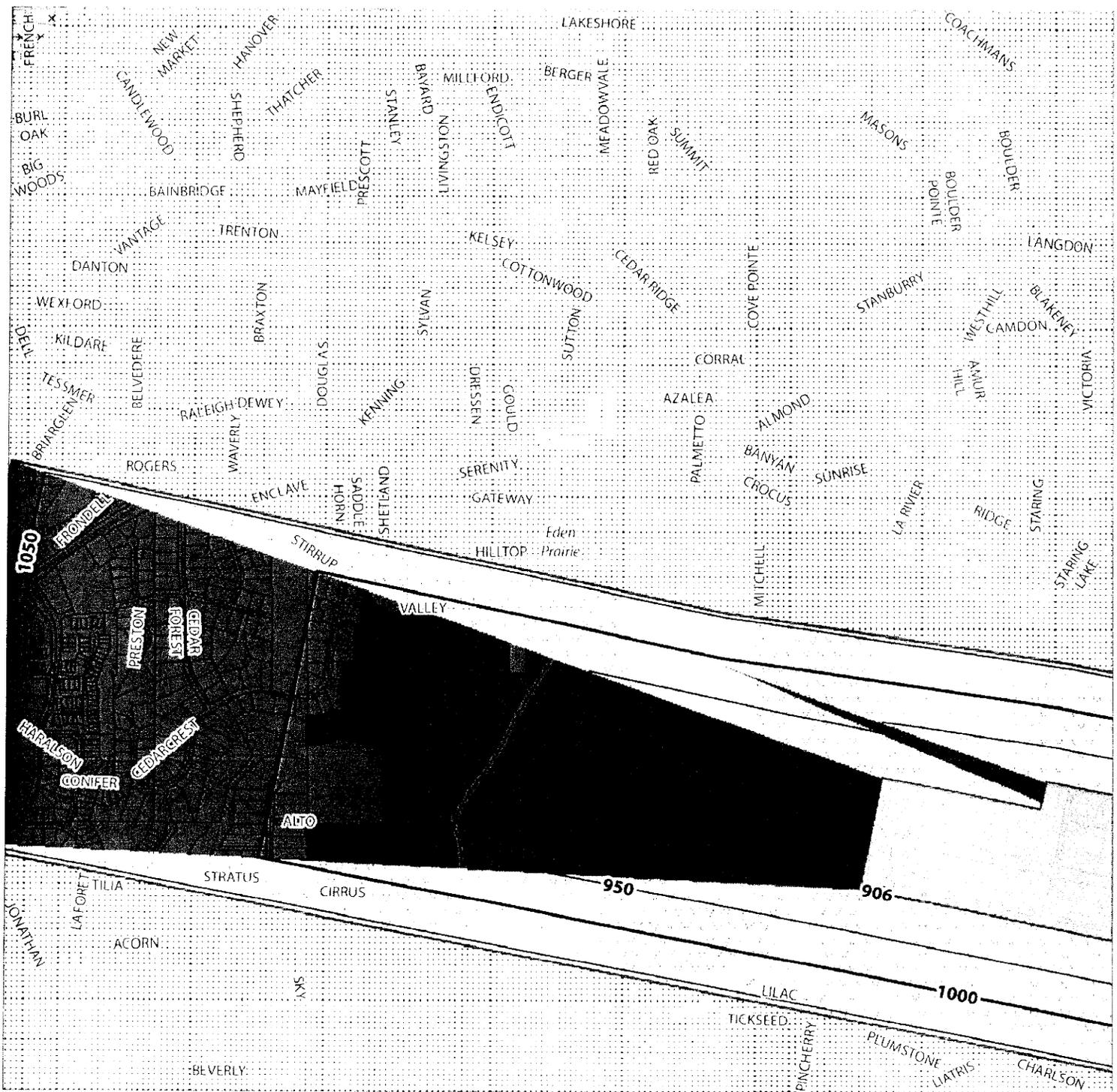
FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 9

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- Airspace Zoning Limit
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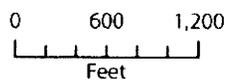


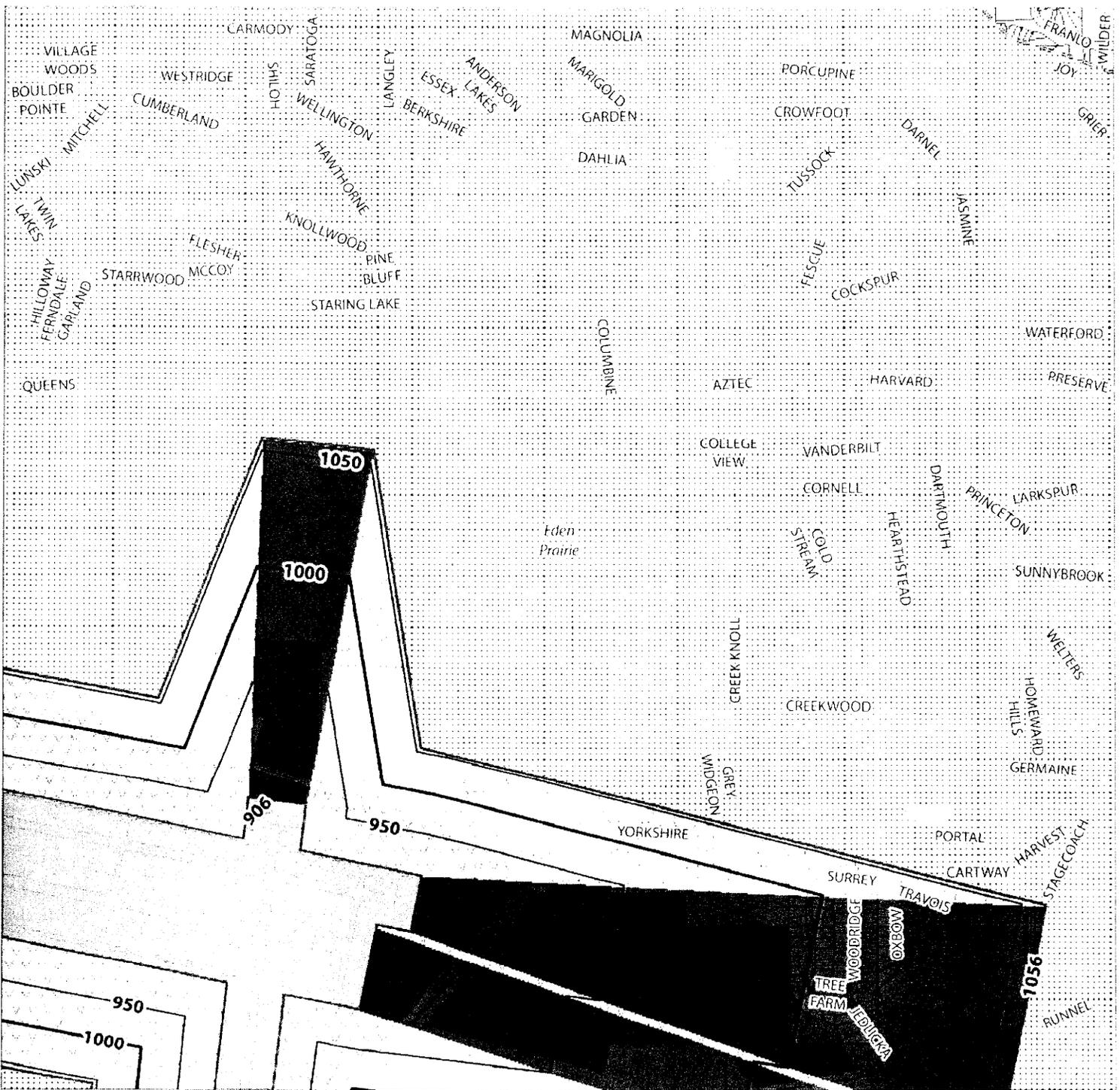
FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 10

- Airspace Zoning Limit
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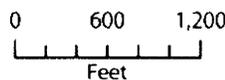


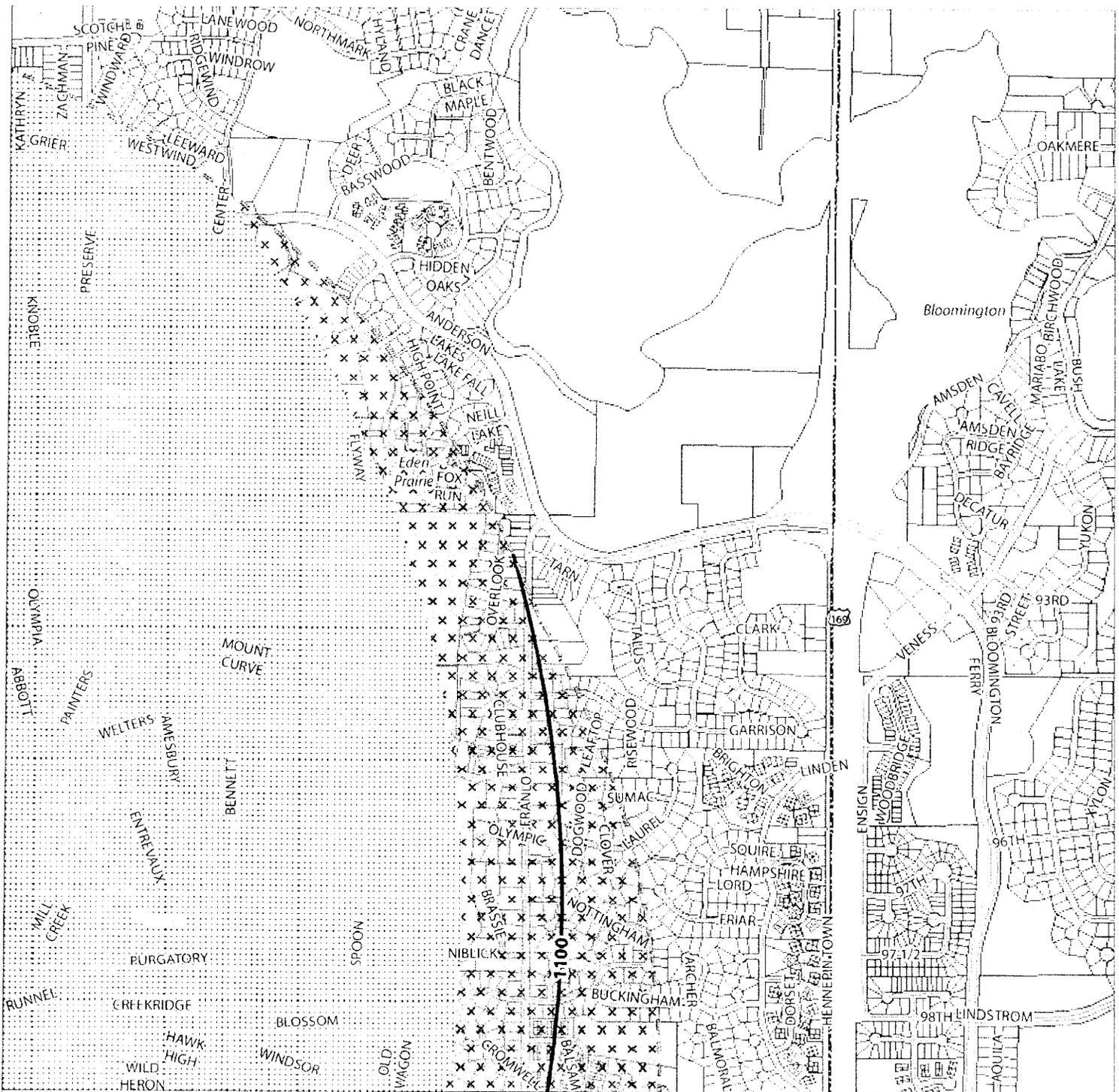
FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 11

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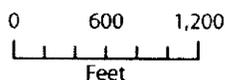




FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 12

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- Airspace Zoning Limit
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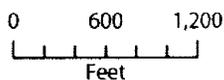


FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 13

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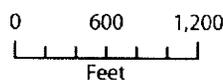


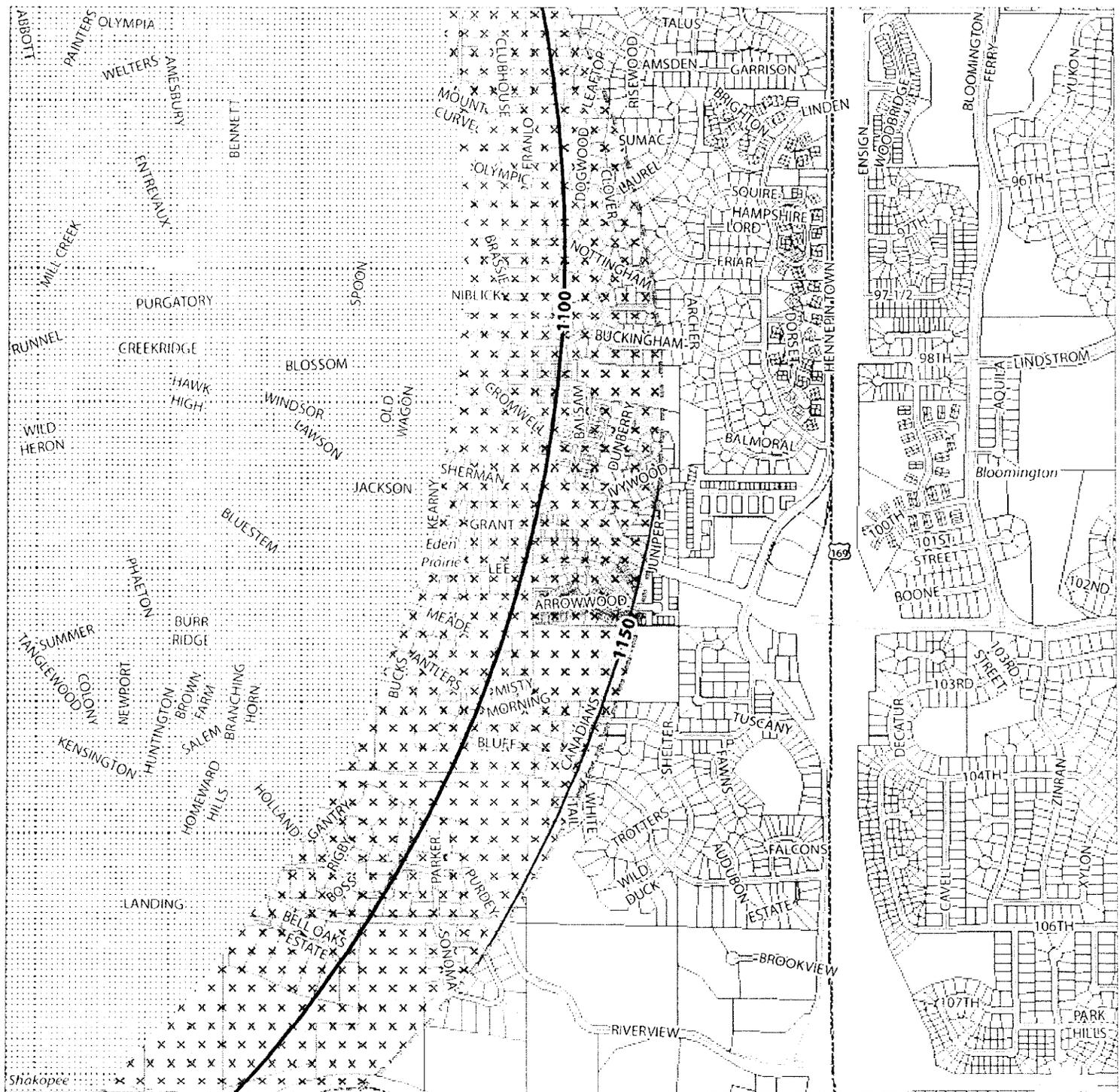
FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 14

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- Airspace Zoning Limit
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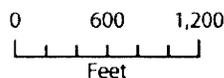
Shakopee

FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 16

- Airspace Zoning Limit
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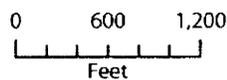


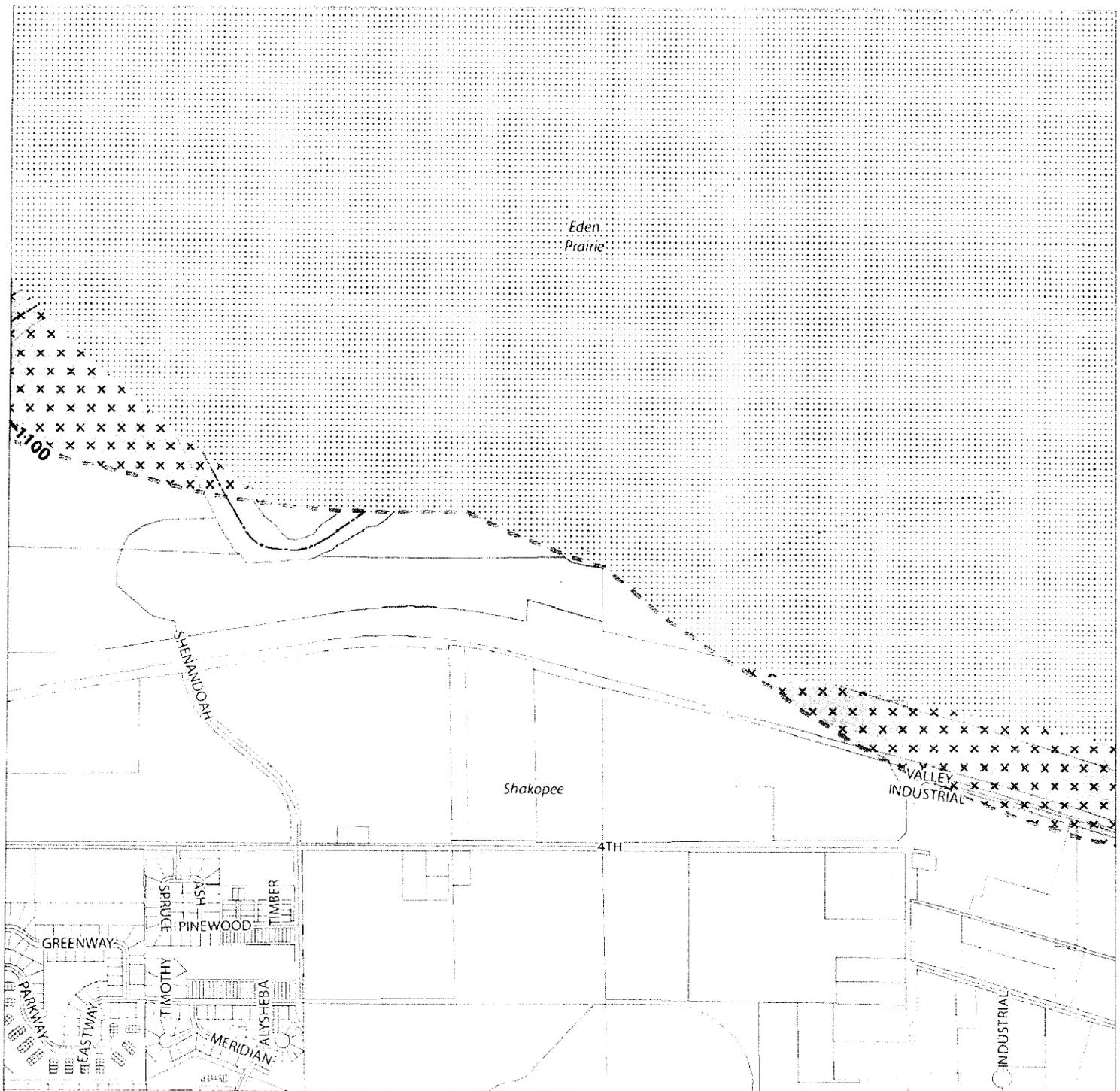
FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 17

- Airspace Zoning Limit
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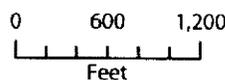


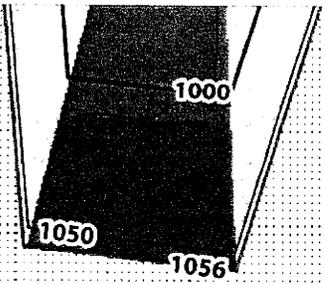
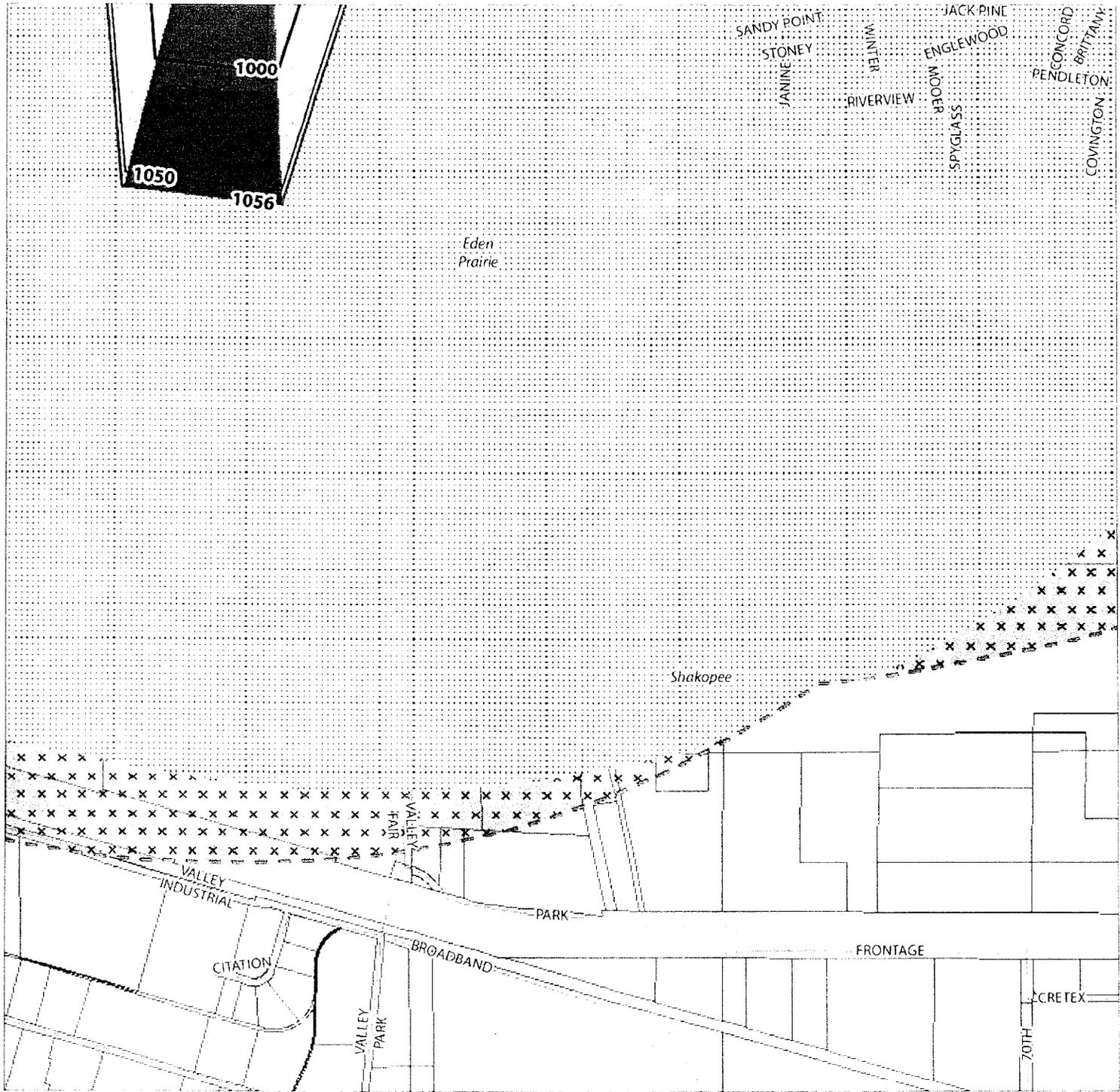
FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 18

- Airspace Zoning Limit
- 906' Contour
- 50' Contour
- 100' Contour
- 1056' Contour
- Approach Surface
- Conical Surface
- Horizontal Surface
- Primary Surface
- Transitional Surface
- Municipal Boundaries
- MAC Property
- Parcel Boundaries
- FCM Pavement

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24





SANDY POINT
 STONEY
 JANINE
 WINTER
 RIVERVIEW
 JACK-PINE
 ENGLEWOOD
 MOORE
 SYDAS
 CONCORD
 BRITTANY
 PENDLETON
 COVINGTON

Eden
 Prairie

Shakopee

VALLEY
 INDUSTRIAL

CITATION

VALLEY
 PARK

BROADBAND

PARK

FRONTAGE

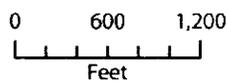
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70TH

FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 19

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17	18	19	20
21	22	23	24



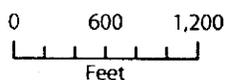
- Airspace Zoning Limit
- 906' Contour
- 50' Contour
- 100' Contour
- 1056' Contour
- Approach Surface
- Conical Surface
- Horizontal Surface
- Primary Surface
- Transitional Surface
- Municipal Boundaries
- MAC Property
- Parcel Boundaries
- FCM Pavement



FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 20

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24



- Airspace Zoning Limit
- 906' Contour
- 50' Contour
- 100' Contour
- 1056' Contour
- Approach Surface
- Conical Surface
- Horizontal Surface
- Primary Surface
- Transitional Surface
- Municipal Boundaries
- MAC Property
- Parcel Boundaries
- FCM Pavement

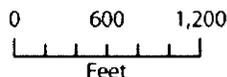


FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 21

- Airspace Zoning Limit
- 906' Contour
- 50' Contour
- 100' Contour
- 1056' Contour
- Approach Surface
- Conical Surface
- Horizontal Surface
- Primary Surface
- Transitional Surface
- Municipal Boundaries
- MAC Property
- Parcel Boundaries
- FCM Pavement

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17	18	19	20
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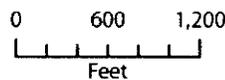


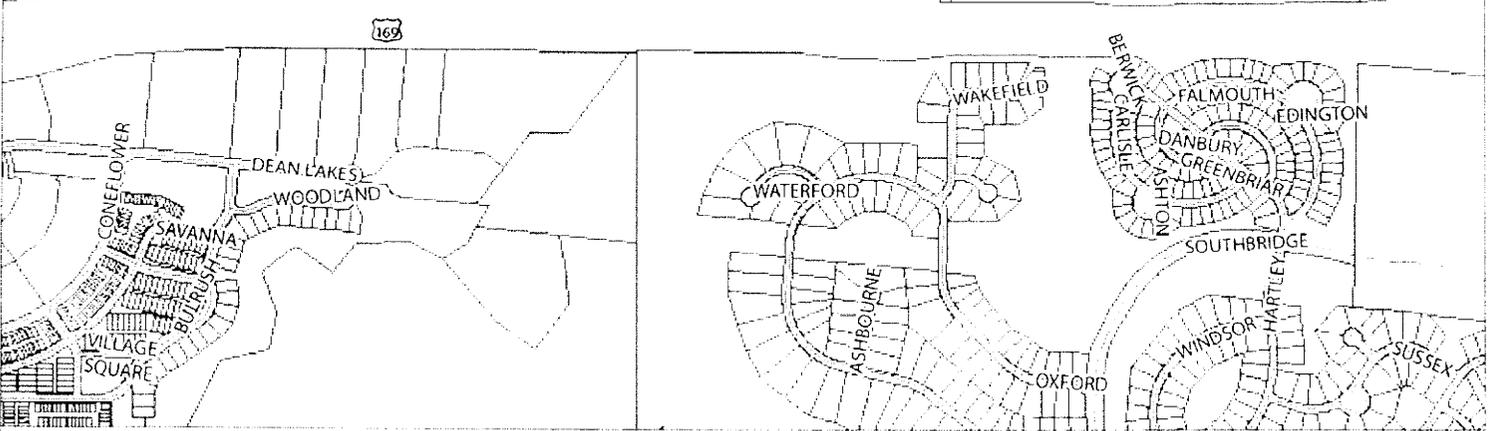
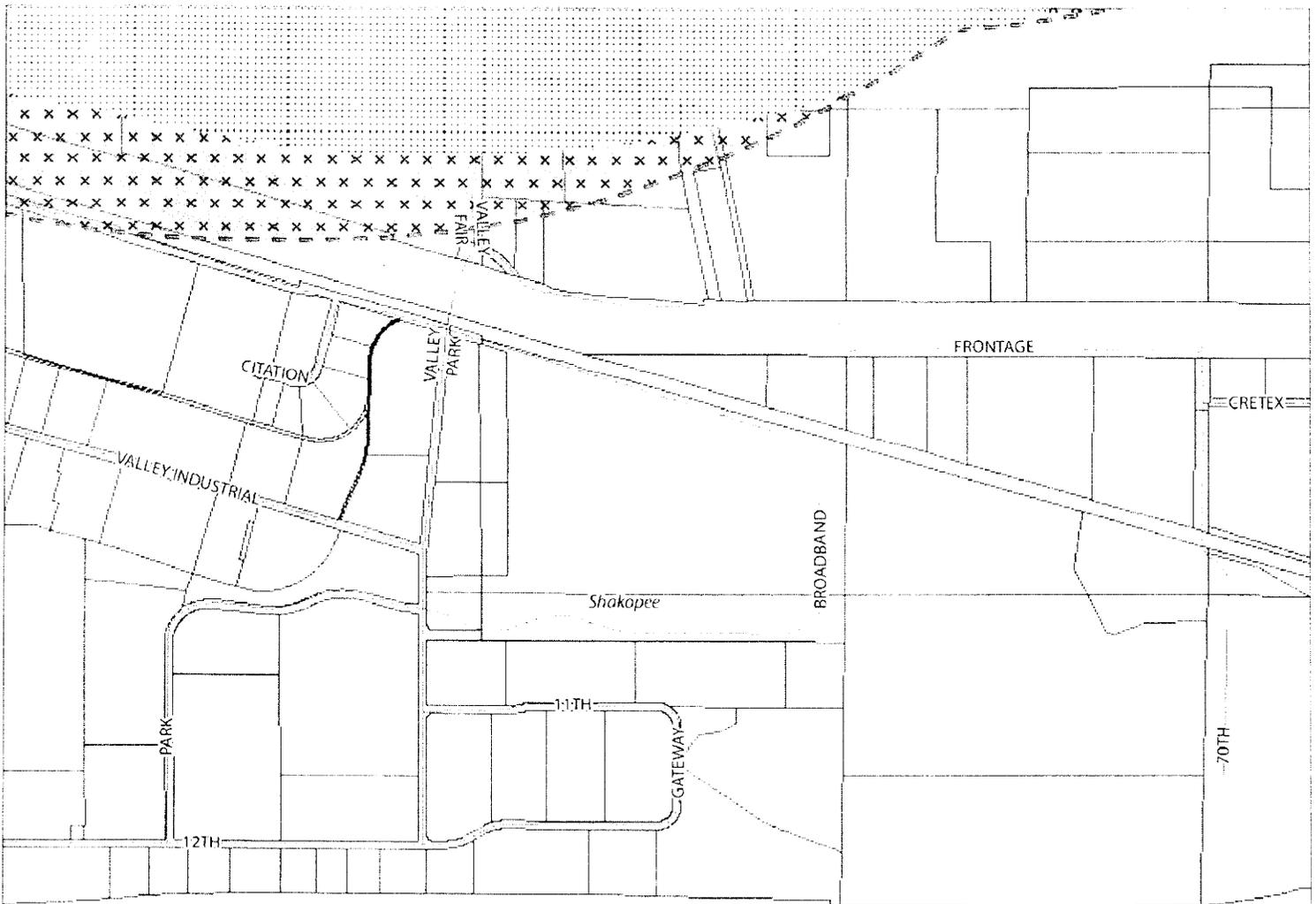
FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 22

- Airspace Zoning Limit
- 906' Contour
- 50' Contour
- 100' Contour
- 1056' Contour
- Approach Surface
- Conical Surface
- Horizontal Surface
- Primary Surface
- Transitional Surface
- Municipal Boundaries
- MAC Property
- Parcel Boundaries
- FCM Pavement

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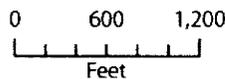


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13	14	15	16
17	18	19	20
21	22	23	24

FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 23

- Airspace Zoning Limit
- 906' Contour
- 50' Contour
- 100' Contour
- 1056' Contour
- Approach Surface
- Conical Surface
- Horizontal Surface
- Primary Surface
- Transitional Surface
- Municipal Boundaries
- MAC Property
- Parcel Boundaries
- FCM Pavement



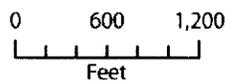


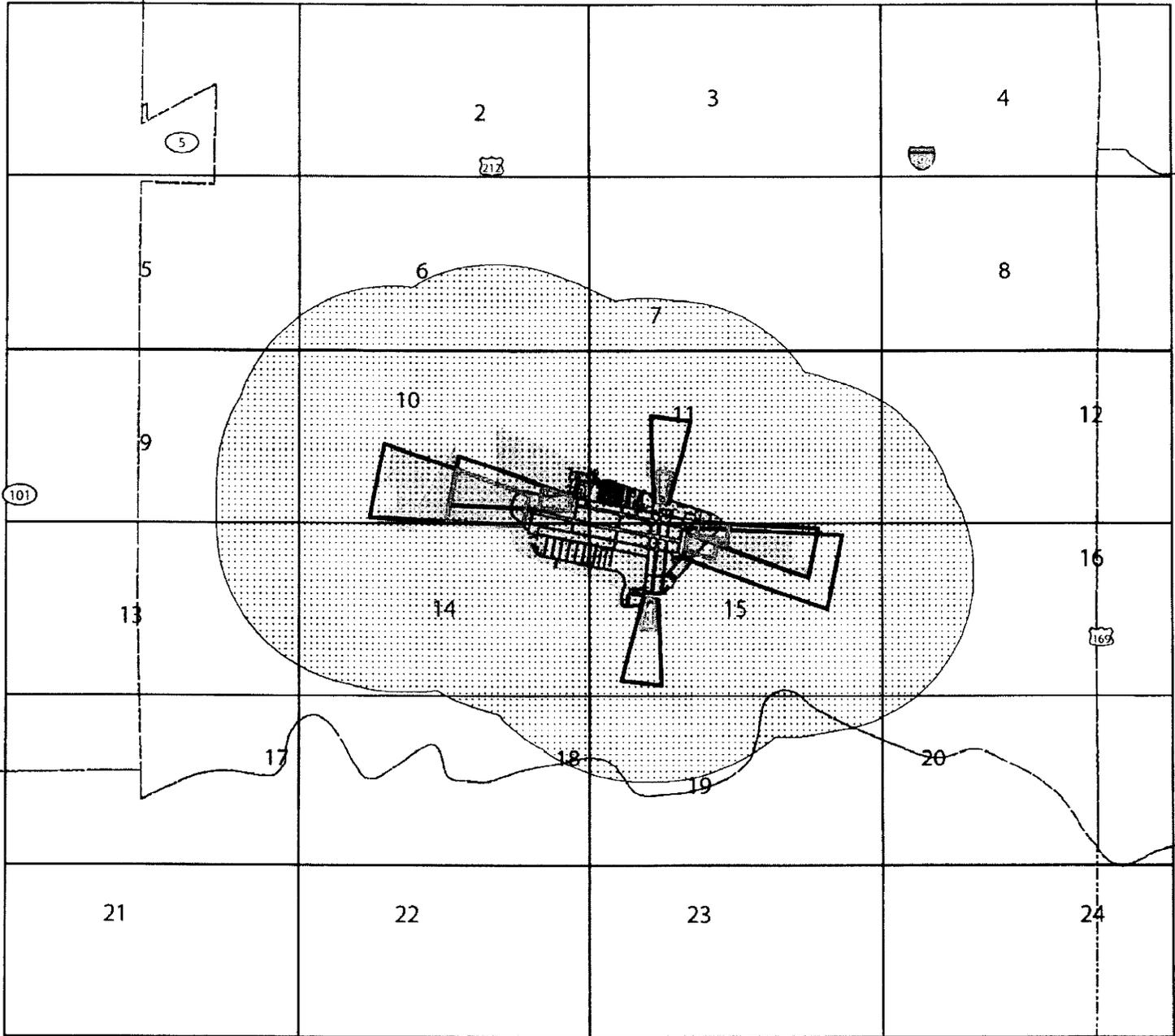
FCM Airspace Zones Within Airspace Zoning Limits

Plate A - 24

- Airspace Zoning Limit
- 906' Contour
- 50' Contour
- 100' Contour
- 1056' Contour
- Approach Surface
- Conical Surface
- Horizontal Surface
- Primary Surface
- Transitional Surface
- Municipal Boundaries
- MAC Property
- Parcel Boundaries
- FCM Pavement

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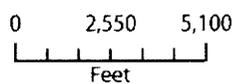




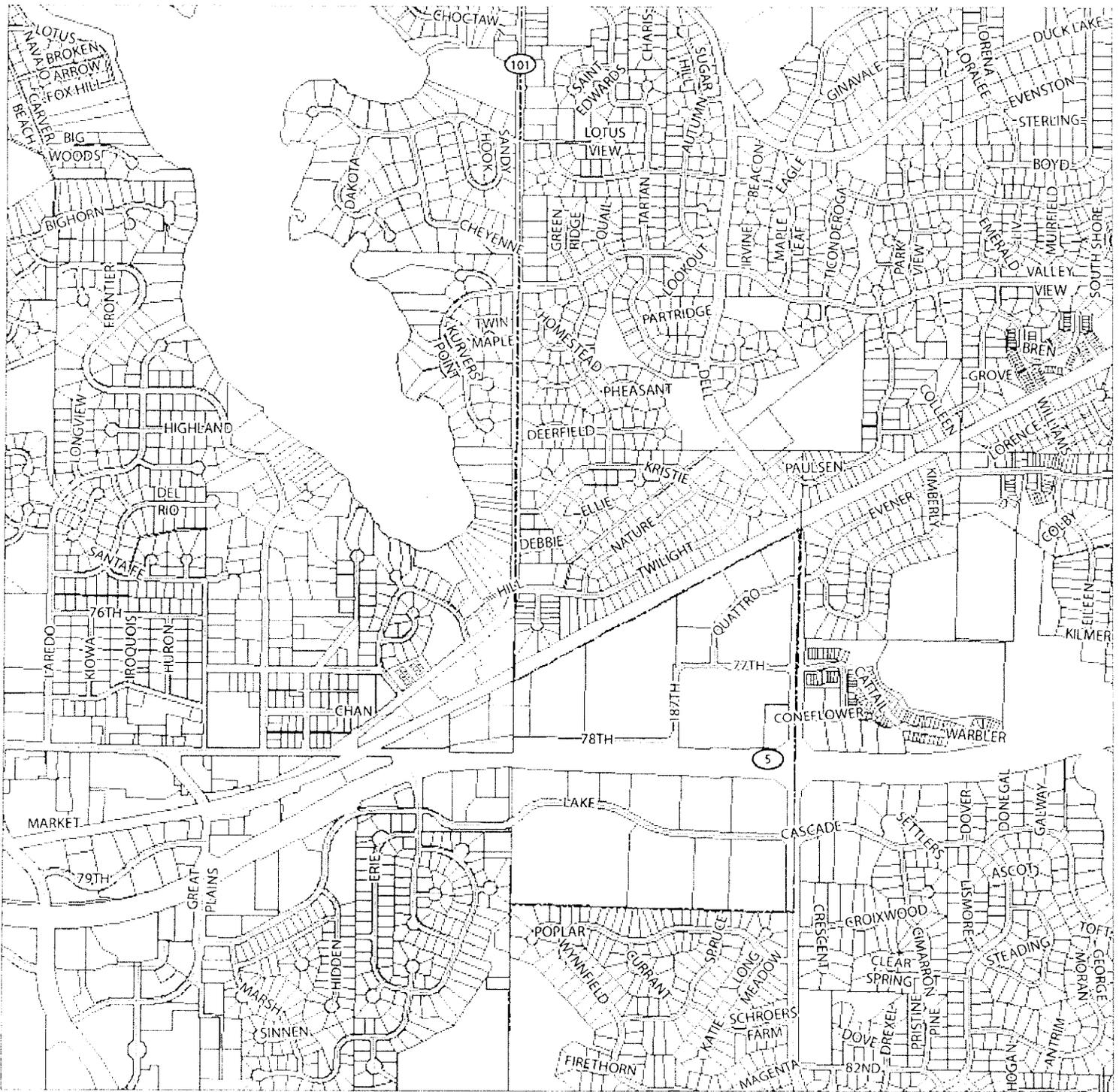
FCM Safety Zones Within Safety Zoning Limits

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13	14	15	16
17	18	19	20
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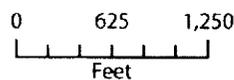
- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries



FCM Safety Zones Within Safety Zoning Limits

Plate SZ - 1

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13	14	15	16
17	18	19	20
21	22	23	24



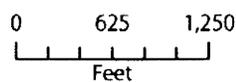
- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries



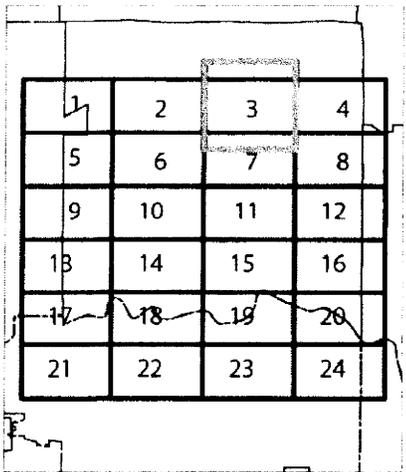
FCM Safety Zones Within Safety Zoning Limits

Plate SZ - 2

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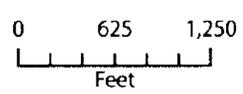
- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries



FCM Safety Zones Within Safety Zoning Limits

Plate SZ - 3

- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries



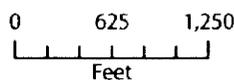


FCM Safety Zones Within Safety Zoning Limits

Plate SZ - 4

- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries

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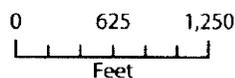


FCM Safety Zones Within Safety Zoning Limits

Plate SZ - 5

-  Zone A (Federal RPZ)
-  Zone B
-  Zone C
-  FCM Pavement
-  MAC Property
-  Municipal Boundaries
-  Parcel Boundaries

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9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

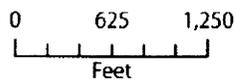




FCM Safety Zones Within Safety Zoning Limits

Plate SZ - 6

- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries



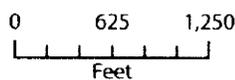
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FCM Safety Zones Within Safety Zoning Limits

Plate SZ - 7

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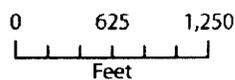
- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries



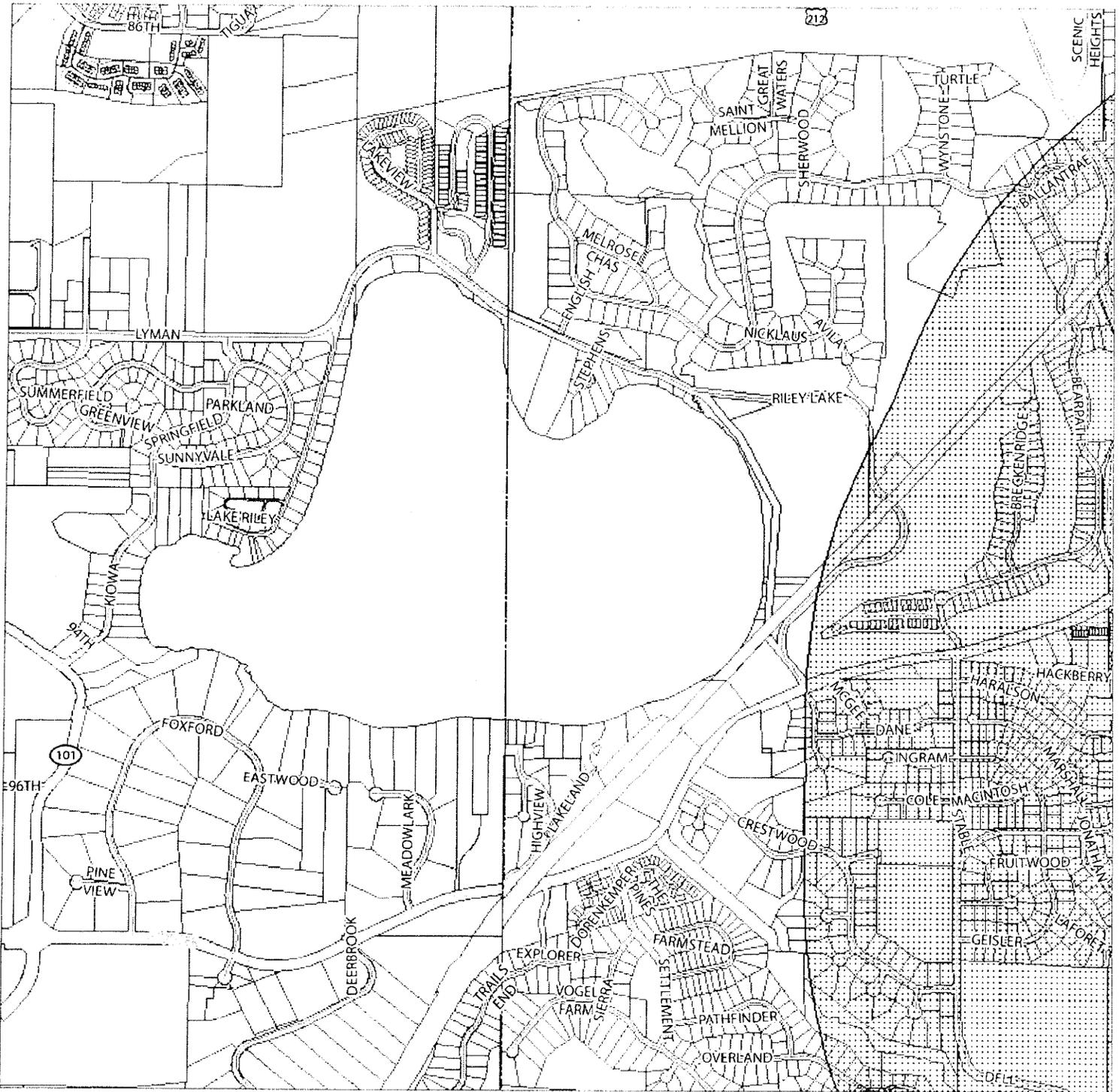
FCM Safety Zones Within Safety Zoning Limits

Plate SZ - 8

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21	22	23	24



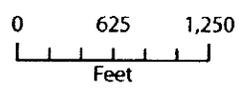
- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries



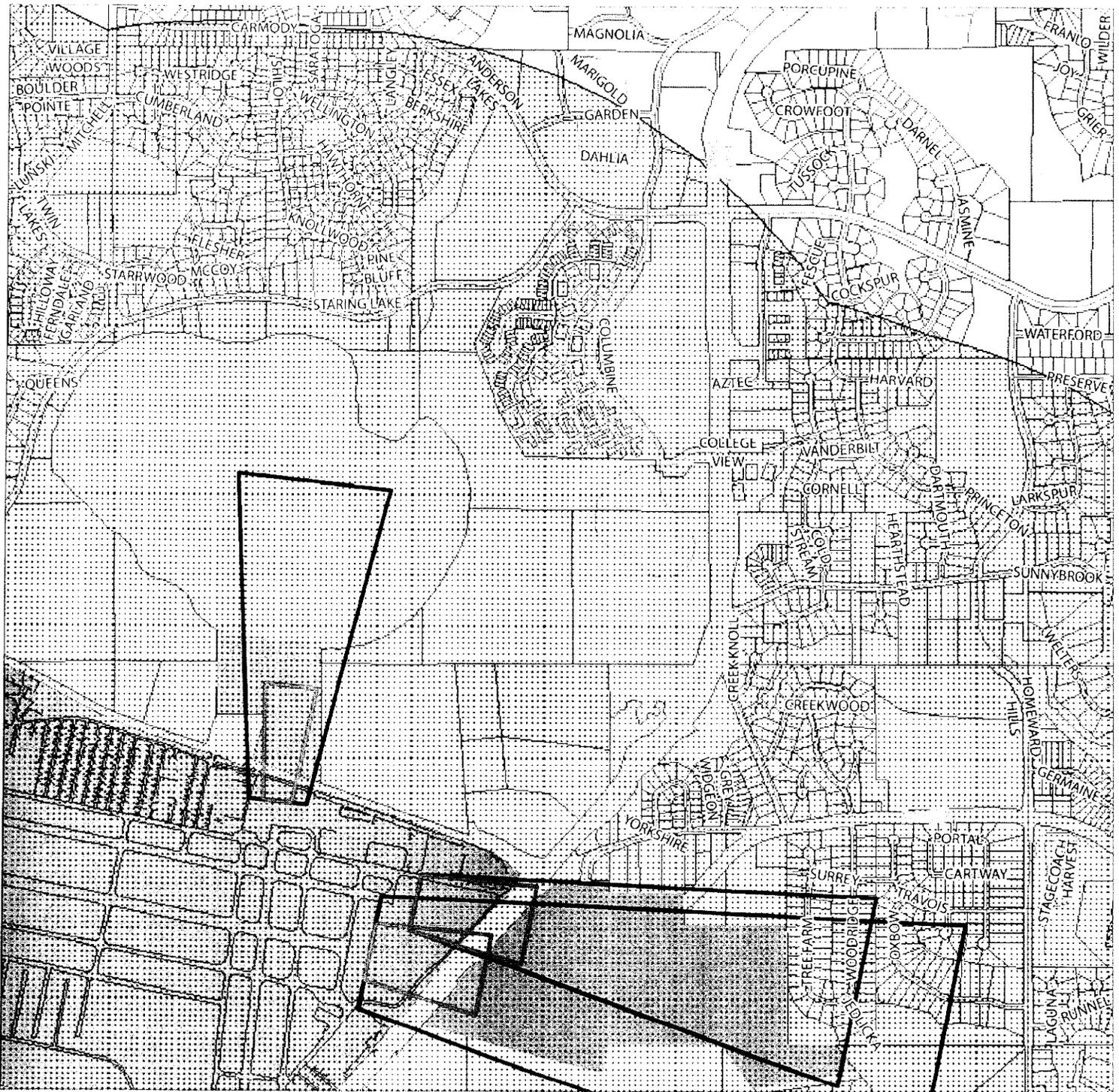
FCM Safety Zones Within Safety Zoning Limits

Plate SZ - 9

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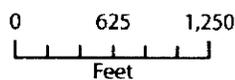
- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries



FCM Safety Zones Within Safety Zoning Limits

Plate SZ - 11

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21	22	23	24



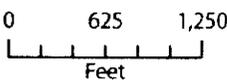
- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries



FCM Safety Zones Within Safety Zoning Limits

Plate SZ -12

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
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- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries

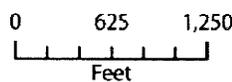


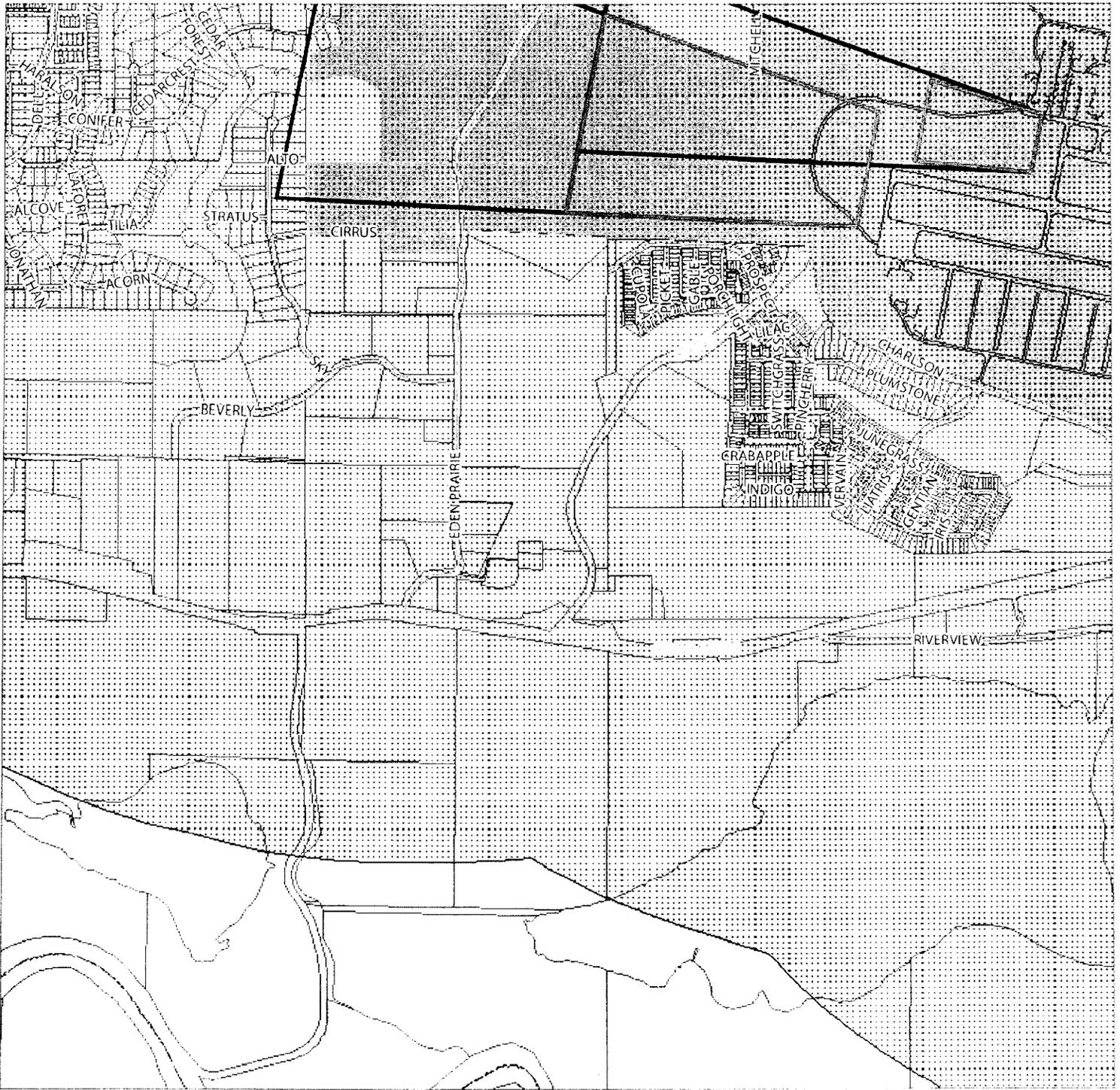
FCM Safety Zones Within Safety Zoning Limits

Plate SZ -13

- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries

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21	22	23	24



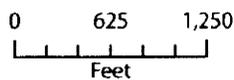


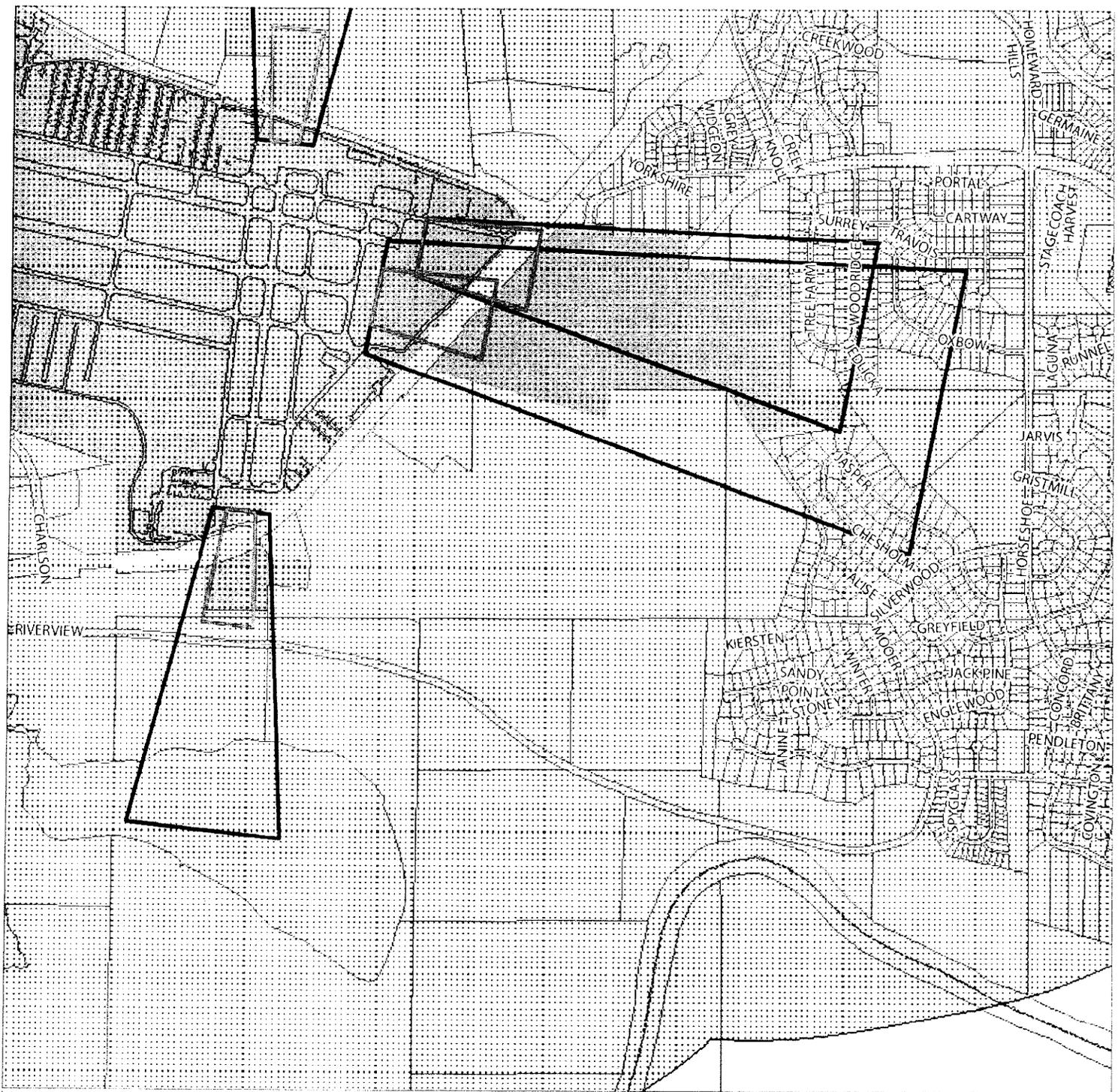
FCM Safety Zones Within Safety Zoning Limits

Plate SZ -14

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17	18	19	20
21	22	23	24

-  Zone A (Federal RPZ)
-  Zone B
-  Zone C
-  FCM Pavement
-  MAC Property
-  Municipal Boundaries
-  Parcel Boundaries



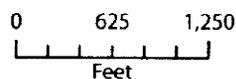


FCM Safety Zones Within Safety Zoning Limits

Plate SZ -15

- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries

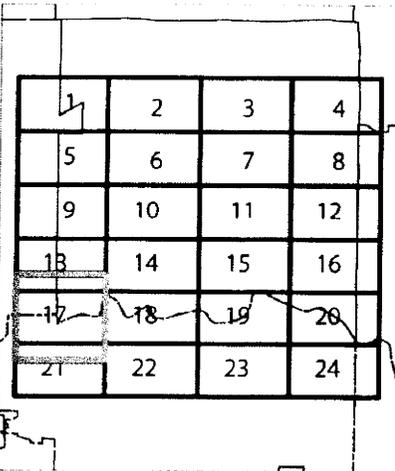
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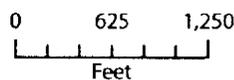


FCM Safety Zones Within Safety Zoning Limits

Plate SZ -17



- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries

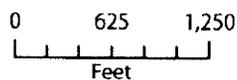




FCM Safety Zones Within Safety Zoning Limits

Plate SZ -18

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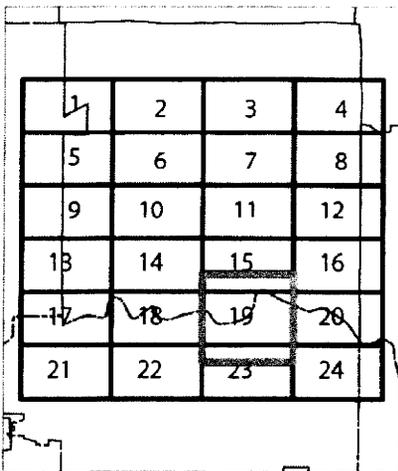


- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries

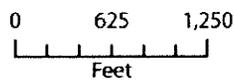


FCM Safety Zones Within Safety Zoning Limits

Plate SZ -19



- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries

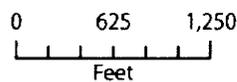




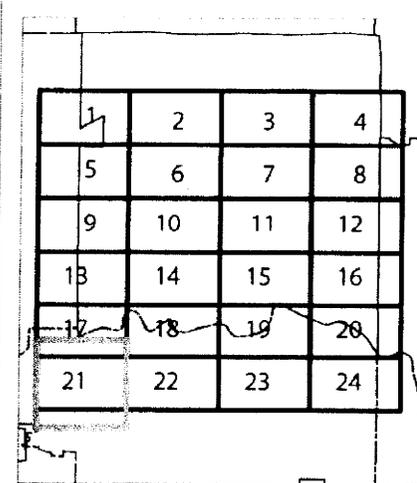
FCM Safety Zones Within Safety Zoning Limits

Plate SZ -20

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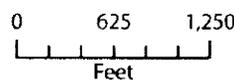
- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries



FCM Safety Zones Within Safety Zoning Limits

Plate SZ -21

- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries

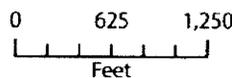




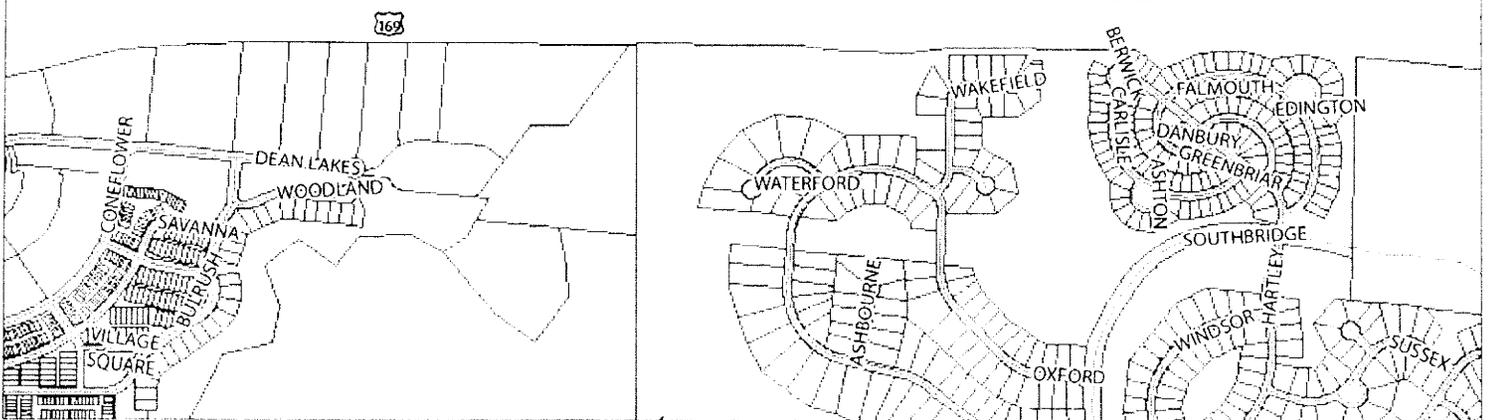
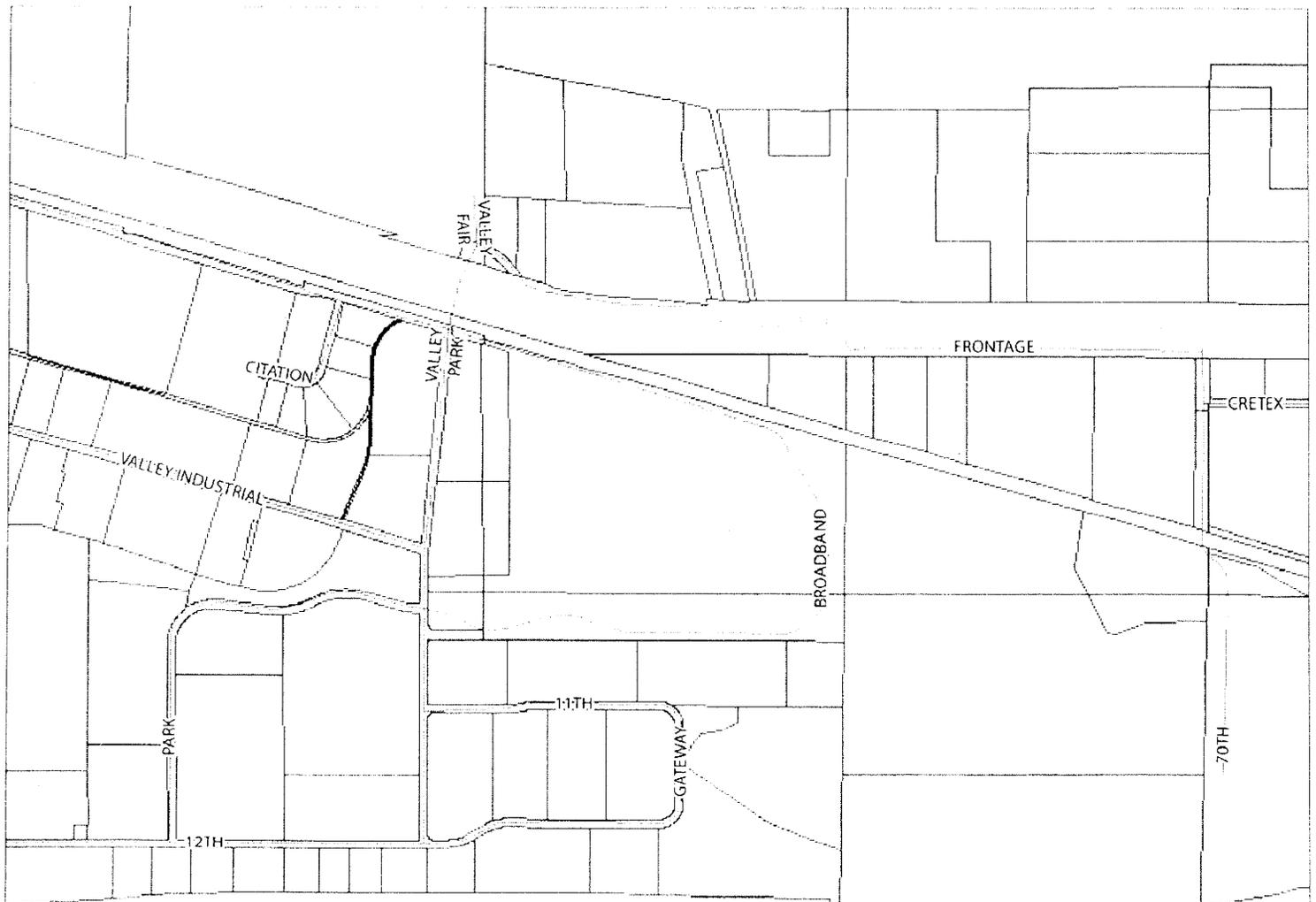
FCM Safety Zones Within Safety Zoning Limits

Plate SZ -22

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9	10	11	12
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17	18	19	20
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- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries

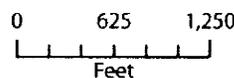


FCM Safety Zones Within Safety Zoning Limits

Plate SZ -23

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9	10	11	12
13	14	15	16
17	18	19	20
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- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries



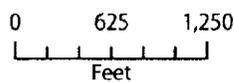


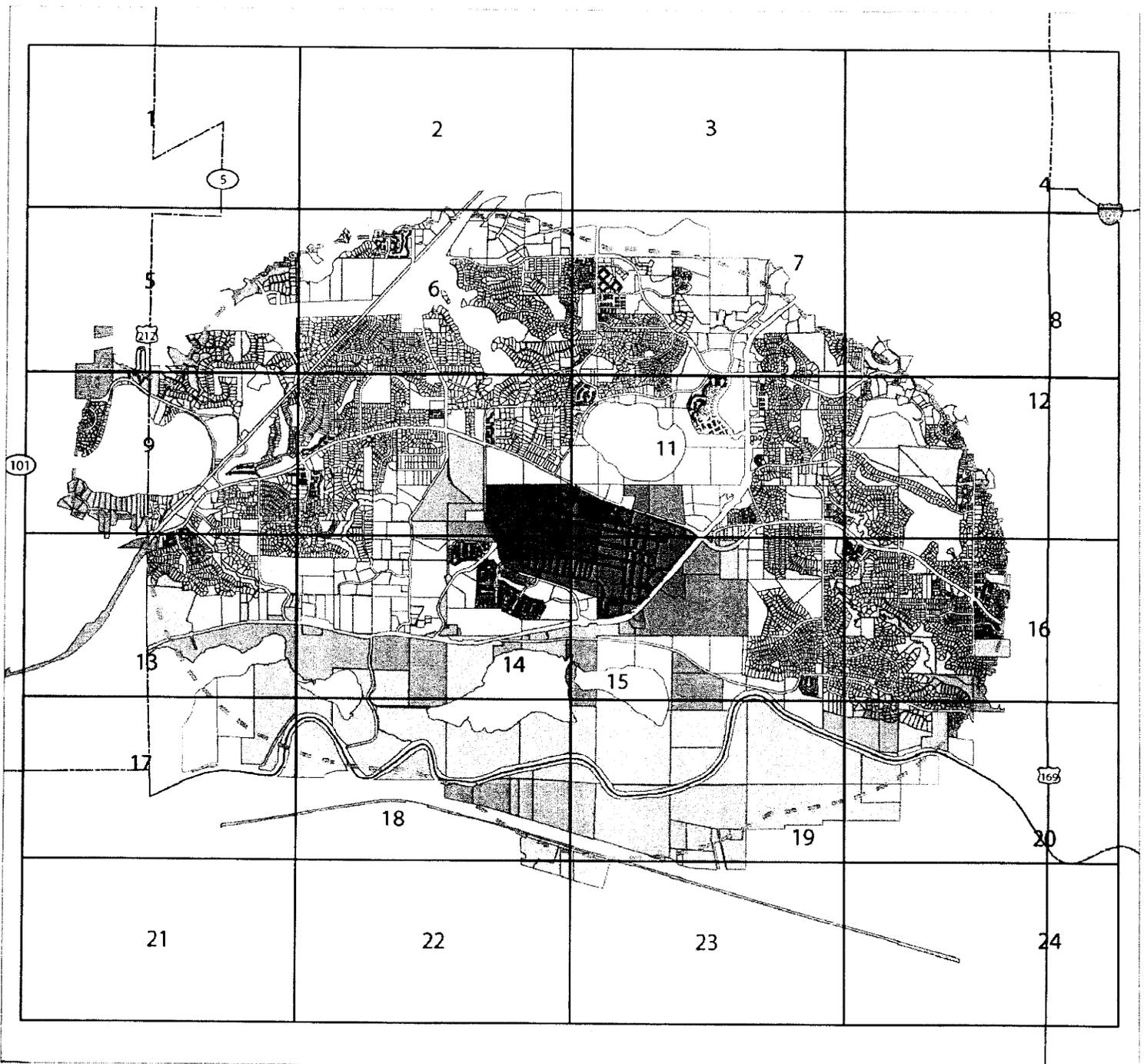
FCM Safety Zones Within Safety Zoning Limits

Plate SZ -24

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17	18	19	20
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- Zone A (Federal RPZ)
- Zone B
- Zone C
- FCM Pavement
- MAC Property
- Municipal Boundaries
- Parcel Boundaries





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FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

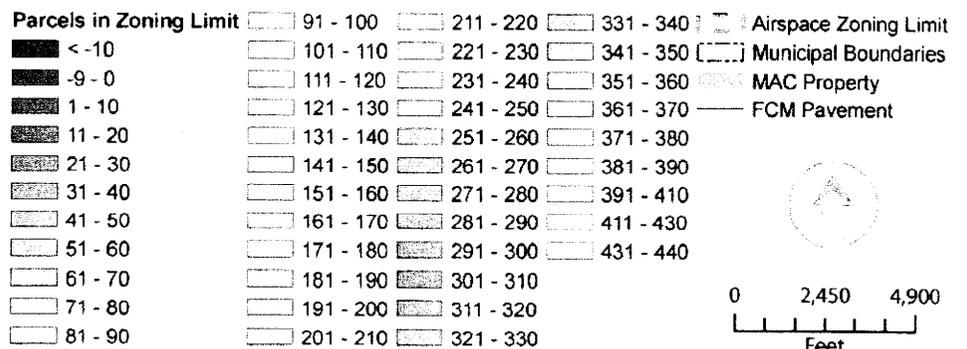




Plate MCH - 1

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

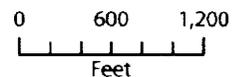
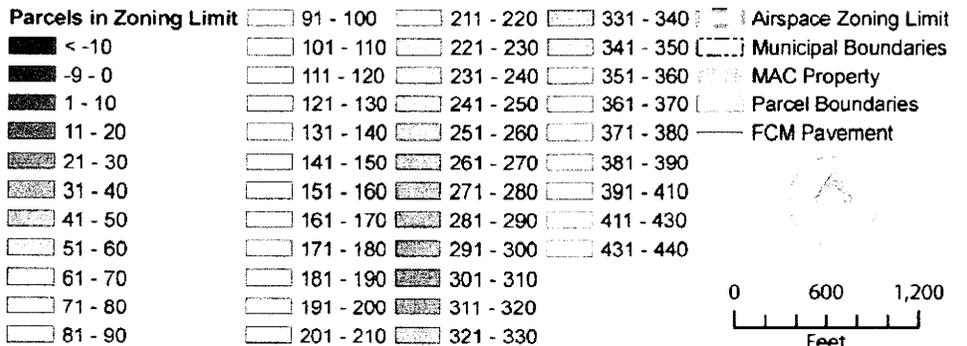
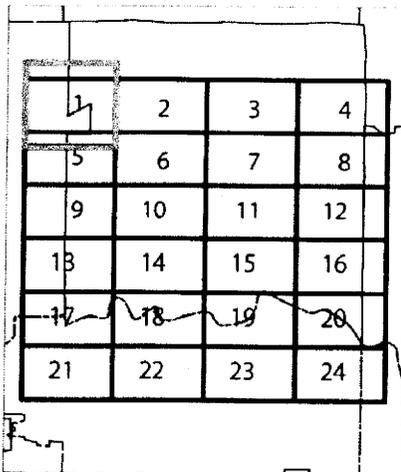
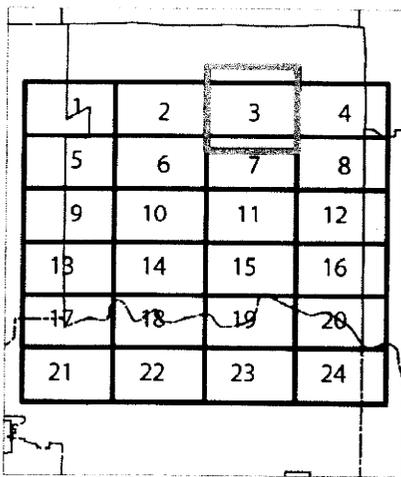




Plate MCH - 3

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits



Parcels in Zoning Limit	91 - 100	211 - 220	331 - 340	Airspace Zoning Limit
< -10	101 - 110	221 - 230	341 - 350	Municipal Boundaries
-9 - 0	111 - 120	231 - 240	351 - 360	MAC Property
1 - 10	121 - 130	241 - 250	361 - 370	Parcel Boundaries
11 - 20	131 - 140	251 - 260	371 - 380	FCM Pavement
21 - 30	141 - 150	261 - 270	381 - 390	
31 - 40	151 - 160	271 - 280	391 - 410	
41 - 50	161 - 170	281 - 290	411 - 430	
51 - 60	171 - 180	291 - 300	431 - 440	
61 - 70	181 - 190	301 - 310		
71 - 80	191 - 200	311 - 320		
81 - 90	201 - 210	321 - 330		

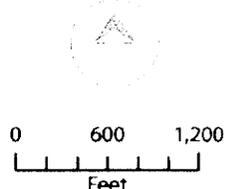


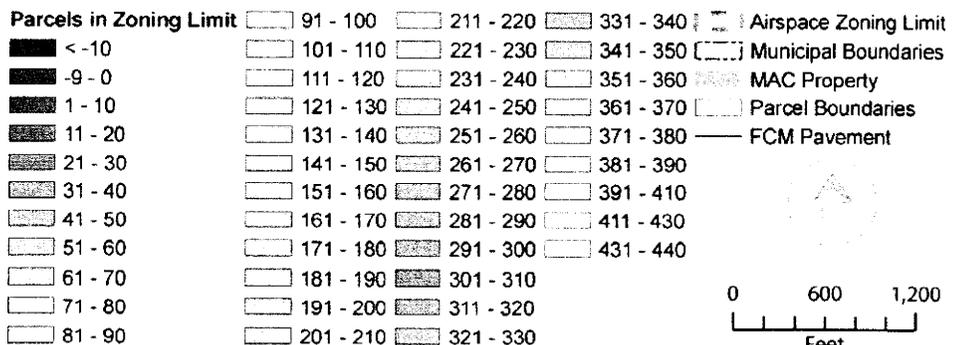
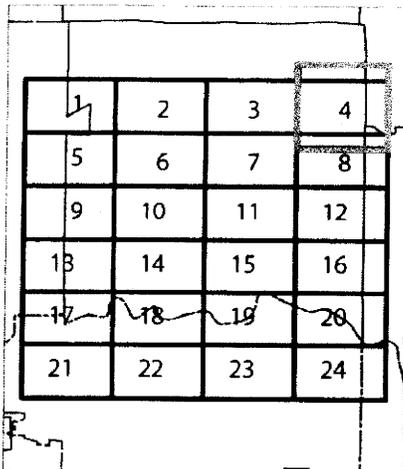


Plate MCH - 4

FCM Maximum Construction Heights

Without Permit

Within Airspace Zoning Limits



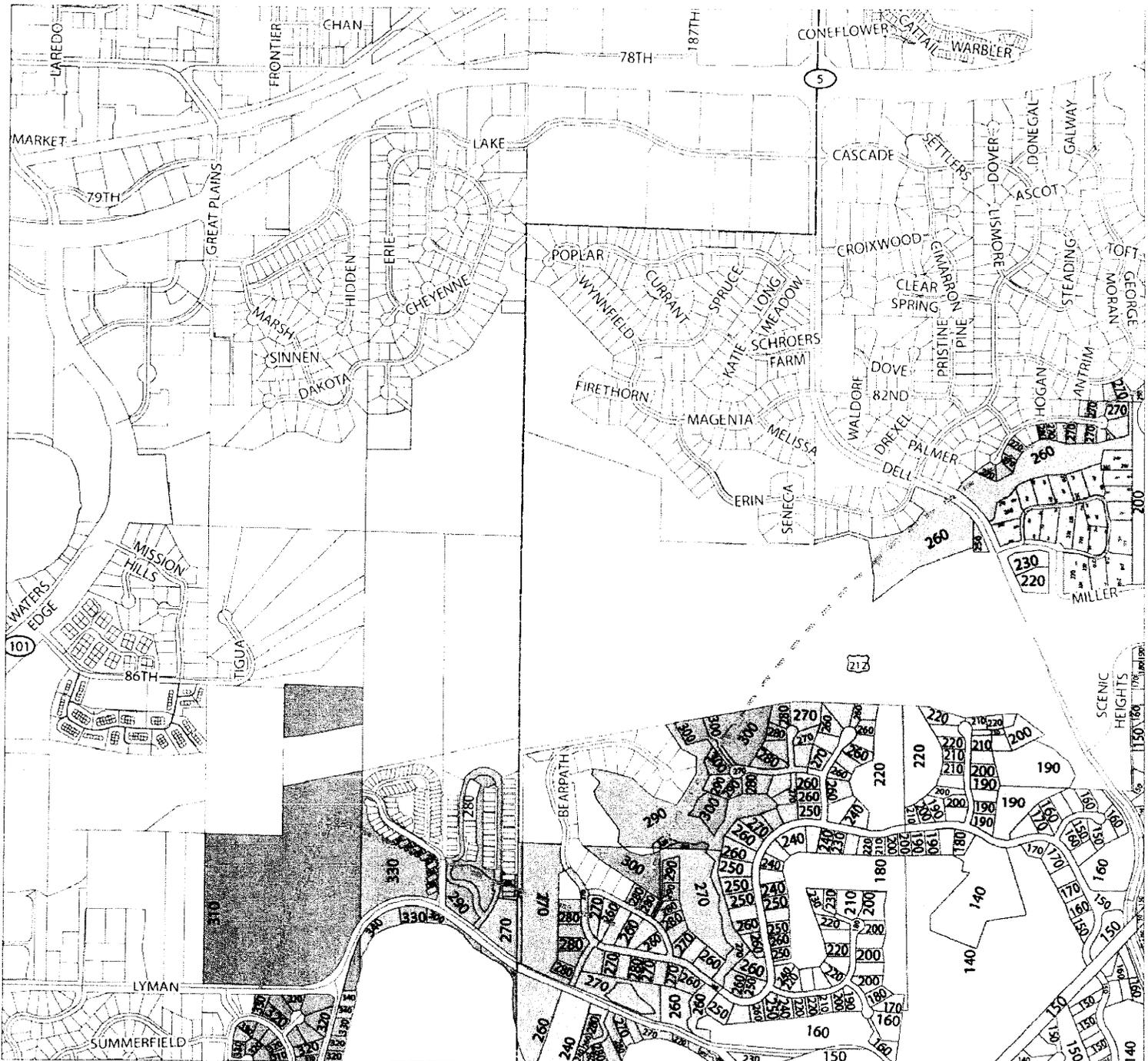
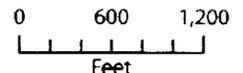


Plate MCH - 5

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

<p>Parcels in Zoning Limit</p> <ul style="list-style-type: none"> < -10 -9 - 0 1 - 10 11 - 20 21 - 30 31 - 40 41 - 50 51 - 60 61 - 70 71 - 80 81 - 90 	<ul style="list-style-type: none"> 91 - 100 101 - 110 111 - 120 121 - 130 131 - 140 141 - 150 151 - 160 161 - 170 171 - 180 181 - 190 191 - 200 201 - 210 211 - 220 221 - 230 231 - 240 241 - 250 251 - 260 261 - 270 271 - 280 281 - 290 291 - 300 301 - 310 311 - 320 321 - 330 331 - 340 341 - 350 351 - 360 361 - 370 371 - 380 381 - 390 391 - 410 411 - 430 431 - 440 	<ul style="list-style-type: none"> Airspace Zoning Limit Municipal Boundaries MAC Property Parcel Boundaries FCM Pavement
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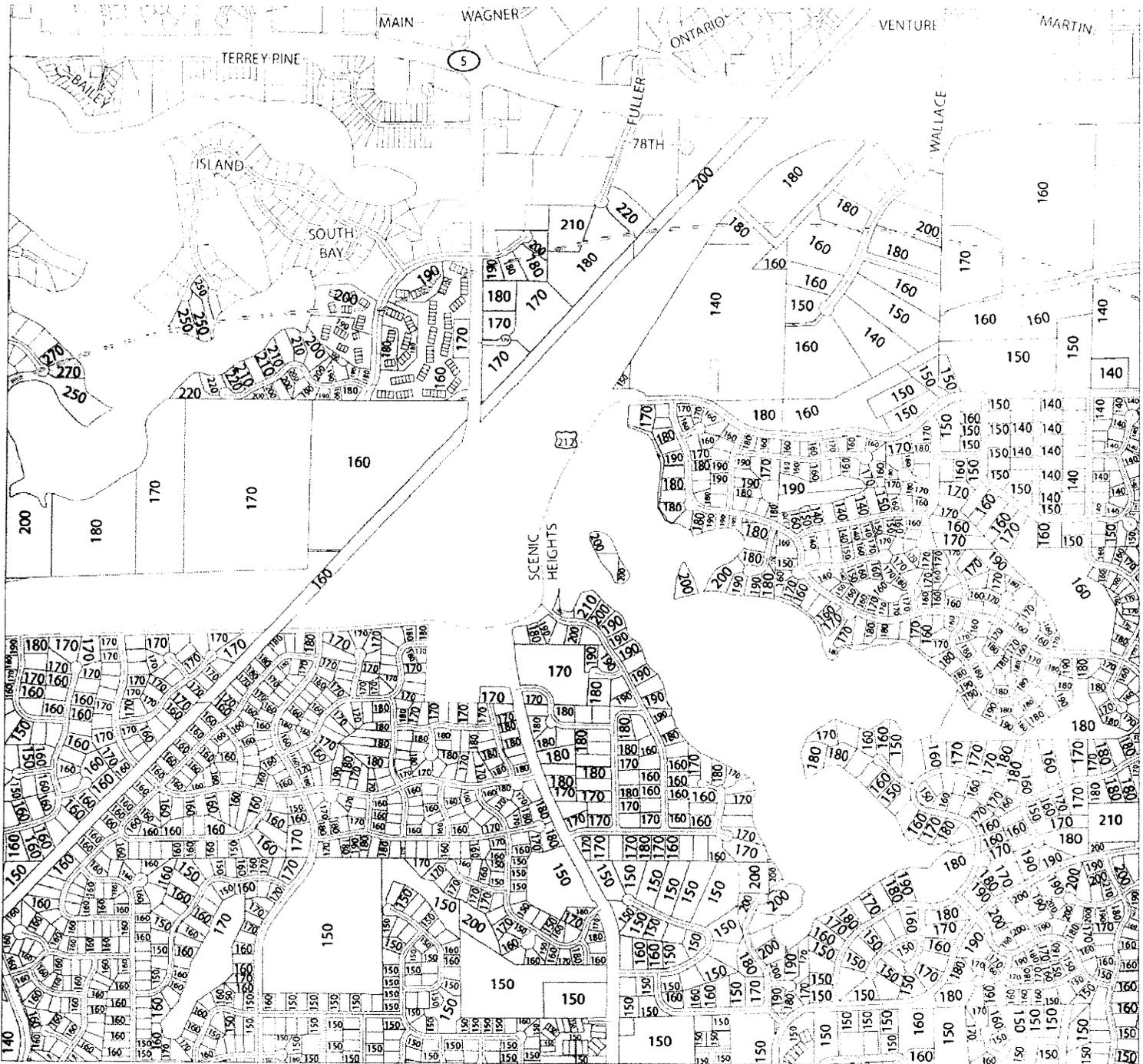
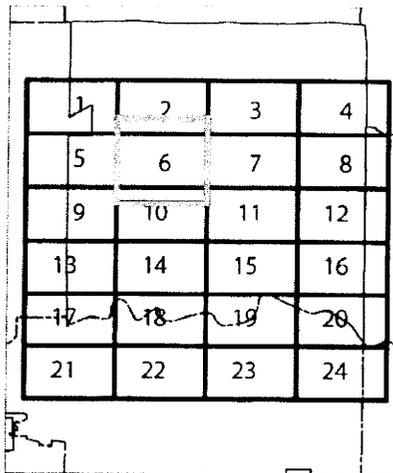
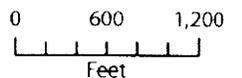


Plate MCH - 6

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits



Parcels in Zoning Limit	91 - 100	211 - 220	331 - 340	Airspace Zoning Limit
< -10	101 - 110	221 - 230	341 - 350	Municipal Boundaries
-9 - 0	111 - 120	231 - 240	351 - 360	MAC Property
1 - 10	121 - 130	241 - 250	361 - 370	Parcel Boundaries
11 - 20	131 - 140	251 - 260	371 - 380	FCM Pavement
21 - 30	141 - 150	261 - 270	381 - 390	
31 - 40	151 - 160	271 - 280	391 - 410	
41 - 50	161 - 170	281 - 290	411 - 430	
51 - 60	171 - 180	291 - 300	431 - 440	
61 - 70	181 - 190	301 - 310		
71 - 80	191 - 200	311 - 320		
81 - 90	201 - 210	321 - 330		



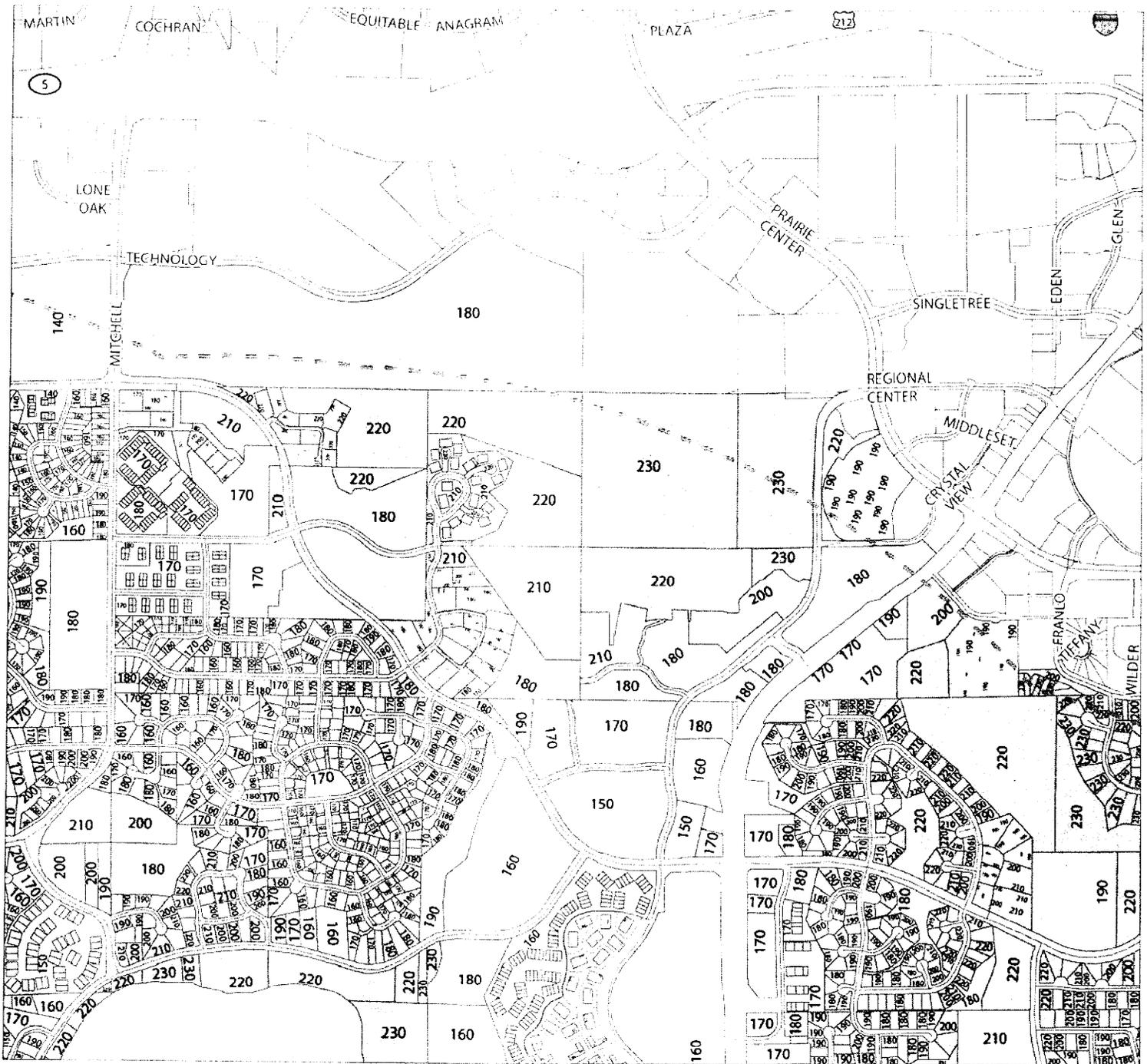


Plate MCH - 7

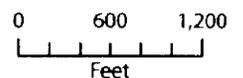
FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Parcels in Zoning Limit

- < -10
- 9 - 0
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 61 - 70
- 71 - 80
- 81 - 90

- 91 - 100
 - 101 - 110
 - 111 - 120
 - 121 - 130
 - 131 - 140
 - 141 - 150
 - 151 - 160
 - 161 - 170
 - 171 - 180
 - 181 - 190
 - 191 - 200
 - 201 - 210
- 211 - 220
 - 221 - 230
 - 231 - 240
 - 241 - 250
 - 251 - 260
 - 261 - 270
 - 271 - 280
 - 281 - 290
 - 291 - 300
 - 301 - 310
 - 311 - 320
 - 321 - 330
- 331 - 340
 - 341 - 350
 - 351 - 360
 - 361 - 370
 - 371 - 380
 - 381 - 390
 - 391 - 410
 - 411 - 430
 - 431 - 440
- Airspace Zoning Limit
 - Municipal Boundaries
 - MAC Property
 - Parcel Boundaries
 - FCM Pavement



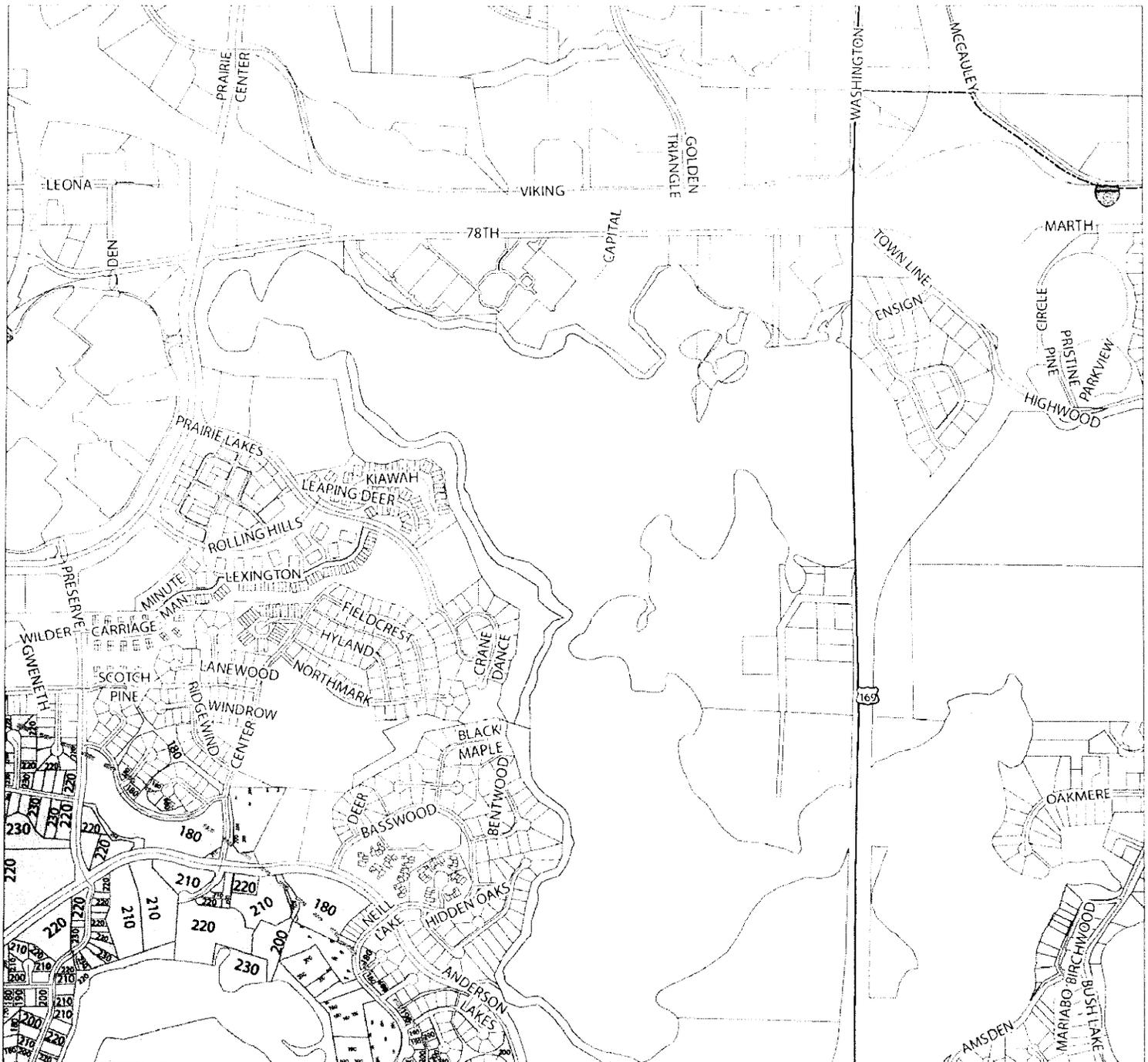
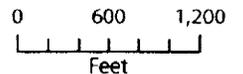
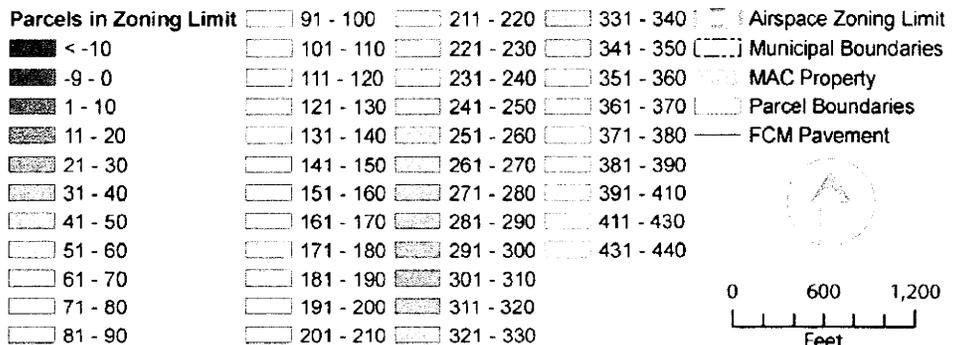
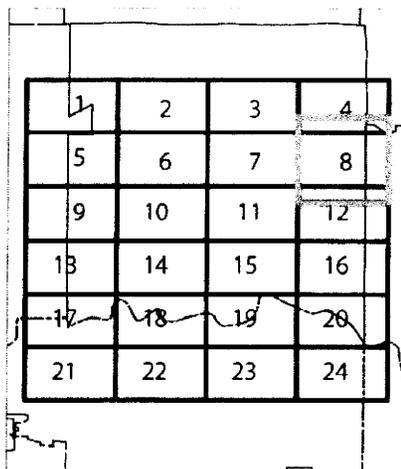


Plate MCH - 8

FCM Maximum Construction Heights

Without Permit

Within Airspace Zoning Limits



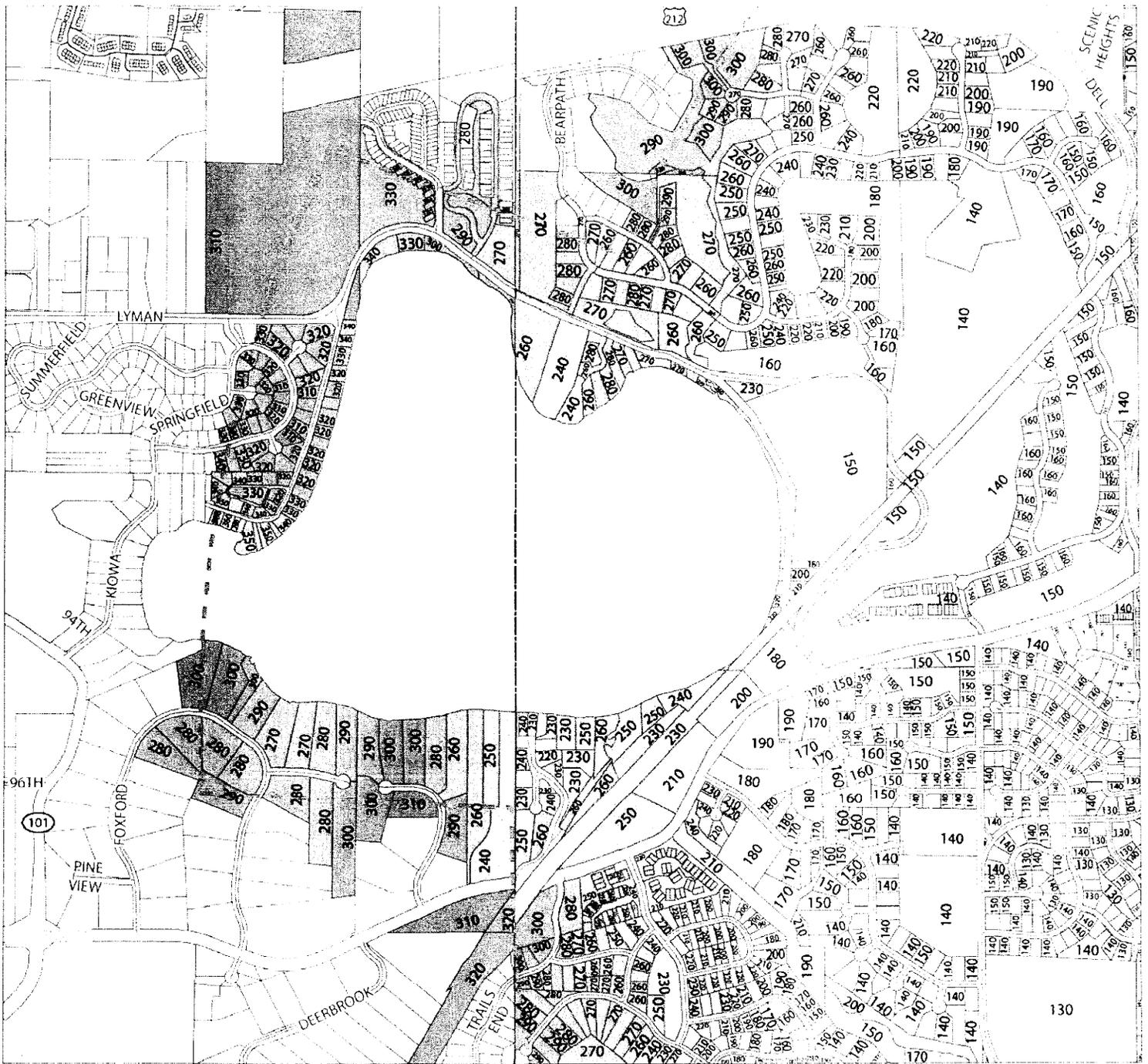
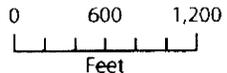


Plate MCH - 9

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

<p>Parcels in Zoning Limit</p> <ul style="list-style-type: none"> < -10 -9 - 0 1 - 10 11 - 20 21 - 30 31 - 40 41 - 50 51 - 60 61 - 70 71 - 80 81 - 90 	<ul style="list-style-type: none"> 91 - 100 101 - 110 111 - 120 121 - 130 131 - 140 141 - 150 151 - 160 161 - 170 171 - 180 181 - 190 191 - 200 201 - 210 211 - 220 221 - 230 231 - 240 241 - 250 251 - 260 261 - 270 271 - 280 281 - 290 291 - 300 301 - 310 311 - 320 321 - 330 	<ul style="list-style-type: none"> 331 - 340 341 - 350 351 - 360 361 - 370 371 - 380 381 - 390 391 - 410 411 - 430 431 - 440 	<ul style="list-style-type: none"> Airspace Zoning Limit Municipal Boundaries MAC Property Parcel Boundaries FCM Pavement
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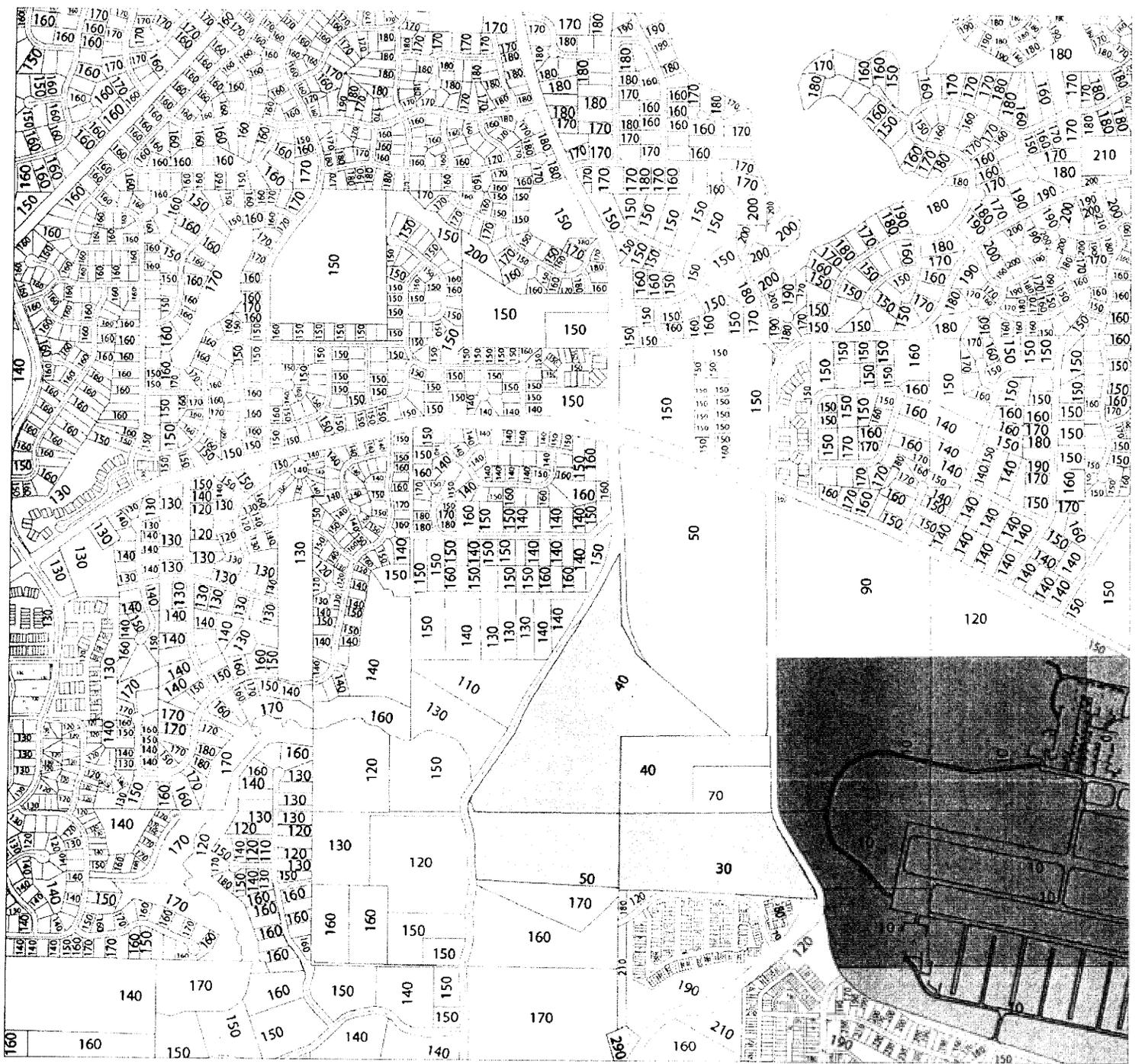
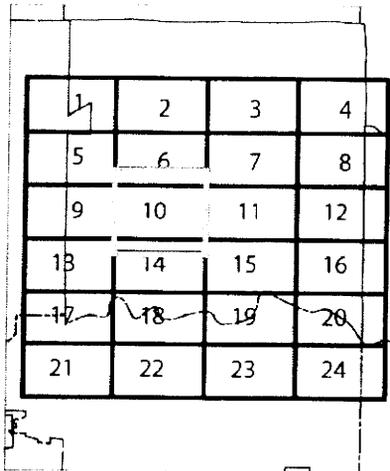


Plate MCH-10

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits



Parcels in Zoning Limit

< -10	91 - 100	211 - 220	331 - 340	Airspace Zoning Limit
-9 - 0	101 - 110	221 - 230	341 - 350	Municipal Boundaries
1 - 10	111 - 120	231 - 240	351 - 360	MAC Property
11 - 20	121 - 130	241 - 250	361 - 370	Parcel Boundaries
21 - 30	131 - 140	251 - 260	371 - 380	FCM Pavement
31 - 40	141 - 150	261 - 270	381 - 390	
41 - 50	151 - 160	271 - 280	391 - 410	
51 - 60	161 - 170	281 - 290	411 - 430	
61 - 70	171 - 180	291 - 300	431 - 440	
71 - 80	181 - 190	301 - 310		
81 - 90	191 - 200	311 - 320		
	201 - 210	321 - 330		

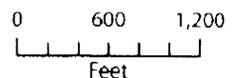




Plate MCH -11

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

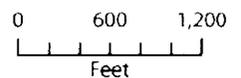
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Parcels in Zoning Limit

- < -10
- 9 - 0
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 61 - 70
- 71 - 80
- 81 - 90

- 91 - 100
- 101 - 110
- 111 - 120
- 121 - 130
- 131 - 140
- 141 - 150
- 151 - 160
- 161 - 170
- 171 - 180
- 181 - 190
- 191 - 200
- 201 - 210
- 211 - 220
- 221 - 230
- 231 - 240
- 241 - 250
- 251 - 260
- 261 - 270
- 271 - 280
- 281 - 290
- 291 - 300
- 301 - 310
- 311 - 320
- 321 - 330
- 331 - 340
- 341 - 350
- 351 - 360
- 361 - 370
- 371 - 380
- 381 - 390
- 391 - 410
- 411 - 430
- 431 - 440

- Airspace Zoning Limit
- Municipal Boundaries
- MAC Property
- Parcel Boundaries
- FCM Pavement



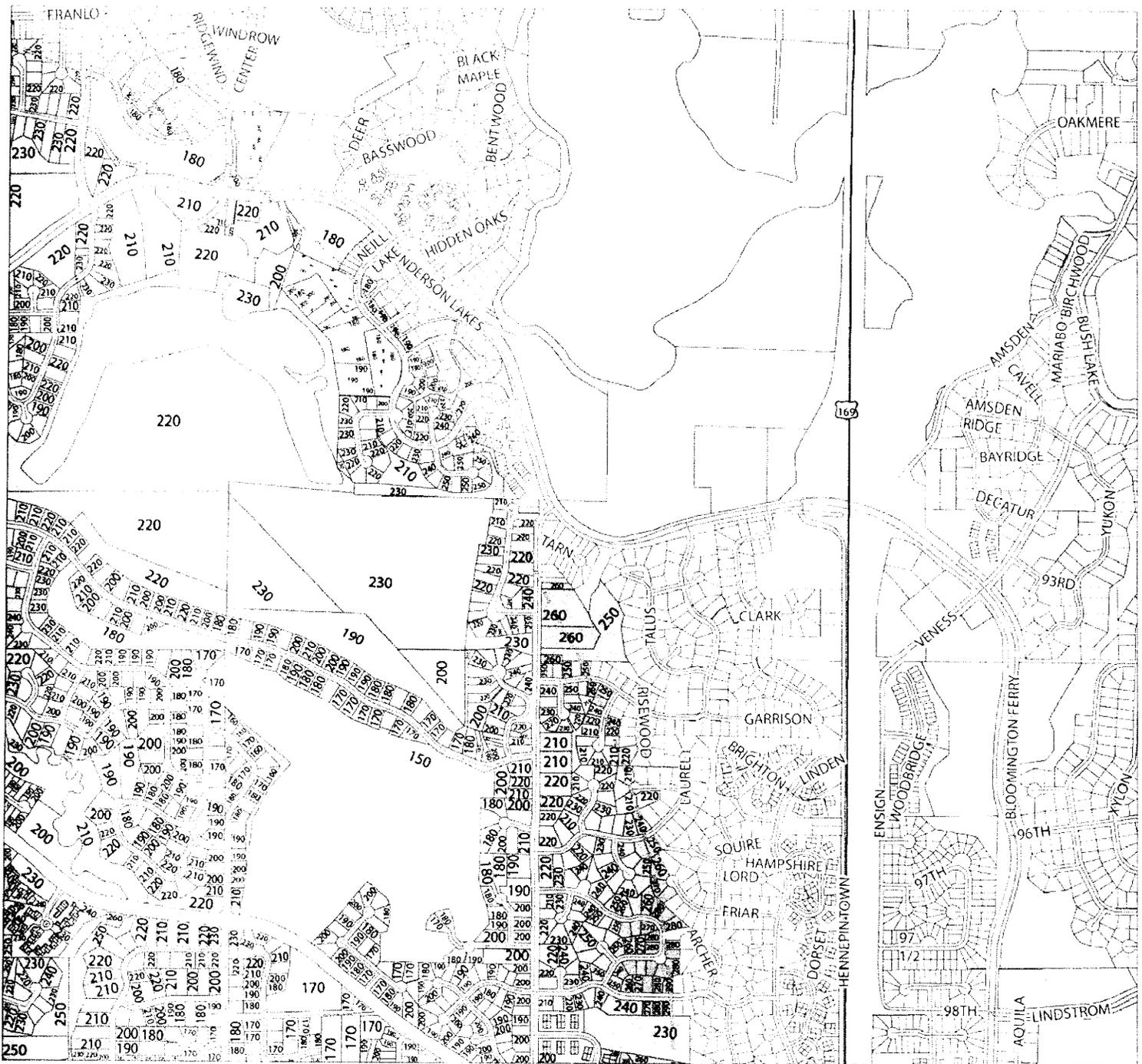


Plate MCH -12

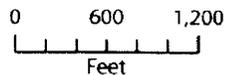
FCM Maximum Construction Heights

Without Permit

Within Airspace Zoning Limits

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Parcels in Zoning Limit



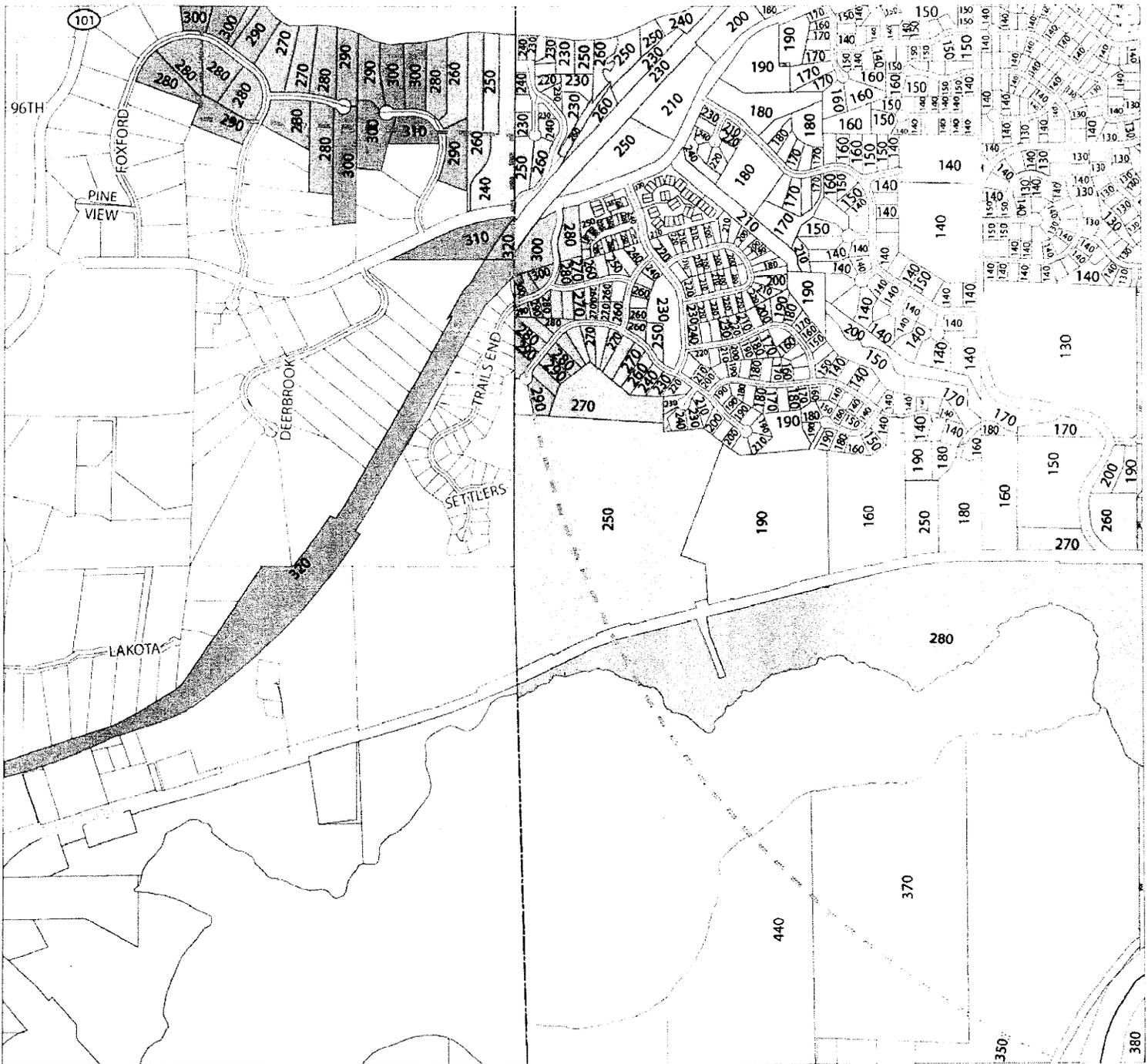
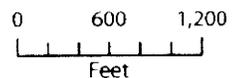
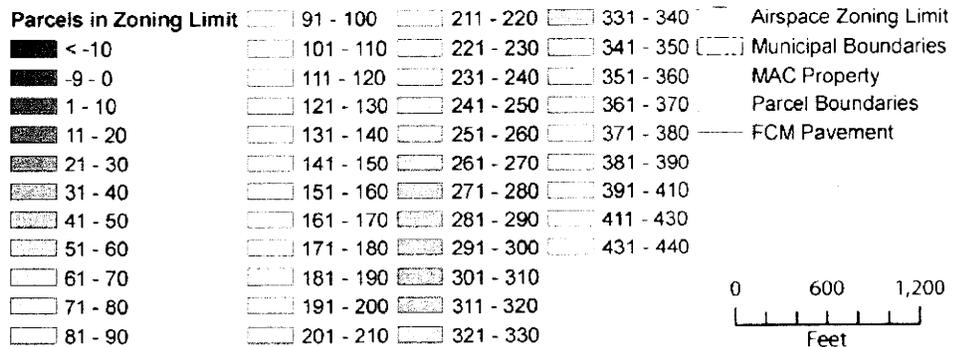
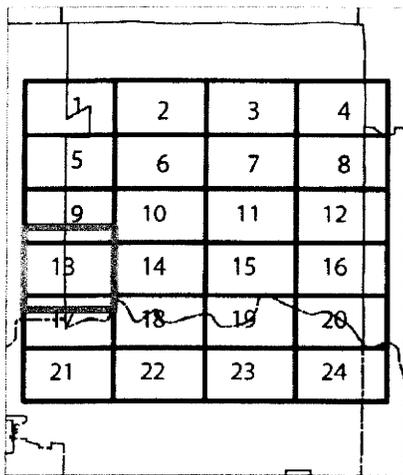


Plate MCH -13

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits



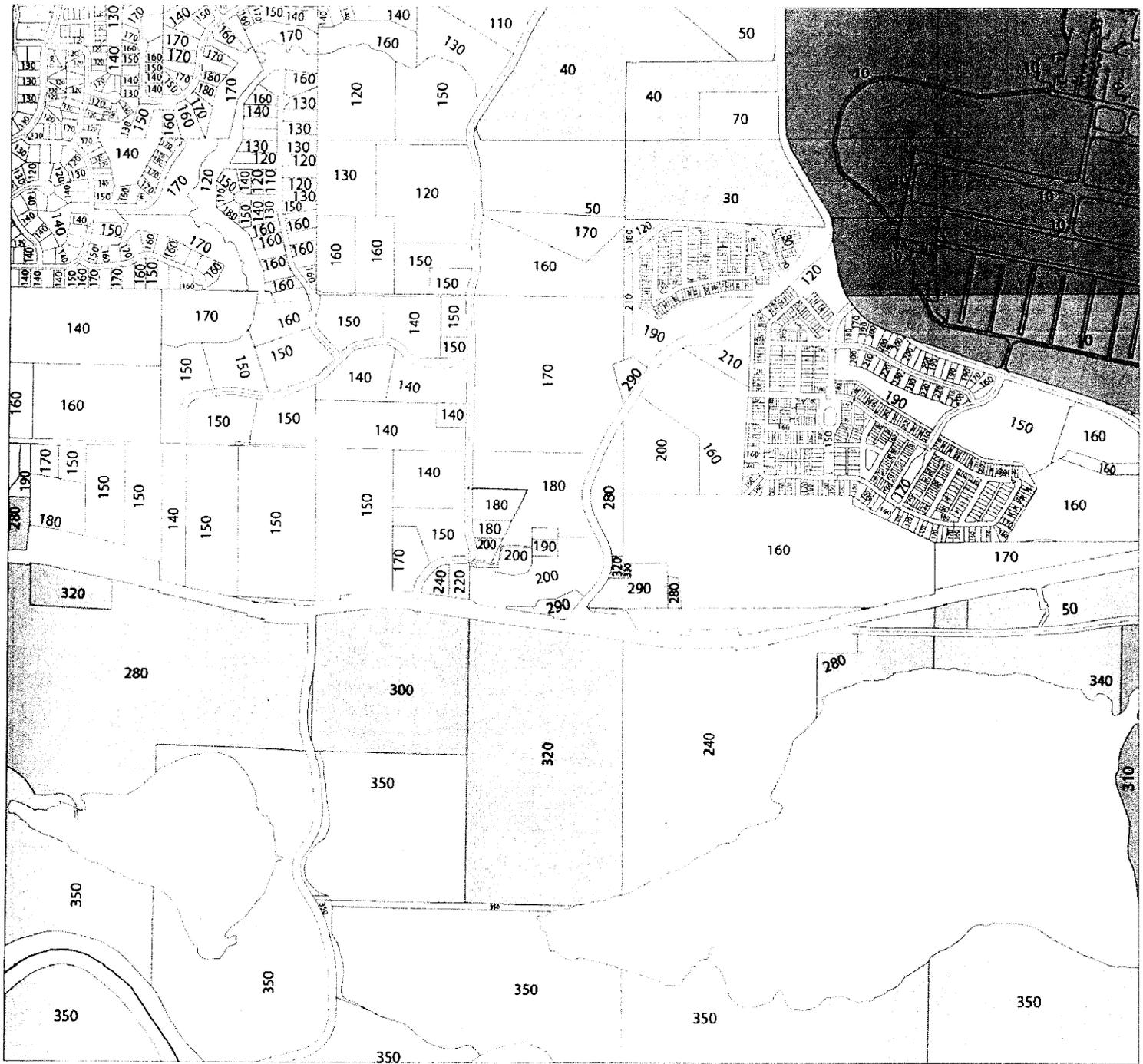
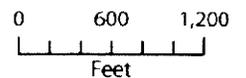


Plate MCH-14

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

<p>Parcels in Zoning Limit</p> <ul style="list-style-type: none"> < -10 -9 - 0 1 - 10 11 - 20 21 - 30 31 - 40 41 - 50 51 - 60 61 - 70 71 - 80 81 - 90 	<ul style="list-style-type: none"> 91 - 100 101 - 110 111 - 120 121 - 130 131 - 140 141 - 150 151 - 160 161 - 170 171 - 180 181 - 190 191 - 200 201 - 210 211 - 220 221 - 230 231 - 240 241 - 250 251 - 260 261 - 270 271 - 280 281 - 290 291 - 300 301 - 310 311 - 320 321 - 330 331 - 340 341 - 350 351 - 360 361 - 370 371 - 380 381 - 390 391 - 410 411 - 430 431 - 440 	<ul style="list-style-type: none"> Airspace Zoning Limit Municipal Boundaries MAC Property Parcel Boundaries FCM Pavement
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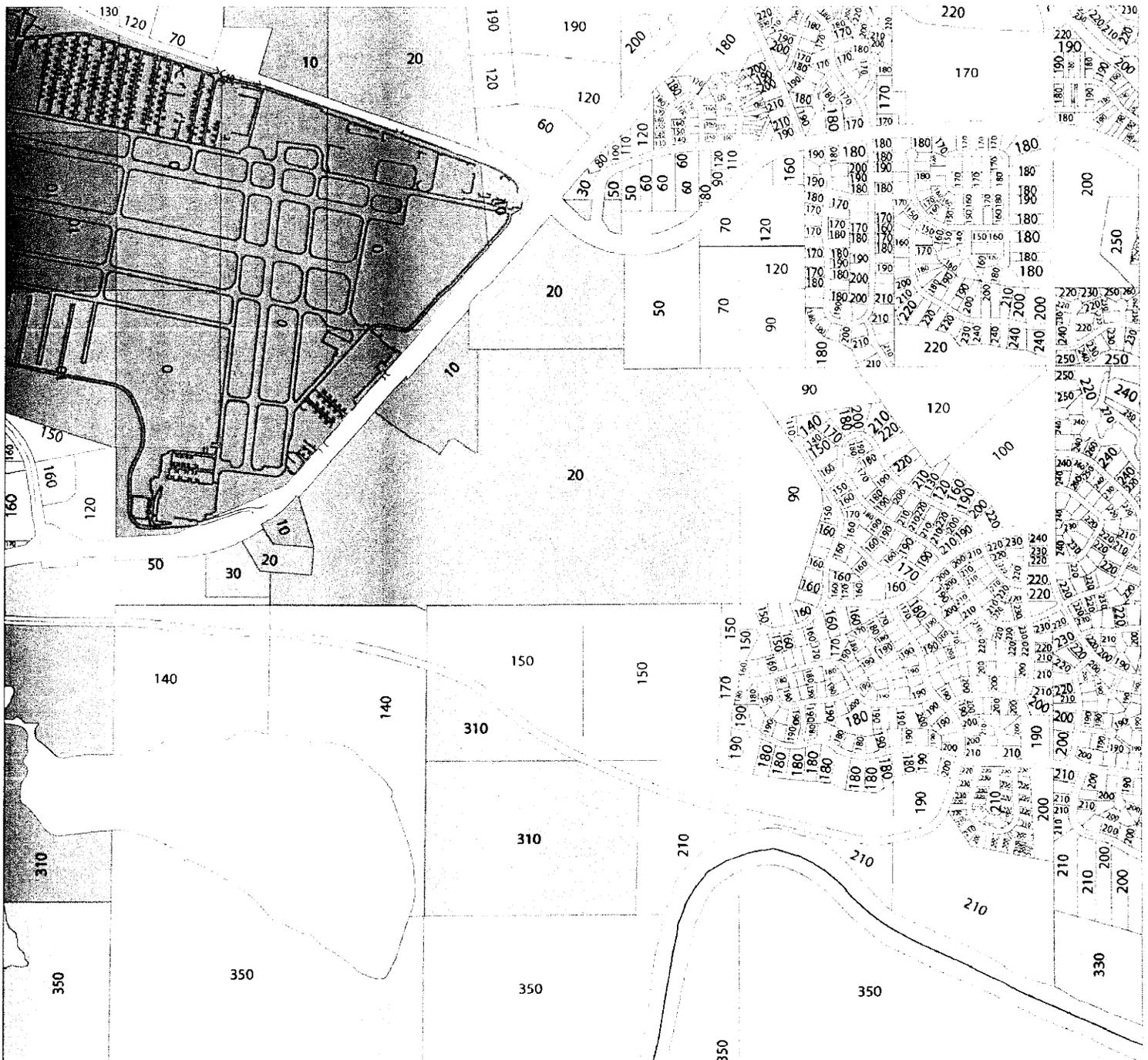


Plate MCH-15

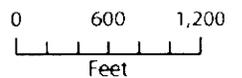
FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Parcels in Zoning Limit

- < -10
- 9 - 0
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 61 - 70
- 71 - 80
- 81 - 90

- | | | |
|-----------|-----------|-----------|
| 91 - 100 | 211 - 220 | 331 - 340 |
| 101 - 110 | 221 - 230 | 341 - 350 |
| 111 - 120 | 231 - 240 | 351 - 360 |
| 121 - 130 | 241 - 250 | 361 - 370 |
| 131 - 140 | 251 - 260 | 371 - 380 |
| 141 - 150 | 261 - 270 | 381 - 390 |
| 151 - 160 | 271 - 280 | 391 - 410 |
| 161 - 170 | 281 - 290 | 411 - 430 |
| 171 - 180 | 291 - 300 | 431 - 440 |
| 181 - 190 | 301 - 310 | |
| 191 - 200 | 311 - 320 | |
| 201 - 210 | 321 - 330 | |



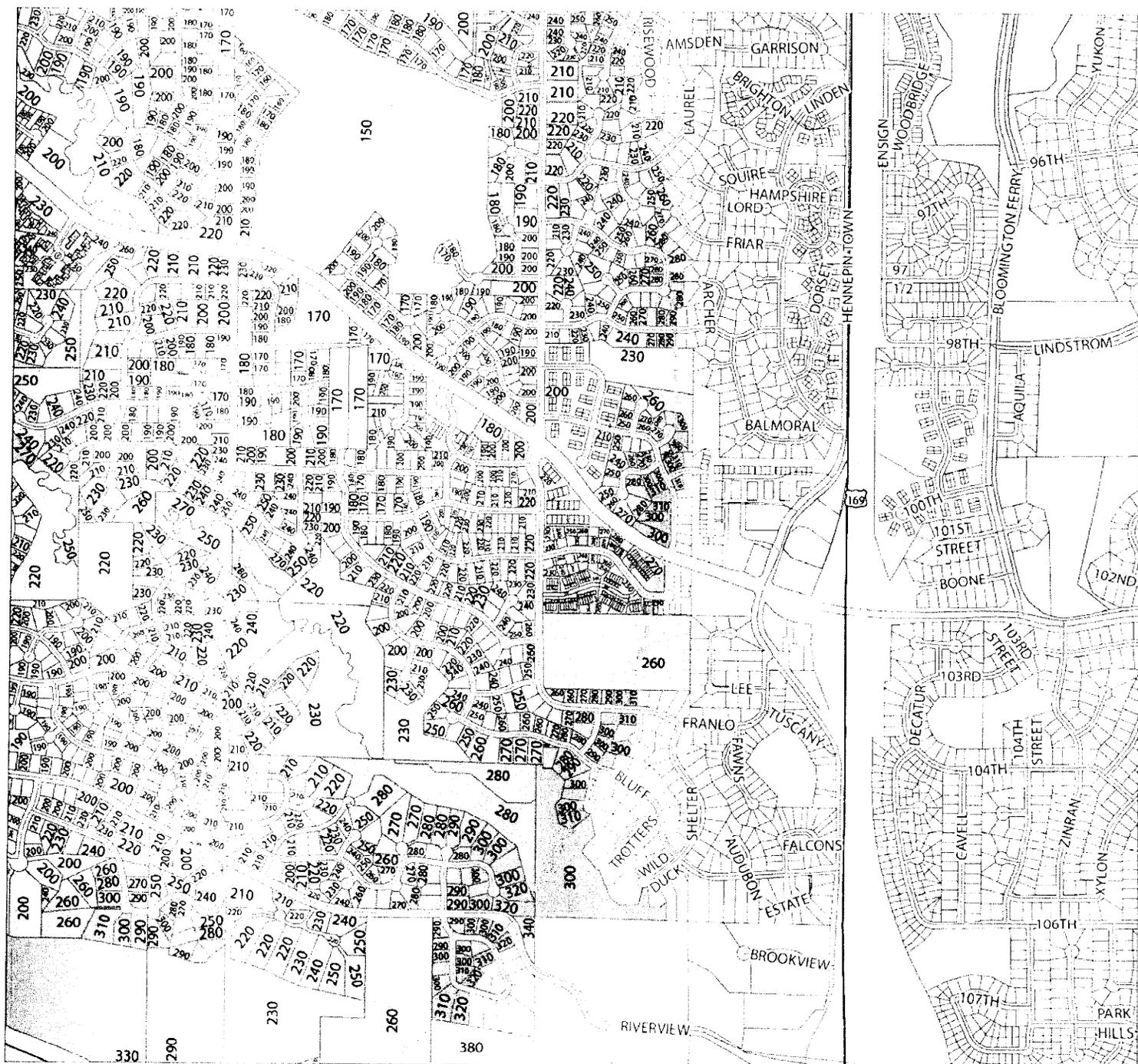


Plate MCH -16

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Parcels in Zoning Limit

- < -10
- 9 - 0
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 61 - 70
- 71 - 80
- 81 - 90

- 91 - 100
- 101 - 110
- 111 - 120
- 121 - 130
- 131 - 140
- 141 - 150
- 151 - 160
- 161 - 170
- 171 - 180
- 181 - 190
- 191 - 200
- 201 - 210
- 211 - 220
- 221 - 230
- 231 - 240
- 241 - 250
- 251 - 260
- 261 - 270
- 271 - 280
- 281 - 290
- 291 - 300
- 301 - 310
- 311 - 320
- 321 - 330
- 331 - 340
- 341 - 350
- 351 - 360
- 361 - 370
- 371 - 380
- 381 - 390
- 391 - 410
- 411 - 430
- 431 - 440

- Airspace Zoning Limit
- Municipal Boundaries
- MAC Property
- Parcel Boundaries
- FCM Pavement

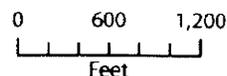
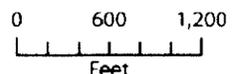
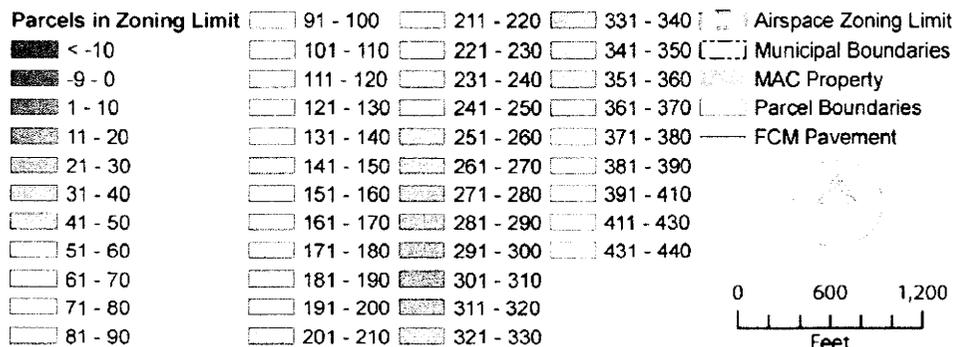
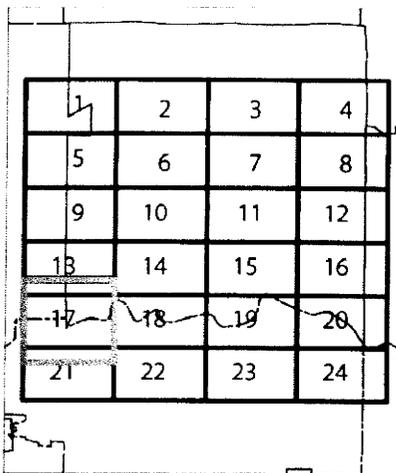




Plate MCH -17

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits



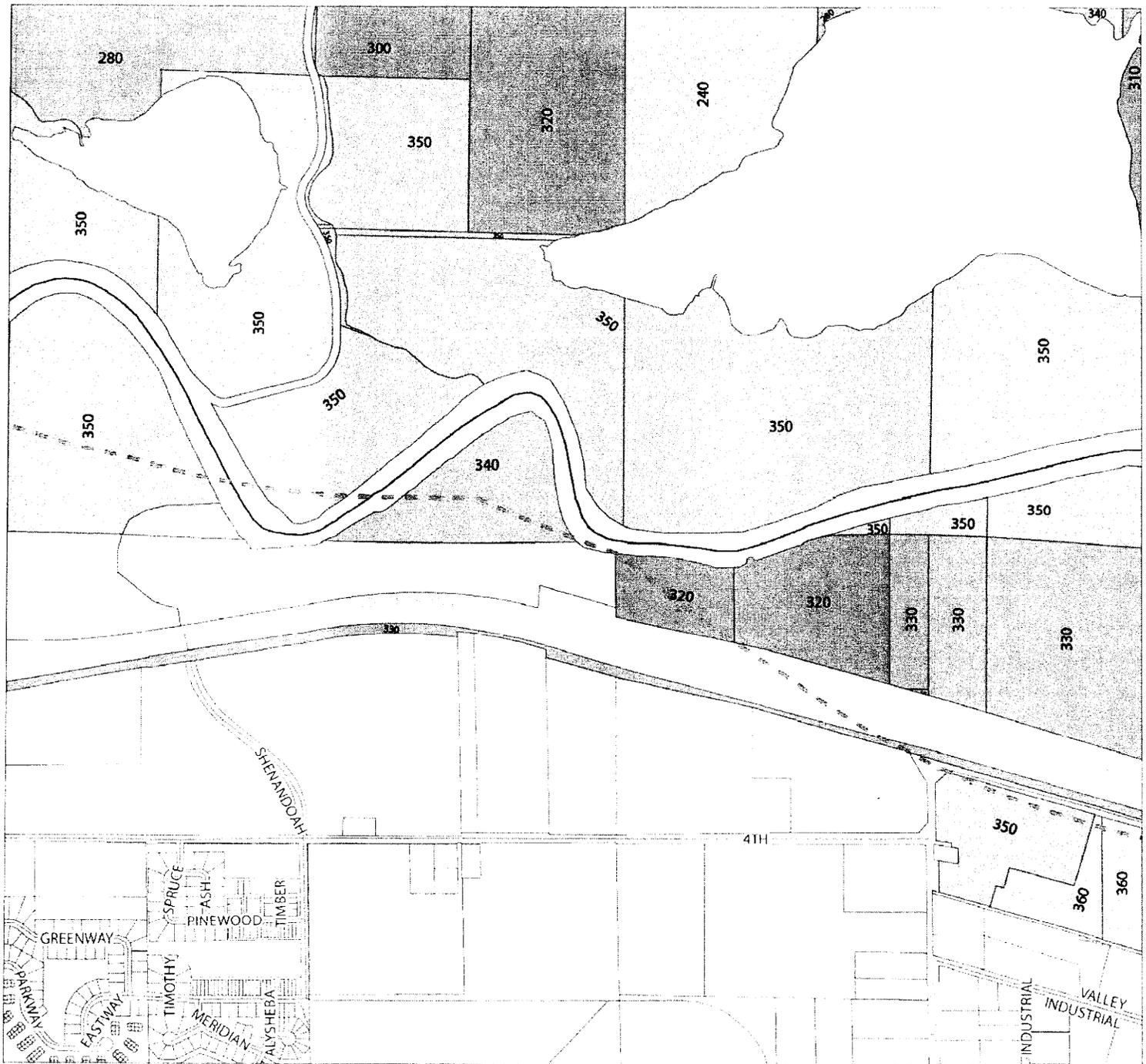
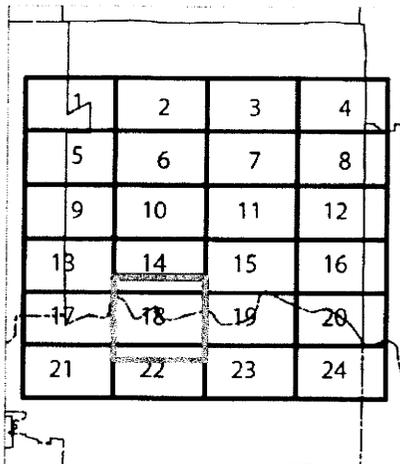
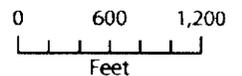


Plate MCH -18

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits



Parcels in Zoning Limit	91 - 100	211 - 220	331 - 340	Airspace Zoning Limit
< -10	101 - 110	221 - 230	341 - 350	Municipal Boundaries
-9 - 0	111 - 120	231 - 240	351 - 360	MAC Property
1 - 10	121 - 130	241 - 250	361 - 370	Parcel Boundaries
11 - 20	131 - 140	251 - 260	371 - 380	FCM Pavement
21 - 30	141 - 150	261 - 270	381 - 390	
31 - 40	151 - 160	271 - 280	391 - 410	
41 - 50	161 - 170	281 - 290	411 - 430	
51 - 60	171 - 180	291 - 300	431 - 440	
61 - 70	181 - 190	301 - 310		
71 - 80	191 - 200	311 - 320		
81 - 90	201 - 210	321 - 330		



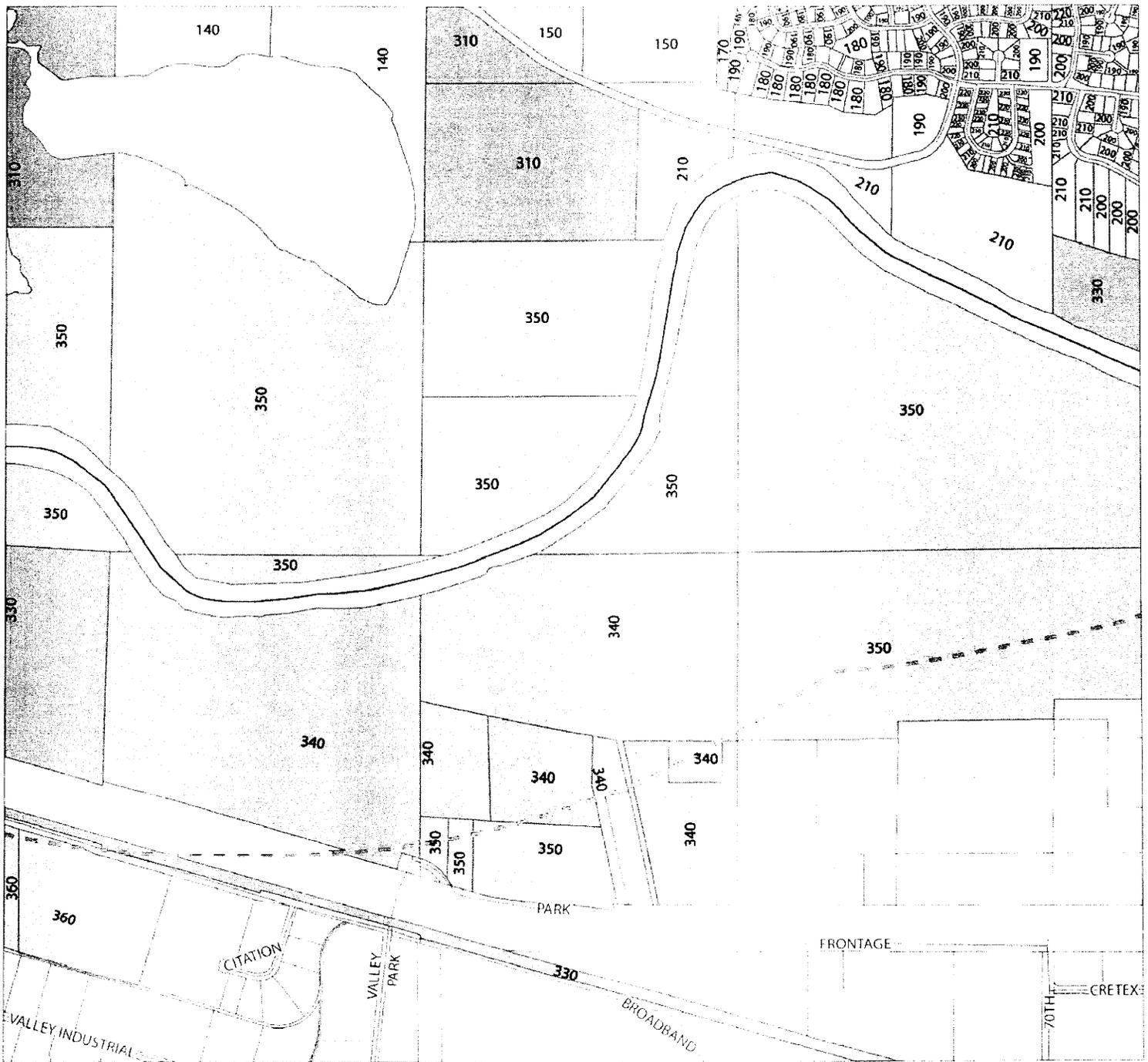
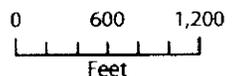


Plate MCH-19

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Parcels in Zoning Limit	91 - 100	211 - 220	331 - 340	Airspace Zoning Limit
< -10	101 - 110	221 - 230	341 - 350	Municipal Boundaries
-9 - 0	111 - 120	231 - 240	351 - 360	MAC Property
1 - 10	121 - 130	241 - 250	361 - 370	Parcel Boundaries
11 - 20	131 - 140	251 - 260	371 - 380	FCM Pavement
21 - 30	141 - 150	261 - 270	381 - 390	
31 - 40	151 - 160	271 - 280	391 - 410	
41 - 50	161 - 170	281 - 290	411 - 430	
51 - 60	171 - 180	291 - 300	431 - 440	
61 - 70	181 - 190	301 - 310		
71 - 80	191 - 200	311 - 320		
81 - 90	201 - 210	321 - 330		



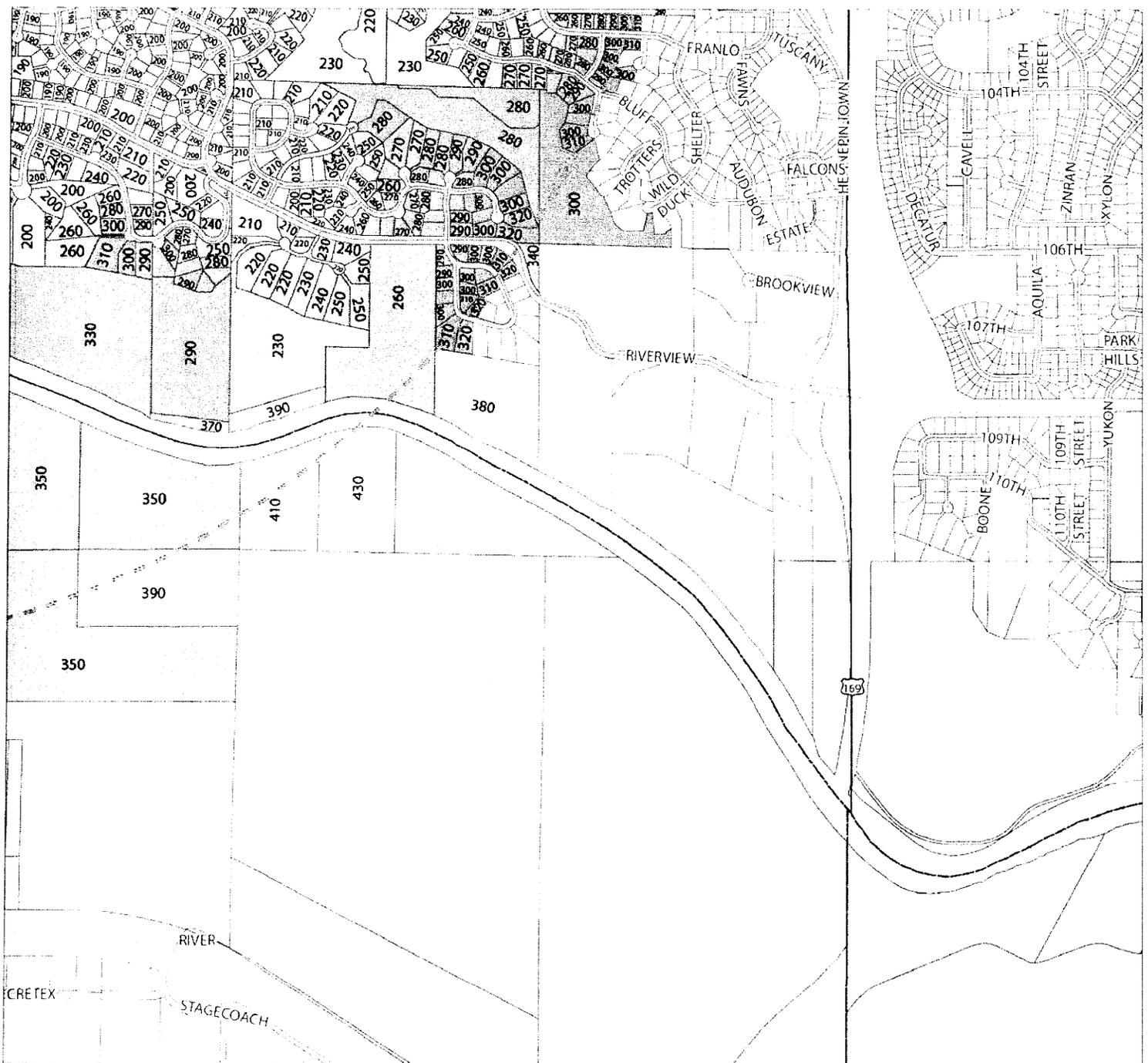


Plate MCH-20

FCM Maximum Construction Heights

Without Permit

Within Airspace Zoning Limits

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

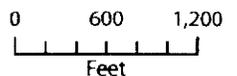
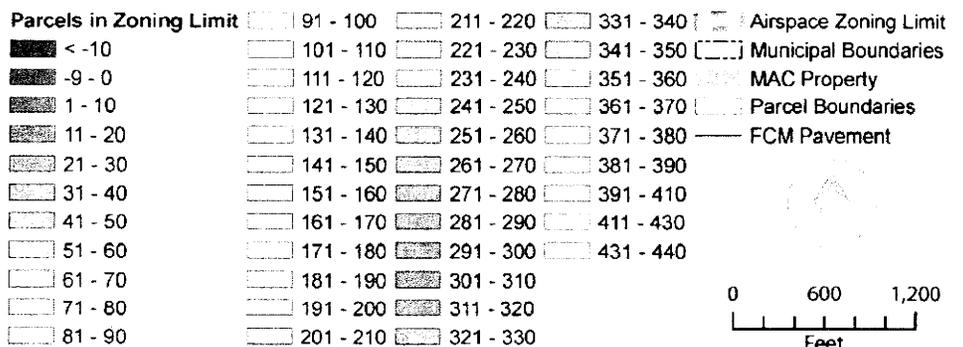
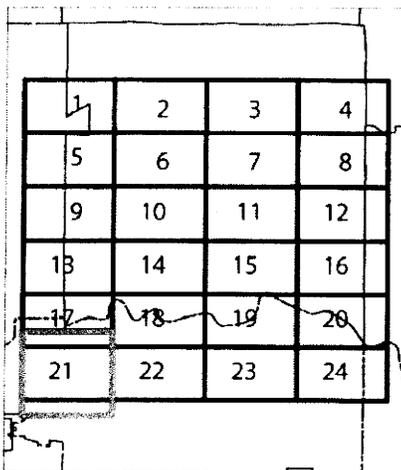




Plate MCH -21

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits



Parcels in Zoning Limit	91 - 100	211 - 220	331 - 340	Airspace Zoning Limit
< -10	101 - 110	221 - 230	341 - 350	Municipal Boundaries
-9 - 0	111 - 120	231 - 240	351 - 360	MAC Property
1 - 10	121 - 130	241 - 250	361 - 370	Parcel Boundaries
11 - 20	131 - 140	251 - 260	371 - 380	FCM Pavement
21 - 30	141 - 150	261 - 270	381 - 390	
31 - 40	151 - 160	271 - 280	391 - 410	
41 - 50	161 - 170	281 - 290	411 - 430	
51 - 60	171 - 180	291 - 300	431 - 440	
61 - 70	181 - 190	301 - 310		
71 - 80	191 - 200	311 - 320		
81 - 90	201 - 210	321 - 330		

0 600 1,200
Feet



Plate MCH -22

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

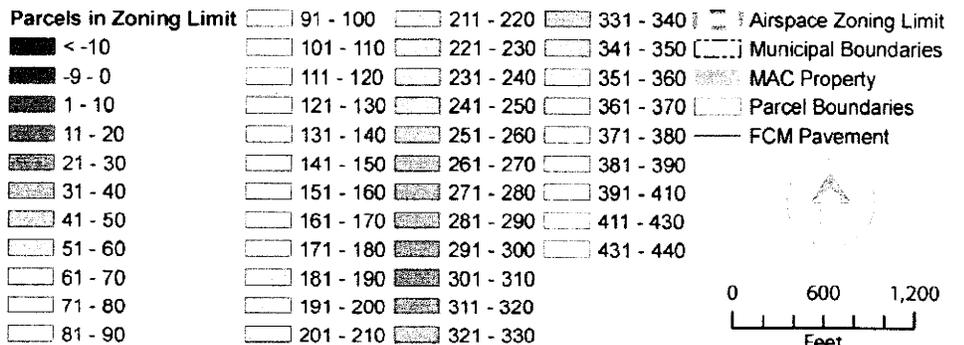
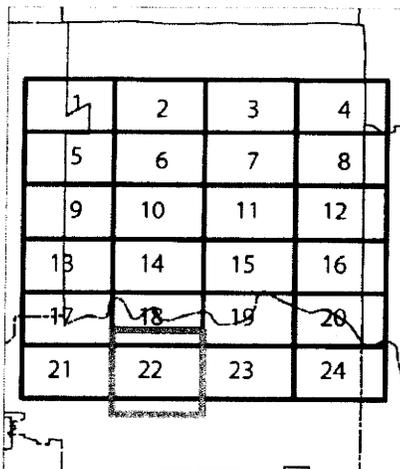




Plate MCH -23

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits

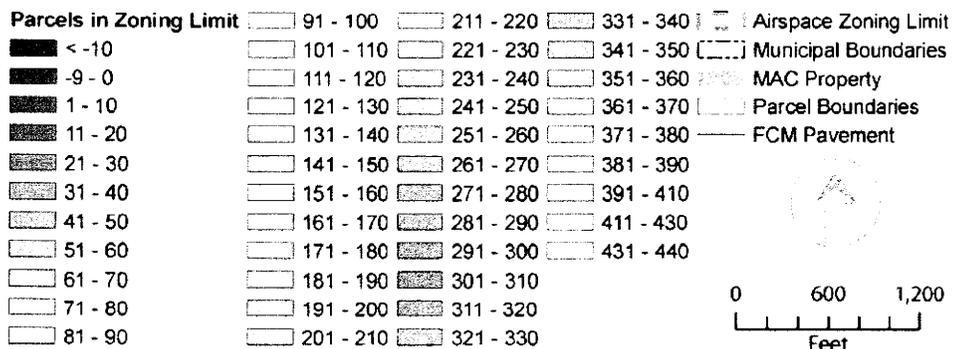
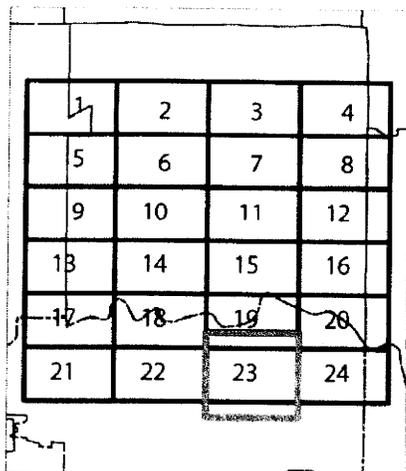
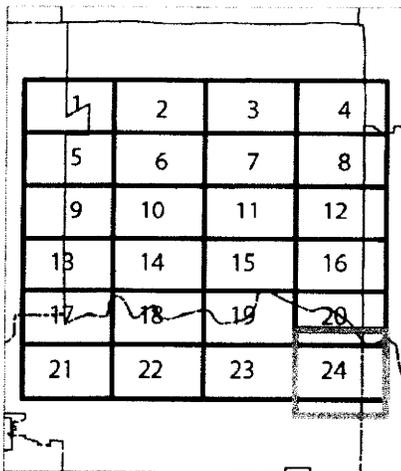


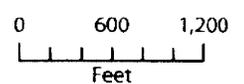


Plate MCH -24

FCM Maximum Construction Heights Without Permit Within Airspace Zoning Limits



<p>Parcels in Zoning Limit</p> <ul style="list-style-type: none"> █ < -10 █ -9 - 0 █ 1 - 10 █ 11 - 20 █ 21 - 30 █ 31 - 40 █ 41 - 50 █ 51 - 60 █ 61 - 70 █ 71 - 80 █ 81 - 90 	<table border="0" style="width: 100%;"> <tr> <td>□ 91 - 100</td><td>□ 211 - 220</td><td>□ 331 - 340</td></tr> <tr> <td>□ 101 - 110</td><td>□ 221 - 230</td><td>□ 341 - 350</td></tr> <tr> <td>□ 111 - 120</td><td>□ 231 - 240</td><td>□ 351 - 360</td></tr> <tr> <td>□ 121 - 130</td><td>□ 241 - 250</td><td>□ 361 - 370</td></tr> <tr> <td>□ 131 - 140</td><td>□ 251 - 260</td><td>□ 371 - 380</td></tr> <tr> <td>□ 141 - 150</td><td>□ 261 - 270</td><td>□ 381 - 390</td></tr> <tr> <td>□ 151 - 160</td><td>□ 271 - 280</td><td>□ 391 - 410</td></tr> <tr> <td>□ 161 - 170</td><td>□ 281 - 290</td><td>□ 411 - 430</td></tr> <tr> <td>□ 171 - 180</td><td>□ 291 - 300</td><td>□ 431 - 440</td></tr> <tr> <td>□ 181 - 190</td><td>█ 301 - 310</td><td></td></tr> <tr> <td>□ 191 - 200</td><td>█ 311 - 320</td><td></td></tr> <tr> <td>□ 201 - 210</td><td>█ 321 - 330</td><td></td></tr> </table>	□ 91 - 100	□ 211 - 220	□ 331 - 340	□ 101 - 110	□ 221 - 230	□ 341 - 350	□ 111 - 120	□ 231 - 240	□ 351 - 360	□ 121 - 130	□ 241 - 250	□ 361 - 370	□ 131 - 140	□ 251 - 260	□ 371 - 380	□ 141 - 150	□ 261 - 270	□ 381 - 390	□ 151 - 160	□ 271 - 280	□ 391 - 410	□ 161 - 170	□ 281 - 290	□ 411 - 430	□ 171 - 180	□ 291 - 300	□ 431 - 440	□ 181 - 190	█ 301 - 310		□ 191 - 200	█ 311 - 320		□ 201 - 210	█ 321 - 330		<ul style="list-style-type: none"> □ Airspace Zoning Limit □ Municipal Boundaries □ MAC Property □ Parcel Boundaries — FCM Pavement
□ 91 - 100	□ 211 - 220	□ 331 - 340																																				
□ 101 - 110	□ 221 - 230	□ 341 - 350																																				
□ 111 - 120	□ 231 - 240	□ 351 - 360																																				
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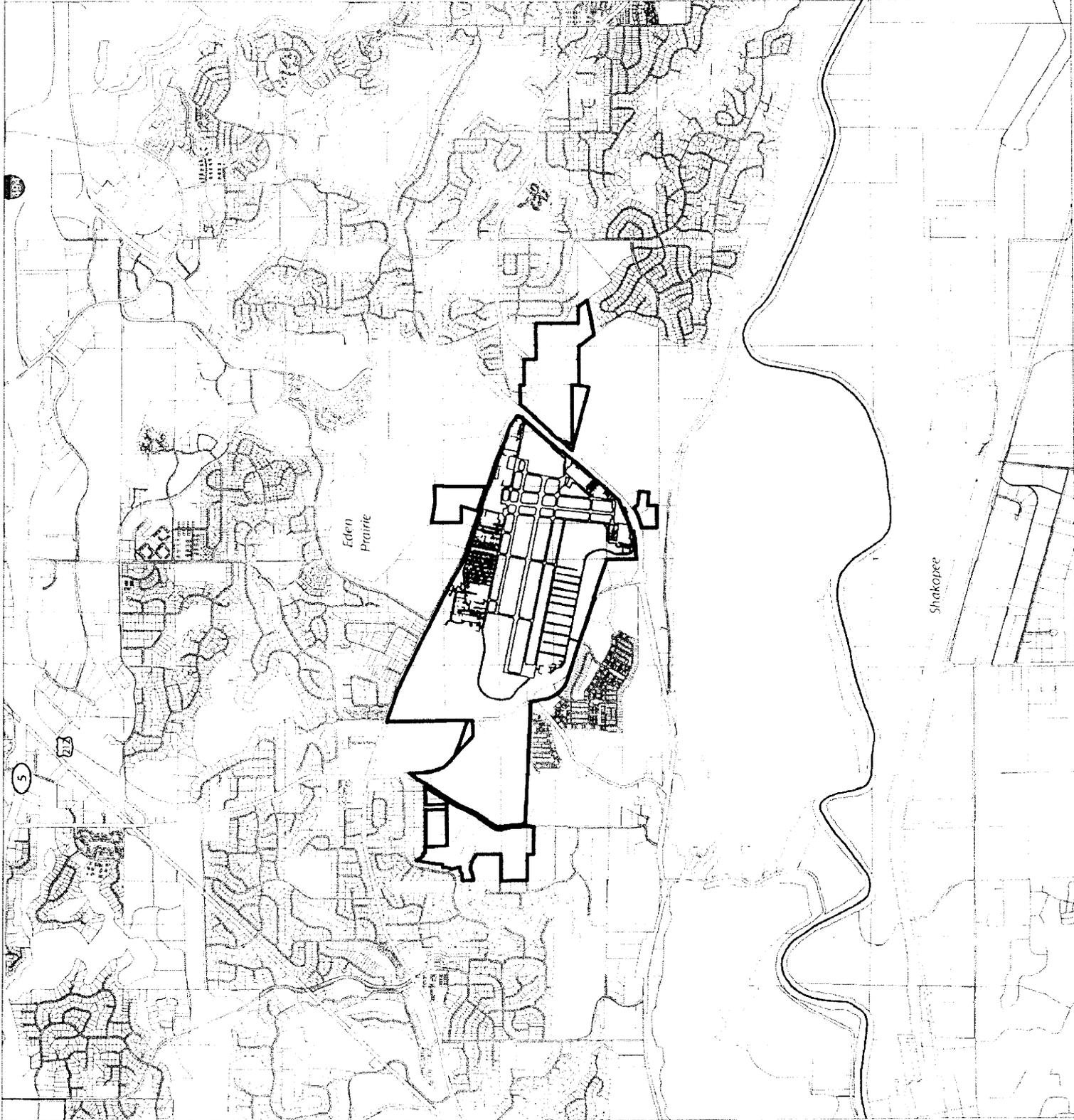


FCM Zoning Ordinance

Exhibit A

Airport Boundary

- FCM Pavement
- ▭ Airport Boundary
- ▭ Parcel Boundaries
- - - Municipal Boundaries



0 1,200 2,400
Feet

Exhibit B: Parcels in Permitted Residential Areas
Hennepin County

City	PIN	Legal Description	Runway End	Zone
Eden Prairie	053-2011622430008	EDEN HEIGHTS	10R	B
Eden Prairie	053-2011622430009	EDEN HEIGHTS	10R	B
Eden Prairie	053-2011622430010	EDEN HEIGHTS	10R	B
Eden Prairie	053-2011622430026	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430027	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430028	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430029	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430030	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430031	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430032	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430033	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430034	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430035	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430036	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430057	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430058	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430062	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430063	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430064	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430065	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430066	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430067	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622430068	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2011622440026	EDEN HEIGHTS	10R	B
Eden Prairie	053-2011622440028	EDEN HEIGHTS	10R	B
Eden Prairie	053-2011622440029	EDEN HEIGHTS	10R	B
Eden Prairie	053-2011622440030	EDEN HEIGHTS	10R	B
Eden Prairie	053-2011622440031	EDEN HEIGHTS	10R	B
Eden Prairie	053-2911622110001	UNPLATTED 29 116 22	10R	B
Eden Prairie	053-2911622120005	UNPLATTED 29 116 22	10R	B
Eden Prairie	053-2911622120006	REG. LAND SURVEY NO. 0633	10R	B
Eden Prairie	053-2911622120008	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2911622120009	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2911622120010	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2911622120011	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2911622120012	RILEY CREEK RIDGE	10R	B
Eden Prairie	053-2911622130010	UNPLATTED 29 116 22	10R	B
Eden Prairie	053-2911622130011	UNPLATTED 29 116 22	10R	B
Eden Prairie	053-2911622210051	BRAXTON WOODS 2ND ADDN	10R	B
Eden Prairie	053-2911622210069	THE RIDGE AT RILEY CREEK 2ND ADDN	10R	B
Eden Prairie	053-2911622210070	THE RIDGE AT RILEY CREEK 2ND ADDN	10R	B
Eden Prairie	053-2911622210071	THE RIDGE AT RILEY CREEK 2ND ADDN	10R	B
Eden Prairie	053-2911622210072	THE RIDGE AT RILEY CREEK 2ND ADDN	10R	B
Eden Prairie	053-2911622240048	THE RIDGE AT RILEY CREEK	10R	B
Eden Prairie	053-2911622240067	THE RIDGE AT RILEY CREEK 2ND ADDN	10R	B
Eden Prairie	053-2911622240068	THE RIDGE AT RILEY CREEK 2ND ADDN	10R	B
Eden Prairie	053-2911622240069	THE RIDGE AT RILEY CREEK 2ND ADDN	10R	B
Eden Prairie	053-2911622240070	THE RIDGE AT RILEY CREEK 2ND ADDN	10R	B
Eden Prairie	053-2611622230005	UNPLATTED 26 116 22	28L/R	B
Eden Prairie	053-2611622230007	UNPLATTED 26 116 22	28L/R	B
Eden Prairie	053-2611622230018	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230019	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230020	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230021	THE TREE FARM	28L/R	B

**Exhibit B: Parcels in Permitted Residential Areas
Hennepin County**

City	PIN	Legal Description	Runway End	Zone
Eden Prairie	053-2611622230022	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230023	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230024	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230025	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230026	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230027	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230028	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230029	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230030	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230031	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230032	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230033	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230046	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230047	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230048	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230049	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230050	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230051	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230052	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230053	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230054	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230055	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230056	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230057	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230058	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230059	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230060	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622230061	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622240056	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240057	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240058	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240059	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240060	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240061	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240062	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240064	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240065	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240066	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240067	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240068	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240069	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240070	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240072	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240073	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240074	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240075	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240076	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240077	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240078	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622240079	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310008	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310009	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310010	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310011	HILLSBOROUGH 2ND ADDN	28L/R	B

**Exhibit B: Parcels in Permitted Residential Areas
Hennepin County**

City	PIN	Legal Description	Runway End	Zone
Eden Prairie	053-2611622310012	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310013	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310014	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310016	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310022	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310023	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310024	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310025	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310026	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310027	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310028	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310029	HILLSBOROUGH 2ND ADDN	28L/R	B
Eden Prairie	053-2611622310030	UNPLATTED 26 116 22	28L/R	B
Eden Prairie	053-2611622320002	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320003	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320004	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320005	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320006	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320007	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320008	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320009	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320010	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320011	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320012	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320013	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320014	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320015	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320016	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320017	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320018	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320019	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320020	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320021	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320022	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320023	THE TREE FARM	28L/R	B
Eden Prairie	053-2611622320025	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622320026	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622320027	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622320028	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622320029	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622320030	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622320031	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622320032	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622320033	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622320034	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622320035	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330004	NORTH BLUFF ADDN	28L/R	B
Eden Prairie	053-2611622330005	NORTH BLUFF ADDN	28L/R	B
Eden Prairie	053-2611622330007	NORTH BLUFF ADDN	28L/R	B
Eden Prairie	053-2611622330008	NORTH BLUFF ADDN	28L/R	B
Eden Prairie	053-2611622330009	NORTH BLUFF ADDN	28L/R	B
Eden Prairie	053-2611622330032	UNPLATTED 26 116 22	28L/R	B
Eden Prairie	053-2611622330033	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330034	NORTH BLUFF 2ND ADDN	28L/R	B

**Exhibit B: Parcels in Permitted Residential Areas
Hennepin County**

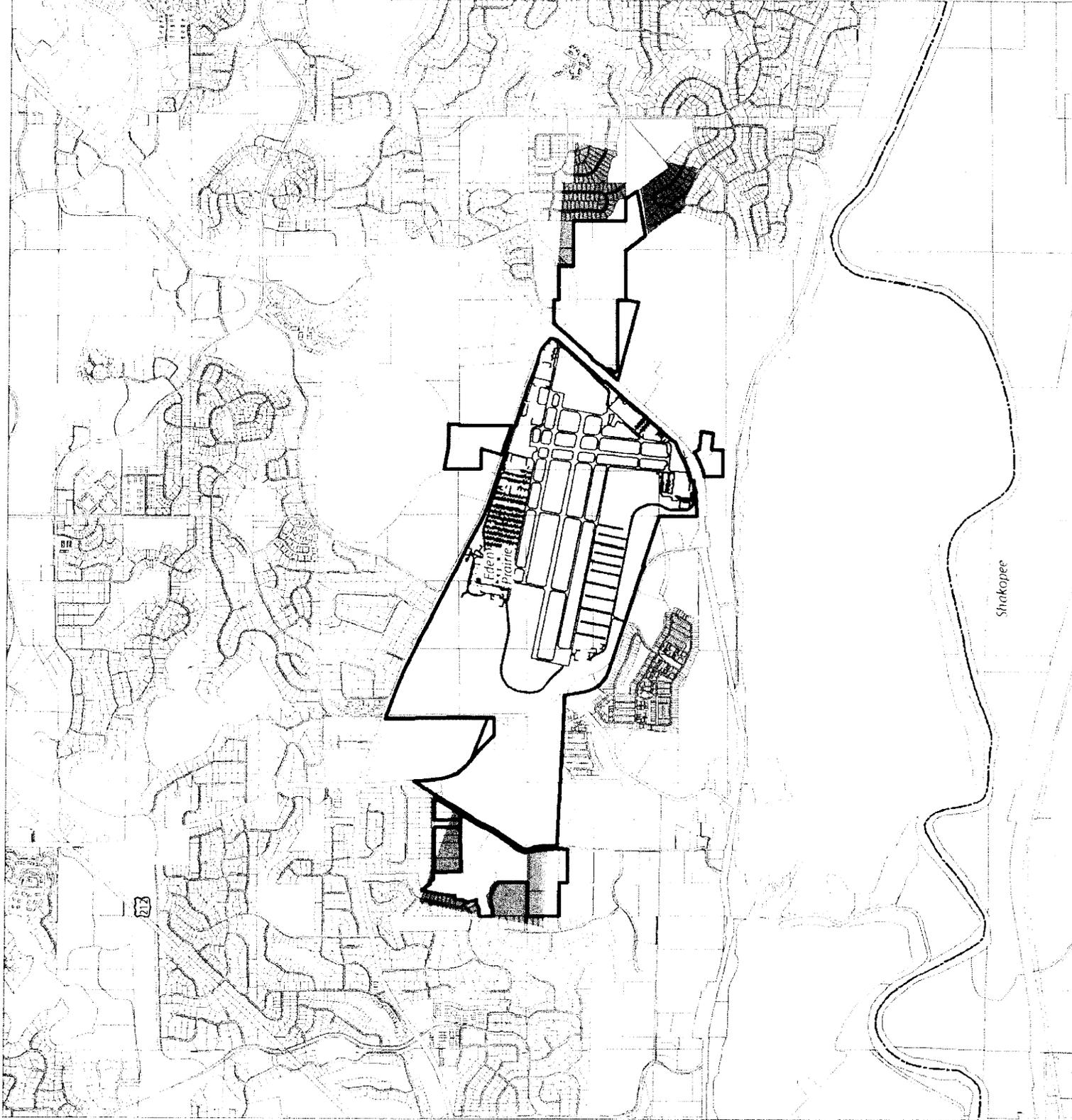
City	PIN	Legal Description	Runway End	Zone
Eden Prairie	053-2611622330035	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330036	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330037	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330038	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330039	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330040	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330041	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330042	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330043	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330044	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330045	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622330046	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340036	BLUFFS WEST 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340044	NORTH BLUFF ADDN	28L/R	B
Eden Prairie	053-2611622340045	NORTH BLUFF ADDN	28L/R	B
Eden Prairie	053-2611622340046	NORTH BLUFF ADDN	28L/R	B
Eden Prairie	053-2611622340047	NORTH BLUFF ADDN	28L/R	B
Eden Prairie	053-2611622340048	NORTH BLUFF ADDN	28L/R	B
Eden Prairie	053-2611622340055	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340056	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340057	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340058	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340059	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340060	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340065	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340066	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340067	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2611622340068	NORTH BLUFF 2ND ADDN	28L/R	B
Eden Prairie	053-2711622140035	FRASER CHARLSON	28L/R	B
Eden Prairie	053-2711622140036	FRASER CHARLSON	28L/R	B
Eden Prairie	053-2711622410001	UNPLATTED 27 116 22	28L/R	B

FCM Zoning Ordinance

Exhibit C

Permitted Residential Areas

- Permitted Residential Areas
- FCM Pavement
- ▭ Airport Boundary
- ▭ Parcel Boundaries
- - - Municipal Boundaries

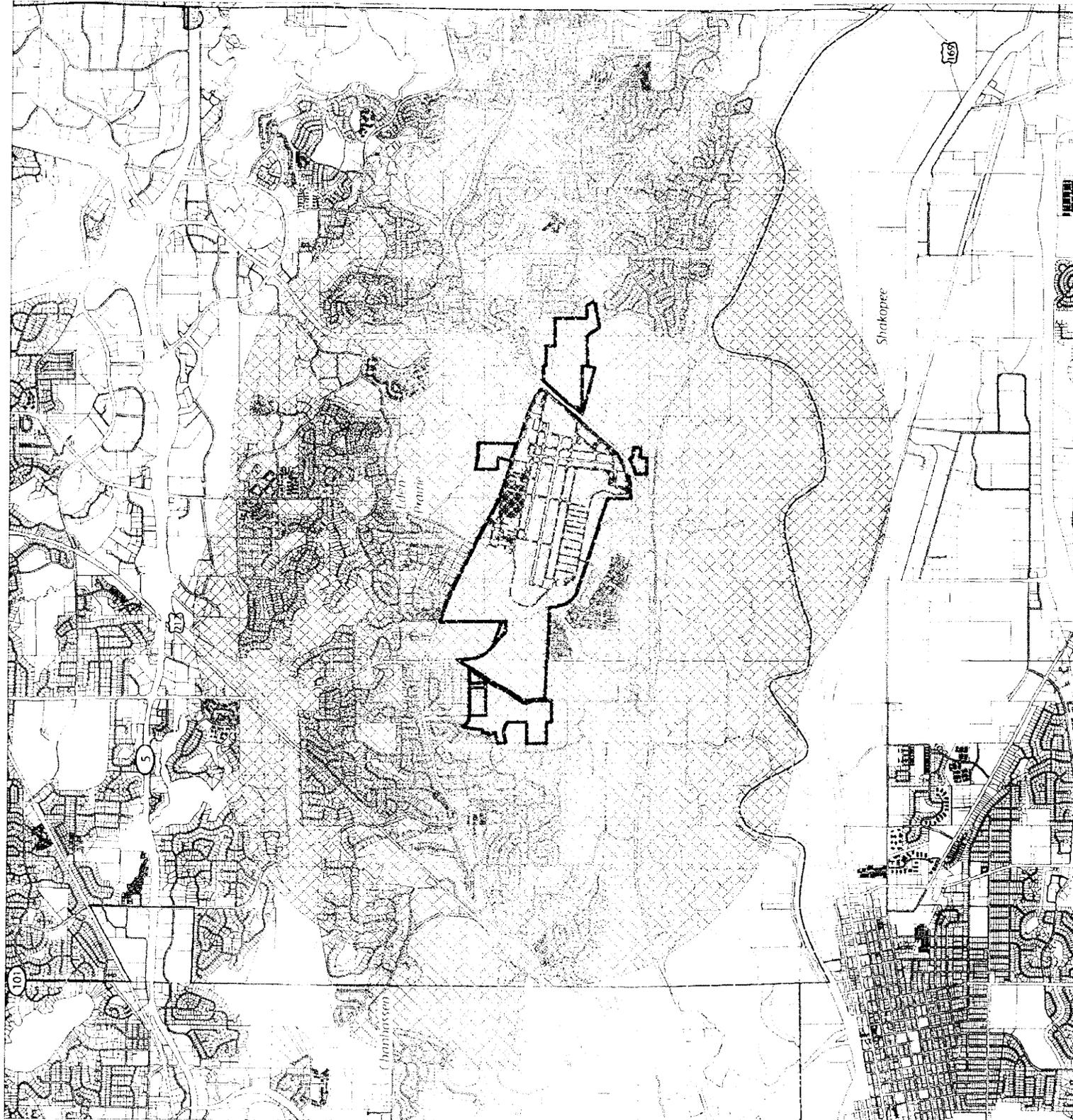


FCM Zoning Ordinance

Exhibit D

Airport Boundary And Airspace Zoning Limits

- Airspace Zoning Limit
- FCM Pavement
- Airport Boundary
- Parcel Boundaries
- Municipal Boundaries

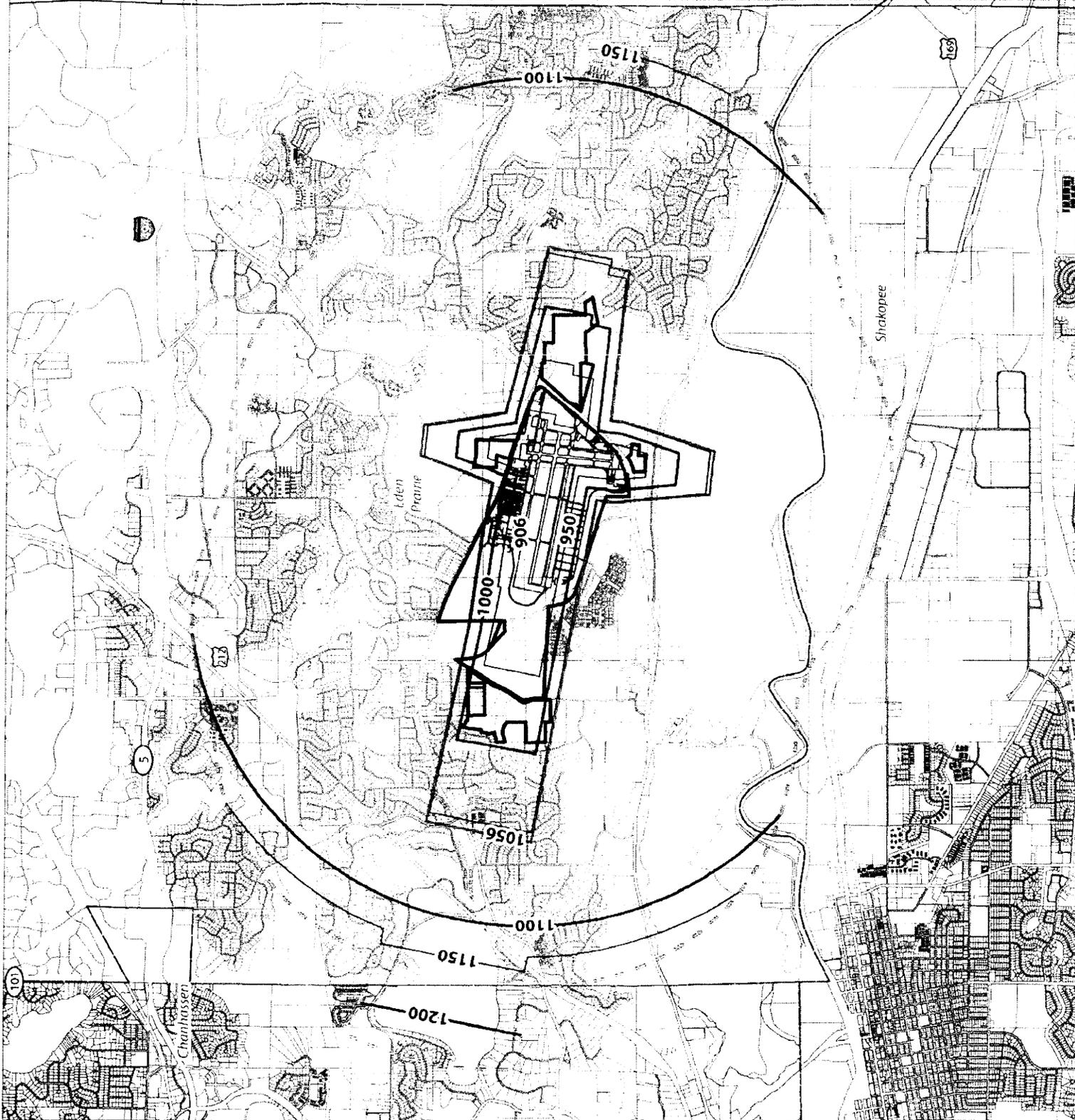


FCM Zoning Ordinance

Exhibit E

Airport Boundary And Airspace Contours

-  Airspace Zoning Limit
-  906' Contour
-  50' Contour
-  100' Contour
-  1056' Contour
-  FCM Pavement
-  Airport Boundary
-  parcels_carv
-  Parcel Boundaries
-  Municipal Boundaries

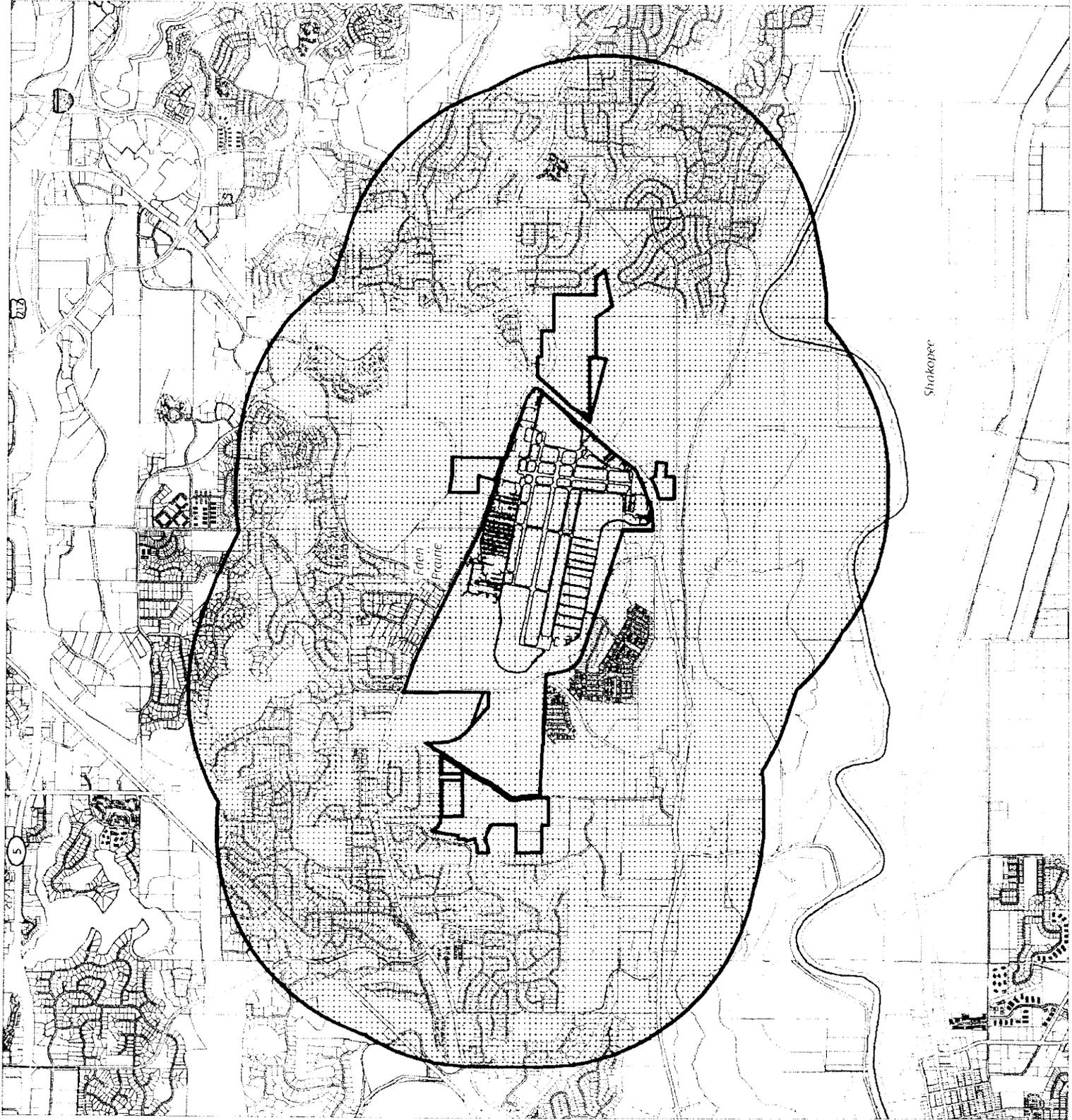


FCM Zoning Ordinance

Exhibit F

Airport Boundary And Safety Zoning Limits

-  Safety Zoning Limit
-  FCM Pavement
-  Airport Boundary
-  Parcel Boundaries
-  Municipal Boundaries



0 1,100 2,200
Feet

**STATE MODEL AIRPORT SAFETY
ZONING ORDINANCE**

FOR

(replace blank with the name of your airport) **AIRPORT**

Provide Adoption Date

THIS ORDINANCE AMENDS AND REPLACES

(replace blank with the previous ordinance name and date)

Provide Ordinance Number, if one exists

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TITLE AND INTRODUCTION

(replace with airport name) AIRPORT ZONING ORDINANCE

(replace with zoning board name) JOINT AIRPORT ZONING BOARD

Comment: (Note: Membership of the Joint Airport Zoning Board should include representation from all of the jurisdictions affected by both air space and land use restrictions around the airport. Those jurisdictions affected by land will be listed in Exhibit A of this ordinance.)

AN ORDINANCE REGULATING AND RESTRICTING THE HEIGHT OF STRUCTURES AND OBJECTS OF NATURAL GROWTH, AND OTHERWISE REGULATING THE USE OF PROPERTY, IN THE VICINITY OF THE (replace with airport name) AIRPORT BY CREATING THE APPROPRIATE ZONES AND ESTABLISHING THE BOUNDARIES THEREOF; PROVIDING FOR CHANGES IN THE RESTRICTIONS AND BOUNDARIES OF SUCH ZONES; DEFINING CERTAIN TERMS USED HEREIN; REFERRING TO THE (replace with ordinance name) AIRPORT ZONING MAP WHICH IS INCORPORATED IN AND MADE A PART OF THIS ORDINANCE; PROVIDING FOR ENFORCEMENT; ESTABLISHING A BOARD OF ADJUSTMENT; AND IMPOSING PENALTIES.

IT IS HEREBY ORDAINED BY THE (replace with zoning board name) JOINT AIRPORT ZONING BOARD PURSUANT TO THE AUTHORITY CONFERRED BY MINNESOTA STATUTES SECTION 360.061 THROUGH 360.074, AS FOLLOWS:

SECTION I: PURPOSE AND AUTHORITY

The _____ (replace with zoning board name) _____ Joint Airport Zoning Board, created and established by joint action of the City Council _____ (replace with airport owner name) _____, the Board of Commissioners of _____ (replace with appropriate county name) _____ County, and the Town Board of _____ (replace with appropriate Township name) _____ Township, (list all political jurisdictions involved) pursuant to the provisions and authority of Minnesota Statutes Section 360.063, hereby finds and declares that:

- A. An airport hazard endangers the lives and property of users of the _____ (replace with airport name) _____ Airport, and property or occupants of land in its vicinity; and also if of the obstructive type, in effect reduces the size of the area available for the landing, takeoff, and maneuvering of aircraft, thus tending to destroy or impair the utility of said Airport and the public investment therein.
- B. The creation or establishment of an airport hazard is a public nuisance and an injury to the region served by the _____ (replace with airport name) _____ Airport.
- C. For the protection of the public health, safety, order, convenience, prosperity, and general welfare, and for the promotion of the most appropriate use of land, it is necessary to prevent the creation or establishment of airport hazards.
- D. The prevention of these airport hazards should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.
- E. The prevention of the creation or establishment of airport hazards, and the elimination, removal, alteration, mitigation, or marking and lighting of existing airport hazards are public purposes for which political subdivisions may raise and expend public funds.
- F. The _____ Airport is an essential public facility that serves an important public transportation role and provides a public good.

SECTION II: SHORT TITLE

This Ordinance shall be known as the “_____ (replace with airport name) _____ Airport Zoning Ordinance.” Those sections of land affected by this Ordinance are indicated in Exhibit “A”, which is attached to this Ordinance.

SECTION III: DEFINITIONS

As used in this Ordinance, unless the context otherwise requires:

“*AIRPORT*” means the _____ (replace with airport or m.c.l.) Airport located in _____ (add short legal description) _____.

“*AIRPORT ELEVATION*” means the established elevation of the highest point on the usable landing area which elevation is established to be _____ (replace with a number) feet above mean sea level.

“*AIRPORT HAZARD*” means any structure, tree, or use of land which obstructs the air space required for, or is otherwise hazardous to, the flight of aircraft in landing or taking off at the airport; and any use of land which is hazardous to persons or property because of its proximity to the airport.

“*COMMISSIONER*” means the Commissioner of the Minnesota Department of Transportation.

“*CONFORMING USE*” means any structure, tree, or object of natural growth, or use of land that complies with all the applicable provisions of this Ordinance or any amendment to this ordinance.

“*DWELLING*” means any building or portion thereof designed or used as a residence or sleeping place of one or more persons.

“*ESTABLISHED RESIDENTIAL NEIGHBORHOOD IN A BUILT UP URBAN AREA*” (ERN - BUUA) means an area which, if it existed on or before January 1, 1978 shall be considered a conforming use that shall not be prohibited except as provided below in SECTION V B 5, EXEMPTIONS - ESTABLISHED RESIDENTIAL NEIGHBORHOODS.

“*HEIGHT*,” for the purpose of determining the height limits in all zones set forth in this Ordinance and shown on the zoning map, the datum shall be mean sea level elevation unless otherwise specified.

“*LANDING AREA*” means the area of the airport used for the landing, taking off, or taxiing of aircraft.

“*LOW DENSITY RESIDENTIAL STRUCTURE*” means a single-family or two-family home.

“*LOW DENSITY RESIDENTIAL LOT*” means a single lot located in an area which is zoned for single-family or two-family residences and in which the predominant land use is such type of residences.

“*NONCONFORMING USE*” means any pre-existing structure, tree, natural growth, or land use which is inconsistent with the provisions of this Ordinance or an amendment hereto.

“NONPRECISION INSTRUMENT RUNWAY” means a runway having an existing or planned straight-in instrument approach procedure utilizing air navigation facilities with only horizontal guidance, and for which no precision approach facilities are planned or indicated on an approved planning document.

“OTHER THAN UTILITY RUNWAY” means a runway that is constructed for and intended to be used by jet aircraft or aircraft of more than 12,500 pounds maximum gross weight; or is 4,900 feet or more in length.

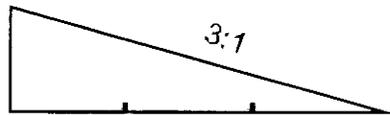
“PERSON” means an individual, firm, partnership, corporation, company, association, joint stock association, or body politic, and includes a trustee, receiver, assignee, administrator, executor, guardian, or other representative.

“PLANNED,” as used in this Ordinance, refers only to those proposed future airport developments that are so indicated on a planning document having the approval of the Federal Aviation Administration, Minnesota Department of Transportation Office of Aeronautics, and (replace with airport owner name) .

“PRECISION INSTRUMENT RUNWAY” means a runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS), a Microwave Landing System (MLS), or a Precision Approach Radar (PAR), a Transponder Landing System (TLS), or a satellite-based system capable of operating to the same level of precision guidance provided by the other included systems. Also, a runway for which a precision instrument approach system is planned and is so indicated on an approved planning document.

RUNWAY” means any existing or planned paved surface or turf covered area of the airport which is specifically designated and used or planned to be used for the landing and/or taking off of aircraft.

SLOPE” means an incline from the horizontal expressed in an arithmetic ratio of horizontal magnitude to vertical magnitude.



Slope = 3:1 = 3 feet horizontal to 1 foot vertical

“STRUCTURE” means an object constructed or installed by man, including, but without limitations, buildings, towers, smokestacks, earth formations, and overhead transmission lines.

“TRAVERSE WAYS,” for the purpose of determining height limits as set forth in this Ordinance, shall be increased in height by 17 feet for interstate highways; 15 feet for all other public

roadways; 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for private roads; 23 feet for railroads; and for waterways and all other traverse ways not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it.

“*TREE*” means any object of natural growth.

“*UTILITY RUNWAY*” means a runway that is constructed for, and intended to be used by propeller-driven aircraft of 12,500 pounds maximum gross weight and less; and is less than 4,900 feet in length.

“*VISUAL RUNWAY*” means a runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an approved planning document.

“*WATER SURFACES*” for the purpose of this ordinance, shall have the same meaning as land for the establishment of protected zones.

precision instrument approach having visibility minimums as low as three-fourths of a statute mile) . . .

- b. 5000 feet for Runway . . . (replace with the number designation of all other existing or planned runways) . . .

When a 5000-foot arc is encompassed by tangents connecting two adjacent 10,000-foot arcs, the 5000-foot arc shall be disregarded in the construction of the perimeter of the horizontal surface.

- 3. CONICAL ZONE: All that land which lies directly under an imaginary conical surface extending upward and outward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet as measured outward from the periphery of the horizontal surface.
- 4. APPROACH ZONE: All that land which lies directly under an imaginary approach surface longitudinally centered on the extended centerline at each end of a runway. The inner edge of the approach surface is at the same width and elevation as, and coincides with, the end of the primary surface. The approach surface inclines upward and outward at a slope of:
 - a. 34:1 for Runway . . . (replace with the number designation of all runways with an existing or planned non-precision instrument approach or runways other than those with a visual approach) . . .
 - b. 20:1 for Runway . . . (replace with the number designation of all existing or planned visual only runways) . . .

The approach surface expands uniformly to a width of:

- c. 4,000 feet for Runway . . . (replace with the number designation of all other than utility runways with an existing or planned non-precision instrument approach having visibility minimums as low as three-fourths of a statute mile) . . . at a distance of 10,000 feet, then continues at the same rate of divergence for an additional 4,000 feet to the periphery of the conical surface.
- d. 3,500 feet for Runway . . . (replace with the number designation of all other than utility runways with an existing or planned non-precision instrument approach having visibility minimums greater than three-fourths of a statute mile) . . . at a distance of 10,000 feet, then continues at the same rate of divergence to the periphery of the conical surface.

- e. 2,000 feet for Runway (replace with the number designation of all utility runways existing or planned with a non-precision approach) at a distance of 10,000 feet, then continues at the same rate of divergence to the periphery of the conical surface.
 - f. 1,500 feet for Runway (replace with the number designation of all other than utility runways existing or planned with a visual approach) at a distance of 5,000 feet, then continues at the same rate of divergence to the periphery of the conical surface.
 - g. 1,250 feet for Runway (replace with the number designation of all existing or planned visual utility runways) at a distance of 5,000 feet, then continues at the same rate of divergence to the periphery of the conical surface.
5. **PRECISION INSTRUMENT APPROACH ZONE:** All that land which lies directly under an imaginary precision instrument approach surface longitudinally centered on the extended centerline at each end of Runway (replace with the number designation of all existing or planned runways with a precision approach) , a precision instrument runway. The inner edge of the precision instrument approach surface is at the same width and elevation as, and coincides with, the end of the primary surface. The precision instrument approach surface inclines upward and outward at a slope of 50:1 for a horizontal distance of 10,000 feet expanding uniformly to a width of 4,000 feet, then continues upward and outward for an additional horizontal distance of 40,000 feet at a slope of 40:1, expanding uniformly to an ultimate width of 16,000 feet.
6. **TRANSITIONAL ZONE:** All that land which lies directly under an imaginary surface extending upward and outward at right angles to the runway centerline and centerline extended at a slope of 7:1 from the sides of the primary surfaces and from the sides of the approach surfaces until they intersect the horizontal surface or the conical surface. Transitional surfaces for those portions of the precision instrument approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the precision instrument approach surface and at right angles to the extended precision instrument runway centerline.
- B. **HEIGHT RESTRICTIONS:** Except as otherwise provided in this Ordinance, and except as necessary and incidental to airport operations, no structure or tree shall be constructed, altered, maintained, or allowed to grow in any air space zone created in SECTION IV A so as to project above any of the imaginary air space surfaces described in said SECTION IV A hereof. Where an area is covered by more than one height limitation, the more restrictive limitation shall prevail.

C. BOUNDARY LIMITATIONS: The air space obstruction height zoning restrictions set forth in this section shall apply for a distance not to exceed one and one half miles beyond the perimeter of the airport boundary and in that portion of an airport hazard area under the approach zone for a distance not exceeding two miles from the airport boundary.

SECTION V: LAND USE SAFETY ZONING

A. SAFETY ZONE BOUNDARIES: In order to carry out the purpose of this Ordinance, as set forth above, to restrict those uses which may be hazardous to the operational safety of aircraft operating to and from the (replace with airport name) Airport, and, furthermore, to limit population and building density in the runway approach areas, thereby creating sufficient open space to protect life and property in case of an accident, there are hereby created and established the following land use safety zones:

1. SAFETY ZONE A: All land in that portion of the approach zones of a runway, as defined in SECTION IV A hereof, which extends outward from the end of the primary surface a distance equal to two-thirds of the planned length of the runway, which distance shall be:
 - a. (replace with a number 2/3 the length of the runway) feet for Runway (replace with the number designations of the primary runway).
 - b. (replace with a number 2/3 the length of the runway) feet for Runway (replace with the number designations of the secondary runway).
 - c. Continue similar statements until all planned or existing runways are included.

2. SAFETY ZONE B: All land in that portion of the approach zones of a runway, as defined in SECTION IV A hereof, which extends outward from Safety Zone A a distance equal to one-third of the planned length of the runway, which distance shall be:
 - a. (replace with a number 1/3 the length of the runway) feet for Runway (replace with the number designations of the primary runway).
 - b. (replace with a number 1/3 the length of the runway) feet for Runway (replace with the number designations of the secondary runway).
 - c. Continue similar statements until all planned or existing runways are included.

3. SAFETY ZONE C: All land which is enclosed within the perimeter of the horizontal zone, as defined in SUBSECTION IV A hereof, and which is not included in Safety Zone A or Safety Zone B.

4. EXCEPTIONS – ESTABLISHED RESIDENTIAL NEIGHBORHOODS:

The following described lands are designated as Established Residential Neighborhoods in Built-Up Urban Areas. Land uses which were in existence in these areas on January 1, 1978, are exempt from the USE RESTRICTIONS of SECTIONS V B 2 and V B 3 below, and are subject to the provisions of SECTION V B 5 below.

The following properties are hereby designated as established residential neighborhoods in built-up urban areas. Land uses which were in existence in these areas on January 1, 1978, are exempt from the use restrictions of sections V B 2 and V B 3 below, and are subject to the provisions of section V B 5 below.

Runway					
	Parcel ID	Street Address	Acres	Year Built	Note

Comment: Name the runway end and the direction of the neighborhood in relation to the runway

EXCEPTIONS – ISOLATED, LOW DENSITY RESIDENTIAL BUILDING LOTS

AND LOW DENSITY RESIDENTIAL STRUCTURES: The following properties in the aforesaid Established Residential Neighborhoods are hereby designated as either isolated, low-density residential building lots, or low-density residential structures. A low-density residential structure shall mean a single-family or two-family home, and an isolated, low-density residential building lot shall mean a single lot located in an area which is zoned for single-family or two-family residences and in which the prominent land use is such type of residence. These low-density uses which were in existence on January 1, 1978, are subject to special provisions set forth in SECTION V B 5, EXEMPTIONS, below:

The following properties are hereby designated as isolated, low-density residential building lots and low-density residential structures in the aforesaid established residential neighborhoods in built-up urban areas.

Runway					
	Parcel ID	Street Address	Acres	Year Built	Note

Comment: Name the runway end and the direction of the neighborhood in relation to the runway

B. USE RESTRICTIONS:

1. **GENERAL:** Subject at all times to the height restrictions set forth in SECTION IV B, no use shall be made of any land in any of the safety zones defined in SECTION V A which creates or causes interference with the operations of radio or electronic facilities on the airport or with radio or electronic communications between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and other lights, results in glare in the eyes of pilots using the airport, impairs visibility in the vicinity of the airport, or otherwise endangers the landing, taking off, or maneuvering of aircraft.

2. **ZONE A:** Subject at all times to the height restrictions set forth in Subsection IV B and to the general restrictions contained in Subsection V B 1, areas designated as Zone A shall contain no buildings, temporary structures, exposed transmission lines, or other similar above-ground land use structural hazards, and shall be restricted to those uses which will not create, attract, or bring together an assembly of persons thereon. Permitted uses may include, but are not limited to, such uses as agriculture (seasonal crops), horticulture, animal husbandry, raising of livestock, wildlife habitat, light outdoor recreation (non-spectator), cemeteries, and automobile parking.

3. **ZONE B:** Subject at all times to the height restrictions set forth in Subsection IV B, and to the general restrictions contained in Subsection V B 1, areas designated as Zone B shall be restricted in use as follows:
 - a. Each use shall be on a site whose area shall not be less than three acres.
 - b. Each use shall not create, attract, or bring together a site population that would exceed 15 times that of the site acreage

- c. Each site shall have no more than one building plot upon which any number of structures may be erected.
- d. A building plot shall be a single, uniform, and non-contrived area, whose shape is uncomplicated and whose area shall not exceed the following minimum ratios with respect to the total site area:

Site Area at least (Acres)	But Less Than (Acres)	Ratio of Site Area to Bldg. Plot Area	Building Plot Area (sq. ft.)	Max. Site Population (15 persons/Acre)
3		12:1	10,900	45
	4	12:1		
4		10:1	17,400	60
	6	10:1		
6		8:1	32,600	90
	10	8:1		
10		6:1	72,500	150
	20	6:1		
20	and up	4:1	218,000	300

- e. The following uses are specifically prohibited in Zone B:
Churches, hospitals, schools, theaters, stadiums, hotels, motels, trailer courts, campgrounds, and other places of frequent public or semi-public assembly.
4. ZONE C: Zone C is subject only to height restrictions set forth in SECTION V B, and to the general restrictions contained in SECTION V B 1.
5. EXEMPTIONS – ESTABLISHED RESIDENTIAL NEIGHBORHOODS
- a. Land uses which existed as of January 1, 1978, in the Established Residential Neighborhoods set forth in SECTION V A 4 above, and as shown on the zoning map, are subject to the height restrictions of SECTION IV B and the general restrictions of SECTION V B 1. Land uses which come into existence after January 1, 1978, are treated as though they were not in a designated Established Residential Neighborhood and are subject to the Zone A or Zone B restrictions as the case may be.

- b. Land uses in Established Residential Neighborhoods which violate any of the following restrictions are prohibited as safety hazards and must be acquired, altered or removed at public expense. Those conditions are as follows:
- (1) The following land uses if they exist in Safety Zones A or B and in an ERN-BUUA are considered by the Commissioner to constitute airport safety hazards so severe, either to persons on the ground or to the air-traveling public, or both, that they must be prohibited under local airport zoning ordinances;
 - (a) Any structure which a person or persons customarily use as a principal residence and which is located entirely inside Safety Zone A within 1000 feet of the end of the primary zone;
 - (b) Any structure which a person or persons customarily use as a principal residence and which is located entirely within Safety Zone A or B and which penetrates an imaginary approach surface as defined by SECTION IV A;
 - (c) Any land use in Safety Zone A or B which violates any of the following standards:
 - (i) the land use must not create or cause interference with the operation of radio or electronic facilities on the airport or with radio or electronic communication between the airport and aircraft;
 - (ii) the land use must not make it difficult for pilots to distinguish between airport lights and other lights;
 - (iii) the land use must not result in glare in the eyes of pilots using the airport or impair visibility in the vicinity of the airport.
 - (d) Any isolated residential building lot zoned for single-family or two-family residences on which any structure, if built, would be prohibited by subparagraphs b.(1)(a), (b) or (c) above. An "isolated" residential building lot is one located in an area in which the predominant land use is single-family or two-family residential structures; and
 - (e) Any other land use which presents, in the opinion of the Commissioner, a material danger to the landing, taking off, or maneuvering of aircraft or to the safety of persons on the ground. In making such a determination, the Commissioner shall consider the following factors:

- (i) possibility that the land use may contribute to or cause a collision of two or more aircraft or an aircraft and some other object;
- (ii) possibility that the land use may, in case of an aircraft accident, cause an explosion, fire, or the release of harmful or noxious fumes, gases, or substances;
- (iii) tendency of the land use to increase the number of persons that would be injured in case of an aircraft accident;
- (iv) effect of the land use on availability of clear areas for emergency landings;
- (v) flight patterns around the airport, the extent of use of the runway in question, the type of aircraft using the airport, whether the runways are lighted, whether the airport is controlled, and other similar factors.

C. **BOUNDARY LIMITATIONS:** The land use zoning restrictions set forth in this section shall apply for a distance not to exceed one mile beyond the perimeter of the airport boundary and in that portion of an airport hazard area under the approach zone for a distance not exceeding two miles from the airport boundary.

SECTION VI: AIRPORT MAP

The several zones herein established are shown on the Airport Zoning Map consisting of _____ sheets, prepared by _____, and dated _____, attached hereto and made a part hereof, which map, together with such amendments thereto as may from time to time be made, and all notations, references, elevations, data, zone boundaries, and other information thereon, shall be and the same is hereby adopted as part of this Ordinance.

SECTION VII: NONCONFORMING USES

Regulations not retroactive. The regulations prescribed by this Ordinance shall not be construed to require the removal, lowering, or other changes or alteration of any structure or tree not conforming to the regulations as of the effective date of this Ordinance, or otherwise interfere with the continuance of any nonconforming use. Nothing herein contained shall require any change in the construction, alteration, or intended use of any structure, the construction or

Comment: Note: Requirements of the Airport Zoning Map
 The purpose of the airport zoning map is to replicate the information on the airport layout plan. It may be utilized by the airport sponsor as well as the local zoning authority, for use in exhibits for zoning ordinances, planning, and issuing permits for development around existing and proposed airport designs. The zoning map shall be constructed at a scale that allows for the depiction of the airport runways and Minnesota Rules, Chapter 8800, Zones A, B, and C (existing and ultimate). The map shall show all the existing property zoning in the area agricultural, residential, commercial, etc.), as well as all appurtenant topographical data, including waterways, man-made structures, and significant contours. It is highly recommended that an aerial photo be used as a background for this mapping.

alteration of which was begun prior to the effective date of this Ordinance, and is diligently prosecuted and completed within two years thereof.

SECTION VIII: PERMITS

- A. **FUTURE USES:** Except as specifically provided in Paragraphs 1 and 2 hereunder, no material change shall be made in the use of land and no structure shall be erected, altered, or otherwise established in any zone hereby created unless a permit therefore shall have been applied for and granted by the zoning administrator, hereinafter, provided for. Each application for a permit shall indicate the purpose for which the permit is desired, with sufficient particularity to permit it to conform to the regulations herein prescribed. If such determination is in the affirmative, the permit shall be granted.
1. However, a permit for a tree or structure of less than 75 feet of vertical height above the ground shall not be required in the horizontal and conical zones or in any approach and transitional zones beyond a horizontal distance of 4,200 feet from each end of the runway except when such tree or structure, because of terrain, land contour, or topographic features, would extend the height or land use limit prescribed for the respective zone.
 2. Nothing contained in this foregoing exception shall be construed as permitting or intending to permit any construction, alteration, or growth of any structure or tree in excess of any of the height limitations established by this ordinance as set forth in SECTION IV and the land use limitations set forth in SECTION V.
- B. **EXISTING USES:** Before any existing use or structure may be replaced, substantially altered or repaired, or rebuilt within any zone established herein, a permit must be secured authorizing such replacement, change, or repair. No permit shall be granted that would allow the establishment or creation of an airport hazard or permit a nonconforming use, structure, or tree to become a greater hazard to air navigation than it was on the effective date of this Ordinance or any amendments thereto, or than it is when the application for a permit is made. Except as indicated, all applications for such a permit shall be granted.
- C. **NONCONFORMING USES ABANDONED OR DESTROYED:** Whenever the zoning administrator determines that a nonconforming structure or tree has been abandoned or more than 80% torn down, deteriorated, or decayed, no permit shall be granted that would

allow such structure or tree to exceed the applicable height limit or otherwise deviate from the zoning regulations. Whether application is made for a permit under this paragraph or not, the zoning administrator may order the owner of the abandoned or partially destroyed nonconforming structure, at his own expense, to lower, remove, reconstruct, or equip the same in the manner necessary to conform to the provisions of this Ordinance. In the event the owner of the nonconforming structure shall neglect or refuse to comply with such order for ten days after receipt of written notice of such order, the zoning administrator may, by appropriate legal action, proceed to have the abandoned or partially destroyed nonconforming structure lowered, removed, reconstructed, or equipped and assess the cost and expense thereof against the land on which the structure is or was located. Unless such an assessment is paid within ninety days from the service of notice thereof on the owner of the land, the sum shall bear interest at the rate of eight percent per annum from the date the cost and expense is incurred until paid, and shall be collected in the same manner as are general taxes.

SECTION IX: VARIANCES

Any person desiring to erect or increase the height of any structure, permit the growth of any tree, or use his property not in accordance with the regulations prescribed in this Ordinance may apply to the Board of Adjustment, hereinafter provided for, for a variance from such regulations. If a person submits an application for a variance by certified mail to the members of the Board and the Board fails to grant or deny the variance within four months after the last member receives the application, the variance shall be deemed to be granted by the Board. When the variance is granted by reason of the failure of the Board to act on the variance, the person receiving the variance shall notify the Board and the Commissioner, by certified mail, that the variance has been granted. The applicant shall include a copy of the original application for the variance with this notice to the Commissioner. The variance shall be effective sixty days after this notice is received by the Commissioner subject to any action taken by the Commissioner pursuant to Minnesota Statutes Section 360.063, Subdivision 6a. Such variances shall be allowed where it is duly found that a literal application or enforcement of the regulations would result in practical difficulty or unnecessary hardship, and relief granted would not be contrary to the public interest but do substantial justice and be in accordance with the spirit of this Ordinance provided any variance so allowed may be subject to any reasonable conditions that the Board or Commissioner may deem necessary to effectuate the purpose of this Ordinance.

The Board of Adjustment may request review of a variance application by the Mn/DOT Airport Zoning Director prior to making a decision. (Advisory text).

Comment: The Office of Aeronautics can offer an opinion on whether the variance could negatively affect the airspace or safety zones of the airport.

SECTION X: HAZARD MARKING AND LIGHTING

- A. **NONCONFORMING USES:** The owner of any nonconforming structure or tree is hereby required to permit the installation, operation, and maintenance thereon of such markers and lights as shall be deemed necessary by the zoning administrator, to indicate to the operators of aircraft in the vicinity of the airport the presence of such airport hazards. Such markers and lights shall be installed, operated, and maintained at the expense of the [redacted]

- B. **PERMITS AND VARIANCES:** Any permit or variance deemed advisable to effectuate the purpose of this Ordinance and be reasonable in the circumstances, and granted by the zoning administrator or Board, shall require the owner of the structure or tree in question, at his own expense, to install, operate, and maintain thereon such markers and lights as may be necessary to indicate to pilots the presence of an airport hazard.

SECTION XI: AIRPORT ZONING ADMINISTRATOR

It shall be the duty of the [redacted] to administer and enforce the regulations prescribed herein. Applications for permits and variances shall be made to the [redacted] upon a form furnished by them. Permit applications shall be promptly considered and granted or denied by them in accordance with the regulations prescribed herein. Variance applications shall be forthwith transmitted by the [redacted] for action by the Board, hereinafter provided for.

Comment:
There may be more than one airport zoning administrator enforcing the jurisdictions around your airport. List all that apply.

SECTION XII: BOARD OF ADJUSTMENT

- A. **ESTABLISHMENT:** The Board of Adjustment shall consist of five members appointed by the [redacted] Joint Airport Zoning Board, and each shall serve for a term of three years and until his successor is duly appointed and qualified. Of the members first appointed, one shall be appointed for a term of one year, two for a term of two years, and two for a term for three years. Upon their appointment, the members shall select a chairperson to act at the pleasure of the Board. Members shall be removable by the Joint Airport Zoning Board for cause, upon written charges, after a public hearing.

- A. **ESTABLISHMENT:** The [redacted] shall serve as the Board of Adjustment for the [redacted] Airport Zoning Ordinance.

- B. **POWERS:** The Board of Adjustment shall have and exercise the following powers:
 - 1. Hear and decide appeals from any order, requirement, decision, or determination made by the administrator in the enforcement of this Ordinance.

Comment: This Board may be a newly created board or an existing Board of Appeals or Adjustment. In either case, it is recommended that the Board of Adjustment not be comprised of elected officials.

2. Hear and decide special exceptions to the terms of this Ordinance upon which such Board of Adjustment under such regulations may be required to pass.
3. Hear and decide specific variances.

C. PROCEDURES:

1. The Board of Adjustment shall adopt rules for its governance and procedure in harmony with the provisions of this Ordinance. Meetings of the Board of Adjustment shall be held at the call of the chairperson and at such other times as the Board of Adjustment may determine. The chairperson, or in his absence the acting chairperson, may administer oaths and compel the attendance of witnesses. All hearings of the Board of Adjustment shall be public. The Board of Adjustment shall keep minutes of its proceedings showing the vote of each member upon each question or, if absent or failing to vote, indicating such fact, and shall keep records of its examinations and other official actions, all of which shall immediately be filed in the office of the zoning administrator and shall be a public record.
2. The Board of Adjustment shall make written findings of facts and conclusions of law giving the facts upon which it acted and its legal conclusions from such facts in reversing, affirming, or modifying any order, requirement, decision, or determination which comes before it under the provisions of this ordinance.
3. The concurring vote of a majority of the members of the Board of Adjustment shall be sufficient to reverse any order, requirement, decision, or determination of the zoning administrator or to decide in favor of the applicant on any matter upon which it is required to pass under this Ordinance, or to effect any variation in this Ordinance.

SECTION XIII: APPEALS

- A. Any person aggrieved, or any taxpayer affected by any decision of the zoning administrator made in his administration of this Ordinance may appeal to the Board of Adjustment. Such appeals may also be made by any governing body of a municipality, county, or airport zoning board, which is of the opinion that a decision of the zoning administrator is an improper application of this Ordinance as it concerns such governing body or board.
- B. All appeals hereunder must be commenced within 30 days of the zoning administrator's decision, by filing with the zoning administrator a notice of appeal specifying the grounds thereof. The zoning administrator shall forthwith transmit to the Board of Adjustment all the papers constituting the record upon which the action appealed from was taken. In addition,

any person aggrieved, or any taxpayer affected by any decisions of the zoning administrator made in his administration of this Ordinance who desires to appeal such decision shall submit an application for a variance, by certified mail, to the members of the Board of Adjustment in the manner set forth in Minnesota Statutes Section 360.068, Subdivision 2.

- C. An appeal shall stay all proceedings in furtherance of the action appealed from, unless the zoning administrator certifies to the Board of Adjustment after the notice of appeal has been filed with it, that by reason of the facts stated in the certificate a stay would, in his opinion, cause imminent peril to life or property. In such case, proceedings shall not be stayed except by order of the Board of Adjustment on notice to the zoning administrator and on due cause shown.
- D. The Board of Adjustment shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. Upon the hearing, any party may appear in person, by agent, or by attorney.
- E. The Board of Adjustment may, in conformity with the provisions of this ordinance, reverse or affirm, in whole or in part, or modify the order, requirement, decision or determination appealed from and may make such order, requirement, decision or determination, as may be appropriate under the circumstances, and to that end shall have all the powers of the zoning administrator.

SECTION XIV: JUDICIAL REVIEW

Any person aggrieved, or any taxpayer affected by any decision of the Board of Adjustment, or any governing body of a municipality, county, or airport zoning board, which is of the opinion that a decision of the Board of Adjustment is illegal may present to the District Court of ~~regulate with the name of the appropriate County~~ County a verified petition setting forth that the decision or action is illegal, in whole or in part, and specifying the grounds of the illegality. Such petition shall be presented to the court within 30 days after the decision is filed in the office

of the Board of Adjustment. The petitioner must exhaust the remedies provided in this Ordinance before availing himself of the right to petition a court as provided by this section.

SECTION XV: PENALTIES

Every person who shall construct, establish, substantially change, alter or repair any existing structure or use, or permit the growth of any tree without having complied with the provision of this Ordinance or who, having been granted a permit or variance under the provisions of this Ordinance, shall construct, establish, substantially change or substantially alter or repair any existing growth or structure or permit the growth of any tree, except as permitted by such permit or variance, shall be guilty of a misdemeanor and shall be punished by a fine of not more than \$1,000 or imprisonment for not more than 90 days or by both. Each day a violation continues to exist shall constitute a separate offense. The airport zoning administrator may enforce all provisions of this Ordinance through such proceedings for injustice relief and other relief as may be proper under the laws of Minnesota Statutes Section 360.073 and other applicable law.

SECTION XVI: CONFLICTS

Where there exists a conflict between any of the regulations or limitations prescribed in this Ordinance and any other regulations applicable to the same area, whether the conflict be with respect to the height of structures or trees, the use of land, or any other matter, the more stringent limitation or regulation shall govern and prevail.

SECTION XVII: SEVERABILITY

A. In any case in which the provision of this Ordinance, although generally reasonable, is held by a court to interfere with the use or enjoyment of a particular structure or parcel of land to such an extent, or to be so onerous in their application to such a structure or parcel of land, as to constitute a taking or deprivation of that property in violation of the constitution of this state or the constitution of the United States, such holding shall not affect the application of this Ordinance as to other structures and parcels of land, and to this end the provisions of this Ordinance are declared to be severable.

B. Should any section or provision of this Ordinance be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the Ordinance as a whole or any part thereof other than the parts so declared to be unconstitutional or invalid.

SECTION XVIII: EFFECTIVE DATE

This ordinance shall take effect on the _____ (replace with a number) day of _____ (replace with the month) _____, 20__ (replace with the year) _____.

Copies thereof shall be filed with the Commissioner through the Office of Aeronautics, State of Minnesota, and the Register of Deeds, _____ (replace with a list of the appropriate filing jurisdiction) _____ County(s), Minnesota.

Passed and adopted after public hearing by the _____ (replace with the name of the zoning board) Joint Airport Zoning Board this _____ (replace with a number) day of _____ (replace with the month) _____, 20__ (replace with the year) _____.

Chairperson

Member

Member

Member

Member

EXHIBIT A

_____(replace with the chapter name)____ AIRPORT ZONING ORDINANCE

This Ordinance affects all or a portion of the following sections of land:

NAME AND NUMBER OF TOWNSHIP	AIR SPACE OBSTRUCTION ZONING: Section IV of Ordinance; Page(s) _____ of Zoning Map.	LAND USE SAFETY ZONING: Section V of Ordinance; Page(s) _____ of Zoning Map.
_____ Township T ____ N R ____ W	Sections:	Sections:
_____ Township T ____ N R ____ W	Sections:	Sections:
_____ Township T ____ N R ____ W	Sections:	Sections:
_____ Township T ____ N R ____ W	Sections:	Sections:
_____ Township T ____ N R ____ W	Sections:	Sections:

**FLYING CLOUD AIRPORT
JOINT AIRPORT ZONING BOARD**

**Thursday, March 18, 2010
Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie, MN**

MINUTES

Rick King, Chair, called the Flying Cloud Airport Joint Airport Zoning Board meeting to order at 4:05 p.m. The following were in attendance:

Members: Rick King, Chair
Glen Markegard, City of Bloomington
Steve Peterson, City of Bloomington
Kate Aanenson, City of Chanhassen
Jon Duckstad, City of Eden Prairie
Joseph Helkamp, City of Shakopee
Julie Klima, City of Shakopee
Roy Fuhrmann, Metropolitan Airports Commission
Molly Sigel, Metropolitan Airports Commission

Others: Scott Kipp, Michael Franzen, City of Eden Prairie; Deb Sorenson, Mn/DOT;
Elaine Koutsoukos, Metropolitan Council; Tom Anderson, Cameron Boyd, Jenn
Felger, Eric Johnson, Chad Leque, Amanda Nyren, Dennis Probst, Bridget Rief,
MAC Staff

1. APPROVAL OF MEETING AGENDA

Chair King requested to amend the agenda by adding an item regarding MAC representatives on the FCM Joint Airport Zoning Board.

IT WAS MOVED BY HELKAMP, SECONDED BY DUCKSTAD, TO APPROVE THE AGENDA AS AMENDED. THE MOTION CARRIED BY UNANIMOUS VOTE.

2. APPROVAL OF JANUARY 28, 2010 FCM JAZB MEETING MINUTES

IT WAS MOVED BY HELKAMP, SECONDED BY DUCKSTAD, TO APPROVE THE MINUTES OF THE JANUARY 28, 2010 FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD MEETING AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

3. PUBLIC COMMENTS

No public comments were received.

4. MAC REPRESENTATIVES ON FCM JAZB

Chair King stated that MAC representative, Commissioner Sherry Stenerson, has been called to active duty and will no longer be able to serve on the Board. The MAC has appointed Commissioner Lisa Peilen as her replacement and has requested that Roy Fuhrmann, MAC staff, be named as an alternate. There were no objections to the request.

5. UPDATED CITY OF EDEN PRAIRIE ECONOMIC ANALYSIS

Michael Franzen, Eden Prairie City Planner, reported that City Staff re-evaluated the development and population potential within the proposed safety zones using the State Model Ordinance criteria including: 1) ratio of site area to building plot area, 2) building plot area, and 3) maximum site population. Mr. Franzen presented the following information regarding the four development alternatives based on that criteria:

Alternative 1 – Development according to the City's 2008 adopted Guide Plan

- Building square footage – 0
- Population – 52
- Housing Units – 21
- Value - \$11,700,000
- City Tax - \$33,930

Alternative 2 – State Model Ordinance

- Building square footage - 90,833
- Population – 375
- Housing Units – 0
- Value - \$10,899,960
- City Tax - \$38,180

Alternative 3 – Development on MAC property

- Building square footage- 373,506
- Population – 1,542
- Housing Units – 0
- Value - \$44,820,720
- City Tax - \$156,783

Alternative 4 – Maximum development (Alternative 1 and Alternative 3)

- Building square footage – 373,506
- Population – 1,542
- Housing Units – 21
- Commercial Value - \$44,820,720
- Residential Value - \$11,700,000
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6. DRAFT FCM ZONING ORDINANCE

Chair King stated that the objective for today's meeting is to provide direction to staff as to whether the draft zoning ordinance is adequate or if there are additional changes that should be made prior to moving forward with the public comment and public hearing process. He noted the departures from the provisions of the State Model Zoning Ordinance with regards to Safety Zones A and B based on the Board's deliberations.

Chad Leque, MAC Staff, reviewed the following considerations used in drafting the ordinance:

- Safety Considerations
 - Based on the findings of the 11/06/09 HNTB FCM Safety study the probability of an accident in the areas where people could use/occupy the land based on the Land Use Guide Plan Map 2030 in the Eden Prairie Comprehensive Plan Update is well below the FAA collision standard of one accident per 10 million operations.
 - The Berkeley Study found that in 95% of aircraft accidents around GA airports the pilot had control of the aircraft prior to impact.
 - By virtue of the park agreement, VOR clear area, overlapping of RPZs with state safety zones on other runways, and water areas, when considering the A and B safety zones as one area outside the RPZ on each runway end, maximum contiguous open area acreages in the respective runway safety zones range from 20.93 acres to 65.38 acres.
 - A conservative estimate of the crash site area for the largest design aircraft at FCM is 5,000 square feet.
 - The RPZ areas, along with providing a minimum of 20 acres of contiguous open space in the remaining State Safety Zones, provide adequate clear areas in proximity to the extended runway centerlines around FCM based on the pilot control statistics and crash site characteristics
 - Based on the probability calculations for impacting a structure, the probability of impacting a structure on all of the prospective MAC-owned non-aeronautical development properties is well below the FAA Collision Standard of one in 10 million operations.

- Economic Impact Considerations
 - Commercial Development Value - \$150 million
 - Residential Value - \$11.7 million
 - Total Property Taxes - \$559,596

Mr. Leque noted that the economic impacts were derived by subtracting the maximum development impacts with the State Model Ordinance applied from the unrestricted development impacts.

Mr. Leque reviewed the process for addressing structure heights and trees around FCM including the FAA 7460 Obstruction Evaluation Process and MAC Airspace Surveys. The draft ordinance leverages the FAA 7460 review process as the initial screening

process for the approval of structures in the vicinity of the airport that meet the FAA's 7460 review criteria. The draft ordinance also includes language regarding MAC conducted surveys to assess trees to determine if any trees, primarily in the approach areas, are a problem and the process to deal with such trees.

In response to questions, Mr. Leqve noted that the ordinance gives deference to FAA rulings, ie: if a 7460 review states a structure can be taller than indicated in the ordinance, no variance is required. The horizontal surface is out of Part 77 and is an FAA surface. The State Model Zoning Ordinance treats that surface as if it is a non-negotiable surface from a safety perspective, however the FAA uses the Part 77 surfaces as a trigger for further evaluation that sometimes result in a determination of no hazard.

Mr. Leqve also reviewed the policing powers outlined in Minnesota Statutes noting the airspace zoning limits extend 1.5 miles from the airport boundary and two miles on approaches and land use zoning extends one mile around the airport.

The two main deviations from the State Model Zoning Ordinance as it relates to airspace zoning in the draft ordinance are the leveraging of the FAA 7460 Review Process and the separate process for addressing trees.

With regards to the land use zoning portion of the draft ordinance, the following is included in the draft ordinance:

- Zone C – extends one mile from the airport boundary
- Zone A – co-terminus with Federal Runway Protection Zone
- Zone B – removed site acre/structure limitations and site area to building plot area ratios and population criteria
- Added the ability for permitted residential areas in existing and planned residential land use areas in Zone B (areas that were specifically evaluated as part of the HNTB safety analysis)
- Added open space requirements for Zone B

Mr. Leqve recommended that properties with MAC easements be added to Exhibit A.

7. ESTABLISH PUBLIC REVIEW AND PUBLIC HEARING PLAN

Mr. Leqve noted that a revised Public Comment Period and Hearing Process schedule was handed out to the Board and recommended that the Public Comment Period begin on April 8 and end at 5:00 p.m. on May 7, 2010. The Public Hearing will be held on April 29, 2010, at Eden Prairie City Hall with an open house for the public from 5:00 p.m. – 6:30 p.m., a public presentation at 6:30 p.m., and public hearing comments beginning at 7:00 p.m.

The Draft Ordinance could be available for viewing at the MAC General Offices, City Halls of each member city on the Board, the MAC web site and any city web sites that choose to post the notice and draft document.

The Notice would be published in the Pioneer Press, Star Tribune, Eden Prairie News, Eden Prairie Sun Current and the State Register. Potential publication dates were provided.

Written notice would be mailed to the governing boards of all of the affected cities and Hennepin County and Scott County as well as to the Metropolitan Airports Commission's official mailing list. MAC staff would request from the City of Eden Prairie the mailing addresses for the owners of all of the properties located within Zones A and B for purposes of distributing the notice to affected property owners.

Mr. Leqve also reviewed details regarding the open house and public hearing noting that the entire Board should be at the Hearing and that Chair King would serve as the Chair for the public hearing. A transcript of the hearing would be prepared for the Board's official record.

Chair King noted that staff is seeking direction to proceed with the public comment period/public hearing process and is not requesting approval of the ordinance at this time. He asked if Board Members had any comments or changes to the draft ordinance as presented.

Questions were raised regarding the make-up of the Board of Adjustment, whether there are any unincorporated lands in Hennepin County with regard to the Designated Zoning Administrators section, and if the City of Bloomington should be referenced in the Designated Zoning Administrators section since there are no impacts to Bloomington.

Clarification was requested as to whether Scott County and Carver County should be included in the Designated Zoning Administrators section and if the language regarding Abandoned or Deteriorated Nonconforming Uses is consistent with State Law. It was recommended that a reference of "or any successor" be added to the definition of the FAA 7460 Obstruction Evaluation.

IT WAS MOVED BY HELKAMP, SECONDED BY PETERSON, THAT THE JOINT AIRPORT ZONING BOARD SET A PUBLIC HEARING ON THE DRAFT ORDINANCE AS PRESENTED WITH MINOR EDITS AT THIS MEETING; THAT THE HEARING BE HELD ON APRIL 29, 2010 AND THAT THE PUBLIC COMMENT PERIOD ON THE DRAFT ORDINANCE COMMENCE ON APRIL 8, 2010 AND CLOSE AT THE END OF BUSINESS ON MAY 7, 2010. THE MOTION CARRIED BY UNANIMOUS VOTE.

8. NEXT MEETING DATE

Chair King proposed May 27th and June 17th as the next meeting dates of the FCM JAZB.

The meeting was adjourned at 5:00 p.m.

Flying Cloud Airport Joint Airport Zoning Board

Meeting Agenda

Thursday, May 27, 2010

4:00 P.M.

Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie

Agenda Items

1. Approval of Meeting Agenda
2. Approval of March 18, 2010 FCM JAZB Meeting Minutes
3. Review of 2009 and 2010 Aircraft Incidents at FCM in the Context of the Safety Analyses Conducted to-date
4. Review of Public Comments and Draft Responses from the First Public Comment Period/Hearing
5. City of Eden Prairie Input from May 18, 2010 City Council Meeting (materials related to this item will be provided at the meeting)
6. Next Meeting Date

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8. NEXT MEETING DATE

Chair King proposed May 27th and June 17th as the next meeting dates of the FCM JAZB.

The meeting was adjourned at 5:00 p.m.

MEMORANDUM

TO: FCM Joint Airport Zoning Board (JAZB)

FROM: Chad E. Leque, Manager – Aviation Noise and Satellite Programs

SUBJECT: **REVIEW OF 2009 AND 2010 AIRCRAFT INCIDENTS AT FCM IN THE CONTEXT OF THE SAFETY ANALYSES CONDUCTED TO-DATE**

DATE: May 19, 2010

At the August 13, 2009 FCM JAZB meeting the Board turned its focus to the safety standards that result in the state safety zone dimensions and the related land use restrictions that are outlined in the State Model Zoning Ordinance. As part of this discussion the Board requested clarification from the Mn/DOT representatives on the specific safety criteria that result in the safety zone dimensions and the related development restrictions.

Based on the information provided at the meeting on the issue of foundational safety criteria, the Board directed MAC staff to conduct a safety study to provide the Board with further clarification on the question of zoning requirements necessary to ensure a “reasonable standard of safety.”

Consistent with the Board’s direction the MAC retained the HNTB Corporation to conduct the analysis, and at the November 19, 2009 FCM JAZB meeting the analysis was presented to Board members by HNTB representatives.

As was detailed in the HNTB analysis, the past 20 years of accident data (1989 – 2008) for FCM was utilized to establish the accident rate in the safety study probability calculations. In 2009 and 2010 there have been three additional aircraft accidents at FCM. To evaluate the effect of these incidents on the conclusions/findings provided in the November 6, 2009 HNTB Safety Study memorandum, MAC staff requested that HNTB recalculate the accident probabilities taking these accidents into account. As is detailed in the attached May 18, 2010 memorandum from HNTB, “the findings and conclusions of the November 6, 2009 Memo to the Joint Airport Zoning Board are still applicable” when accounting for the 2009 and 2010 FCM accidents in the safety study calculations.

In addition to the HNTB analysis, at the January 28, 2010 FCM JAZB meeting MAC staff presented a memorandum dated January 21, 2010, the subject of which was “*Flying Cloud Airport Zoning Background, Safety Study Summary, and Existing and Future Land Use Considerations in Runway Safety Zones.*” Table 6.2 in the memo established that when applying the pilot control assumption and accounting for adjacent open spaces the probability of impacting a structure on MAC-owned prospective development parcels was less than the FAA Collision Standard of 1.0 accident per 10 million operations in all cases.

To evaluate the effect of the aircraft incidents at FCM in 2009 and 2010 MAC staff used an accident rate of 0.8353 which assumes these accidents occurred between 1989 and 2008 (the data sample used in the November 6, 2009 safety study conducted by HNTB). The following table provides updated figures from Table 6.2 of MAC staff’s January 21st memo assuming the increased accident rate.

Comparison of Accident Probabilities for Prospective MAC-Owned Possible Development Parcels in 2025 to the FAA Collision Standard of One Accident per 10 Million Operations Considering 2009 and 2010 FCM Aircraft Incidents

MAC-Owned Development Parcel	Probability of Accident within Development Parcels (without Accounting for Pilot Control and Adjacent Open Spaces)	Probability of Impacting a Structure (Applying Pilot Control Assumption and Accounting for Adjacent Open Spaces)	FAA Collision Standard
A	0.07	0.00	1.00
B	0.45	0.02	1.00
C	1.33	0.07	1.00
D	2.33	0.12	1.00
E	0.44	0.02	1.00
F	0.19	0.01	1.00
G	0.00	0.00	1.00
H	0.62	0.03	1.00
I	0.24	0.01	1.00
J	0.12	0.01	1.00

Sources: NTSB 1988-2007 data; *California Airport Land Use Planning Handbook (January 2002)* data; Figure 3.2, Land Use Guide Plan Map 2030; MAC analysis.

As is detailed in the above table, in all cases the probability of an aircraft impacting a structure on property that may be developed by the MAC around FCM when applying the pilot control assumption and accounting for adjacent open spaces is less than the FAA Collision Standard of 1.0 accident per 10 million operations.

Based on this analysis, the findings and conclusions of the January 28, 2010 MAC Staff Memo to the Joint Airport Zoning Board are still applicable.

M E M O R A N D U M



The HNTB Companies

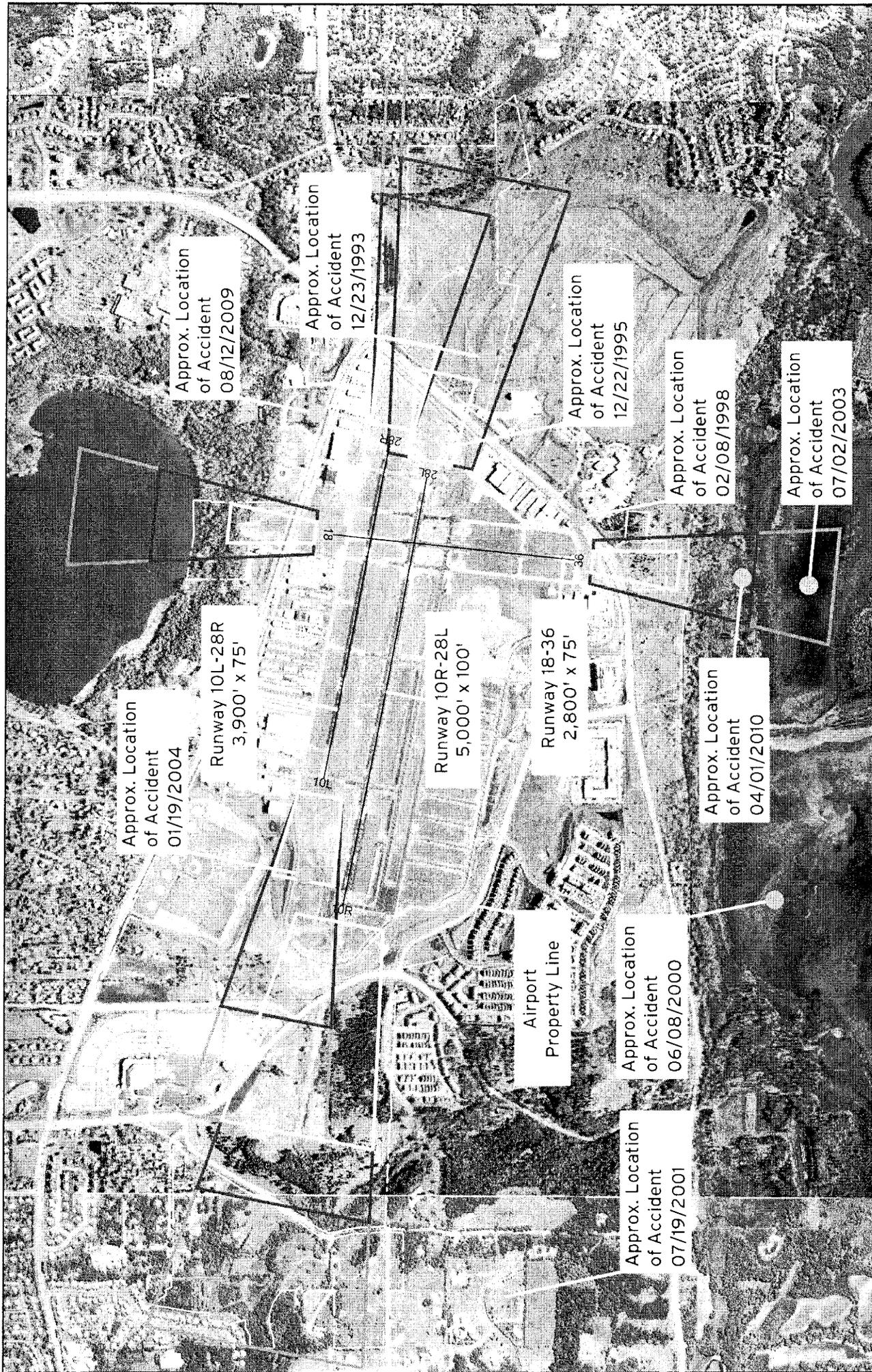
TO: Chad Leqve
FROM: HNTB Corporation (HNTB)
DATE: May 18, 2010
SUBJECT: Analysis of Probability of Aircraft Accidents in Mn/DOT Safety Zones A and B for Runways 10R-28L, 10L-28R and 18-36 at Flying Cloud Airport (FCM) Considering 2009 and 2010 Aircraft Incidents

This memo is in response to your request that HNTB assess the effect on the findings and conclusions of the November 6, 2009 accident probability analysis if the three accidents that have occurred at FCM since the analysis was performed are included in the analysis. Assuming the three accidents occurred between 1989 and 2008, the FCM accident rate in Table 2 would be 0.8353 (31/37.112) accidents per 100,000 operations instead of 0.75447 accidents per 100,000 operations – a 10.7% increase.

The probability of an accident in an analysis area is = (accident rate) x (number of operations at the runway end) x (the distribution of historical accidents that have occurred in the analysis area). The only change from what was calculated previously is the accident rate. Therefore each probability would increase 10.7%. The maximum probability of an accident in an occupant area in Table 8 would change from 0.563 to 0.623 (0.563 x 1.107) accidents per 10 million operations at the Runway 28L end, which is still less than the FAA Collision Standard of 1.0 accident per 10 million operations.¹ When applying the same calculations to the Runway 10R State Safety Zone A and the Runway 28R State Safety Zone B in Table 8 the probabilities are 0.49 and 0.69, respectively. These probabilities are still well below the FAA Collision Standard of 1.0 accident per 10 million operations.

Therefore, the findings and conclusions of the November 6, 2009 Memo to the Joint Airport Zoning Board are still applicable.

¹ In order to have a probability equal to the FAA Collision Standard, the accident rate for this analysis area would have to increase by 1.0/0.563 or 1.776. From Table 2, the number of accidents in the 20-year period would therefore have to equal 1.776 x 28 or 50 accidents, which is 22 (50-28) additional accidents.



Note:

- Location of accidents 04/16/1990, 09/08/1996, 10/09/2004, 08/12/2009, and 04/01/2010 was not clear in NTSB accident report.
- Accident 02/13/1994 and 10/05/2009 are located outside the limits of the figure.

- FAA Runway Protection Zone
- Mn/DOT State Safety Zone A
- Outside Runway Protection Zone
- Mn/DOT State Safety Zone B

**1989-2010 FCM Related Accidents
Located in Mn/DOT Safety Zones or Off Airport**

Source: NTSB, MAC and HNTB Analysis, May 2010
Aerial Photo: 2009

MEMORANDUM

TO: FCM Joint Airport Zoning Board (JAZB)

FROM: Chad E. Leqve, Manager – Aviation Noise and Satellite Programs

SUBJECT: **REVIEW OF PUBLIC COMMENTS AND DRAFT RESPONSES
FROM THE FIRST PUBLIC COMMENT PERIOD/HEARING**

DATE: May 19, 2010

The public comment period on the Draft FCM Zoning Ordinance began on April 8, 2010 and was open through the close of business on May 7, 2010. The process included a public hearing on April 29, 2010 at the Eden Prairie City Hall, Council Chambers. An open house was held before the public hearing from 5:00 pm – 6:30 pm, an informational presentation by MAC staff was provided at 6:30 pm and the public comments began at 7:00 pm.

A total of 10 written comments were received during the comment period. A total of 16 people attended the public hearing; one individual testified at the public hearing.

In general, the comments that were received focused on questions related to the effect the ordinance would have on specific properties located around FCM. The attached document titled *Draft FCM Zoning Ordinance Public Comments and Draft Responses from the First Public Comment Period/Hearing* includes all of the correspondence received during the public comment period, a transcript of the public hearing and a matrix detailing all of the draft responses to the comments.

Draft FCM Zoning Ordinance
Public Comments and Draft
Responses from the First Public
Comment Period/Hearing

May 19, 2010

(452) 484824c

Question,

Is all of the research at the present time for

the purpose of ~~some day~~ ^{to} justify

and increasing the traffic plus the

size of the aircraft landing at the Eden Prairie Airport.

There have already been 3 crashes in E.P. in 2010!! ^(1 year) Don't Hoff

Doneta Hoffman
3256 Peop O Day Trail
Eden Prairie, MN 55347

1

2

THINGS TO DO

Please share
the newspaper
article at the
meeting. Do
everyone is
informed
concerning the
problems of

3

airports in
residential
areas

ad movie reviews

13

Go!



Donata Hoffman
8856 Peep O Day Trail
Eden Prairie, MN 55347

Sudman is EPHS'
Athena winner — 9



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on a story, call the editor at
942-7285 or e-mail editor@eden
prairienews.com.

CARRI WASH...C-004
HOPKINSON DORSETA
8856 PEEP O DAY TRL
EDEN PRAIRIE MN 55347-2176
4451

Eden Prairie NEWS

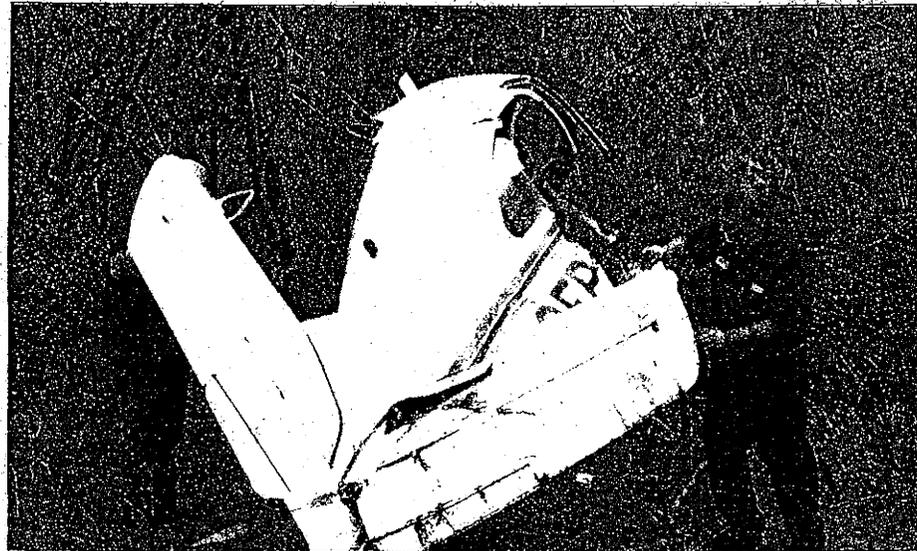
The fact — 3rd crash in EP in 1 year!

Thursday, April 8, 2010

Issue 23/14 (© 2010 Southwest Newspapers)

P.O. Box 44220, Eden Prairie, MN 55344 (www.EdenPrairieNews.com) \$1.00

Southwest Newspapers serving Eden Prairie



PHOTOS BY LEAH SHAFFER

Friday, workers from Wentworth Aircraft removed the remnants of a plane that crashed in Eden Prairie Thursday. The two occupants of the plane were not critically injured after the crash, which occurred just past Flying Cloud Airport in a flooded section of land near the Minnesota River.

'Circumstances worked as well as they could'

Plane's occupants not critically injured after crashing in land flooded by the Minnesota River

By Leah Shaffer

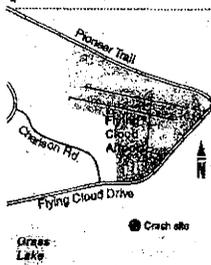
The first thing Alvin Bipes remembers is waking up in his room at Hennepin County Medical Center hours after a plane crash in Eden Prairie injured him and his passenger, Timothy Jacobsen, 58.

Bipes, 56, the pilot of the fixed wing, twin-engine Beech aircraft, suffered a concussion and doesn't remember the details of the crash, but given what he can piece together, "all the circumstances worked out as well as they could, given the situation."

As to the work of the emergency responders on the scene, "they just did a phenomenal job."

The plane crashed just after taking off from Flying Cloud

Site of the plane crash



Graphic by Barbara Nelson



Workers attached a cable to drag the plane from the water, and then pulled it through muck and bramble. Wentworth Aircraft will store the plane in its hangar until insurance investigations are complete.

Airport Thursday afternoon, around 2:40 p.m. Bipes, who's been a pilot for 40 years, and his friend Jacobsen, were headed to New Richmond, Wis., but made it just past the bluffs that overlook the Minnesota River Valley. From there, the plane crashed into a flooded area of Upper

Grass Lake. According to Sgt. Bill Wyffels of the Eden Prairie Police, witnesses saw the plane drop just after take-off.

"Those who were driving by saw the plane declining pretty rapidly," he said. By the time the witnesses got out and looked

"they just saw the splash from the landing."

The plane crashed in an area of Eden Prairie just below a scenic overlook. The crash site is typically farmland, now flooded by the Minnesota River. Accord-

CRASH to page 17

Very happy with townhouse 952 484 8249

Donata Hoffman
8856 Peep O Day Trail
Eden Prairie, MN 55347

Crash

Continued from front

ing to Wyfels, the plane landed in three feet of water, surrounded by muck.

Just after the crash, two witnesses and two officers scrambled down the steep hill, waded through brush and mud and helped remove the two occupants, who were conscious. Emergency personnel then worked to transfer the passengers up the hill and into emergency vehicles. Bipes suffered from some cracked bones and lacerations but as of the interview Monday expected to get out of the hospital soon. Jacobsen had gone home already, according to Bipes.

Unusual year

This was the third small plane crash in less than a year in Eden Prairie. In August 2009, two died in a plane crash just off of Pioneer Trail, (Wayne Monson, 53, of Hibbing, Minn., and Rivka Chayka-Lev, 29, of Apple Valley). On Oct. 5, 2009, pilot Robert Fiske was pulled to safety after his plane crashed in the wooded section of a northern subdivision of Eden Prairie. (See sidebar for updates on the NTSB investigations of those crashes).

According to NTSB reports, the last Flying Cloud Airport accident prior to 2009 occurred in 2007 and involved minor injury.

Prior to 2009, the previous fatal accident had occurred on July 19, 2001, when Joel W. Houtun, 37, of Benson died when his single engine Mooney M-20R crashed into trees on Beverly Drive soon after takeoff at 5:30 p.m. Though, prior to last summer, Eden Prairie had a number of quiet years, multiple accidents within a 12-month time period is not unprecedented. According to NTSB accident reports, in 1972, for instance, the airport had a total of five accidents, two of those involving fatalities. Increased flight traffic would not account for any uptick in accidents as, the total number of take-offs and landings at Flying Cloud has decreased over the years, from a

Investigations still ongoing for two other crashes

...investigations have not yet been released in the case of the plane crashes in Eden Prairie in 2009. For the Aug. 13 crash that resulted in two fatalities, the National Transportation Safety Board lists the status of the investigation as "preliminary." As part of that preliminary report, no official cause of the crash is included. Only when the investigation is completed will the preliminary report be replaced with a final report and probable cause of crash. The report in its current form includes witness observations and states:

Witnesses reported seeing the airplane depart FCM and climb to an altitude of 600 feet above ground level (agl) or less. The airplane made a left hand turn as it was parallel to the north side of runway 28R in the direction of takeoff. Witnesses reported the airplane was low and slow when it struck the trees. The airplane was seen to strike the trees and to lose altitude throughout the

flight. The witnesses stated the left wing dropped and the nose descended just prior to the airplane impacting the terrain."

In the case of the Oct. 5 crash no final report is available as of yet, but the crash is described as follows:

The pilot reported that the airplane had just undergone its annual maintenance inspection, and that he was flying it back to FCM. He reported that about eight miles from FCM, the left engine stopped producing power. He completed the shutdown checklist for the left engine and feathered the propeller. He applied full power to the right engine, but the airplane continued to lose altitude. There was no suitable landing area so he executed a forced landing to a large wooded area away from houses. He lowered the gear during the forced landing and pulled the right engine to idle position with the trees. A small fire on the right side of the airplane ensued but was quickly doused."

Source: NTSB

high of 157,712 in 2006 to 117,209, in 2009.

All three accidents involve older planes, and what appear to be mechanical errors. The August accident involved a Beechcraft 18 built in 1938; the October accident was a Tecumseh D-16A from 1946 and Thursday's accident was a 1937 Beech.

Bipes, of Plymouth, has known the plane for a number of years, and has never had a problem with it, he said. The plane is owned by Fischer Air in Farmington.

The plane crashed on land owned by members of the Uppgala Hunting Club, which include Dr. Arnold Leonard, who was on the scene Friday as contractors recovered the plane from the muck.

Chuck Wentworth, co-owner of Wentworth Aircraft, said the plane will be stored in that company's hangar in Lakeville. Wentworth holds onto it until the insurance investigations are complete.

Leonard said his main concern was that of the safety of the two plane passengers. In a more typical year, the area where the plane crashed would be dry land.

"They are very lucky," he said.

A CLICK AWAY

www.edenprairienews.com

Visit our Web site to see a slide show with more photos from the plane recovery and links to the NTSB report.

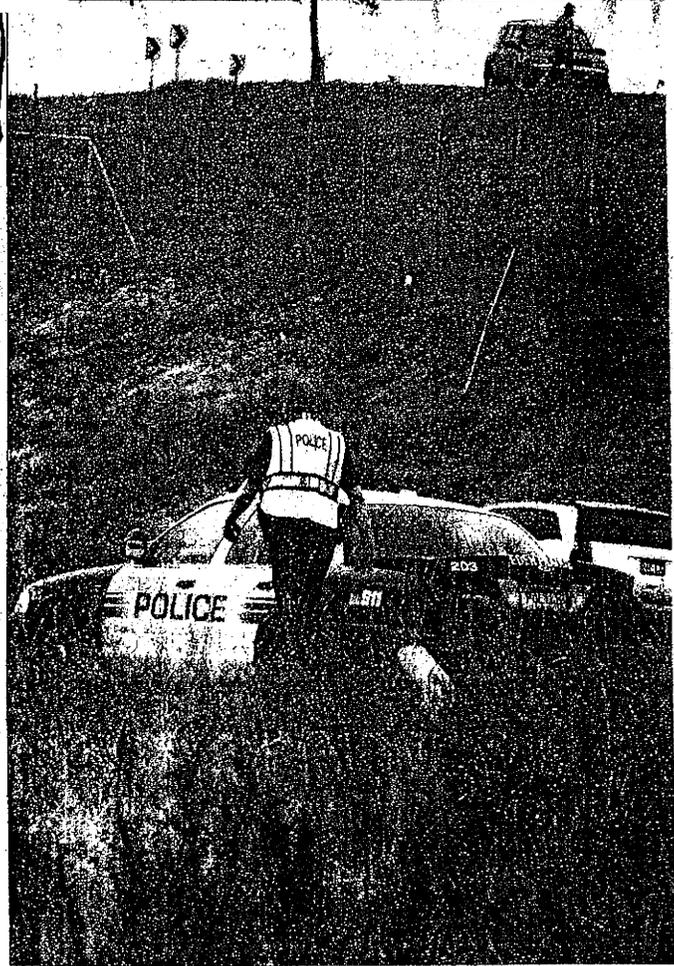


PHOTO BY LEAH SHUFF

Police were quick to secure the scene of the crash Thursday afternoon. Two officers and two witnesses scrambled down the hillside just off Flying Cloud Airport and jumped through muck and waist-deep water to access the plane's occupants. Pilot Alvin Bipes, 56, and passenger Timothy Jacobsen, 58, are recovering from their injuries, which include some cracked bones and lacerations.

A little klezmer with your salad
MacPhail Center | 501 S. 2nd St., Minneapolis
"Bach's Lunch Series" will present "19th Century
Klezmer Music from the Old World," featuring five mu-
sic teachers. Free. 12:15 to 1 p.m.

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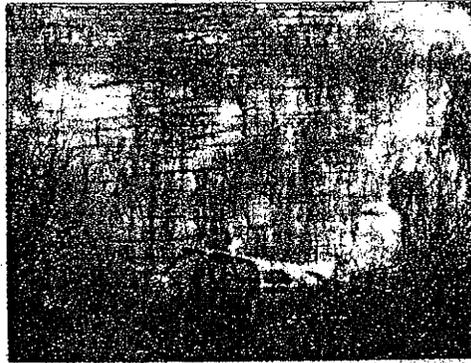
Train death case could drag on for years

• Despite a jury's verdict and judge's sanction in four deaths, families await resolution of their case against Burlington Northern.

By PAUL LEVY • plevy@startribune.com

They were four young people "at an age of transition," trying to find their way. But 6 1/2 years after they were killed in a horrific train-car accident in Anoka, and two years after a historic \$21.6 million jury verdict, their court case has turned one more page, with no immediate end

Plane crashes at river's edge



DAVID MOLES • dmoles@startribune.com
The Beechcraft 95 Travel Air came to rest in about 3 feet of water in a marshy area along the Minnesota River shortly after taking off from Flying Cloud Airport in Eden Prairie about 2:40 p.m. Thursday.

• The twin-engine aircraft had just left Flying Cloud Airport. The pilot and passenger escaped serious injury.

By ABBY SIMONS
asimons@startribune.com

A pilot and passenger escaped life-threatening injuries Thursday after their small plane crash-landed on the marshy shores of the Minnesota River near Flying Cloud Airport in Eden Prairie.

The twin-engine Beechcraft 95 Travel Air had just taken off from the airport in a southerly direction about 2:40 p.m. when it lost power, said Eden Prairie police Sgt. Bill Wyffels. The plane crash-landed in a marshy area along the river, just south of Flying Cloud Drive, less than a half-mile from the airport, he said.

"It was not a straight-down thing,"

Wyffels said. "It was a float-down, and it finally hit the ground."

Pilot Alvin Bipes, 56, and passenger Timothy Jacobson, 58, were taken by ambulance to Hennepin County Medical Center, where they were in satisfactory condition Thursday night, hospital spokeswoman Christine Hill said.

The plane was en route to New Richmond, Wis., a trip of about 60 miles, when it crashed, city of Eden Prairie spokeswoman Katie Beal said.

Wyffels said two witnesses at the airport immediately knew something was wrong when "they saw the (plane) decline when it should be inclining." Motorists on Flying Cloud Drive also saw

Crash continues on B4 ▶

quite risky

OPIN

Scummy times in Eden Prairie

I travel frequently for work and in a business setting or even just in casual conversation in an elevator or a pub people typically get around to asking me where I live.

"Minnesota," I say proudly, beaming like a new dad holding a drooling baby.

This often brings a look similar to that of someone trying to get a popcorn husk out from between two teeth using their tongue. The eyes pan left and right. The lips purse and pucker. The head finally tilts.

"You got that big mall there, right?"

That dang Mall of America. Now that Jesse "The Body" Ventura is out of the public eye, spending most of his time playing golf in disguise up at the TPC in Blaine, the mammoth mall in Bloomington is the only conversation I get in response to "Minnesota."

Of late, however, I have decided to embark on a mini education of what is in my humble opinion our biggest draw.

"We have lots of lakes," I now say with authority. "In fact, on our license plates and in our state motto we proclaim to be the Land of 10,000 Lakes. And here is a little secret. We have closer to 15,000. But we are so impressed with ourselves we don't even count the small ones! Ha, ha! What do you make of that?"

Long pause, tongue back in action. Eyes scan the room looking for an escape route.

"Well, by gum that is a heap o' lakes, Steve. Good for you and all of your Minnesota people for them lakes."

I will then often go on to regale any and all listeners with tales of lake names, lake locations, the importance of knowing lake depth, things we like to do on or in the lakes (fish, ski, swim, throw stones). And in an hour or two I guarantee you they have added "lakes" to "mall" in their limited vocabulary of what Minnesota has to offer.

Even with my moderate understanding of Minnesota topography I was shocked to read that the DNR is demanding that Eden Prairie locate, identify, catalog and begin maintenance on all of its 900 storm ponds.

Nine hundred ponds? In Eden Prairie? I was stunned. If you had asked me to take a guess at how many I might have said seven. Maybe 15. But 900? Wow.

The city's public works director said this could be extremely expensive to undertake. No doubt.

That got me to thinking of ways we could use this directive to our advantage.

For the enjoyment of our local citizens and perhaps to draw more people to our robust commercial, entertainment and outdoor offerings, which would help offset the cost of the task.

First we best comply with the folks at the state. They get testy when you ignore them. In fact, let's give them more than what they asked for. Let's get those ponds all categorized and cleaned up and put a canoe on every shore. But, and this is indeed no small request, I say let's also name each one.

I was thinking if we took this year's Eden Prairie senior class and maybe all of the teachers and school staff in the district, that should give us about 900 names. I believe we could get some momentum for this and it would no doubt make national headlines, shining the bright spotlight of the world on our community. Ka-ching!

Or even better, we could ask one of the second or third-grade classes in the EP elementary system to select names for all of them based on each pond's unique characteristics.

Can you imagine the fantastic creative potential of unleashing those wonderful little imaginations on this dilemma? There would likely be Stinky Pond, Creepy Pond, Shaped Like a Dog Pond, Ducky Pond, Really Tiny Pond I Fell Into Once and Hurt My Knee, and undoubtedly many, many Scummy Ponds.

And this brings me to my last idea. Let's ride this all the way. Let's change our city motto.

I can see it now.

Eden Prairie - We got scum. Lots of scum. Come see. Bring your wallet.

I am so loving this.



STEVEN STROMBERG

life
in eden

Eden Prairie resident Steven Stromberg's humor column appears twice monthly.

NOTICE OF PUBLIC HEARING AND PUBLIC
COMMENT PERIOD ON FLYING CLOUD
AIRPORT ZONING ORDINANCE

The ponds
are already
around
the area!

The Joint Airport Zoning Board for the Flying Cloud Airport (FCM) is developing an *airport zoning ordinance* for land uses around FCM. The *Draft FCM Zoning Ordinance* limits the height of structures and vegetation and prohibits certain land uses in an area extending approximately 2 miles from the outer boundaries of FCM. The zoning is being conducted as required by Minn. Stat. 360.061 – 360.074 and Minn. Rules 8800.1200 and 8800.2400. Maps that are part of the proposed *Zoning Ordinance* show the precise boundaries for application of the *Ordinance* and the associated proposed restrictions.

The proposed *Zoning Ordinance* would: (1) limit the height of structures and vegetation out to 2 miles to the west of FCM, and out to 1.5 miles in all other areas around the airport; (2) prohibit the development of structures in Zone A; (3) prohibit, in Safety Zone B, the future construction of amphitheaters, hospitals, nursing homes, residential uses, schools, stadiums and ponds or other features which might attract waterfowl or other birds, (however, the proposed restrictions in Zone B do not affect additions to existing residences, residential redevelopment or future residential development in certain permitted residential areas around or near FCM), as well as a requirement for contiguous open space within Zone B of either 20% of the total Zone B acreage or 20 acres, which ever is larger; and (4) prohibit, in Zones A, B and C, the use of land that creates or causes interference with the operations of radio or electronic facilities on FCM or with radio or electronic communications between FCM and aircraft, makes it difficult for pilots to distinguish between Airport lights and other lights, results in glare in the eyes of pilots using FCM, impairs visibility in the vicinity of FCM, or otherwise endangers the landing, taking off, or maneuvering of aircraft in the runway approach areas.

THE PUBLIC COMMENT PERIOD ON THE PROPOSED ORDINANCE WILL COMMENCE AT 8:00 A.M. ON THURSDAY, APRIL 8, 2010, AND CLOSE AT 5:00 P.M. ON FRIDAY, MAY 7, 2010. During this period, written comments will be accepted and must be addressed to:

Ms. Jenn Felger
Secretary to the FCM Joint Airport Zoning Board
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

Comments can also be emailed to jenn.felger@mspmacc.org

A PUBLIC HEARING ON THE PROPOSED ORDINANCE IS SCHEDULED FOR THURSDAY, APRIL 29, 2010, AT THE EDEN PRAIRIE CITY HALL COUNCIL CHAMBERS, 8080 MITCHELL ROAD, EDEN PRAIRIE, MN. THE PUBLIC HEARING WILL BEGIN AT 7:00 P.M. AND LAST UNTIL ALL PERSONS WISHING TO ADDRESS THE BOARD HAVE BEEN HEARD. AN OPEN HOUSE WILL BE HELD PRIOR TO THE PUBLIC HEARING AT 5:00 P.M. FOLLOWED BY A PUBLIC PRESENTATION FROM 6:30 P.M. TO 7:00 P.M.

Copies of the proposed *Zoning Ordinance* will be available for review beginning April 8, 2010, at the following locations: the Metropolitan Airports Commission's Main Office, 6040 28th Avenue South, Minneapolis, Minnesota; and the city halls of the cities of Eden Prairie, Shakopee, Chanhassen and Bloomington. The proposed *Zoning Ordinance* will also be available for review beginning April 8 on the MAC website at www.metroairports.org.

For further information about the public comment period, the open house or the public hearing, please call Jenn Felger at (612) 726-8189.

Felger, Jenn

From: Leque, Chad
Sent: Friday, April 09, 2010 9:09 AM
To: 'lwang000@yahoo.com'
Subject: RE: about airport zoning ordinance

Dear Li and John,

Thank you for your interest in the Flying Cloud Airport (FCM) Zoning Ordinance development process. Your property is located in Zone C. As such, the proposed ordinance imposes no more limitations to the use of your property beyond what exists today with the City of Eden Prairie's compliance with Federal Aviation Administration (FAA) Part 77 airspace obstruction criteria. FAA Part 77 establishes a federal process for the evaluation of structures around airports in the United States. The requirements in Zone C under the proposed Draft FCM Zoning Ordinance exist today around the airport by virtue of the federal Part 77 process.

A copy of the Draft FCM Zoning Ordinance has been mailed to you. If you would like to discuss this in further detail, please do not hesitate to contact me at 612-725-6326.

Sincerely,

Chad Leque
 Manager -- Aviation Noise and Satellite Programs

From: L Wang [mailto:lwang000@yahoo.com]
Sent: Thursday, April 08, 2010 10:55 PM
To: Felger, Jenn
Cc: lwang000@yahoo.com
Subject: about airport zoning ordinance

Hello Ms. Felger,

We just received your letter today regarding "NOTICE OF PUBLIC HEARING AND PUBLIC COMMENT PERIOD ON FLYING CLOUD AIRPORT ZONING ORDINANCE."

1. We would like to know what zone we are in. We have to go to work on your scheduled time. So, we do not have time to go to the scheduled location to get the copy of the zoning. Would you please mail us a copy? 5
2. When we built our house back in 2002, we were not told anything about the regulation/restriction of zoning. Now due to the zoning, our property value will drop, whom should we talk to in order to get us paid for our loss. 6

Thank you in advance for helping us out.

Li Wang and John Xu
 16883 Cedarcrest Dr.
 Eden Prairie, MN 55347
 952-944-3933

05/07/2010

Felger, Jenn

From: Felger, Jenn
Sent: Friday, April 09, 2010 3:53 PM
To: 'CMoos777@aol.com'
Subject: RE: Flying Cloud Airport Zoning Ordinance
 Mr. Moos,

Thank you for your comments regarding the FCM Draft Zoning Ordinance. They will be entered into the public record.

Please note that the comment period runs through May 7th, however the Public Hearing is scheduled for Thursday, April 29th at the Eden Prairie City Council Chambers, 8080 Mitchell Road, Eden Prairie. The Public Hearing will begin at 7:00 p.m. An Open House will be held prior to the Hearing at 5:00 p.m. followed by a public presentation from 6:30 p.m. – 7:00 p.m.

Please contact me if you have any questions regarding the comment period or Public Hearing. If you have any questions on the Draft Ordinance, please contact Chad Leve at chad.levve@mspm.org or 612-725-6326.

Thank you.

Jenn Felger
jenn.felger@mspm.org
 612-726-8189

From: CMoos777@aol.com [mailto:CMoos777@aol.com]
Sent: Friday, April 09, 2010 2:08 PM
To: Felger, Jenn
Subject: Flying Cloud Airport Zoning Ordinance

To: Ms. Jenn Felger

From: Upgrala Hunting Club

We own approximately 1000 acres just south of the Flying Cloud Airport. Most of our property consists of farmland, wooded property and wetlands. However, we do own property suitable for residential development. We will consider any zoning changes which limit our ability to develop this portion of our property as a taking which would require just compensation. Dr. Army Leonard, an owner of our club, plans to attend the meeting on May 7. Please make this comment a part of proceedings. 7

I can be reached at 952 512 0211 if you have any questions. Thank you.

Chuck Moos
 President, Upgrala Hunting Club

05/07/2010

Felger, Jenn

From: Felger, Jenn
Sent: Monday, April 12, 2010 8:20 AM
To: 'Carol Robbins'
Subject: RE: Flying Cloud Airport zoning ordinance

Thank you for your comments. We will enter them into the public record.

Jenn Felger

From: Carol Robbins [mailto:cjrwr@iphouse.com]
Sent: Friday, April 09, 2010 4:08 PM
To: Felger, Jenn
Subject: Re: Flying Cloud Airport zoning ordinance

Ms Jenn Felger,

In response to your request for comments.

Recently an airplane (not the usual size) but a large airplane, came through our area no higher than 200 feet., -- a bit scary to witness.

It is not unusual to hear planes at 10 p.m. One day I thought the plane was coming through our bedroom window.

8

That airport does not belong in this residential setting.

Carol & Bill Robbins
8859 'Peep O'Day Trail
Eden Prairie

Additionally, you can attend a public hearing on April 29, 2010 at the Eden Prairie City Council Chambers, 8080 Mitchell Road, Eden Prairie, MN. The public hearing will begin at 7:00 P.M. An open house will be held prior to the hearing at 5:00 P.M. followed by a public presentation from 6:30 P.M. to 7:00 P.M.

If you would like to discuss this in further detail, please do not hesitate to contact me at 612-725-6326.

Sincerely,

Chad Leque
Manager – Aviation Noise and Satellite Programs

From: TERRANCE KROUTH [terryandchrisk@msn.com]
Sent: Thursday, April 08, 2010 6:18 PM
To: Felger, Jenn
Subject: Airport Zoning Ordinance

Jenn,

I have some questions on the airport zoning ordinance.

1. According to the notice, the zoning ordinance would limit the height of structures and vegetation out to 2 miles to the west to FCM and out to 1.5 miles in all other areas around the airport. In Zone A

What is the current ordinance? What is Zone A?

2. prohibit of amphitheaters, hospitals, nursing homes, residential users, schools, stadiums and ponds or other features which might attract water fowl or other birds in Zone B.

What is Zone B?

3. What are the steps to take to appose this ordinance?

Chris

Hotmail is redefining busy with tools for the New Busy. Get more from your inbox. See how.

Hotmail is redefining busy with tools for the New Busy. Get more from your inbox. See how.

Felger, Jenn

From: Leqve, Chad
Sent: Monday, April 12, 2010 1:24 PM
To: 'TERRANCE KROUTH'
Subject: RE: Airport Zoning Ordinance
Attachments: fcm_proposed_zonesAB.PDF

Chris,

I have attached the map you requested. Regarding the extent of the notice area, State Statute requires that all property owners in the proposed State A and B zones receive notice. However, the FCM JAZB wanted to be more inclusive and decided on a notice area of one mile from the airport, as has been past practice by the City of Eden Prairie on issues related to FCM.

Chad

From: TERRANCE KROUTH [mailto:terryandchrisk@msn.com]
Sent: Friday, April 09, 2010 5:08 PM
To: Leqve, Chad
Subject: RE: Airport Zoning Ordinance

could you please provide me with a map that outlines what zone A looks like and Zone B? Your Notice references these Zone. I need to know the area of land you are referring.

12

Chris

From: Chad.Leqve@mspmact.org
To: terryandchrisk@msn.com
Date: Fri, 9 Apr 2010 09:43:35 -0500
Subject: RE: Airport Zoning Ordinance

Dear Chris,

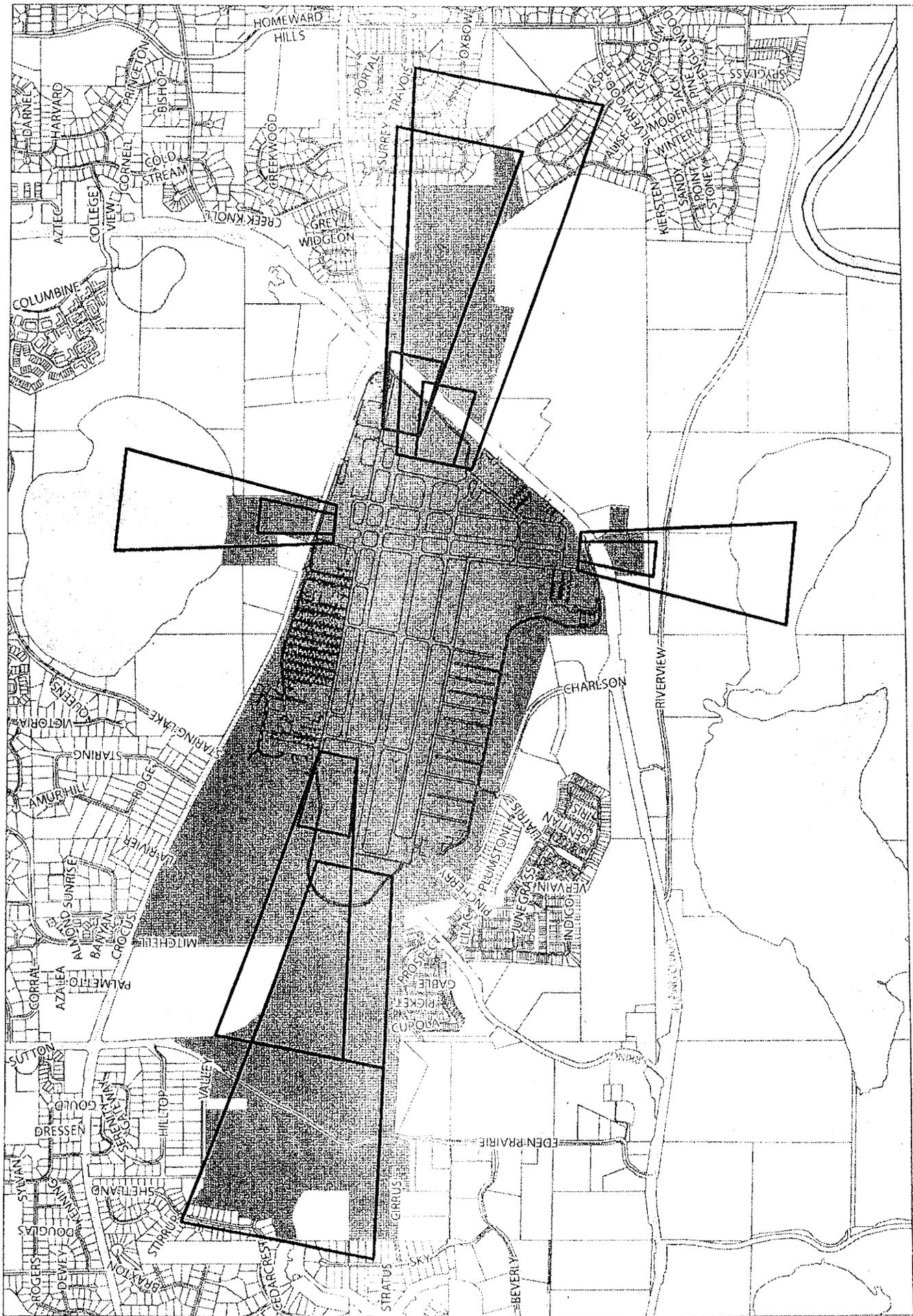
Thank you for your interest in the statutorily required Flying Cloud Airport (FCM) Zoning Ordinance development process. Presently there is not an ordinance in place designating Zone A or B land use restrictions around FCM. However, the proposed ordinance imposes no more limitations to the height of structures on property beyond what exists today with the City of Eden Prairie's compliance with Federal Aviation Administration (FAA) Part 77 airspace obstruction criteria. FAA Part 77 establishes a federal process for the evaluation of structures around airports in the United States. The structure height requirements under the proposed Draft FCM Zoning Ordinance exist today around the airport by virtue of the federal Part 77 process. A depiction of the locations of the recommended Zones A and B, as well as the associated use restrictions can be found in the Draft FCM Zoning Ordinance available on the Internet at the following link:

http://www.metroairports.org/mac/appdocs/headlines/fcm_jazb_public_hearing.html

If you would like to provide comments on the draft document you can submit your comment in writing before 5:00 P.M. on Friday, May 7, 2010 to:

Ms. Jenn Felger
 Secretary to the FCM Joint Airport Zoning Board
 Metropolitan Airports Commission
 6040 28th Ave. S.
 Minneapolis, MN 55450

05/07/2010



FCM Safety Zones

-  Zone A (Federal RPZ)
-  Zone B
-  Municipal Boundaries
-  Parcel Boundaries
-  MAC Property

Felger, Jenn

From: Leqve, Chad
Sent: Monday, April 12, 2010 8:14 AM
To: Felger, Jenn; Probst, Dennis
Subject: FW: Flying Cloud Airport Commission Inquiry
FYI

From: Scott Kipp [mailto:SKipp@edenprairie.org]
Sent: Monday, April 12, 2010 8:11 AM
To: Leqve, Chad
Subject: FW: Flying Cloud Airport Commission Inquiry

Hi Chad,
Just forwarding an email on the JAZB Ordinance for your records.

Scott A. Kipp
Senior Planner

City of Eden Prairie
8080 Mitchell Road
Eden Prairie, MN 55344
Phone 952-949-8489
skipp@edenprairie.org

From: joan [mailto:jefurst@comcast.net]
Sent: Friday, April 09, 2010 6:04 PM
To: Scott Kipp
Subject: Flying Cloud Airport Commission Inquiry

I thought you might want to know that draft zoning ordinance doc on the Mac website is 35MB and 111 pages. I would ask how many people have the time to decipher such a massive document - I sincerely hope someone on your commission will translate this into simple terms for those of us in the path of this expansion. I have lived in the same house since 1981 and I want the same rights on my property as a citizen that lives 3 miles from the airport.

13

Please help us homeowners protect our homes from limitations. I have a husband in the hospital and can't dive into the details.

As you and your team review this proposal, pretend you and your family live within this area.

Thanks for listening.

Felger, Jenn

From: Leqve, Chad
Sent: Wednesday, April 14, 2010 2:53 PM
To: 'janesplaza@yahoo.com'
Subject: RE: FCM - zoning ordinance

Dear Ms. Plaza,

Thank you for your interest in the Flying Cloud Airport (FCM) Zoning Ordinance development process. Your property is located in Zone C. As such, the proposed ordinance imposes no more limitations to the use of your property (in the form of structures or trees) beyond what exists today with the City of Eden Prairie's compliance with Federal Aviation Administration (FAA) Part 77 airspace obstruction criteria. FAA Part 77 establishes a federal process for the evaluation of structures around airports in the United States. The requirements in Zone C under the proposed Draft FCM Zoning Ordinance exist today around the airport by virtue of the federal Part 77 process.

The trees that were removed recently, as you pointed out, were specifically related to the grading activity that was required for the runway extension at FCM. These trees were not removed by virtue of the FAA's Part 77 Airspace Criteria, which the Draft FCM Zoning Ordinance is built upon. Additionally, the Draft Ordinance does not impact use of the soccer fields.

If you would like to discuss this in further detail, please do not hesitate to contact me at 612-725-6326.

Sincerely,

Chad Leqve
 Manager – Aviation Noise and Satellite Programs

From: Jane Plaza [mailto:janesplaza@yahoo.com]
Sent: Monday, April 12, 2010 9:06 AM
To: Felger, Jenn
Subject: FCM - zoning ordinance

Hello Jenn,

I live in Eden Prairie near the the airport and would like more information about the proposed ordinance before making a comment. Unfortunately, I am unable to attend the public hearing on April 29, which is when my questions could likely be answered. Are you able to provide any additional information about the ordinance? I have reviewed the proposal online, but would really like to know in everyday language what it really means for me.

Specifically, some of my concern is with the environment, and what this new zoning could mean for tree removal or plantings. I am still devastated by the number of trees which were removed from MAC property last spring for the runway expansion; I have hoped that some may be re-planted, but is this ordinance just a legal document to justify cutting down trees? My son uses the soccer fields on the north side of airport property; is this proposal going to remove those fields which are leased by MAC to the City of Eden Prairie? Again, I would appreciate any insights you might have.

Thank you,
 Jane Plaza
 15524 Lilac Drive
 Eden Prairie, MN 55347
 952-906-1191

14

05/07/2010

Felger, Jenn

From: Boyd, Cameron
Sent: Thursday, April 22, 2010 4:21 PM
To: 'JPMartin@martinsquires.com'
Cc: Felger, Jenn; Leqve, Chad; Rasmussen, Pam
Subject: RE: Flying Cloud zoning ordinance
Attachments: fcm-JAZB-Notice for 4-29-10 Public Hearing final.pdf

Mr. Martin:

Ms. Felger asked me to respond to your email, below.

MAC does not intend to initiate any eminent domain proceedings for properties zoned by the FCM Zoning Ordinance. It is MAC's position that no taking occurs with the passage of such zoning regulations.

Please feel free to attend the open house, presentation and public hearing on the proposed ordinance. The open house will be held on Thursday, April 29, at 5:00 p.m., at the Eden Prairie Council Chambers, with the presentation to follow at 6:30 and the public hearing at 7:00. I have attached the notice for your convenience.

Cameron M. Boyd
 Attorney
 Metropolitan Airports Commission
 6040 28th Avenue South
 Minneapolis, MN 55450
 612-726-8124 (direct)
 cameron.boyd@mspm.com

From: John P. Martin [mailto:JPMartin@martinsquires.com]
Sent: Thursday, April 15, 2010 1:58 PM
To: Felger, Jenn
Subject: Flying Cloud zoning ordinance

Ms Felger:

We represent a landowner with a parcel in safety zone B of the proposed expansion of Flying Cloud Airport. Can you advise whether the parcels in this zone will be included in an eminent domain proceeding??

15

Thank you.

John Paul Martin
 Martin & Squires, P.A.
 444 Cedar Street, Suite 2050
 St. Paul, MN 55101
 jpmartin@martinsquires.com
 Direct #651-767-3743
 Fax #651-228-9161

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05/07/2010

Felger, Jenn

From: Felger, Jenn
Sent: Friday, May 07, 2010 2:45 PM
To: 'neu5@aol.com'
Subject: RE: ordance at reliever airports

Thank you for your comments. We will include them in the public record.

From: neu5@aol.com [mailto:neu5@aol.com]
Sent: Friday, May 07, 2010 1:58 PM
To: Felger, Jenn
Subject: ordance at reliever airports

My name is Michael Neuharth @ 9610 Eden Prairie Rd. in zone B. I am responding to the new ordinance which you are proposing around the airport. I can not tell the owners of the airport what to do with there property and I would expect the same consideration from you regarding my property. I would like the opportunity to build a pond, develope my property with holding ponds or whatever I see fit. I would be against any restrictions on my property because of the airports location. You were here before me, however you expanded after me and now want to restrict my property. It's the same thing as the Kelly farm east of MSP. Thank you and hope to hear from you soon. My phone number is 952 934 6714. or 612 366 3400

16

May 7, 2010



Ms. Jenn Felger
Secretary to the FCM Joint Airport Zoning Board
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

Re: Flying Cloud Zoning Ordinance

Dear Ms. Felger:

Please accept these comments regarding the proposed Flying Cloud Airport Zoning Ordinance which, if adopted, will have an immediate and permanent impact on real estate owned by Fraser.

17 Fraser is the owner of 2.5 acres of developable land near the Flying Cloud Airport, property ID 2711622140035. This parcel is adjacent to lands owned by the Metropolitan Airports Commission (MAC). Although the parcel is currently zoned as R – Rural District, pronouncements by the City of Eden Prairie and the 2008 Updated Comprehensive Plan of the City designate the parcel for a Low-Density Residential use. Fraser has expected and continues to expect that it will be developed for single-family residential as the highest and best use of the property.

18 We are greatly concerned our land is proposed to be included in a newly established Safety Zone B. MAC confirmed in an email from Amanda Nyren to David Halsey, CFO of Fraser on April 30, 2010, that Fraser's parcel is in a "clear zone" to accommodate the VOR radar system installed in 2009 by MAC. The draft ordinance prohibits as a safety hazard, any land use within Safety Zone B which would "create or cause interference with the operation of radio or electronic facilities on the Airport or with radio or electronic communications between the Airport and aircraft."

19 Our concern is that development of our parcel would be either prohibited or severely restricted by the new ordinance without any compensation for damages by way of loss of value whatsoever. This is to demand that the MAC quantify the damage caused to Fraser and compensate Fraser for such damages.

Please contact me with any questions. Thank you.

Very truly yours,


David Halsey
Chief Financial Officer

DH

cc: Martin & Squires, P.A.

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FLYING CLOUD AIRPORT
JOINT AIRPORT ZONING BOARD

PUBLIC HEARING
REGARDING
FLYING CLOUD AIRPORT ZONING ORDINANCE

HELD ON
APRIL 29, 2010

Transcribed by Angela Ballman

Paradigm Reporting & Captioning, Inc.
1400 Rand Tower
527 Marquette Ave. S.
Minneapolis, MN 55402

1 Chair King: The meeting of the Flying Cloud Airport Joint - Joint
2 Airport Zoning Board will come to order. My name is Rick King
3 and I am the Chair of the Flying Cloud Airport's Zoning Board. I
4 welcome all of you to tonight's Board meeting and public hearing
5 and like to ask the Board members to introduce themselves. Start
6 to my left.

7 Ms. Aanenson: Kate Aanenson. Community Development Director.
8 City of Chanhassen.

9 Mr. McDonald: I'm Jerry McDonald. City Council. City of
10 Chanhassen.

11 Ms. Peilen: I'm Lisa Peilen. I'm the Commissioner of the
12 Metropolitan Airports Commission.

13 Ms. Sigel: I'm Molly Sigel. Commissioner of the Metropolitan
14 Airports Commission and represent Flying Cloud Airport, one of
15 the airports in our district.

16 Mr. Helkamp: Joe Helkamp from the city of Shakopee.

17 Ms. Klima: Julie Klima. Planner for the city of Shakopee.

18 Mr. Markegard: Glen Markegard. Senior Planner of Bloomington.

19 Chair King: Thank you. We've got a couple other Board members
20 that - who will undoubtedly be along on the way.

21 The order of business for this meeting is a public hearing on the
22 proposed Flying Cloud Airport Zoning Ordinance. This is not a
23 public hearing on airport noise. Adoption of a zoning ordinance
24 will not alter the number, frequency or noise level of traffic at
25 the airport. A zoning ordinance would affect the use of land

1 surrounding the airport. Notice of this public hearing was
2 published in several places: the Star Tribune on April 7th, 15th,
3 19th and 23rd; in the Pioneer Press on April 15th, 19th and 23rd;
4 in the Eden Prairie News on April 15th; in the Eden Prairie Sun
5 Current on April 16th; and in the State Register on April 19th.

6 In addition, notices were mailed to the persons on the
7 Metropolitan Airports Commission mailing list, the Joint Airport
8 Zoning Board mailing list and to other interested parties.

9 Affidavits of publication and mailing will be entered into the
10 record at a later date.

11 Prior to this meeting, a public information open house was held
12 from 5:00 to 6:30. Notice of the open house was published and
13 mailed to interested parties as part of the notices described
14 earlier.

15 The structure of the public meeting will be as follows: First,
16 these proceedings are being videotaped tonight and will be
17 transcribed as part of the official record of our proceedings.

18 Second, Chad Leqve, Manager of Aviation Noise and Satellite
19 Programs for the Metropolitan Airport Commission will be called
20 as a witness to provide information about Flying Cloud Airport
21 Zoning Ordinance and to review the proposed ordinance. Third,
22 the Committee will take testimony from the public. If you have a
23 prepared statement or document, you may read it into the record
24 or submit it, and we will make it part of the permanent record.

25 The Board ask that you limit your statement to no more than five

1 minutes. If you wish to testify, please fill out a speaker card
2 - they look like this - and hand it to the Board Secretary, Jenn
3 Felger, who is sitting outside of the room behind you. Speaker
4 cards are located at the entrance with her. We will not respond
5 to questions as part of the hearing tonight. Responses will be
6 provided as part of the findings related to this hearing.
7 The hearing record will remain open until 5:00 p.m. on Friday,
8 May 7, 2010. You may mail or deliver materials that you wish to
9 make a part of that record to Ms. Jenn Felger at Metropolitan
10 Airports Commission located at 6040 28th Avenue South,
11 Minneapolis, 55450, or you can transmit to her by fax, 612-726-
12 5306. If you need any of those data, because you can't write as
13 fast as I read, you can get them from Jenn in the back.
14 Finally, the board requests that the public testimony focus on
15 the proposed Flying Cloud Airport Zoning Ordinance.
16 Chad, I call you as the first witness. Would you come forward
17 and please make your presentation?
18 Mr. Leqve: Mr. Chair, Board members, good evening. My name is
19 Chad Leqve. I'm Manager of the Aviation Noise and Satellite
20 Program Department of the Metropolitan Airports Commission. I'm
21 delighted to be here this evening and as part of my presentation
22 we'll be going through the following topics: Starting out with a
23 brief description of the federal requirements as it relates to
24 land use safety zoning around airports as well as airspace
25 zoning, protect navigable airspace around airports in the United

1 States, which is in existence today around Flying Cloud Airport.
2 Then we're going to talk a little bit about exactly why it is
3 we're here; the goals of the Board; the safety considerations as
4 they relate specifically to Flying Cloud Airport; the economic
5 impacts associated with the topic of zoning around this airport
6 both in the context of the state's model zoning ordinance as well
7 as what is being proposed by the Board in the draft zoning
8 document. And then we'll get into the specifics of the draft
9 zoning ordinance and the remaining process that the public can
10 expect as we move forward with the zoning effort of Flying Cloud.
11 First off, to touch very quickly on the federal requirements as
12 it relates to land use safety zoning around airports,
13 specifically an FAA Advisory Circular 150/5300-13. It
14 specifically lays out the requirements of what are called runway
15 protection zones around an airport. And from a simplistic
16 description, what it entails is what you see before you here and
17 the graphic is a trapezoid shape off the ends of the runway
18 centered on the runway center line. The size of which is
19 dictated by the sophistication of the approach to that given
20 runway, i.e., is it an instrument approach and if it is, what are
21 the visibility minimums, etc. That all weighs into the exact
22 size of these runway protection zones at a given airport.
23 What I've done on the slide here for you is kind of laid out
24 where our different runway ends fall in the spectrum of the
25 different size of RPZs at an airport. The one thing I wanted to

1 point out here is that as we sit here and talk today, Flying
2 Cloud Airport is in compliance with the federal requirements for
3 safety zoning off our runways ends at the airport.
4 Now moving on to the federal airspace requirements, this is a
5 little bit difficult discussion in that it's very three-
6 dimensional, if you will, when we start talking about the air
7 space surfaces. But hopefully this graphic that I have up on the
8 board here will be helpful in conveying exactly what we're
9 talking about when we mention the topic of imaginary surfaces
10 around an airport. What I've listed out here on the slide are
11 the five main surfaces as they relate to what we call the Part 77
12 Surfaces around an airport. Part 77 is a federal document that
13 details these airspace surfaces around an airport expressly for
14 the purpose of protecting the airspace around an airport such
15 that the aircraft can navigate in to and out of a facility
16 without the threat of impacting a tall structure around an
17 airport. And it's these surfaces that end up dictating how high
18 a structure can be at a given point around an airport in relation
19 to that structure's impact on the flight paths, i.e., is it under
20 approach, is it a sideline location, etc. All those variables,
21 in relation to these airspace surfaces that I have listed up here
22 - the primary surface, the approach surface, the horizontal
23 surface, the horizontal, conical and transition surfaces -
24 dictate how high a structure can be. And that's going to be
25 something we're going to talk about in a little more detail later

1 on in my presentation when we get to the airspace zoning
2 requirements of the draft ordinance that the Board has put
3 forward for public review and comment.

4 So why are we here? As I had started my presentation, I had laid
5 out the fact that there are federal requirements and this airport
6 is in compliance with those federal requirements. The unique
7 circumstance that we have in the state of Minnesota is that per
8 state statute, airports are required to do zoning beyond what are
9 the federal RPZ requirements. And also to codify any local
10 zoning ordinance, the requirements as it relates to airspace
11 zoning around an airport – the Part 77 Surfaces, if you will.
12 Specifically in state statute, it points out that airport hazards
13 are things around airports that impact – possibly – safety, that
14 produce a hazard, and also impact the utility of an airport. And
15 those are things that we, as per the state statute, should be
16 trying to avoid when we talk about development around our
17 airports in the state of Minnesota. So specifically, in order to
18 address this state statute lays out requirement in the case of
19 the Metropolitan Airports Commission, for us to develop a Joint
20 Airport Zoning Board for each one of our airports which is to
21 have two members from each one of the local land use controlling
22 authorities that would be impacted by the prospective zoning
23 ordinance. And that, of course, acts as the cornerstone for the
24 makeup of the Board that we have here this evening.
25 So, in short, we're doing this because state statute requires it

1 and, in that regard, the Board has a very specific goal in the
2 context of state statute. That being, to develop a draft zoning
3 ordinance, in this case, for the Flying Cloud Airport, that can
4 be considered by the Commissioner of Transportation for
5 subsequent approval by the Commissioner and then adoption by the
6 Joint Airport Zoning Board in the land use control authorities
7 that control the use of the properties that are impacted by the
8 zoning ordinance, i.e., the cities that control the development
9 of the properties around the airport.

10 Now in pursuing this goal, there are really four main elements
11 that the board has been focusing on since we started our
12 deliberations in July, specifically, on July 16th. The four
13 meetings - the three meetings we've had since that time, as you
14 will recall, the Board has been focusing its discussion on the
15 statutory and state rule requirements as it relates to airport
16 zoning. We've also been looking at FCM's unique characteristics
17 in the context of existing, and possibly plan future land uses
18 around the airport, but also in the nature of operations and the
19 safety record that we have, specifically related to Flying Cloud
20 Airport.

21 The other big discussion and analysis that has taken place by the
22 Board is the concept of ensuring that we have a reasonable
23 standard of safety around the airport, but also doing that in a
24 manner that reasonably balances the social and economic impacts
25 of whatever ordinance may flow from this activity. And

1 specifically, what I have up on the board here is Minnesota State
2 Statute 360.066, specifically, Subdivision I, that talks about
3 this concept of taking a look at the whole airport zoning
4 question that a specific airport from the perspective of what is
5 required from a reasonable safety standard perspective in a
6 manner that also gives due deference to the question of
7 reasonable economic and social impacts on the community around
8 the airports. Really trying to balance those two considerations
9 and coming up with a reasonable zoning ordinance. That has
10 really been front-and-center for the Flying Cloud Airport Zoning
11 Board.

12 Now, moving forward, I want to touch real quickly on the two main
13 areas - just provide a little background with regard to the
14 evaluation, specifically, that the Board has focused on with
15 regard to the statutory guidance. And the first is taking a look
16 at what is something that the Board can be looking at in terms of
17 a reasonable standard of safety predicated on a good analysis of
18 what the safety risk is at Flying Cloud Airport? And there is a
19 process that the Board went through - taking a look at the safety
20 record of the airport and analyzing the probability of aircraft
21 accidents in given geographic locations around the airport. And
22 as you will recall, this analysis took into account the specific
23 nature of operations of Flying Cloud Airport. It also took into
24 account the terrain around the airport, again, specific with the
25 requirements of state statute.

1 The analysis was conducted by HNTB Corporation, which has a
2 history of doing such analysis, the most notable being
3 Minneapolis/St. Paul International Airport where they did a
4 similar safety study. But also a lot more recently, the St. Paul
5 Downtown Airport, applying the same methodology. Here at Flying
6 Cloud, that's been used at those other facilities in MAC's
7 airport system.

8 Now, specifically the analysis focused primarily on historical
9 accident data at Flying Cloud Airport going back 20 years.

10 Because the number was low, we had to augment it with other data
11 that was available as part of a study that was done by Berkeley
12 for the State of California as part of an airport zoning effort
13 that the state was undertaking out there. They had developed a
14 massive database of GA type aircraft accident locations that
15 we've augmented this data with, again, in keeping with the way
16 that these analyses have been done at other MAC system airports
17 such as St. Paul Downtown.

18 And then what we did was, we took that information, of both the
19 historical rate, the accident location that we got from the
20 Berkeley study and then we applied that to the forecasted,
21 anticipated use of the runways at Flying Cloud airport and came
22 up with probability calculations as it relates to accidents
23 within State Safety Zone A and B outside that federal RPZ area.
24 And the intent here was to measure that against a standard of one
25 accident in ten million operations and that was the standard that

1 was used as kind of a first cut both at Minneapolis/St. Paul
2 International Airport and St. Paul Downtown Airport, and we
3 applied that same methodology here at Flying Cloud Airport.
4 I will preface the rest of the presentation in this regard to say
5 that is a very, very -- as we discussed at the Board meeting -- a
6 very, very conservative approach in evaluating a large geographic
7 area because the assumption there is that when you take that 1 in
8 10,000,000 and apply it to the whole safety zone area, the
9 assumption is that you have a structure that covers that entire
10 area. And as we know, given the size of these safety zone areas,
11 that is not the case. But it's a very conservative point from
12 which to start to determine if there's any more follow-on
13 evaluation that's necessary as part of the Board's discussions.
14 So the findings, as part of the HNTB Safety Analysis, I have laid
15 out on this slide. And the first bullet point you will see that
16 when we analyzed the State A Zone outside the RPZ and the State B
17 Zone, which I will provide a graphic of here in a minute, what we
18 found was that in the case of Zone A on the approach to Runway 10
19 Left in Zone B on the approach to Runway 10 Right we were below
20 the 1 in 10,000,000 criteria. That is, one accident in ten
21 million operations. And in all the areas within the A Zone and
22 the B Zone that are either existing residential and/or populated
23 areas and/or planned residential or populated areas by virtue of
24 the city's long-term comp plan in those areas, by virtue of this
25 analysis we established that we were below the 1 in 10,000,000

1 accident threshold at the airport.

2 The other notable points that came out of the study – the second

3 bullet point is probably not earth-shattering in terms of the

4 conclusion. But nonetheless, it's a very practical consideration

5 when we talk about airport zoning and that it has to do

6 specifically with the types of developments that we talk about in

7 State Safety Zone being Zone A. And as you can see in the second

8 bullet point here, I'm not going to read the bullet point, but in

9 essence, what it's saying is that when you have developments in

10 areas in close proximity to the runway and that are what I'll

11 term as, kind of, extraordinary developments – developments that

12 congregate large amounts of people at a given point for an

13 extended period of time, you increase the harm to human life,

14 quite frankly, if in fact there were to be an aircraft incident

15 in that area. Again, a fairly intuitive concept, but one that's

16 very important to consider as the Board move forward in their

17 deliberations.

18 The other thing that came out of the study that was very

19 enlightening was the fact that as part of the Berkeley study that

20 I mentioned previously, it was established that in 95 percent of

21 GA accidents, in 95 percent of them, the pilot had controlled the

22 aircraft and could determine where that aircraft went down around

23 the airport. And that was an important distinction as it related

24 to some of the data as we took a look at it in total.

25 So in summary, what the initial analysis conducted by HNTB told

1 us was, first, that in a number of the runways at that this
2 airport, in the A and B Zones beyond the RPZ, the probability of
3 an accident was higher than 1 in 10,000,000. Ok? And the
4 Board's perspective, at that point, was that if it's higher than
5 1 in 10,000,000 we need to take a little deeper look at this
6 issue as opposed to applying kind of a one-size-fits-all to
7 Flying Cloud Airport as it relates to other airports where, when
8 we did this evaluation it was all less than 1 in 10,000,000,
9 i.e., Minneapolis/St. Paul International Airport, St. Paul
10 Downtown Airport where we did this evaluation and found that, in
11 fact, the probability was less than 1 in 10,000,000. So the
12 conclusion was further analysis was required, as you see in the
13 last bullet point there.
14 So that led us into the second phase of the safety evaluation, to
15 kind of narrow down to this question of what is a reasonable
16 standard of safety and its impacts on the social and economic
17 fabric of the community? The discussion focused around the
18 question of pilot control and, quite frankly, there are a number
19 of information points on this, the Berkeley one I already
20 mentioned and that's included on the slide that's before you here
21 in the presentation. But the other was also in reference to the
22 Minnesota Department of Transportation's Zoning Manual that they
23 have that was published in September of '06 that again, gave
24 deference to the fact that, in many cases, the pilot has some
25 control of an aircraft, the ability to avoid structures, whether

1 high-density structures in the environs of an airport in the
2 event of an accident.

3 So the Board's conclusion, I think, in all of this, and of
4 course, there was a lot of detailed evaluation that's part of the
5 record behind the conclusions that were reached in some of these
6 general statements. But as you see in this last bullet point
7 there, it became very clear and very evident that based on this
8 additional information, that this whole concept of maintaining
9 open areas or a certain amount of open space in amongst what may
10 be some development occurring off the ends of the runways is
11 something that could benefit safety in the future, should there
12 be an event at Flying Cloud Airport, beyond the federal RPZ in
13 the community. So specifically, the additional findings that we
14 had related to land use where we took a look at, ok, so what are
15 some of the areas around the airport? Are there open areas that
16 we can try to maintain as we move forward because we're not going
17 to go on and bulldoze anything as a result of this ordinance per
18 state statute and so this whole concept of preserving some open
19 space was analyzed in detail by the Board. As you can see here,
20 there are a number of areas around the airport where we have open
21 space, and I want to talk about them in a little more detail when
22 we get to a map of the area, but they deal with things like a
23 park area to the west of the airport that's going to be
24 maintained by virtue of an agreement between the MAC and the
25 city, a VOR clear area, because of the closely spaced parallels

1 we have the federal RPZ that's maintained as the open area
2 overlapping with the state zones on adjacent runways that
3 produces a significant amount of open area and we have open water
4 areas in the approaches to the runways as well. In short, what
5 you end up with is a range of 20.93 acres to 65.3 acres of
6 contiguous open space in our zones around Flying Cloud airport
7 beyond the RPZ and the State Zone B.

8 The other part that was focused on as part of this discussion was
9 the question of crash site specifics and demographics. And what
10 we came up with in that area is a worst case type scenario at
11 Flying Cloud Airport about a 5,000 square foot accident site.
12 Predominantly, though, given the fleet mix over 60 percent of the
13 crash site areas that we'd be dealing with at this airport by
14 virtue of it being a GA airport would be less than 2,000 square
15 feet. As you can see in the last bullet point again referencing
16 back to the Minnesota Department of Transportation Land Use
17 Compatibility Manual, the Board discussed the fact that it stated
18 a 2,000 square foot accident site from a general aviation
19 aircraft will miss humans in many cases. So this was some
20 additional data points that went into what you see in the draft
21 model ordinance. The long and short of it, the Board came up
22 with a position that at a minimum - ok - above and beyond what
23 was done in the case of Minneapolis/St. Paul and St. Paul
24 Downtown Airport that we need to have a contiguous acreage
25 requirement beyond the federal RPZ area to ensure that we have

1 some open acreage that's available for pilots to use in the event
2 that they need to come back down to earth because of an emergency
3 based on the pilot control requirements.

4 Now, what I want to point out here on this graphic - this gives
5 you a little bit of a perspective on what we're talking about.

6 What you see here, this red dot here, is a 5,000 square foot area
7 and this is all to scale. Ok? You remember on my previous slide

8 we had talked about the fact that over 60 percent would be

9 something less than 2,000 square feet. What you see here is the
10 worst case scenario. So that gives you perspective, in terms of

11 the magnitude of the crash site area versus some of these land

12 areas that we're talking about. The federal RPZ is the peach

13 areas that you see here on the map off the ends of the runways.

14 The first area is the State Zone A and this is the State Zone B.

15 The open areas that I talked about is over 42 acres of park land

16 that I talked about out in this area. We also have water areas

17 out here. You have areas where the federal RPZ on the south

18 parallel covers a lot of the A and B Zone on the north parallel

19 maintaining it as open space, as well as when you look to the

20 east of the airport we have a VOR clear area that's owned by the

21 airport that's going to be maintained free of structures which is

22 a significant area, as well as the water areas off the end of the

23 airport.

24 So the focus was, as part of the zoning effort, how do we codify

25 the existence of those vast, open areas in the context of the

1 zoning ordinance? And that's what is being proposed as part of
2 the draft model ordinance and how the safety question and
3 analysis that was done plays into that. Now the thing I wanted
4 to touch on here before we get into the specifics of the draft
5 ordinance is the economic evaluation that was done. Now, the
6 Board considered the state's model zoning ordinance and the
7 implementation of that versus implementing what the board is
8 presently recommending by virtue of the safety analysis that was
9 done to see if - to see what - the economic impact was of just
10 going with the kind of one-size-fits-all state model zoning
11 ordinance versus what the Board had come up with based on the
12 safety study. And the economic impact that the city came up with
13 as part of their evaluation is provided on this slide. You can
14 see here that, by virtue of shelving what the board is proposing
15 and going with the state's model zoning ordinance, there's an
16 economic impact of about 150 million in commercial value;
17 residential, about 11.7 million; and about, almost half - over
18 half a million in annual tax revenues in terms of impacts to the
19 city and the economics of the community. So that was another
20 consideration as part of the deliberations.
21 So real quickly, as a result of the safety evaluation, the
22 economic information, the question became - ok - there are
23 changes that need to be made to the state's model zoning
24 ordinance. What will those be? What I have laid out here is
25 kind of a summary of what the Board focused on in that regard.

1 The State Zone A is proposed to become terminus with the federal
2 RPZ; State Zone B would be the rest of that area. The B Zone
3 gets rid of the building site, building footprint ratios to lot
4 criteria that are included in the state's model zoning ordinance
5 as well as allowing ponding along the river bluff line. But it
6 does also add the required contiguous open acreage requirements
7 that we talked about previously. There's a permanent residential
8 area in State Zone B that's laid out in this draft zoning
9 ordinance. Again, that's predicated on the safety evaluations
10 that I mentioned previously that established, in these areas, we
11 are less than 1 in 10,000,000 in terms of probability of
12 accidents in those areas. And then we also talk about leveraging
13 the FAA 7460 review process. These are the general restrictions
14 that go through each one of those areas. I'm not going to go
15 through each one of those because we've got them up on the board
16 here and I've touched on some of the review areas. The permanent
17 residential area, as I had mentioned, is going to allow for
18 existing and in-fill in new residential areas.
19 And this graphic here, you can see what the ordinance looks like
20 in a geographic form. The green area is the permanent
21 residential areas, the red area are the RPZs which also now
22 become the State Zone A and then the remainder of this area is
23 State Zone B. We also, as part of the ordinance, are leveraging
24 the FAA 7460 review process. I talked about the Part 77
25 Surfaces. There's a process that's exists today and is in place

1 where, if a person wants to erect a tall structure, they have to
2 submit that to the FAA for review. And the FAA reviews it to see
3 if it's an airspace hazard or not. What we're doing is simply
4 codifying that process in this local zoning ordinance. As well
5 as including the issue of trees, under an ongoing review process
6 that would be conducted at a minimum of every ten years to take a
7 look at, are there any trees in the approaches on the runways at
8 the airport that pose a safety hazard? And if there are,
9 recommending a way to deal with them. Again, really just
10 codifying the situations that exist around the airport today as
11 we move forward in the zoning ordinance.

12 Here's the airspace extent around the airport, again, this is
13 highlighted on the board here. What this does is it provides
14 property owners with the ability to take a look at their
15 property, find out a height above which, if they are going to
16 construct something, they will have to submit for a permit. And
17 the first cut of the permit will be to have them submit a 7460
18 and if the FAA makes a determination that there's no hazard with
19 what they're proposing, they'd be issued the permit and they can
20 move ahead with the structure. Again, really just codifying what
21 exists today in a local ordinance as part of this process.

22 Real quick before I close my testimony here, we began this public
23 comment period on April 8th and it's going to go through the
24 close of business on May 7th. If anybody is interested in filing
25 comments on this document to get it into the public record, they

1 can send them to Jenn Felger at the address you see on the slide
2 here. Locations to view the draft document at the MAC general
3 office building, the city hall of each one of the Board member
4 cities as well as the MAC website.

5 And then my last slide is the remaining process. We will - the
6 Board will be considering the comments as part of this public
7 comment period and the responses that are developed and are
8 relative to that at their next meeting and any possible revisions
9 to the draft. Then that information would be submitted to the
10 Commissioner of Transportation for the Commissioner's review.
11 Once that review is completed it would come back to the Board, at
12 which time then, the Board will consider the Commissioner's
13 comments and make any changes that they need to and then we would
14 start another public comment period, go through this process
15 again, hold a public hearing, respond to those comments and send
16 then the document off for final review by the Commissioner. And
17 then ultimately, adoption by this group and the cities that
18 control the land use around the airport.

19 Mr. Chair, with that, that concludes my testimony.

20 Chair King: Thank you, Chad. We will now open the public
21 hearing and take public testimony. Again, speaker cards are
22 located at the entrance to the room. If you have not filled out
23 a card but would like to speak, please raise your hand and a card
24 will be brought to you. I have one card in my possession right
25 now. I will call people in the order that I got the cards. You

1 are a lucky person. Please remember the five minute limit and
2 that the testimony should be related only to the proposed zoning
3 ordinance. Let me note again that this is not a public hearing
4 on airport noise.

5 Your testimony will be recorded by video and transcribed for the
6 record. Please state your name, address and who you represent
7 for the record. If you have a business card, please give that to
8 the video reporter.

9 When I call your name, please come forward and use the microphone
10 at the front of the room that Chad just used. And if anybody
11 standing in the back wishes to say anything, just let us know. I
12 have a card from Mr. Matt Kleffner. Is that correct, Matt?

13 Mr. Kleffner: That's correct. Thanks.. My name is Matt
14 Kleffner. I live at 9559 Woodridge Circle in Eden Prairie. I
15 got notice of this meeting from a letter from Eden Prairie. I
16 was in a position that I did not have the letter and needed to
17 know when the meeting was this last week and I could not find it
18 on the MAC website where they list meetings of this board.

19 I'm in State Zone C, about a mile from the airport, and so when I
20 saw the notice, which was not the full ordinance of course, I was
21 able to locate a draft later. I noticed three things that might
22 impact me as a home owner - things that I might do to interfere
23 with communication, things that I might do to interfere with the,
24 you know, the visual - the ability of the flight pilots to see
25 and height restrictions. Height restrictions are not an issue

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21

1 for me, but I was a little confused on the two other components.
2 They seemed a little bit broad to me. So on - impairing the
3 visuals for the pilot, you know, I'm not sure what kind of
4 behavior is being restricted here. To go to the extreme - if I
5 put Christmas lights on my house or I have a skylight that
6 reflects, you know, sunlight, and even solar panels at certain
7 angles could potentially reflect sun. Are we talking about those
8 sorts of things? You know, when do we have to - basically the
9 issue is, when do we know when we need to go seek permission to
10 do something that's maybe, you know, an everyday thing that a
11 home owner might do?

12 Secondly, I was a little bit confused on the, you know, the
13 electromagnetic interference issue. My understanding is that,
14 the FCC has the sole authority to regulate this and there's a lot
15 of things that, you know, a citizen can do to violate FCC rules.
16 You know, about broadcasting in bands that they're not supposed
17 to. I'm also worried that cities explicitly do not have the
18 right to regulate cell phone towers, for instance. That's the
19 FCC's sole authority so I'm a little bit confused what the Zoning
20 Board, you know, including this type of language in the ordinance
21 - So basically the question here is, what can I do that would
22 run afoul of this ordinance that otherwise wouldn't run afoul of
23 FCC regulations? You know, maybe it's amateur radio, who knows?
24 But I'd like to see - my concern is I'd like to see specifics on
25 both that and of course the visual restrictions. Other than

22

1 that, this, you know, in spirit, this ordinance to me seems like
2 something reasonable. Thank you.

3 Chair King: Thank you for your testimony. I should note, as I
4 said earlier, the board will not be responding to the comments.
5 They will be written responses. But some of the staff members
6 are around. They were around before for the information sessions.
7 Certainly, people are welcome to talk to staff after the Board
8 concludes the public testimony and the meeting is over to get
9 some informal information around some of the questions they might
10 have. Thank you for your testimony.

11 Do we have any other testifiers? There are so many lining up.
12 Going once - Going twice - Ok, if there are no further public
13 comments, we will close the public hearing.

14 I would like to remind everyone that the hearing record will
15 remain open until 5:00 p.m. on Friday, May 7, 2010. You may mail
16 or deliver materials that you wish to make a part of the record
17 to Ms. Jenn Felger, who is standing in the doorway in the back,
18 at the Metropolitan Airports Commission located at 6040 28th
19 Avenue South, Minneapolis, Minnesota, 55450, or transmit them to
20 her via fax at 612-726-5306.

21 Under state law, there are a number of additional steps that must
22 take place prior to the adoption of the zoning ordinance. After
23 the close of the comment period, the Joint Airport Zoning Board
24 will meet again to review the public comments and decide whether
25 to make any changes to this draft zoning ordinance. This

1 ordinance would then be submitted to the Commissioner of the
2 Minnesota Department of Transportation for review and approval.
3 After the Commissioner's review, this Board will hold a second
4 public hearing and submit the proposed ordinance to the
5 Commissioner of Transportation a second time, prior to adopting a
6 zoning ordinance at a subsequent meeting.

7 Thank you everyone for your attention and participation. The
8 public hearing is now closed and the meeting of the Joint Airport
9 Zoning Board is adjourned.

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I HEREBY CERTIFY AND STATE THAT I, ANGELA BALLMAN, TRANSCRIBED
THE FOREGOING;
THAT SAID TRANSCRIPT IS A TRUE AND ACCURATE REPRESENTATION OF THE
AUDIO CD PRESENTED TO ME, TO THE BEST OF MY ABILITY TO HEAR AND
UNDERSTAND THE SAME;
THAT I HAVE NO INTEREST IN THIS MATTER, FINANCIAL OR OTHERWISE,
NOR DO I KNOW ANY OF THE INDIVIDUALS INVOLVED OR PERSONS OF
INTEREST, NOR DO I HAVE A CONTRACT WITH ANY PARTIES HERETO.

WITNESS MY HAND THIS 6th day of May, 2010.



Angela Ballman

Comments and Responses

Commenter	ID	Subject	Response
<p>Ms. Doneta Hoffman 8856 Peep O Day Tr Eden Prairie MN 55347</p>	<p>1</p>	<p>Question: Is all of the research at the present time for the purpose of someday to justify and increasing the traffic plus the size of the aircraft landing at the Eden Prairie airport?</p>	<p>The present zoning effort underway at Flying Cloud Airport (FCM) is not being conducted to justify future airport expansion or to increase the size of aircraft operating at FCM.</p> <p>Per Minnesota State Statute, airports in the State of Minnesota are required to implement airport safety zoning that controls land uses and structure heights around an airport. To do this, the statutes spell out the formation of a Joint Airport Zoning Board (JAZB) comprised of two members from each jurisdiction with land use control in the areas affected by airport zoning, as well as the airport proprietor. The state zoning provisions go beyond what is typically implemented at other airports in the United States consistent with federal airport zoning criteria.</p>
	<p>2</p>	<p>There have already been 3 crashes in EP in 2010 (1 year)!!</p>	<p>There were two plane crashes in 2009 and one plane crash in 2010 in the vicinity of FCM. The FCM Joint Airport Zoning Board (JAZB) has extensively evaluated the question of safety in the context of historical aircraft accidents at FCM. The 2009 and 2010 FCM aircraft incidents were considered in the safety evaluation process. As a result of this evaluation, the FCM JAZB is proposing an additional zoning provision in Zone B such that a minimum of 20% of the total Zone B acreage or 20 acres, whichever is greater, is contiguous open space as an added margin of safety.</p>
	<p>3</p>	<p>Please share the newspaper article at the meeting – so everyone is informed – concerning the problems of airports in residential areas!!</p>	<p>The articles have been entered into the record and shared with FCM JAZB members.</p>
	<p>4</p>	<p>The ponds are already around the area!</p>	<p>Comment noted.</p>
<p>Li Wang and John Xu 16883 Cedarcrest Dr Eden Prairie MN 55347 lwang000@yahoo.com 952.944.3933</p>	<p>5</p>	<p>We would like to know what zone we are in. We have to go to work on your scheduled time. So, we do not have time to go to the scheduled location to get the copy of the zoning. Would you please mail us a copy?</p>	<p>As was detailed in MAC staff's April 9, 2010 e-mail response to your questions, your property is located in Zone C.</p>
	<p>6</p>	<p>When we built our house back in 2002, we were not told anything about the regulation/restriction of zoning. Now due to the zoning, our property value will drop, whom</p>	<p>As was detailed in MAC staff's April 9, 2010 e-mail response to your questions, the proposed ordinance imposes no more limitations to the use of your property beyond what exists today with the City of</p>

<p>Eden Prairie's compliance with Federal Aviation Administration (FAA) Part 77 airspace obstruction criteria. FAA Part 77 establishes a federal process for the evaluation of structures around airports in the United States. The requirements in Zone C under the proposed Draft FCM Zoning Ordinance exist today around the airport by virtue of the federal Part 77 process.</p>	<p>should we talk to in order to get us paid for our loss.</p>	<p>Eden Prairie's compliance with Federal Aviation Administration (FAA) Part 77 airspace obstruction criteria. FAA Part 77 establishes a federal process for the evaluation of structures around airports in the United States. The requirements in Zone C under the proposed Draft FCM Zoning Ordinance exist today around the airport by virtue of the federal Part 77 process.</p>
<p>Two of your parcels, with PID numbers 3411622220001 and 3411622210001, have portions of which are located in Safety Zone A, which is coincident with the Runway 36 Runway Protection Zone and the proposed Safety Zone B area. Specifically, a small portion (0.77 acres) of the northern edge of property 3411622220001 is located in the Runway 36 RPZ and 20.96 acres of this parcel are included in the Runway 36 Safety Zone B area. A small portion (1.86 acres) of the westerly edge of property 3411622210001 is located in the Runway 36 Safety Zone B area. This does not prevent the use of the property that is located in the RPZ and Safety Zone B areas in a manner that is consistent with existing and long range 2030 land use zoning in the City of Eden Prairie.</p>	<p>We own approximately 1000 acres just south of the Flying Cloud Airport. Most of our property consists of farmland, wooded property and wetlands. However, we do own property suitable for residential development. We will consider any zoning changes which limit our ability to develop this portion of our property as a taking which would require just compensation. Dr. Army Leonard, an owner of our club, plans to attend the meeting on May 7. Please make this comment a part of the proceedings.</p>	<p>The rest of the area of interest south of FCM is located in Safety Zone C which would not prohibit residential development. The proposed ordinance imposes no more limitations to the use of your property beyond what exists today with the City of Eden Prairie's compliance with Federal Aviation Administration (FAA) Part 77 airspace obstruction criteria. FAA Part 77 establishes a federal process for the evaluation of structures around airports in the United States. The requirements in Zone C under the proposed Draft FCM Zoning Ordinance exist today around the airport by virtue of the federal Part 77 process.</p>
<p>Comment noted.</p>	<p>Recently an airplane (not the usual size) but a large airplane, came through our area no higher than 200 feet, -- a bit scary to witness. It is not unusual to hear planes at 10 p.m. One day I thought the plane was coming through our bedroom window. That airport does not belong in this residential setting.</p>	<p>Comment noted.</p>
<p>Comment noted.</p>	<p>That airport does not belong in this residential setting.</p>	<p>Comment noted.</p>

Mr. Chuck Moos, President
Upgrala Hunting Club
cmoos77@aol.com
952.512.0211

Ms. Carol & Mr. Bill Robbins
8859 Peep O Day Tr
Eden Prairie MN
cjrwtr@iphouse.com

<p>Chris terryandchrisk@msn.com</p>	<p>9</p>	<p>According to the notice, the [sic] zoning ordinance would limit the height of structures and vegetation out to 2 miles to the west of FCM and out to 1.5 miles in all other areas around the airport. In Zone A</p> <p>What is the current ordinance? What is Zone A?</p>	<p>As was detailed in MAC staff's April 9, 2010 e-mail response to your questions, presently there is not an ordinance in place designating Zone A or B land use restrictions around FCM. However, the proposed ordinance imposes no more limitations to the height of structures on property beyond what exists today with the City of Eden Prairie's compliance with Federal Aviation Administration (FAA) Part 77 airspace obstruction criteria. FAA Part 77 establishes a federal process for the evaluation of structures around airports in the United States. The structure height requirements under the proposed Draft FCM Zoning Ordinance exist today around the airport by virtue of the federal Part 77 process.</p> <p>Safety Zone A is coincident with the Runway Protection Zone. Safety Zone A Zone is a trapezoid-shaped area centered about the extended runway centerline, beginning at the end of the runway extending out for a distance which is defined by the sophistication level of the approach procedures for a given runway.</p> <p>As is detailed in the March 18, 2010 Draft FCM Zoning Ordinance, the following are the land use restrictions proposed in Safety Zone A:</p> <p>"Subject at all times to the height restrictions set forth in Section IV.B. and to the general restrictions contained in Section V.B.1., areas designated as Safety Zone A for each end of Runways 10R-28L, 10L-28R, 18-36 shall contain no Structures or Trees, except Structures related to Airport operations or air navigation as allowed in a Runway Protection Zone by Federal laws and regulations or by FAA advisory circulars shall be permitted."</p>
	<p>10</p>	<p>prohibit [sic] of amphitheaters, hospitals, nursing homes, residential users, schools, stadiums and ponds or other features which might attract water fowl or other birds in Zone B.</p> <p>What is Zone B?</p>	<p>In an April 12, 2010 e-mail response, MAC staff provided you a map depicting the location of the State B Safety Zones located around FCM. Zone B is a trapezoid-shaped area centered about the extended runway centerline, beginning at a point which is two-thirds of the total runway length from the end of the runway extending out for a distance of one-third of the total runways length.</p>

As is detailed in the March 18, 2010 Draft FCM Zoning Ordinance, the following are the land use restrictions proposed in Safety Zone B:

"Subject at all times to the height restrictions in Section IV.B. and to the general restrictions in Section V.B.1., all land uses shall be permitted in Safety Zone B for each end of Runways 10R-28L, 10L-28R, 18-36, except for the following uses which shall be specifically prohibited: amphitheaters, campgrounds, churches, fuel storage tank farms and Above-ground Fuel Tanks, gasoline stations, hospitals, Nursing Homes, residential uses (including low, medium, and high density residential uses), Schools, stadiums, theaters, trailer courts, and ponds or other uses that might attract waterfowl or other birds such as putrescible waste disposal operations, wastewater treatment facilities and associated settling ponds, and dredge spoil containment areas; provided, however, the prohibition on ponds or other uses that might attract waterfowl or other birds shall not apply to areas below an elevation of eight hundred sixty five (865) feet above mean sea level along any Bluff of the Minnesota River.

In Safety Zone B for each end of Runways 10R-28L, 10L-28R, 36-18, a minimum of 20% of the total Zone B acreage or 20 acres, whichever is greater, shall be maintained as contiguous open space."

11 What are the steps to take to appose [sic] this ordinance?

The following was stated in MAC staff's April 9, 2010 e-mail response to your question:

"If you would like to provide comments on the draft document you can submit your comment in writing before 5:00 P.M. on Friday, May 7, 2010 to:

Ms. Jenn Felger
Secretary to the FCM Joint Airport Zoning Board
Metropolitan Airports Commission
6040 28th Ave. S.
Minneapolis, MN 55450

		<p>Additionally, you can attend a public hearing on April 29, 2010 at the Eden Prairie City Council Chambers, 8080 Mitchell Road, Eden Prairie, MN. The public hearing will begin at 7:00 P.M. An open house will be held prior to the hearing at 5:00 P.M. followed by a public presentation from 6:30 P.M. to 7:00 P.M."</p>
	<p>could you please provide me with a map that outlines what zone A looks like and Zone B? Your Notice references these Zone. [sic] I need to know the area of land you are referring.</p>	<p>In an April 12, 2010 e-mail response, MAC staff provided you with a map that depicted both the proposed Safety Zone A and Safety Zone B areas.</p>
<p>Joan jefurst@comcast.net</p>	<p>13</p> <p>I thought you might want to know that draft zoning ordinance doc on the Mac website is 35MB and 111 pages. I would ask home [sic] many people have time to decipher such a massive document – I sincerely hope someone on your commission will translate this into simple terms for those of us in the path of this expansion. I have lived in the same house since 1981 and I want the same rights on my property as a citizen that lives 3 miles from the airport.</p> <p>Please help us homeowners protect our homes from limitations. I have a husband in the hospital and can't dive into the details. As you and your team review this proposal, pretend you and your family live within this area.</p>	<p>Comment noted.</p> <p>As part of the FCM JAZB deliberation process the Board has proposed several changes to the State Model Zoning Ordinance provisions based on FCM safety study findings, and the social and economic impacts related to land use controls and public comments. The March 18, 2010 Draft FCM Zoning Ordinance represent what the Board feels is an appropriate balance considering these variables, providing a reasonable standard of safety around FCM.</p>
<p>Ms. Jane Plaza 15524 Lilac Dr Eden Prairie MN 55347 952.906.1191 janaplaza@yahoo.com</p>	<p>14</p> <p>I live in Eden Prairie near the airport and would like more information about the proposed ordinance before making a comment. Unfortunately, I am unable to attend the public hearing on April 29, which is when my questions could likely be answered. Are you able to provide any additional information about the ordinance? I have reviewed the proposal online, but would really like to know in everyday language what it really means for me.</p> <p>Specifically, some of my concern is with the</p>	<p>As was detailed in MAC staff's April 14, 2010 e-mail response to your questions, Your property is located in Zone C. As such, the proposed ordinance imposes no more limitations to the use of your property (in the form of structures or trees) beyond what exists today with the City of Eden Prairie's compliance with Federal Aviation Administration (FAA) Part 77 airspace obstruction criteria. FAA Part 77 establishes a federal process for the evaluation of structures around airports in the United States. The requirements in Zone C under the proposed Draft FCM Zoning Ordinance exist today around the airport by virtue of the federal Part 77 process.</p>

	<p>environment, and what this new zoning could mean for tree removal or plantings. I am still devastated by the number of trees which were removed from MAC property last spring for the runway expansion; I have hoped that some may be re-planted, but is this ordinance just a legal document to justify cutting down trees? My son uses the soccer fields on the north side of airport property; is this proposal going to remove those fields which are leased by MAC to the City of Eden Prairie? Again, I would appreciate any insights you might have.</p>	<p>The trees that were removed recently, as you pointed out, were specifically related to the grading activity that was required for the runway extension at FCM. These trees were not removed by virtue of the FAA's Part 77 Airspace Criteria, which the Draft FCM Zoning Ordinance is built upon. Additionally, the Draft Ordinance does not impact use of the soccer fields.</p>
<p>Mr. John Paul Martin Martin & Squires, PA 444 Cedar St Ste 2050 St Paul MN 55101 jp martin@martinsquires.com 651.767.3743</p>	<p>15</p> <p>We represent a landowner with a parcel in safety zone B of the proposed expansion of Flying Cloud Airport. Can you advise whether the parcels in this zone will be included in an eminent domain proceeding??</p>	<p>As was detailed in MAC legal council's April 22, 2010 e-mail response to your questions, MAC does not intend to initiate any eminent domain proceedings for properties zoned by the FCM Zoning Ordinance. It is MAC's position that no taking occurs with the passage of such zoning regulations.</p>
<p>Mr. Michael Neuharth 9610 Eden Praire Rd Eden Prairie MN neu5@aol.com 952.934.6714 612.366.3400</p>	<p>16</p> <p>My name is Michael Neuharth @ 9610 Eden Prairie Rd. I am responding to the new ordinance which you are proposing around the airport. I can not tell the owners of the airport what to do with there [sic] property and I would expect the same consideration from you regarding my property. I would like the opportunity to build a pond, develop [sic] my property with holdings ponds or whatever I see fit. I would be against any restrictions on my property because of the airports location. You were here before me, however you expanded after me and now want to restrict my property. It's the same thing as the Kelly farm east of MSP. Thank you and hope to hear from you soon. My phone number is 952 934 6714. or 612.366.3400</p>	<p>Per Minnesota State Statute, airports in the State of Minnesota are required to implement airport safety zoning that controls land uses and structure heights around an airport. To do this, the statutes spell out the formation of a Joint Airport Zoning Board (JAZB) comprised of two members from each jurisdiction with land use control in the areas affected by airport zoning, as well as the airport proprietor. The state zoning provisions go beyond what is typically implemented at other airports in the United States consistent with federal airport zoning criteria.</p> <p>Ponds in Zone B are prohibited in the March 18, 2010 Draft FCM Zoning Ordinance to avoid attracting any species of birds into Zone B. This is a fundamental safety consideration that ensures the safety of flight in and around the airport. The increased probability of attracting birds into Safety Zone B, which encompasses the extended centerline of a runway, is a safety hazard to low-flying aircraft.</p> <p>This provision in the ordinance does not preclude property owners from requesting a variance from the Board of Adjustment to allow</p>

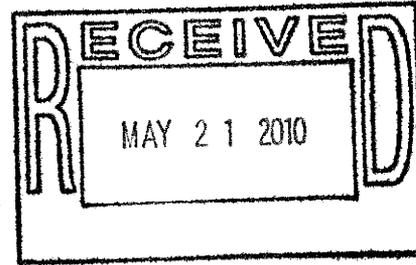
<p>developments around the airport in a manner which may be contrary to the provision of the zoning ordinance. In the case of a variance request for ponding on your property, it is possible that a variance may be considered that would allow for ponding with stipulations such as a requirement that the pond design, and any related vegetation plans, be completed in coordination with the City of Eden Prairie, the FAA, the MAC, Mn/DOT Aeronautics, and the U.S. Department of Agriculture.</p> <p>As part of the FCM JAZB deliberation process the Board has proposed several changes to the State Model Zoning Ordinance provisions based on FCM safety study findings, and the social and economic impacts related to land use controls and public comments. The March 18, 2010 Draft FCM Zoning Ordinance representing what the Board feels is an appropriate balance considering these variables, providing a reasonable standard of safety around FCM.</p>		
<p>Comment noted.</p>	<p>Fraser is the owner of 2.5 acres of developable land near the Flying Cloud Airport, property ID 2711622140035. This parcel is adjacent to lands owned by the Metropolitan Airports Commission (MAC). Although the parcel is currently zoned as R-Rural District, pronouncements by the City of Eden Prairie and the 2008 Updated Comprehensive Plan of the City designate the parcel for a Low-Density Residential use. Fraser has expected and continues to expect that it will be developed for single-family residential as the highest and best use of the property.</p>	<p>17</p>
<p>This property is located in a Permitted Residential Area per the provisions of the March 18, 2010 Draft FCM Zoning Ordinance. As such, residential use would be allowed on the property unless it would interfere with communication or navigation aids. The VOR "clear zone" is an FAA guide to indicate that structures proposed to be built within the "clear zone" might affect the VOR signal. This can only be determined by the FAA once the proposed structures are known including size, physical orientation and building material. This is not to say that property located outside of the "clear zone" would not cause a problem either. If any proposed structures exceed 70</p>	<p>We are greatly concerned our land is proposed to be included in a newly established Safety Zone B. MAC confirmed in an email from Amanda Nyren to David Halsey, CFO of Fraser on April 30, 2010, that Fraser's parcel is in a "clear zone" to accommodate the VOR radar system installed in 2009 by MAC. The draft ordinance prohibits as a safety hazard, any land use within Safety Zone B which would "create or cause interference with the operation of radio or electronic facilities on the Airport or with radio or electronic</p>	<p>18</p>

Mr. David Halsey, Chief Financial Officer
Fraser

	communications between the Airport and aircraft."		<p>feet in height a permit would be required, including the submission of an FAA 7460 form to determine if the proposed development would produce an airspace obstruction, impair the vision of pilots or interfere with aircraft communication or navigation. However, it is recommended that a 7460 form be filed, regardless, once a development plan is established for this property.</p> <p>The proposed ordinance does not restrict residential development on your property. Moreover, the height provisions proposed in the ordinance impose no more limitations to the use of your property beyond what exists today with the City of Eden Prairie's compliance with Federal Aviation Administration (FAA) Part 77 airspace obstruction criteria. FAA Part 77 establishes a federal process for the evaluation of structures around airports in the United States. The requirements in Zone C under the proposed Draft FCM Zoning Ordinance exist today around the airport by virtue of the federal Part 77 process.</p> <p>Comment noted. The meeting time and location were available April 7, 2010 on the MAC website (www.metroairports.org) at the following link: http://www.metroairports.org/mac/appdocs/headlines/fcm_jazb_public_hearing.html</p>
19	Our concern is that development of our parcel would be either prohibited or severely restricted by the new ordinance without any compensation for damages by way of loss of value whatsoever. This is to demand that the MAC quantify the damage caused to Fraser and compensate Fraser for such damages.		
Mr. Matt Klefner 9559 Woodridge Cir Eden Prairie	I got notice of this meeting from a letter from Eden Prairie. I was in a position that I did not have the letter and needed to know when the meeting was this last week and I could not find it on the MAC website where they list meetings of this board.	20	
	I'm in State Zone C, about a mile from the airport, and so when I saw the notice, which was not the full ordinance, of course, I was able to locate a draft later. I noticed three things that might impact me as a homeowner – things that I might do to interfere with the, you know, the visual – the ability of the flight pilots to see and height restrictions. Height restrictions are not an issue for me, but I was a little confused on the two other components. They seemed a little bit broad to me. So on – impairing the visual for the pilot, you know, I'm not sure what kind of behavior is being restricted here. To go to the extreme – if I put Christmas lights on my house or I have a skylight that reflects, you know, sunlight, and even solar panels at certain angles could potentially reflect sun. Are we talking about those sorts of things? You know, when do we have to – basically the issue is, when	21	<p>if the owner of a property located in Safety Zone C wishes to erect a structure on their property that is in excess of the maximum construction height for their property as depicted on Plates MCH-1 to MCH- 24 in the March 18, 2010 Draft FCM Zoning Ordinance a permit would be required, including the submission of an FAA 7460 form.</p> <p>As part of the FAA's 7460 airspace obstruction evaluation process the proposed structure would be analyzed by the FAA to ensure that the proposal does not impair the vision of pilots or interfere with aircraft communication or navigation.</p> <p>Each proposed structure and its intended use is evaluated by the FAA on a case-by-case basis to determine if its location, size and use pose an impact to safe aircraft navigation, pilot vision and aircraft communication and navigation.</p>

	<p>do we know when we need to go seek permission to do something that's maybe, you know, an everyday thing that a homeowner might do?</p>	
<p>22</p>	<p>Secondly, I was a little bit confused on the, you know, the electromagnetic interference issue. My understanding is that, the FCC has the sole authority to regulate this and there's a lot of things that, you know, a citizen can do to violate the FCC rules. You know, about broadcasting in bands that they're not supposed to. I'm also worried that cities explicitly do not have the right to regulate cell phone towers, for instance. That's the FCC's sole authority so I'm a little bit confused about what the Zoning Board, you know, including this type of language in the ordinance – So basically the question here is, what can I do that would run afoul of this ordinance that otherwise wouldn't run afoul of FCC regulations? You know, maybe it's amateur radio, who knows? But I'd like to see – my concern is I'd like to see specifics on both that and of course the visual restrictions. Other than that, this, you know, in spirit, this ordinance to me seems like something reasonable.</p>	<p>Please see the response to comment 21. In cases where a proposed cell tower, or other FCC regulated structure, poses an impact to aircraft/airport safety, the FCC will typically yield to the FAA's 7460 determination.</p>

OFFICE OF THE CITY MANAGER | May 20, 2010



OFC 952 949 8300
FAX 952 949 8399
TDD 952 949 8399

8080 Mitchell Rd
Eden Prairie, MN
55344-4485

edenprairie.org

Dennis Probst
Deputy Executive Director of Environment and Planning
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

Dear Mr. Probst:

At their May 18, 2010, meeting, the Eden Prairie City Council discussed a proposed position statement prepared by the Eden Prairie City Attorney, Mr. Ric Rosow, concerning the proposed airport zoning ordinance for Flying Cloud Airport. I have enclosed a copy of the position statement with this letter for your reference.

Following their discussion, the City Council unanimously adopted the following motion:

“Move to adopt the recommendations of the City Attorney, as amended by the City Council, with respect to the draft Joint Airport Zoning Board (JAZB) ordinance and indemnification and cooperation agreement.”

The enclosed document is the exact text of what the Council has endorsed as the official position of the City. If you have any questions about the position statement, please feel welcome to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott H. Neal".

Scott H. Neal
City Manager

MEMO

TO: Mayor and City Council
FROM: Richard F. Rosow, City Attorney
RE: Indemnification Agreement and Flying Cloud Airport Zoning Ordinance
DATE: May 13, 2010

I have reviewed both the Indemnification and Cooperation Agreement and the draft Flying Cloud Airport Zoning Ordinance. My comments and recommendations are set out below.

INDEMNIFICATION AND COOPERATION AGREEMENT

1. The Indemnification recites that a City employee is the Zoning Administrator. The Flying Cloud Airport Zoning Ordinance allows Executive Director of MAC to administer the JAZB regulations if the Cities do not administer. Since The Board of Adjustment under the Zoning Ordinance is appointed by MAC, I am of the opinion that it is appropriate and in the City's interest that MAC act as the Administrator of the Flying Cloud Airport Zoning Ordinance. I recommend that the draft agreement be amended to provide that MAC's Executive Director is the Zoning Administrator or that the City informs MAC that it will not appoint a zoning administrator for this ordinance so that the default provision takes effect whereby the Executive Director of MAC is the zoning administrator.
2. The Indemnification states that if the Flying Cloud Zoning Ordinance is adopted by the Joint Board, then MAC desires that the each City amend its comprehensive plan and zoning code to require compliance with the Flying Cloud Airport Zoning Ordinance as an appendix to its zoning code. Doing so is actually a condition of the Indemnification. This is not required under the Flying Cloud Airport Zoning Ordinance. The City Council needs to consider whether it desire that the City do this. The Flying Cloud Airport Zoning Ordinance already contains a section on "Conflict" that provides that where a conflict exists between any provision of the Flying Cloud Airport Zoning Ordinance and any city, etc. regulation, or rule applicable to the same area, the more stringent law, regulation, or rule shall govern and prevail. I recommend that the draft agreement be revised by deleted the requirement that the Member Cities adopt the Flying Cloud Airport Zoning Ordinance and amend their comprehensive plans.
3. The Indemnification recites that in consideration of the City (i) amending its comprehensive plan, (ii) amending its zoning ordinance, and (iii) designating an employee to be the Zoning Administrator MAC agrees to indemnify the city. The City's position from the beginning is that in consideration for joining JAZB, MAC

must indemnify the City. I recommend the draft agreement be revised by deleting the two stated requirements.

4. The Indemnification states MAC will not indemnify the City for liability arising from four matters. I recommend using the standard set out in Minn. Stat. Section 466.07 which requires the City to indemnify its officers and employees provided the person (1) was acting in the performance of the duties of the position; and (2) was not guilty of malfeasance in office, willful neglect of duty, or bad faith.
5. MAC inserts a short period (21 days) during which the City must give notice of a claim (other than receipt of a formal complaint for which notice must be given within 10 days). I recommend substituting for the 21 day period that notice must be given in a reasonable time.
6. The Indemnification specifies four (4) reasons for which MAC may unilaterally terminate its defense and indemnification: (i) if the City amends its zoning code or comprehensive plan to change provisions previously adopted; (ii) failure to perform an obligation under the notice section; (iii) failure to perform an obligation under the cooperation section; or (iv) a court determines the claim is not the type for which indemnification is required. I recommend that the only basis for termination of the obligation for defense and indemnification is if a court determines the matter is not the type for which indemnification is required.

DRAFT FLYING CLOUD AIRPORT ZONING ORDINANCE

The key issue to consider with respect to the draft is the requirements that the City appoint a Zoning Administrator to administer the provisions of the JAZB ordinance. There is nothing in the statute governing the Joint Airport Zoning Board process that requires that the Member Cities appoint a zoning administrator for property within the member's city. The draft does provide that if a member City does not appoint a zoning administrator, that the Executive Director of MAC shall be the zoning administrator. Since the Board of Appeals set up for review of the zoning administrator's decisions is appointed by MAC, it makes more sense for MAC to be the zoning administrator. In addition MAC has more expertise with respect to the airport related regulations of the JAZB ordinance than do the Member Cities. I recommend that the ordinance be amended to provide that MAC's Executive Director is the Zoning Administrator or that the City informs MAC that it will not appoint a zoning administrator for this ordinance so that the default provision takes effect whereby the Executive Director of MAC is the zoning administrator. In addition there are other more minor issues with the ordinance which require discussion with MAC and are set out below. My recommendations are underlined with respect to each point.

1. Definitions – Section III, A, 18, Lot. The language does not match the definition in the Eden Prairie Code. I recommend it be revised to conform to Eden Prairie zoning code. It may need to be revised as to each city.

2. Definitions – Section III, A, 20, Low Density Residential Lot. This references property zoned for single or two-family residences. Eden Prairie’s multifamily residential zoning is not based on a two-family residence situation. I recommend this section be amended to match the zoning classifications for each Member City.
3. Definitions – Section III, A, 22, Nursing Home. The definition is vague. I recommend the section be revised to conform to State Statute Section 144A.01 Subd 25 which defines a Nursing Home.
4. Definitions - Section III, A, 29, Runway 18-36. There is a reference to expansion of Runway 18-36 which was not part of the prior land use plan.
5. Entry onto Private Property - Section 4, B, 2. This section allows MAC to enter onto private property to remove a hazard. I recommend strengthening the section by including a paragraph specifically setting forth that notice be served prior to the entry by MAC.
6. Permitted Residential Areas - Section 5, B, 5 a. I recommend that the Maps clearly identify the geographical extent of the Flying Cloud Airport Zoning Ordinance so as to be understandable by a property owner.
7. Land Use Restrictions - Section 5, B, 5, c. I recommend that the Flying Cloud Airport Zoning Ordinance identify that the cost to acquire property on which land uses violate the ordinance is an obligation of MAC.
8. Abandoned or Deteriorating Nonconforming Uses - Section VIII E. This section allows removal of abandoned or deteriorating legal nonconforming structures. I recommend that the Flying Cloud Airport Zoning Ordinance identify that this is an expense of MAC.
9. Variances - Section IX B. The language on variances does not track and is more restrictive than the statute governing airport zoning, Minn. Stat. Section 360.067, Subd. 2. The Flying Cloud Airport Zoning Ordinance requires a variance to alter, change, rebuild, repair, or replace an existing Structure. The statute requires a variance only to increase the height of any structure. I recommend further discussion with MAC as to the reason for the variance from the statute on this point.
10. Hazard Marking and Lighting Section X, A. . The Flying Cloud Airport Zoning Ordinance requires that the owner of a nonconforming use allow the installation of markers or lights deemed necessary by the Zoning Administrator. I find no provision in the airport zoning statute allowing this. This also highlights a reason why MAC should be the Zoning Administrator for the ordinance as this is a technical matter as to which MAC has the expertise. I recommend further discussion with MAC as to the legal basis for this requirement.

11. Zoning Administrator - Section XI, B. This section requires each City appoint a Zoning Administrator for this Ordinance in its City. MAC should be the Zoning Administrator. I recommend that the ordinance be amended to provide that MAC's Executive Director is the Zoning Administrator or that the City informs MAC that it will not appoint a zoning administrator for this ordinance so that the default provision takes effect whereby the Executive Director of MAC is the zoning administrator.

12. Appeals - Section XIV. I recommend that this section be revised to conform to Minn. Stat. Section 360.072 to allow an appeal from a decision of the Commission of Transportation.

**INSERT FCM JAZB MINUTES
FROM MAY 27, 2010 MEETING**

MEMORANDUM

TO: FCM Joint Airport Zoning Board (JAZB)

FROM: Chad E. Leqve, Manager – Aviation Noise and Satellite Programs

SUBJECT: DRAFT FLYING CLOUD ZONING ORDINANCE UPDATE

DATE: November 18, 2010

At the May 27, 2010 Flying Cloud Airport (FCM) Joint Airport Zoning Board Meeting (JAZB) the City of Eden Prairie raised a number of concerns with the Draft FCM Zoning Ordinance. The Board instructed Metropolitan Airports Commission (MAC) staff to meet with Eden Prairie city staff to resolve the issues and report back to the JAZB.

The respective staffs have met on a number of occasions to review the Ordinance. These discussions have been productive and have resulted in proposed modifications to the Draft Ordinance that address the City's concerns. Attached to this memorandum you will find the pages out of the March 15, 2010 Draft Ordinance where changes are proposed, with the modifications tracked for your review.

Based on these proposed modifications to the Draft FCM Zoning Ordinance, on November 16, 2010 the Eden Prairie City Council took action endorsing the submittal of the Draft FCM Zoning Ordinance to the Commission of Transportation for review.

As a result of this development, a meeting of the Board is needed to consider the updated Draft FCM Zoning Ordinance, and supporting documentation, for submittal to the Commission of Transportation for review. Jenn Felger will be coordinating a meeting date with Board members targeting mid-December 2010.

If you have any questions regarding this please feel free to contact me at 612-725-6326.

- b. Aircraft accident and site characteristics;
- c. Adjacency to large open areas;
- d. Economic effects of residential use restrictions and/or designation of existing residential uses as non-conforming; and
- l. Other material factors deemed relevant by the governmental unit in distinguishing the area in question as a Permitted Residential Area.

14. FAA. "FAA" means the Federal Aviation Administration or, if the Federal Aviation Administration shall no longer exist or serve its present functions, such successor federal entity or entities as shall either singularly or collectively perform or serve such functions.

15. FAA 7460 Obstruction Evaluation. Established FAA process for conducting aeronautical studies conducted under the provisions of Title 14 CFR, Part 77 (for proposed construction or alteration) or Federal Aviation Act of 1958 (for existing structures), or any successor to this process.

16. FCM Zoning Map. "FCM Zoning Map" means the Flying Cloud Airport Zoning Map as defined in Section VI.C.

17. Fuel. "Fuel" means any petroleum product, including natural gas, used to produce heat or power by burning.

18. Lot. [For JAZB Ordinance: "Lot" means a designated parcel, tract, or area of land established by plat or subdivision, or otherwise permitted by law.] [For Eden Prairie Ordinance: "Lot" means one unit of a recorded plat, subdivision, or registered land survey, or a recorded parcel described by metes and bounds.]

19. Low Density Residential Structure. "Low Density Residential Structure" means a single-family or two-family home.

20. Low Density Residential Lot. "Low Density Residential Lot" means a single Lot located in an area which is zoned for single-family, two-family residences, or multifamily-residential use and in which the predominant land use is such type of residences.

21. 21. Nonconforming Use. "Nonconforming Use" means any pre-existing Structure or use of land which is inconsistent with the provisions of this FCM Zoning Ordinance or an amendment hereto.

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22. *Nursing Home.* "Nursing Home" "Nursing home" means a facility or that part of a facility which provides nursing care to five or more persons. "Nursing home" does not include a facility or that part of a facility which is a hospital, a hospital with approved swing beds as defined in section 144.562, clinic, doctor's office, diagnostic or treatment center, or a residential program licensed pursuant to sections 245A.01 to 245A.16 or 252.28.

Deleted: means a building or structure where aged or infirm people reside on a twenty-four (24) hour basis in order to receive nursing care and related services and includes assisted living facilities licensed by the Minnesota Department of Health to provide individualized home care services or home care management services to facility residents either by the management or by providers under contract with the management

23. *Person.* "Person" means any individual, firm, partnership, corporation, company, association, joint stock association, or body politic, and includes a trustee, receiver, assignee, administrator, executor, guardian, or other representative.

24. *Planned.* "Planned" means proposed future Airport developments and improvements indicated on a planning document having the approval of the FAA, the Minnesota Department of Transportation, Office of Aeronautics, and the Metropolitan Airports Commission.

25. *Precision Instrument Runway.* "Precision Instrument Runway" means a Runway having an existing instrument approach procedure utilizing an instrument landing system (ILS), or a precision approach radar (PAR), and a Runway for which a precision instrument approach procedure is Planned.

26. *Runway.* "Runway" means any existing or Planned paved surface of the Airport which is specifically designated and used or Planned to be used for the landing and/or taking off of aircraft. The individual Runways at the Airport are defined in this FCM Zoning Ordinance based on the compass heading of landing aircraft.

27. *Runway 10R-28L.* "Runway 10R-28L" means the 5,000-foot runway. Runway 10R is a Precision Instrument Runway and Runway 28L is a Non-precision Runway. Both the Runway 10R and 28L ends are within the City of Eden Prairie.

28. *Runway 10L-28R.* "Runway 10L-28R" means the 3,900-foot Non-precision Runway at the Airport whose 10L and 28R ends are within the City of Eden Prairie.

29. *Runway 18-36.* "Runway 18-36" means the 2,691-foot runway (planned for extension to 2,800 feet). Runway 18 is a Visual Runway and Runway 36 is a Non-Precision Runway. Both the Runway 18 and 36 Ends are within the City of Eden Prairie.

B. Rules Of Construction. In the construction of this FCM Zoning Ordinance, the following rules shall be observed and applied, except where the context clearly indicates otherwise.

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- 1. Computing Time.** In computing the period of time within which an act may or must, be done, the first calendar day from which the designated period of time begins to run shall not be included. The last day of the period shall be included, unless it is a Saturday, a Sunday, or a legal holiday, in which case the period shall run until the end of the next day which is not a Saturday, Sunday, or legal holiday.
- 2. Conflicts Between Ordinance Provisions.** If a provision of this FCM Zoning Ordinance conflicts with any other provision of this FCM Zoning Ordinance, the more restrictive provision shall prevail.
- 3. Height.** "Height" shall be expressed as elevation in feet above Mean Sea Level, North American Vertical Datum, 1988 Adjustment, except in reference to maximum construction height without an Airport Zoning Permit when it shall be expressed as distance in feet above curb level or above natural grade, as the context and Section IX.B.1. require, or as distance in feet above ground shown on the Maximum Construction Heights Without Permit Plates in the FCM Zoning Map.
- 4. Including, Not Limited To.** The word "including" means including but not limited to.
- 5. Land To Include Water Surfaces And Bodies.** The word "land" shall include water bodies and surfaces for the purpose of establishing Airspace Zones and Safety Zones.
- 6. May, Permissive.** The word "may" is permissive.
- 7. Shall, Mandatory.** The word "shall" is mandatory and not discretionary.
- 8. Singular And Plural.** The singular shall include the plural, and the plural the singular.
- 9. Tense.** The present tense shall include the future.

SECTION IV. AIRSPACE OBSTRUCTION ZONING

A. Airspace Surfaces And Zones. In order to carry out the purpose of this FCM Zoning Ordinance as set forth in Section I., the following Airspace Surfaces and Airspace Zones are hereby established, subject to the airspace zoning limits in Section VI.A.

equipment used to accomplish any of the foregoing activities be allowed to project above any Airspace Surface.

- a. Public Nuisance; Order. If the whole or any part of any Tree shall be determined to be an Airport Hazard by the FAA, or any successor entity, after proper investigation. the Metropolitan Airports Commission's Executive Director or his designee may issue an order in writing for the owner or owners, agent or occupant of the property upon which such hazardous tree is located, to forthwith cause such hazardous tree, or portion thereof if the removal of a portion will remove the hazard, to be taken down and removed.
- b. Notice. Said order is to be mailed to the last known address of the owner, agent or occupant and shall be accompanied by a notice setting forth said Executive Director's authority to remove such hazardous Tree at such owner's, agent's or occupant's expense in the event such owner, agent or occupant fails to comply with or file a notice of appeal from said order within ten (10) days of mailing. The notice shall include instructions for filing a notice of appeal from said order.
- c. Removal. If within ten (10) days after said order has been mailed, as above provided for, the owner or owners, agent or occupant of the property upon which such hazardous Tree is located neglects or refuses to comply with said order, or has failed to file a notice of appeal from said order with said Executive Director, then said Executive Director or his designee(s) may enter upon said premises and take down or remove said tree or portion thereof declared to be hazardous, and to do any and all things which in his opinion may be necessary for the protection of life, limb or property.
- d. Assessment of Expense. If, after the notice hereinbefore provided for has been given, the owner, agent or occupant has failed to remove such hazardous tree or portion thereof, and it becomes necessary for the Metropolitan Airports Commission to remove same, said Executive Director or his designee shall mail a statement of the expense of such removal to the owner, agent or occupant of the property from which such tree or portion thereof has been removed, and if within thirty (30) days therefrom the owner, agent or occupant has not remitted to the Commission for the expense incurred by the Commission in said removal, the Executive Director or his designee may forthwith recover the amount of such

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In Safety Zone B for each end of Runways 10R-28L, 10L-28R, 36-18, a minimum of 20% of the total Zone B acreage or 20 acres, whichever is greater, shall be maintained as contiguous open space.

4. Safety Zone C Restrictions. No land use in Safety Zone C shall violate the height restrictions set forth in Section IV.B. or the general restrictions contained in Section V.B.1.

5. Permitted Residential Areas

- a. Property located in the permitted Residential Areas shall be subject to the height restrictions of Section IV.B. and the general restrictions of Section V.B.1. but shall not be subject to the Safety Zone A restrictions of Section V.B.2. or the Safety Zone B restrictions of Section V.B.3. In addition, such Structure, Lot, or use shall be deemed a conforming use that shall not be prohibited under this FCM Zoning Ordinance.
- b. In Safety Zone B in Permitted Residential Areas, existing low, medium, and high density residential uses may be improved and expanded, and new low, medium, and high density residential uses may be developed, all subject to the height restrictions of Section IV.B. and the general restrictions of Section V.B.1.
- c. Land uses in Permitted Residential Areas that violate any of the following restrictions are prohibited as safety hazards and must be acquired, altered, or removed at public expense, provided such expense shall not be the responsibility of any of the cities adopting this ordinance:
 - i. any Structure which a Person customarily uses as a principal residence and which is located entirely inside Safety Zone A within 1,000 feet of the end of a Primary Zone;
 - ii. any Structure which a Person customarily uses as a principal residence and which is located entirely within Safety Zones A or B and which penetrates a Precision Instrument Approach Surface;
 - iii. any land use in Safety Zone A or B which violates any of the following standards:
 - (1) the land use must not create or cause interference with the operation of radio or electronic facilities on the Airport or with radio or electronic communications between the Airport and aircraft;

the foregoing activities, whichever is higher, measured in feet from curb level or from natural grade at a point ten (10) feet away from the front center of the Structure, whichever is lower, does not exceed the maximum construction height above ground without an Airport Zoning Permit shown for the Lot on the applicable Maximum Construction Heights Without Permit Plate in the FCM Zoning Map. The permitting process will require an FAA 7460 Obstruction Evaluation for all structures with proposed heights in excess of the maximum allowable construction height with out a permit.

2. No Violation Of Height Or Land Use Restriction Permitted. Nothing in this Section IX.B. shall be construed as permitting or intending to permit a violation or a greater violation of any provision of this FCM Zoning Ordinance.

C. Permit Application. An Airport Zoning Permit application for activities on a Lot shall be made in the manner and on the form established by the Zoning Administrator of the jurisdiction in which the Lot is located as designated in Section XII.B.

D. Permit Standard. An Airport Zoning Permit shall be granted unless the Zoning Administrator determines that granting the permit (1) would allow a conforming Structure or use to violate any provision of this FCM Zoning Ordinance or (2) would permit a nonconforming Structure or a Nonconforming Use to become a greater violation of any provision of this FCM Zoning Ordinance. Any Airport Zoning Permit granted may be granted subject to any reasonable conditions that the Zoning Administrator may deem necessary to effectuate the purpose of this FCM Zoning Ordinance. In making any determination, the Zoning Administrator need not give public notice of, or hold a public hearing on, the Airport Zoning Permit application or the determination.

E. Abandoned Or Deteriorated Nonconforming Uses. Whenever a Zoning Administrator determines that a nonconforming Structure has been abandoned or more than eighty percent (80%) torn down, deteriorated, or decayed, no Airport Zoning Permit shall be granted that would allow such Structure to exceed the height restrictions of Section IV.B. or otherwise violate any provision of this FCM Zoning Ordinance. Whether application is made for an Airport Zoning Permit or not, a Zoning Administrator, may order the owner of a nonconforming Structure, at the owner's expense, to lower, remove, reconstruct, or equip the same in the manner necessary to conform to the provisions of this FCM Zoning Ordinance.

Prior to issuing such an order, the city Zoning Administrator shall consult with the Metropolitan Airports Commission and obtain its consent to the proposed order. Further prior to the issuance of any such order the affected City and the Metropolitan Airports Commission shall enter into an agreement as to which party is responsible for issuance and enforcement of the order. In the event the owner of the nonconforming Structure shall neglect or refuse to comply with such order for ten (10) days after receipt of written notice of such order, the Zoning Administrator may, by appropriate legal action, proceed to have the nonconforming Structure lowered, removed, reconstructed, or equipped and assess the cost and expense thereof against the land on which the Structure is, or was, located. Unless such an assessment is paid within ninety (90) days from the service of notice thereof on the owner of the land, the sum shall bear interest at the rate of eight percent (8%) per annum from the date the cost and expense is incurred until paid, and shall be collected in the same manner as are general taxes, all as authorized by Minnesota Statutes § 360.067.

SECTION IX. VARIANCES

- A. FAA 7460 Obstruction Evaluation.** Any proposed structure with a height in excess of the maximum allowable building height without a permit that has been analyzed by the FAA as part of a 7460 Obstruction Evaluation and has been determined by the FAA not to be a hazard to air navigation and not requiring changes to airport or aircraft operations will not require a variance.
- B. Variance Application.** Any Person desiring to construct or establish a new Structure; to alter, change, rebuild, repair, or replace an existing Structure, to allow a Tree to grow higher; to alter, repair, replace, or replant a Tree, or to use his or her property in violation of any provision of this FCM Zoning Ordinance may apply to the Board of Adjustment for a variance from such provision. A variance application shall be made by sending the application on the form provided by the Board of Adjustment by certified United States Mail to (1) the members of the Board of Adjustment and (2) the Board of Adjustment at the mailing address specified in Section XIII.C. The applicant shall also mail a copy of the application by regular United States Mail to the Zoning Administrator of the jurisdiction in which the Structure or property is located, as designated in Section XII.B. The Board of Adjustment may charge a fee for processing the application.

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- C. Failure Of Board To Act.** If the Board of Adjustment fails to grant or deny the variance within four (4) months after the last Board member receives the variance application, the variance shall be deemed to be granted by the Board of Adjustment, but not yet effective. When the variance is granted by reason of the failure of the Board of Adjustment to act on the variance, the Person receiving the variance shall send notice that the variance has been granted by certified United States Mail to (1) the Board of Adjustment at the mailing address specified in Section XIII.C. and (2) the Commissioner. The applicant shall include a copy of the original application for the variance with the notice to the Commissioner. The variance shall be effective sixty (60) days after this notice is received by the Commissioner, subject to any action taken by the Commissioner pursuant to Minnesota Statutes § 360.063, subd. 6.a.
- D. Variance Standard.** A variance shall be granted where it is found that a literal application or enforcement of the provisions of this FCM Zoning Ordinance would result in practical difficulty or unnecessary hardship and relief granted would not be contrary to the public interest but do substantial justice and be in accordance with the spirit of this FCM Zoning Ordinance and Minnesota Statutes Chapter 360. Any variance granted may be granted subject to any reasonable conditions that the Board of Adjustment, or the Commissioner acting under Section XI.B., may deem necessary to effectuate the purpose of this FCM Zoning Ordinance.

SECTION X. HAZARD MARKING AND LIGHTING

- A. Nonconforming Uses.** ~~The Metropolitan Airports Commission may require the owner of any nonconforming Structure to permit the installation, operation, and maintenance thereon of such markers and lights as shall be deemed necessary by the Metropolitan Airports Commission to indicate to the operators of aircraft in the vicinity of the Airport the presence of such Airport Hazards. Such markers and lights shall be installed, operated, and maintained at the expense of the Metropolitan Airports Commission.~~
- B. Permits And Variances.** Any Airport Zoning Permit or variance granted by a Zoning Administrator or the Board of Adjustment may, if such action is deemed advisable to effectuate the purpose of this FCM Zoning Ordinance and be reasonable in the circumstances, be granted subject to a condition that the owner of the Structure in question, at the owner's

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E. Decision. The Board of Adjustment may, in conformity with the provisions of this FCM Zoning Ordinance, affirm or reverse, in whole or in part, or modify the order, requirement, decision, or determination appealed from and may make such order, requirement, decision, or determination, as may be appropriate under the circumstances and, to that end, shall have all the powers of a Zoning Administrator.

SECTION XIV. JUDICIAL REVIEW

Any Person aggrieved, or any taxpayer affected by, any decision of the Board of Adjustment, or any governing body of a municipality or county, , any joint airport zoning board, or order of the Commissioner which is of the opinion that an order, requirement, decision, or determination of the Board of Adjustment is illegal, may seek judicial review as provided in Minnesota Statutes § 360.072. The petitioner must exhaust the remedies provided in this FCM Zoning Ordinance before availing himself or herself of the right to seek judicial review as provided by this Section XV.

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SECTION XV. PENALTIES AND OTHER REMEDIES

Every Person who violates any provision of this FCM Zoning Ordinance, any zoning approval granted hereunder, any condition of any zoning approval granted hereunder, or any order, requirement, decision, or determination of a Zoning Administrator or the Board of Adjustment shall be guilty of a misdemeanor and shall be punished by a fine, imprisonment, or both of not more than the fine and imprisonment established for misdemeanors by state law. Each day a violation continues to exist shall constitute a separate offense for purpose of the penalties and remedies specified in this section. This FCM Zoning Ordinance may also be enforced through such proceedings for injunctive relief and other relief as may be proper under Minnesota Statutes § 360.073, as it may be amended, and other applicable law.

SECTION XVI. RELATION TO OTHER LAWS, REGULATIONS, AND RULES

A. Compliance Required. In addition to the requirements of this FCM Zoning Ordinance, all Structures, Trees, and uses shall comply with all other applicable city, local, regional, state, or federal laws, regulations, and rules, including Minnesota Statutes §§ 360.81-360.91 – Regulation Of Structure Heights, Minnesota Rules 8800.1100 – Regulation Of Structure Heights, and 14 Code of Federal Regulations Part 77 – Objects Affecting Navigable Airspace.

Flying Cloud Airport Joint Airport Zoning Board

Meeting Agenda

Tuesday, December 21, 2010

4:00 P.M.

Eden Prairie City Center – Heritage Room 3
8080 Mitchell Road, Eden Prairie

Agenda Items

1. Approval of Meeting Agenda
2. Approval of May 27, 2010 FCM JAZB Meeting Minutes
3. Approval of Draft Materials for First Submission of the Draft FCM Zoning Ordinance to the Commissioner of Transportation for Review
4. Next Meeting Date

**FLYING CLOUD AIRPORT
JOINT AIRPORT ZONING BOARD**

**Thursday, May 27, 2010
Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie, MN**

MINUTES

Rick King, Chair, called the Flying Cloud Airport Joint Airport Zoning Board meeting to order at 4:12 p.m. The following were in attendance:

Members: Rick King, Chair
Glen Markegard, City of Bloomington
Kate Aanenson, City of Chanhassen
Jerry McDonald, City of Chanhassen
Brad Aho, City of Eden Prairie
Joseph Helkamp, City of Shakopee
Julie Klima, City of Shakopee
Roy Fuhrmann, Metropolitan Airports Commission
Lisa Peilen, Metropolitan Airports Commission

Others: Scott Neal, Scott Kipp, Janet Jeremiah, City of Eden Prairie; Chris Roy, Deb Sorenson, Mn/DOT; John Krack, RAAC; Tom Anderson, Cameron Boyd, Mitch Kilian, Chad Leqve, Amanda Nyren, Dennis Probst, Christene Sirois-Kron, MAC Staff

1. APPROVAL OF MEETING AGENDA

IT WAS MOVED BY AHO, SECONDED BY HELKAMP, TO APPROVE THE AGENDA. THE MOTION CARRIED BY UNANIMOUS VOTE.

2. APPROVAL OF MARCH 18, 2010 FCM JAZB MEETING MINUTES

IT WAS MOVED BY HELKAMP, SECONDED BY MCDONALD, TO APPROVE THE MINUTES OF THE MARCH 18, 2010 FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD MEETING AS PRESENTED. THE MOTION CARRIED.

3. REVIEW OF 2009 AND 2010 AIRCRAFT INCIDENTS AT FCM IN THE CONTEXT OF THE SAFETY ANALYSES CONDUCTED TO DATE

Chad Leqve, MAC Staff, reported that in 2009 and 2010 there were three additional aircraft accidents at FCM. To evaluate the effect of these incidents on the conclusions/findings provided in the November 6, 2009 Safety Study conducted by HNTB, MAC staff requested that HNTB recalculate the accident probabilities taking these accidents into account. To evaluate the effect of the 2009 and 2010 aircraft incidents at FCM, an accident rate of 0.8353 was used which assumes these accidents occurred between 1989 and 2008 (the data sample used in the November 6, 2009 Safety Study). Based on the evaluation, the probabilities are still well below the FAA Collision Standard of 1.0 accident per 10 million operations, therefore the findings and conclusions of the November 6, 2009 Safety Study are still applicable.

In response to comments, Mr. Leqve stated that it would take approximately 50 crashes over the 20-year period to push the number over the FAA threshold and that there does not appear to be any significant trending changes related to the three crashes in 2009 and 2010.

4. REVIEW OF PUBLIC COMMENTS AND DRAFT RESPONSES FROM THE FIRST PUBLIC COMMENT PERIOD/HEARING

Chad Leqve, MAC Staff, reported that the public comment period on the Draft FCM Zoning Ordinance was held April 8, 2010 to May 7, 2010, with a public hearing on April 29, 2010. A total of 10 written comments were received during the comment period. A total of 16 people attended the public hearing and one individual testified at the public hearing. In general, the comments received focused on questions related to the effect the ordinance would have on specific properties located around FCM.

Mr. Leqve noted that the Board Packet contained all of the correspondence received during the public comment period, a transcript of the public hearing and a matrix detailing all of the draft responses to the comments. Mr. Leqve responded to questions regarding the Upgrala Hunting Club comments and reviewed the property that falls in the safety zones areas. The existing land use and future proposed land use in the City's Comprehensive Plan maintains the area as open space use. He noted that the property's existing use is allowed and accommodated in the proposed draft ordinance and is consistent with existing and long range land use zoning in the City of Eden Prairie. City staff indicated that they would check on whether or not the property is in the floodplain and whether there are residential development restrictions if it is.

Mr. Leqve also reviewed the comments received from Fraser regarding its property noting that the property is located in a "Permitted Residential Area" per the provisions of the Draft Ordinance. As such, residential use would be allowed unless it would interfere with communication or navigation aids. Mr. Leqve discussed the FAA 7460 review process with regards to whether a proposed structure would pose an impact to safe aircraft navigation, pilot vision and aircraft communication and navigation. It was noted that whether or not the ordinance is in place, given the location of the property in relation to the VOR, an FAA 7460 Review Form should be submitted to the FAA.

Discussion followed regarding the responses to comments. It was recommended that the floodplain question be addressed in the responses as it pertains to the ordinance since it has a bearing on the value of development. Mr. Leqve discussed the technicality of the responses and indicated that he will be available to answer any follow-on questions from those who provided comments on the draft ordinance.

Discussion followed and the Board directed staff to check with the City regarding the floodplain; if the property is impacted, Response #7 should be amended. The Board also recommended sending the response matrix with a cover letter to those who provided comments.

IT WAS MOVED BY AHO, SECONDED BY PEILEN, TO ACCEPT THE RESPONSES TO COMMENTS, THAT THE RESPONSES BE SENT TO THOSE WHO COMMENTED, AND IF NECESSARY, AMEND RESPONSE #7 BY ADDING LANGUAGE REGARDING THE FLOODPLAIN. THE MOTION CARRIED BY UNANIMOUS VOTE.

5. CITY OF EDEN PRAIRIE INPUT FROM MAY 18, 2010 CITY COUNCIL MEETING

Chair King reported that after the public comment period closed, MAC received comments from the City of Eden Prairie regarding the Draft Ordinance and the indemnification and cooperation agreement. Copies of the comments were distributed to the Board. Chair King suggested that the Board ask City Staff and MAC Staff to discuss the comments and try to work through any issues that are presented and report back to the Board. The Board would then meet and make any changes to the Draft Ordinance that may be necessary.

If the other Cities on the Board have similar concerns or comments, they should forward those to MAC staff. Scott Neal, City Manger of Eden Prairie, stated that the City's Attorney has been in contact with the other Cities' Attorneys.

IT WAS MOVED BY HELKAMP, SECONDED BY AHO, TO RECEIVE THE CITY OF EDEN PRAIRIE INPUT FROM ITS MAY 18TH CITY COUNCIL MEETING, ASK MAC STAFF AND EDEN PRAIRIE STAFF TO MEET TO RESOLVE THE ISSUES, AND REPORT BACK TO THE JOINT AIRPORT ZONING BOARD AT THE CONCLUSION OF THE DISCUSSIONS. IF AN IMPASSE IS DECLARED, THE BOARD WILL MEET TO DISCUSS THE NEXT STEPS. THE MOTION CARRIED BY UNANIMOUS VOTE.

6. NEXT MEETING DATE

The next meeting date will be determined following discussions noted in Item 5.

IT WAS MOVED BY HELKAMP, SECONDED BY AHO, TO ADJOURN THE MEETING. THE MOTION CARRIED BY UNANIMOUS VOTE.

The meeting was adjourned at 4:57 p.m.

DRAFT

December 22, 2010

Mr. Thomas K. Sorel
Commissioner of Transportation
Minnesota Department of Transportation
395 John Ireland Boulevard
Mailstop 100
St. Paul, MN 55155-1899

**RE: FIRST SUBMITTAL OF DRAFT FLYING CLOUD AIRPORT ZONING
ORDINANCE**

Dear Commissioner Sorel:

Pursuant to Minn. Stat. §360.063, subd. 3 the Metropolitan Airports Commission (MAC) requested formation of the Flying Cloud Airport (FCM) Joint Airport Zoning Board (JAZB). The JAZB was formed and consists of two members each from the cities of Eden Prairie, Chanhassen, Shakopee, and Bloomington, as well as two members from the MAC. The FCM JAZB conducted its first meeting on July 16, 2009, at which time I was appointed Chairman by unanimous decision of the Board.

In compliance with Minn. Stat. §360.065, subd. 2 the FCM JAZB is making its first submittal of the Draft FCM Zoning Ordinance for your review. Consistent with the guidance received from Minnesota Department of Transportation (Mn/DOT) Aeronautics Office staff this submittal includes the following documents:

1. *Flying Cloud Airport (FCM) Joint Airport Zoning Board (JAZB) Meeting Record*: including all meeting minutes, presentations, and staff memoranda. This documentation provides all of the background and analyses that resulted in the recommendations of the FCM JAZB contained in the Draft FCM Zoning Ordinance.
2. *Public Comment and FCM JAZB Response Documentation*: including all public comments received during the public comment period and the public hearing conducted by the FCM JAZB, a transcript of the public hearing, and a matrix detailing all of the Board's responses to the comments.
3. *Draft Flying Cloud Airport (FCM) Zoning Ordinance*: provides a complete copy of the Draft FCM Zoning Ordinance recommended by the FCM JAZB. This Draft Ordinance is a product of the documentation provided in items 1 and 2 listed above.

The following provides a summary of the information contained in the above documentation.

1. Flying Cloud Airport (FCM) Joint Airport Zoning Board (JAZB) Meeting Record

a. On July 16, 2009 the FCM JAZB held its first meeting. At that meeting the Board reviewed the following major considerations in determining a zoning ordinance for the airport:

- Mn/DOT Model Ordinance
- FCM's unique characteristics in the context of existing and planned land uses around the airport
- Maintaining a "reasonable standard of safety" while considering the social and financial costs to the community

The JAZB discussion focused on the State's Model Airport Zoning Ordinance. An important part of this process was balancing the land use controls needed to provide safety while at the same time considering the social and economic impacts related to prospective land use controls. Minn. Stat. §360.066, subd. 1, is particularly instructive when addressing the question of zoning around complex urbanized airports such as those in the MAC's system of airports. The statute also addresses the concept of "reasonableness" when balancing the variables to be considered in the zoning process. Specifically, Minn. Stat. §360.066, subd. 1, states:

Reasonableness. Standards of the commissioner defining airport hazard areas and the categories of uses permitted and airport zoning regulations adopted under sections 360.011 to 360.076, shall be reasonable, and none shall impose a requirement or restriction which is not reasonably necessary to effectuate the purposes of sections 360.011 to 360.076. In determining what minimum airport zoning regulations may be adopted, the commissioner and a local airport zoning authority shall consider, among other things, the character of the flying operations expected to be conducted at the airport, the location of the airport, the nature of the terrain within the airport hazard area, the existing land uses and character of the neighborhood around the airport, the uses to which the property to be zoned are planned and adaptable, and the social and economic costs of restricting land uses versus the benefits derived from a strict application of the standards of the commissioner.

Consistent with the provisions of Minn. Stat. §360.066, subd. 1, and with prior Minneapolis-St. Paul International Airport (MSP) zoning efforts, the FCM JAZB discussion focused on the land use controls that are necessary to ensure a reasonable degree of safety around FCM with consideration given to the social and economic cost associated with possible land use controls.

b. On August 13, 2009 the FCM JAZB conducted its second meeting. At this meeting the Board received a summary of a land use analysis, conducted by MAC staff, detailing the existing and planned land uses around FCM that would be impacted by the application of the State Model

Zoning Ordinance and the airspace zones. Additionally, the Board received a presentation from Mn/DOT Aeronautics staff on the Mn/DOT Model Zoning Ordinance.

Consistent with the guidance provided in Minn. Stat. §360.066, subd. 1, the Board focused its discussion on MAC staff's land use analysis which examined the existing land uses, the character of the neighborhoods around the airport, and the future planned/zoned uses that would be affected by adoption of the State Model Zoning Ordinance. Based on the substantial property development and/or structural modification restrictions that would be placed on existing and possible future development areas around the airport, the Board turned its focus to the safety standards that result in the state safety zone dimensions and the related land use restrictions that are outlined in the State Model Zoning Ordinance. As part of this discussion the Board requested clarification from the Mn/DOT representatives on the specific safety criteria that result in the safety zone dimensions and the related development restrictions.

Based on the information provided at the meeting on the issue of foundational safety criteria, the Board directed MAC staff to conduct a safety study to provide the Board with further clarification on the question of zoning requirements necessary to ensure a "reasonable standard of safety."

c. Consistent with the Board's direction the MAC retained the HNTB Corporation to conduct the analysis, and at the November 19, 2009 FCM JAZB meeting the analysis was presented to Board members by HNTB representatives.

As with the MSP and STP studies, the FCM Safety Study considered the character of the flying operations at the airport and the surrounding terrain. The study analyzed accident data specific to FCM, as well as 2025 forecasted operations for the airport. As was done in the case of MSP, the probability standard used in the study was one accident per 10 million operations.¹ The analysis focused on the areas included within the State A Zone outside the RPZ and the State B Zones off each runway at FCM. It is important to point out that the application of the FAA's probability standard in this manner is extremely conservative because it assumes that the entire area within each of the zones is covered by a structure.

In all of the present and future planned occupant areas within the State Safety Zones (outside the RPZ) and in Zone A for Runway 10L and Zone B for Runway 28R, the accident probabilities are below the FAA standard of one accident in 10 million operations. In the remaining State A Zones (outside the RPZ) and State B Zones at the airport the probability is greater than one accident in 10 million operations. Based on the findings of the accident probability analysis the Board found it reasonable to conclude that measures to control land use around the airport should

¹ When determining the acceptability of a prospective structure around an airport, the FAA uses a threshold probability of one collision per 10 million operations. Said another way, if the probability of an aircraft colliding with the structure is less than one time in 10 million operations then the structure is considered to be safe.

include controls beyond what might be considered acceptable at airports, such as MSP, where the accident probabilities within all of the safety zones are below the one accident in 10 million operations threshold.

d. After considering MAC staff's additional safety analysis, which provided probability calculations for impacting a structure on airport property that is located in the safety zones by applying the pilot control assumption and accounting for open space, the Board's consideration focused on the City of Eden Prairie's economic study, which included all MAC-owned property. The economic analysis determined that there would be a loss of \$150 million in commercial development, \$11.7 million in residential development and annual property tax losses of \$559,596 with implementation of the State Model Zoning Ordinance. Based on this analysis, at its January 28, 2010 meeting, the FCM JAZB directed MAC staff to prepare a Draft FCM Zoning Ordinance document.

The following points are the main considerations by the FCM JAZB in providing direction to MAC staff on the specifics to be included in the Draft FCM Zoning Ordinance:

- Implementation of the State Model Zoning Ordinance results in a loss of \$150 million in commercial development, \$11.7 million in residential development and annual property tax losses of \$559,596.
- In all of the present and future planned occupant areas within the State Safety Zones (outside the RPZ) and in Zone A for Runway 10L and Zone B for Runway 28R the accident probabilities are below the FAA standard of one accident in 10 million operations. In the remaining State A Zones (outside the RPZ) and State B Zones at the airport the probability is greater than one accident in 10 million operations.
- The Berkeley Study found that in 95% of aircraft accidents around General Aviation (GA) airports the pilot had control of the aircraft prior to impact.
- The Airport Land Use Compatibility Manual, published by the Minnesota Department of Transportation (Mn/DOT) in September 2006, states on page 17 of Appendix 7:
 - “...In many accidents the pilot has some control of the aircraft and has the ability to avoid some obstacles. If the aircraft is small enough and the population density is low enough, in many cases the pilot can avoid structures, automobiles, etc...”
- The potential severity of an off-airport aircraft accident is highly dependent upon the nature of the land use at the accident site. Three characteristics are most important—intensity of use; type of use (residential or non-residential); and sensitivity of use. Uses that attract a large assembly of people are the most severe. Uses that are populated 24 hours a day and 365 days a year (e.g., hospitals and nursing homes) are more likely to result in a fatality than uses that are not.

- While the findings of the HNTB safety study do not establish that strict application of the Mn/DOT Model Zoning Ordinance is required in all areas to provide a reasonable standard of safety around FCM, they do support additional consideration be given to land use controls around the airport beyond what might be applied when the accident probability within a State Safety Zone is less than one accident in 10 million operations.
- The facts indicate that the location of distinct open spaces in the proximity of the extended runway centerline beyond the RPZ, large enough to allow a pilot to locate clearly and to contain the extent of the crash site, could be beneficial from a safety perspective.
- By virtue of the park agreement, VOR clear area, overlapping of RPZs with State Safety Zones on other runways, and water areas, when considering the A and B safety zones as one area outside the RPZ on each runway end, maximum contiguous open area acreages in the respective runway safety zones range from 20.93 acres to 65.38 acres.
- A conservative estimate of the crash site area for the largest design aircraft at FCM (Citation III) is 5,000 square feet; however, over 60% of operations at FCM would result in a crash area of 2,000 square feet or less.
- Page 17 of Appendix 7 of The Airport Land Use Compatibility Manual published by the Minnesota Department of Transportation in September 2006, states:
 - “A 2,000 square foot accident site from a general aviation crash will miss humans in many cases.”
- Based on the probability calculations for impacting a structure (applying pilot control assumption and accounting for adjacent open spaces provided by virtue of the park agreement, VOR clear area, overlapping of RPZs with state safety zones on other runways, and water areas) the probability of impacting a structure on any of the prospective MAC-owned non-aeronautical development properties outside the RPZs in State Zones A and B is well below the FAA collision standard of one in 10 million operations.
- When analyzing the effect of the last three FCM aircraft accidents on previous safety analyses conducted by the FCM JAZB, it was determined that the findings and conclusions in HNTB's November 6, 2009 accident probability analysis and in MAC staff's January 21, 2010 additional safety study memorandum are still accurate and applicable.
- The RPZ areas, along with providing a minimum of 20 acres of contiguous open space in the remaining State Safety Zones, are more than adequate to ensure adequate clear areas in proximity to the extended runway centerlines around FCM based on the pilot control statistics and crash site characteristics.

Based on the above points, and the other information provided in the attached document titled *Flying Cloud Airport (FCM) Joint Airport Zoning Board (JAZB) Meeting Record*, the FCM JAZB proposed a Draft FCM Zoning Ordinance for public review.

e. At the March 18, 2010 FCM JAZB meeting the Board took action to conduct a public comment period on the Draft FCM Zoning Ordinance.

2. Public Comment and FCM JAZB Response Documentation

The public comment period on the Draft FCM Zoning Ordinance began on April 8, 2010 and was open through the close of business on May 7, 2010. The process included a public hearing on April 29, 2010 at the Eden Prairie City Hall, Council Chambers. An open house was held before the public hearing from 5:00 pm – 6:30 pm, an informational presentation by MAC staff was provided at 6:30 pm and the public comments began at 7:00 pm.

A total of 10 written comments were received during the comment period. A total of 16 people attended the public hearing; one individual testified at the public hearing.

In general, the comments that were received focused on questions related to the effect the ordinance would have on specific properties located around FCM. The attached document titled *Public Comment and FCM JAZB Response Documentation* includes all of the correspondence received during the public comment period, a transcript of the public hearing and a matrix detailing all of the Board's responses to the comments.

3. Draft Flying Cloud Airport (FCM) Zoning Ordinance

Based on the information reviewed and analyzed as part of the FCM JAZB meeting process, the FCM JAZB directed MAC staff to draft an FCM Zoning Ordinance that departs from the provision of the State Model Zoning Ordinance in the following areas:

- Safety Zone A – is co-terminus with the Federal Runway Protection Zone (RPZ).
- Safety Zone B – use restrictions: (1) do not include site acre/structure limitations and site area to building plot area ratios and population criteria, (2) allow ponding below an elevation of eight hundred sixty-five (865) feet above mean sea level along any bluff of the Minnesota River, and (3) add continuous open acreage requirements.
- Leveraging the FAA 7460 Review Process as the initial screening process for the approval of structures in the vicinity of the airport that meet the FAA's 7460 review criteria, with a separate process for addressing tree heights.
- Permitted Residential Areas – based on the safety and economic analyses, allow for the improvement, expansion and development of new residential uses in existing and planned

residential land use areas in Safety Zone B. These residential uses would be treated as conforming uses in the zoning ordinance.

- An additional zoning provision in Zone B is included such that a minimum of 20% of the total Zone B acreage or 20 acres, whichever is greater, is contiguous open space as an added margin of safety.

At the May 27, 2010 FCM JAZB meeting the Board took action approving the responses to comments. Subsequently, on December 21, 2010, the Board took action to submit this documentation to you for your prompt review and comment.

Sincerely,

Rick King
Chairman,
Flying Cloud Airport – Joint Airport Zoning Board

**FLYING CLOUD AIRPORT
JOINT AIRPORT ZONING BOARD**

**Tuesday, December 21, 2010
Eden Prairie City Center – Heritage Rooms 1 & 2
8080 Mitchell Road, Eden Prairie, MN**

MINUTES

Rick King, Chair, called the Flying Cloud Airport Joint Airport Zoning Board meeting to order at 4:00 p.m. The following were in attendance:

Members: Rick King, Chair
Glen Markegard, City of Bloomington
Kate Aanenson, City of Chanhassen
Jerry McDonald, City of Chanhassen
Brad Aho, City of Eden Prairie
Joseph Helkamp, City of Shakopee
Julie Klima, City of Shakopee
Roy Fuhrmann, Metropolitan Airports Commission
Lisa Peilen, Metropolitan Airports Commission

Others: Jay Lotthammer, Scott Kipp, Ric Rosow, City of Eden Prairie; Kathy Vesely, Mn/DOT; Tom Anderson, Jenn Felger, Chad Leqve, Dennis Probst, MAC Staff

1. APPROVAL OF MEETING AGENDA

IT WAS MOVED BY HELKAMP, SECONDED BY AHO, TO APPROVE THE AGENDA AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

2. APPROVAL OF MAY 27, 2010 FCM JAZB MEETING MINUTES

IT WAS MOVED BY HELKAMP, SECONDED BY AHO, TO APPROVE THE MINUTES OF THE MAY 27, 2010 FLYING CLOUD AIRPORT JOINT AIRPORT ZONING BOARD MEETING AS PRESENTED. THE MOTION CARRIED BY UNANIMOUS VOTE.

3. APPROVAL OF DRAFT MATERIALS FOR FIRST SUBMISSION OF THE DRAFT FCM ZONING ORDINANCE TO THE COMMISSIONER OF TRANSPORTATION FOR REVIEW

Chair King stated that Board Members should have received the following documents for review and approval for submittal to the Commissioner of Transportation:

- Submittal Letter to the Commissioner of Transportation
- FCM JAZB Meeting Record
- Public Comment and FCM JAZB Response Documentation
- Draft FCM Zoning Ordinance

He noted that since the last meeting of the Board, Legal Counsel and Staff from the City of Eden Prairie and MAC have met to resolve the issues previously raised by the City.

Jay Lotthamer, Acting Eden Prairie City Manager, stated that following presentations to the City Council by its City Attorney, Ric Rosow, the Council unanimously approved moving forward with the Draft Zoning Ordinance. Mr. Rosow noted that their concerns related to the responsibilities of the Zoning Administrator and the indemnification agreement. He stated that after meeting with MAC staff, the City has a clear understanding of the Zoning Administrator's duties and the decisions that person would make with regards to development that may interfere with navigation. He stated the City was reassured by MAC that it would provide an advisory opinion if the Zoning Administrator had concerns over a certain development. This also alleviated their concerns regarding the indemnification agreement.

Chad Leque, MAC Staff, stated that the proposed modifications to the Draft Ordinance, that were a result of the discussions between the City of Eden Prairie and MAC, were previously emailed to the Board for their review. He noted that no additional changes have been made to the draft ordinance.

Mr. Rosow responded to questions regarding the addition of "multifamily-residential" to the Low Density Residential Lot description stating that they requested that change so it would be consistent with the City's land use categories. He noted that another community may have different language that it uses and may want to vary that language when adopting the ordinance.

The issue of having no land being impacted by the zoning ordinance as proposed in the City of Bloomington was addressed and it was noted that the City has been asked to continue to participate on the Board until Mn/DOT's final review.

Mr. Leque reviewed the remaining JAZB process stating that following the review of the first submittal from Mn/DOT, the Board would meet to discuss any comments or concerns raised by Mn/DOT and determine if any changes should be made. A second public hearing and comment period would be held on the proposed ordinance followed by a second submittal to the Commissioner of Transportation. Once approved by the Commissioner, the Cities would be requested to adopt the ordinance.

Kathy Vesely, Mn/DOT Aeronautics, responded to questions regarding the timeline for review by the Commissioner. She stated that if it meets the standards the process is relatively swift, however if it deviates from the model ordinance it will require additional time. There is no timeline required by State Statutes.

Chair King asked the Board if they had any other questions or concerns regarding the draft documents to be submitted to the Commissioner.

IT WAS MOVED BY HELKAMP, SECONDED BY AANENSON, TO APPROVE THE DRAFT MATERIALS FOR THE FIRST SUBMISSION TO THE COMMISSIONER OF TRANSPORTATION. THE MOTION CARRIED BY UNANIMOUS VOTE.

4. **NEXT MEETING DATE**

The next meeting of the Board will be scheduled following receipt of comments from Mn/DOT on the draft ordinance.

IT WAS MOVED BY HELKAMP, SECONDED BY AHO, TO ADJOURN. THE MOTION CARRIED BY UNANIMOUS VOTE.

The meeting was adjourned at 4:15 p.m.