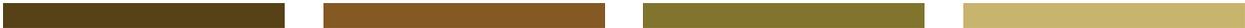


APPENDIX B
RUNWAY PROTECTION ZONE ALTERNATIVE ANALYSIS





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MEMORANDUM

Date: Submitted: October 14, 2013
FAA comments addressed: February 17, 2014

To: Gordon Nelson, FAA MSP-ADO
Gina Mitchell, FAA MSP-ADO

From: Kevin Carlson, Bolton & Menk, Inc.
Cole Hartfiel, Bolton & Menk, Inc.

Cc: Dan Boerner, MnDOT Aeronautics
Glenn Burke, City of South St. Paul

Subject: South St. Paul Municipal Airport – Fleming Field (SGS)
South St. Paul, Minnesota
FAA Runway Protection Zone Alternative Analysis

Introduction

This memorandum serves as a Runway Protection Zone Alternatives Analysis for the South St. Paul Municipal Airport – Fleming Field (SGS). It is intended that this document will satisfactorily address the issues and questions contained in the FAA’s interim guidance on *Land Uses Within a Runway Protection Zone* memorandum dated September 27, 2012. It should be noted that when a triggering event for this analysis is anticipated more than five years into the future, the airport sponsor is required to prepare documentation that addresses the content required within the Alternative Analysis. The documentation is provided to the Federal Aviation Administration (FAA) Airports District Office (ADO) for review and concurrence, and is documented in the Airport Master Plan. When a triggering event is being pursued, the airport sponsor will need to submit an Alternatives Analysis to the FAA ADO, region, and headquarters to obtain a determination of the triggering event being proposed. This determination would be completed prior to initiating the required environmental documentation.

SGS is currently completing an Airport Master Plan study and evaluating long-term airfield alternatives for Runway 16/34, which includes a proposed runway end relocation to be depicted in the updated Airport Layout Plan. The study, to date, has been closely coordinated with the FAA Minneapolis Airports District Office.

On behalf of the City of South St. Paul, Bolton & Menk requests formal FAA review and comment on the preferred alternative.

Background Information

Airport: South St. Paul Municipal Airport – Fleming Field

Location (City, State): South St. Paul, Minnesota

FAA Location Identifier: SGS



Triggering Mechanism Requiring an Alternatives Analysis of the RPZ (check all that apply):

- An airfield project (e.g., runway extension, runway shift)
- A change in the critical design aircraft which increases the RPZ dimensions
- A new or revised instrument approach procedure that increases the RPZ dimensions
- A local development proposal in the RPZ (either new or reconfigured)
- Other (Please Describe): Airport Master Plan Study

Affected Runway: Runway 16/34

Existing Runway Length: 4,002 feet

Existing Runway 34 Approach Type, Visibility Minimums: Non-Precision Instrument Approach with Vertical Guidance, No Lower Than 1 mile

Existing Runway 16 Approach Type, Visibility Minimums: Visual Approach

Existing Runway 16 & 34 Approach RPZ Dimensions:

Length: 1,000 feet
Inner Width: 500 feet
Outer Width: 700 feet
Acres: 13.77 acres

Existing Runway 16 & 34 Departure RPZ Dimensions:

Length: 1,000 feet
Inner Width: 500 feet
Outer Width: 700 feet
Acres: 13.77 acres

Date of Latest FAA Signed Airport Layout Plan: June 25, 1999 (update expected in 2014)

Incompatible Land Use in Existing RPZ:

Runway 16: Two residential homes, two multi-family residential apartment buildings, a community garden, parking spaces for McMorro Field, parking spaces for Elrose Court apartment buildings, part of the airport perimeter fence, and South Street West

Runway 34: Three sheds

Does the Sponsor Own or Control the Area Where The Above Incompatible Land Use(s) is Located?

No, on the Runway 16 end, approximately 0.4 acres of the northwest portion RPZ and 0.2 acres on the eastern side of the RPZ are outside of airport property. On the Runway 34 end, 0.51 acres are outside of airport property to the east, but are within a clear zone. The three sheds are located within this area.

Proposed Action Background Information

Airport Master Plan Study Project Purpose and Background: Provide minimum sufficient runway length for the planned critical design aircraft (4,300 feet) and meet FAR Part 77 clear airspace requirements. The critical aircraft at South St. Paul is represented by a family of aircraft with the following characteristics: aircraft are greater than 12,500 pounds, have an Aircraft Approach Category of B



(approach speeds of greater than or equal to 91 knots, but less than 121 knots), and are of Airplane Design Group II (wingspans greater than or equal to 49 feet but less than 79 feet). Examples of aircraft in this family include the Cessna Citation 560 XLS+ and a Beechcraft King Air 300.

Currently, a vast majority of the operations at SGS are in small aircraft, including small airplanes with 10 or more passenger seats, such as the Cessna Grand Caravan. Being on the fringe of a metropolitan area SGS puts it into the 100 percent of fleet category for small airplanes with 10 or more passenger seats. The recommended runway length for these is 4,300 feet for wet and dry runways. This planned runway length matches the FAA recommended runway length from Figure 3-1 of Advisory Circular 150/5325-4B *Runway Length Recommendations for Airport Design* for the design aircraft in the Airport Master Plan.

SGS frequently sees aircraft larger than the small airplanes with 10 or more passenger seats category visiting the airport. These aircraft need longer runways to safely takeoff and land to take advantage of its location within the Twin Cities Metropolitan area.

Through user survey analysis and discussions with existing business at the airport, it was determined that additional takeoff length is the most demanding need for operating at Fleming Field. Aircraft require the most runway length during the takeoff roll. A longer distance for the takeoff roll will allow the existing business users of the airport to carry more passengers, cargo, or fuel and allow additional utilization of the aircraft. The existing operators at Fleming Field understand the physical constraints around the airport including public roadways and residential property. Understanding that the maximum runway length needed for 100 percent utilization of existing aircraft may not be obtainable, any additional takeoff length would be acceptable to the users of Fleming Field.

Alternatives Analysis

Exhibits for each alternative can be found attached to this memorandum.

Figure 1: Runway 16 Inner Approach Exhibit

Figure 2: Existing Airfield

Figure 3: Alternative 6a – 198’ Runway 34 End Extension; RPZ Not Clear

Figure 4: Alternative 6b – 111’ Runway 34 End Extension; Clear RPZ

Figure 5: Alternative 6c – 198’ Runway 34 End Extension; Clear RPZ

Figure 6: Runway 34 Inner Approach Exhibit

Proposed Runway End Change(s): Alternatives 6a and 6c extend the Runway 34 end by 198 feet

Proposed Runway Length: 4,200 feet

Proposed Runway 34 Approach Type, Visibility Minimums: Non-Precision Instrument Approach with Vertical Guidance, No Lower Than 1 mile

Proposed Runway 16 Approach Type, Visibility Minimums: Non-Precision Instrument Approach with Vertical Guidance, No Lower Than 1 mile

Proposed Runway 16 & 34 Approach RPZ Dimensions



Length: 1,000 feet
Inner Width: 500 feet
Outer Width: 700 feet
Acres: 13.77 acres

Proposed Runway 16 & 34 Departure RPZ Dimensions

Length: 1,000 feet
Inner Width: 500 feet
Outer Width: 700 feet
Acres: 13.77 acres

Design Aircraft of Runway: Runway Design Code B-II/Large

Proposed Runway End Change(s): Alternative 6b extends the Runway 34 end by 111 feet

Proposed Runway Length: 4,113 feet

Proposed Runway 34 Approach Type, Visibility Minimums: Non-Precision Instrument Approach with Vertical Guidance, No Lower Than 1 mile

Proposed Runway 16 Approach Type, Visibility Minimums: Non-Precision Instrument Approach with Vertical Guidance, No Lower Than 1 mile

Proposed Runway 16 & 34 Approach RPZ Dimensions

Length: 1,000 feet
Inner Width: 500 feet
Outer Width: 700 feet
Acres: 13.77 acres

Proposed Runway 16 & 34 Departure RPZ Dimensions

Length: 1,000 feet
Inner Width: 500 feet
Outer Width: 700 feet
Acres: 13.77 acres

Design Aircraft of Runway: Runway Design Code B-II/Large

Existing Conditions Discussion – Fleming Field is situated in a densely populated area eight miles south of St. Paul, and connected to both Minneapolis and St. Paul by nearby Interstate 494 and Highway 52. The airport is surrounded by residential properties to the north, east, and south; McMorrow Field to the north; and commercial businesses, industrial development, and Bohrer Pond to the west.

Runway 16 – The Runway 16 end has existing RPZ incompatibilities, which include a portion of South Street, two residential homes north of South Street, a community garden, and parking spaces for McMorrow Field. There are also two parking lots for multi-family apartment buildings off of Elrose Court under an avigation easement within the boundaries of the RPZ. The City of South St. Paul is currently working on an Environmental Assessment that evaluates the mitigation and will ultimately allow removal and relocation of the two residential homes, the garden, and McMorrow Field parking spaces from the Runway 16 RPZ.



Because there is already a plan in place to mitigate these incompatible land uses, this RPZ analysis focuses strictly on the Runway 34 end where the runway end change occurs.

Runway 34 – The vast majority of the RPZ is located within airport property. The remaining 0.51 acres is located outside of airport property to the east within a clear zone easement. Structures located within the controlled activity area include three sheds, one of which is within the central portion of the RPZ. There are no roadways located within the existing RPZ. The airport perimeter fence is within the RPZ.

Maintain Existing (Figure 2) - This alternative does not achieve the project purpose identified within the Airport Master Plan study to provide for sufficient runway length to accommodate the 20-year critical design aircraft (business jet). This alternative has no impact on the existing land uses in question, nor does it have any associated development costs, as the runway ends are not proposed to change. If the airport chose to maintain the existing airport and do nothing else, the 2013 planning-level project costs would be \$303,000. This cost includes but is not limited to engineering and pavement rehabilitation construction costs.

Alternative 6a (Figure 3) – A change in runway ends is necessary to meet the project purpose. This alternative extends the Runway 34 end to the south by 198 feet for a final recommended runway length of 4,200 feet. This alternative is intended to get as close to the recommended runway length of 4,300 feet without adversely affecting any residential properties.

This alternative will have the following RPZ impacts:

Land Use Incompatibility	Runway End	Type	RPZ Traverse Length	Distance from Runway End	Within RPZ Central Portion?
70 th Street East	34	Transportation	228 feet	1,362feet	Yes
Sidewalk	34	Transportation	270 feet	1,346 feet	Yes
Sheds	34	Structure	-	603 feet	Yes

Meetings with the Airport Master Plan Advisory Group (MPAG) resulted with the Group selecting Alternative 6a, with a runway length of 4,200 feet as the preferred alternative. This maximizes the amount of runway the airport can achieve without severely impacting any nearby residents to the south by relocating 70th Street East to achieve a clear RPZ.

This extension gets the runway closer to its recommended runway length of 4,300 feet, and greatly increases safety for the aircraft that utilize the airport the most. Not only will the small aircraft with 10 or more passengers benefit from this extension, but so too will the large aircraft that frequently fly into SGS. Insurance policies for these aircraft may not allow these larger aircraft to land at airports with runways as short as SGS. This extension would allow these aircraft to fly into and out of SGS more frequently, as well as attract aircraft that may not have been allowed to land at SGS previously.

Extending the Runway 34 end by 198 feet results in a 2013 planning-level project cost of \$1.6 million. This cost includes but is not limited to engineering, construction, land acquisition, obstruction removal, and wetlands impacts.

Alternative 6b (Figure 4) - Alternative 6b extends the runway 111 feet to the south for a final recommended runway length of 4,113 feet. The intent of this alternative is to achieve a portion of the project purpose, and to clear the RPZ from all roadways and structures. No new land uses would enter the RPZ, but the runway length falls short of the length desired by the MPAG.



In order to fully mitigate the Runway 34 RPZ from obstructions, the runway can only be extended 111 feet before it starts to impact the sidewalk associated with 70th Street East. Although this extension would add to the safety of the airport for the aircraft utilizing the Runway by getting closer to 4,300 feet, it does not use the full potential of available space at the airport which is already constrained, therefore it does not meet the project purpose.

The Runway 34 RPZ mitigates all existing transportation facilities. The three shed structures would still be incompatibilities.

Land Use Incompatibility	Runway End	Type	RPZ Traverse Length	Distance from Runway End	Within RPZ Central Portion?
Sheds	34	Structure	-	686 feet	Yes

Extending the Runway 34 end by 111 feet results in a 2013 planning-level project cost of \$1.4 million. This cost includes but is not limited to engineering, construction, land acquisition, obstruction removal, and wetlands impacts.

Alternative 6c (Figure 5) – Alternative 6c extends the Runway 198 feet to the south for a final recommended runway length of 4,200 feet. The intent of this alternative is to achieve the project purpose, and to clear the RPZ from all roadways and structures. All transportation facilities that would be in violation of the RPZ policy are moved outside the RPZ to accommodate the 198-foot extension. The three shed structures would be relocated as well.

In order to achieve this alternative, the existing township road and current State Aid Highway known as 70th Street East must be relocated around the RPZ. The relocation of the divided, two-lane road and the sidewalk require 1,678 linear feet of pavement to be added to move around the RPZ, and 1,109 linear feet of pavement to be removed for each lane, and for the sidewalk. The relocation of the road will result in the removal and relocation of 13 residential properties.

Extending the Runway 34 end by 198 feet results in a 2013 planning-level project cost of \$5.3 million. This cost includes but is not limited to engineering, construction, land acquisition, obstruction removal, and wetlands impacts.

This alternative meets the project purpose however due to the costs and impacts to the surrounding residential properties, this alternative is not supported by the Master Plan Advisory Group or the City of South St. Paul.

Chosen Alternative

The South St. Paul Airport (MPAG), an 11-member project group made up of airport, community, and agency stakeholders reviewed the alternatives at their meeting on August 13, 2013. They reached consensus that Alternative 6a is the preferred alternative based on safety enhancements, cost, and compatibility factors. There is local support for this alternative.

Major considerations include safety, cost, socioeconomic impacts, and environmental impacts. The level of safety is enhanced over the existing configuration by way of increasing the length of the runway. Alternative 6a does not directly result in any residential relocations. The Alternative Analysis Summary table is depicted below:



Alternative Analysis Summary Table

	<u>Maintain Existing</u>	<u>Alternative 6a</u>	<u>Alternative 6b</u>	<u>Alternative 6c</u>
Meets Project Purpose	No	Yes	No	Yes
Runway 34 Shift Length	0 feet	198 feet	111 feet	198 feet
Relocated 70th Street East Length	0 feet	0 feet	0 feet	1,678 linear feet
Runway 34 RPZ Incompatible Land Uses	Sheds	70 th Street E; Sidewalk associated with 70 th Street East; Sheds	Sheds	None
Land Acquisition Impacts	None	None	None	13 properties need to be acquired
Homeowner Impacts	None	None	None	13 homeowners need to be relocated
Obstruction Removal Impacts	255 trees or groupings of trees, 5 buildings, 10 poles, fence, parking lot**	392 trees or groupings of trees, 8 buildings, 13 poles, fence, parking lot**	369 trees or groupings of trees, 8 buildings, 13 poles, fence, parking lot**	392 trees or groupings of trees, 8 buildings, 13 poles, fence, parking lot**
Planning-Level Cost Estimate*	\$303,000	\$1,600,000	\$1,400,000	\$5,300,000
Preferred Alternative	No	Yes	No	No

*Cost only includes runway capacity improvements and roadway relocation, not improvements to existing runway.

** An airspace analysis performed by FAA may allow lighting and/or marking certain structures instead of removal.



Submittal Approval

Name of Originator: Kevin Carlson

Signature of Originator:

A handwritten signature in black ink, appearing to read "Kevin Carlson", written over a horizontal line.

Title of Originator: Senior Project Manager

Originator's Organization: Bolton & Menk, Inc.

Telephone: 952-890-0509

E-mail: kevinca@bolton-menk.com

Submittal Date: October 14, 2013



0 300 Feet



Legend	
<ul style="list-style-type: none"> Approach Surface Airport Property Extended Runway Parcels Wetlands City Boundary Avigation Easement Remove Parking Spaces Parking Reconfiguration Garden Removal Structure Removal 	<p>Land Use</p> <ul style="list-style-type: none"> FAA Runway Protection Zone (RPZ) MnDOT Clear Zone (CZ) MnDOT Safety Zone A MnDOT Safety Zone B <p>Obstruction Types (Alt 6 & 6C)</p> <ul style="list-style-type: none"> Manmade Tree
<p>Airport Design</p> <ul style="list-style-type: none"> Runway Safety Area (RSA) Runway Obstacle Free Zone (ROFZ) Runway Object Free Area (ROFA) Building Restriction Line (20') Runway Edge 	<p>Airspace</p> <ul style="list-style-type: none"> FAR Part 77 Primary Surface FAR Part 77 Approach Surface <p>Actions</p> <ul style="list-style-type: none"> Construct Taxiway Remove Taxiway Construct Runway Extension Building Removal Reconstruct Road
<p>RPZ Central</p> <ul style="list-style-type: none"> RPZ Central - 1634-Existing RPZ Central - ALT 6 RPZ Central - ALT 6B RPZ Central - ALT 6C <p>RPZs</p> <ul style="list-style-type: none"> RPZ - 1634-Existing RPZ - ALT 6 RPZ - ALT 6B RPZ - ALT 6C 	

Source: Dakota County GIS, Esri Imagery

Note: Obstructions to FAR Part 77 Primary, Approach, and Transitional Surfaces Shown.

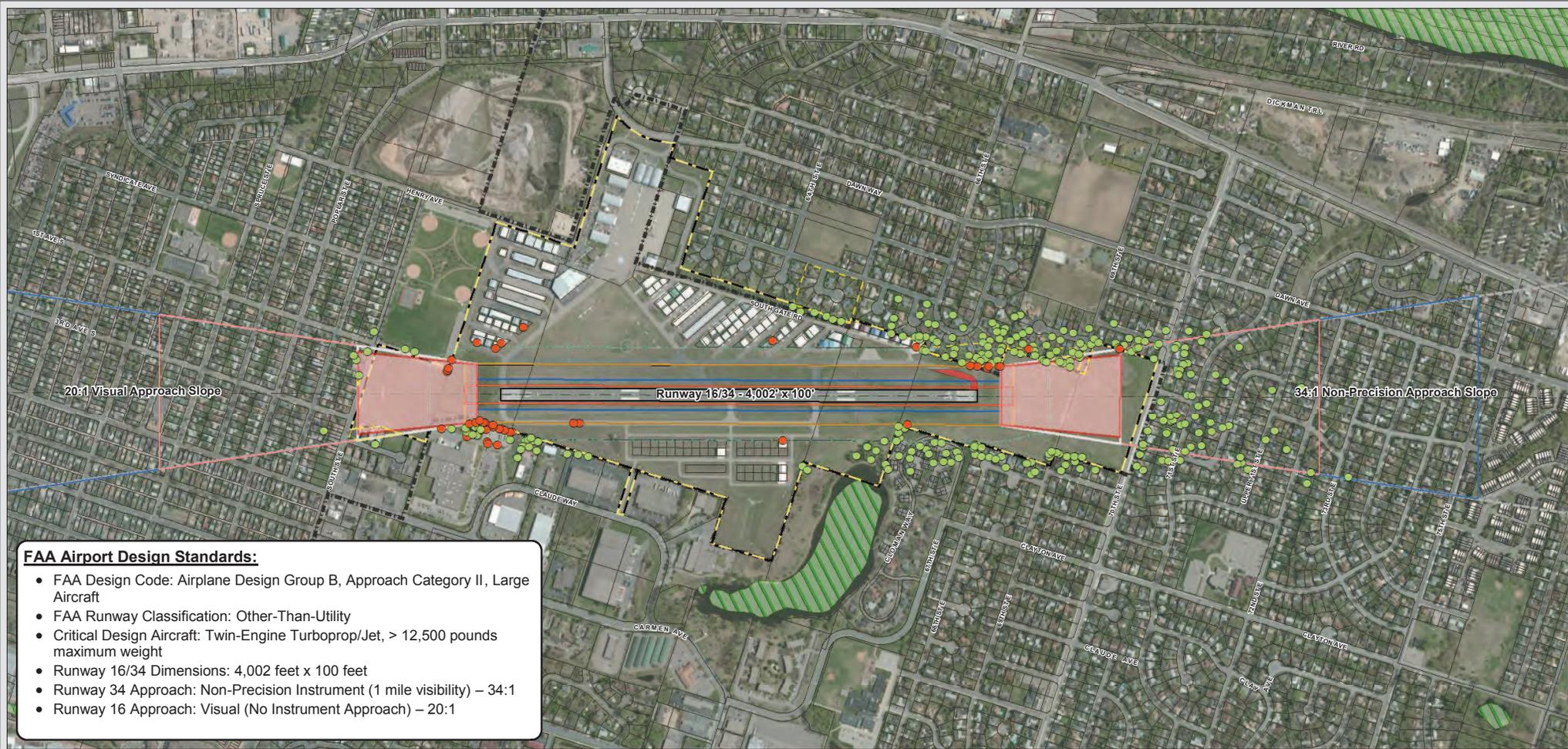
Fleming Field

South St. Paul Municipal Airport

Airport Master Plan

Runway 16 Inner Approach Exhibit

Figure 1
September 2013



FAA Airport Design Standards:

- FAA Design Code: Airplane Design Group B, Approach Category II, Large Aircraft
- FAA Runway Classification: Other-Than-Utility
- Critical Design Aircraft: Twin-Engine Turboprop/Jet, > 12,500 pounds maximum weight
- Runway 16/34 Dimensions: 4,002 feet x 100 feet
- Runway 34 Approach: Non-Precision Instrument (1 mile visibility) – 34:1
- Runway 16 Approach: Visual (No Instrument Approach) – 20:1



0 800 Feet



Legend

Approach Surface	Land Use	Airport Design	Airspace
Airport Property	FAA Runway Protection Zone (RPZ)	Runway Safety Area (RSA)	FAR Part 77 Primary Surface
Extended Runway	MnDOT Clear Zone (CZ)	Runway Obstacle Free Zone (ROFZ)	FAR Part 77 Approach Surface
Parcels	MnDOT Safety Zone A	Runway Object Free Area (ROFA)	Obstruction Types
Wetlands	MnDOT Safety Zone B	Building Restriction Line (20')	Manmade
City Boundary		Runway Edge	Tree
Avigation Easement			

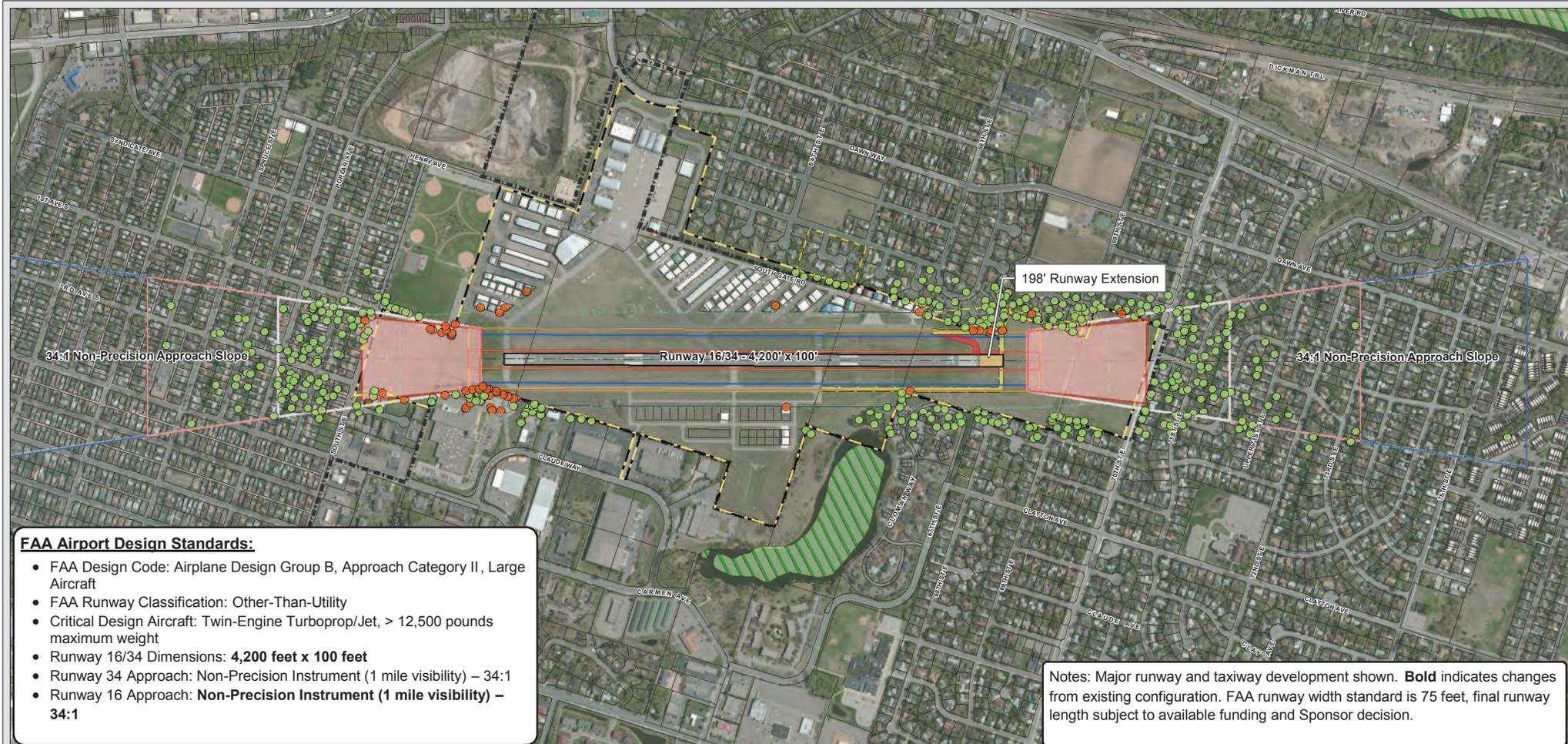
Source: Dakota County GIS, Esri Imagery

Note: Obstructions to FAR Part 77 Primary, Approach, and Transitional Surfaces Shown.

Fleming Field
 South St. Paul Municipal Airport
Airport Master Plan
Airfield Existing

Figure 2

September 2013



- FAA Airport Design Standards:**
- FAA Design Code: Airplane Design Group B, Approach Category II, Large Aircraft
 - FAA Runway Classification: Other-Than-Utility
 - Critical Design Aircraft: Twin-Engine Turboprop/Jet, > 12,500 pounds maximum weight
 - Runway 16/34 Dimensions: **4,200 feet x 100 feet**
 - Runway 34 Approach: Non-Precision Instrument (1 mile visibility) – 34:1
 - Runway 16 Approach: **Non-Precision Instrument (1 mile visibility) – 34:1**

Notes: Major runway and taxiway development shown. **Bold** indicates changes from existing configuration. FAA runway width standard is 75 feet, final runway length subject to available funding and Sponsor decision.



0 800 Feet

Legend

<ul style="list-style-type: none"> Approach Surface Airport Property Extended Runway Parcels Wetlands City Boundary Avigation Easement 	<p>Land Use</p> <ul style="list-style-type: none"> FAA Runway Protection Zone (RPZ) MnDOT Clear Zone (CZ) MnDOT Safety Zone A MnDOT Safety Zone B <p>Obstruction Types</p> <ul style="list-style-type: none"> Manmade Tree 	<p>Airport Design</p> <ul style="list-style-type: none"> Runway Safety Area (RSA) Runway Obstacle Free Zone (ROFZ) Runway Object Free Area (ROFA) Building Restriction Line (20') Runway Edge 	<p>Airspace</p> <ul style="list-style-type: none"> FAR Part 77 Primary Surface FAR Part 77 Approach Surface <p>Actions</p> <ul style="list-style-type: none"> Construct Taxiway Remove Taxiway Construct Runway Extension
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Source: Dakota County GIS, Esri Imagery Note: Obstructions to FAR Part 77 Primary, Approach, and Transitional Surfaces Shown.



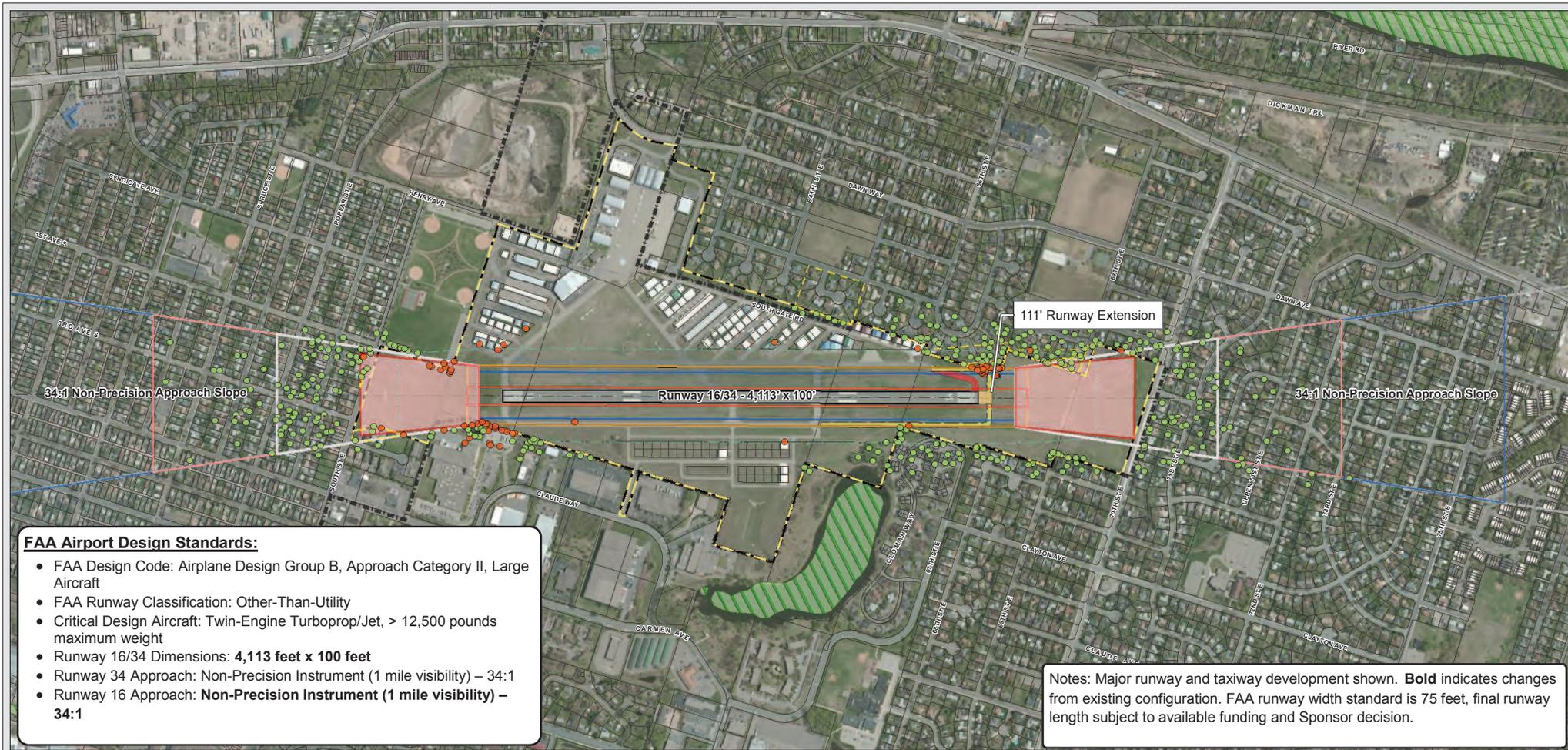
Fleming Field

South St. Paul Municipal Airport

Airport Master Plan

Airfield Alternative 6a

Figure 3
September 2013



FAA Airport Design Standards:

- FAA Design Code: Airplane Design Group B, Approach Category II, Large Aircraft
- FAA Runway Classification: Other-Than-Utility
- Critical Design Aircraft: Twin-Engine Turboprop/Jet, > 12,500 pounds maximum weight
- Runway 16/34 Dimensions: **4,113 feet x 100 feet**
- Runway 34 Approach: Non-Precision Instrument (1 mile visibility) – 34:1
- Runway 16 Approach: **Non-Precision Instrument (1 mile visibility) – 34:1**

Notes: Major runway and taxiway development shown. **Bold** indicates changes from existing configuration. FAA runway width standard is 75 feet, final runway length subject to available funding and Sponsor decision.



Legend

Approach Surface	Land Use	Runway Safety Area (RSA)	Airspace
Airport Property	FAA Runway Protection Zone (RPZ)	Runway Obstacle Free Zone (ROFZ)	FAR Part 77 Primary Surface
Extended Runway	MnDOT Clear Zone (CZ)	Runway Object Free Area (ROFA)	FAR Part 77 Approach Surface
Parcels	MnDOT Safety Zone A	Building Restriction Line (20')	Actions
Wetlands	MnDOT Safety Zone B	Runway Edge	Construct Taxiway
City Boundary	Obstruction Types		Remove Taxiway
Avigation Easement	Manmade		Construct Runway Extension
	Tree		

Source: Dakota County GIS, Esri Imagery

Note: Obstructions to FAR Part 77 Primary, Approach, and Transitional Surfaces Shown.

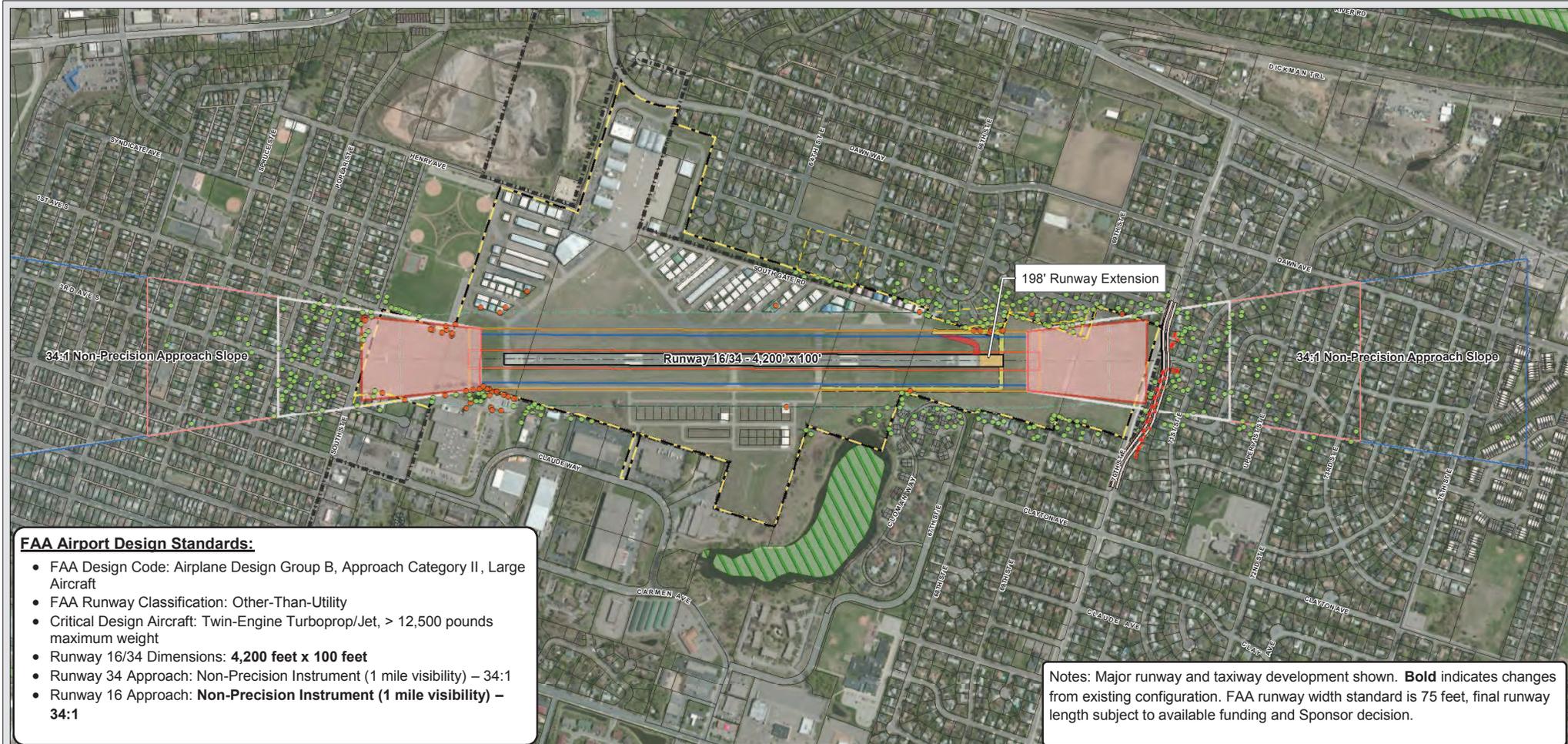
Fleming Field

South St. Paul Municipal Airport

**Airport Master Plan
Airfield Alternative 6b**

Figure 4

September 2013



- FAA Airport Design Standards:**
- FAA Design Code: Airplane Design Group B, Approach Category II, Large Aircraft
 - FAA Runway Classification: Other-Than-Utility
 - Critical Design Aircraft: Twin-Engine Turboprop/Jet, > 12,500 pounds maximum weight
 - Runway 16/34 Dimensions: **4,200 feet x 100 feet**
 - Runway 34 Approach: Non-Precision Instrument (1 mile visibility) – 34:1
 - Runway 16 Approach: **Non-Precision Instrument (1 mile visibility) – 34:1**

Notes: Major runway and taxiway development shown. **Bold** indicates changes from existing configuration. FAA runway width standard is 75 feet, final runway length subject to available funding and Sponsor decision.



0 800 Feet

Legend

<ul style="list-style-type: none"> Approach Surface Airport Property Extended Runway Parcels Wetlands City Boundary Avigation Easement 	<p>Land Use</p> <ul style="list-style-type: none"> FAA Runway Protection Zone (RPZ) MnDOT Clear Zone (CZ) MnDOT Safety Zone A MnDOT Safety Zone B <p>Obstruction Types</p> <ul style="list-style-type: none"> Manmade Tree 	<p>Airport Design</p> <ul style="list-style-type: none"> Runway Safety Area (RSA) Runway Obstacle Free Zone (ROFZ) Runway Object Free Area (ROFA) Building Restriction Line (20') Runway Edge 	<p>Airspace</p> <ul style="list-style-type: none"> FAR Part 77 Primary Surface FAR Part 77 Approach Surface <p>Actions</p> <ul style="list-style-type: none"> Construct Taxiway Remove Taxiway Construct Runway Extension Building Removal Reconstruct Road
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Source: Dakota County GIS, Esri Imagery Note: Obstructions to FAR Part 77 Primary, Approach, and Transitional Surfaces Shown.

Fleming Field

South St. Paul Municipal Airport

Airport Master Plan

Airfield Alternative 6c

Figure 5
September 2013





Legend				
Approach Surface	Land Use	Airport Design	Airspace	RPZ Central
Airport Property	FAA Runway Protection Zone (RPZ)	Runway Safety Area (RSA)	FAR Part 77 Primary Surface	RPZ Central - 1634-Existing
Extended Runway	MnDOT Clear Zone (CZ)	Runway Obstacle Free Zone (ROFZ)	FAR Part 77 Approach Surface	RPZ Central - ALT 6
Parcels	MnDOT Safety Zone A	Runway Object Free Area (ROFA)	Actions	RPZ Central - ALT 6B
Wetlands	MnDOT Safety Zone B	Building Restriction Line (20')	Construct Taxiway	RPZ Central - ALT 6C
City Boundary	Obstruction Types (Alt 6 & 6C)	Runway Edge	Remove Taxiway	RPZs
Avigation Easement	Manmade		Construct Runway Extension	RPZ - 1634-Existing
	Tree		Building Removal	RPZ - ALT 6
			Reconstruct Road	RPZ - ALT 6B
				RPZ - ALT 6C

Source: Dakota County GIS, Esri Imagery

Note: Obstructions to FAR Part 77 Primary, Approach, and Transitional Surfaces Shown.

Fleming Field

South St. Paul Municipal Airport

Airport Master Plan

Runway 34 Inner Approach Exhibit

Figure 6
September 2013