
APPENDIX E: OBSTACLE ACTION PLAN (OAP)

Introduction

The usability of an airport is greatly determined by how the safety surfaces and airway corridors are maintained for aircraft to arrive and depart from the airport. This means when obstacles are identified, steps need to be taken to mitigate the obstacle. The FAA has provided guidance for dealing with obstructions with a Program Guidance Letter (PGL) issued September 19, 2022, regarding *Approach and Departure Surface Protection*. An obstacle is generally an object (existing or planned) at a fixed geographic location or corridor that may infringe on any one of an airport's protective surfaces.

For an airport, obstacles are portrayed in the Airport Layout Plan (ALP) on the Inner Approach Sheets for each runway, the Departure Surface Sheet and the FAR Part 77 Sheet.

The purpose of this Obstacle Action Plan is to provide a more detailed set of steps to deal with the obstacles identified in the ALP. This appendix will address the objects that penetrate the airport safety surfaces listed below that are referenced on the Airport Layout Plan (ALP). Please see **Appendix B: General Aviation Airports 101** pages B-29 to B-33 and B-41 to B-42 and **Chapter 5: Airport Layout Plan** for definitions and more details.

The OAP will focus on the existing airfield and near-term development plans. There may be long-term development identified in the ALP that requires action on obstacles, but any such action will need to be addressed as a part of those development projects in the future.

Surfaces and Available Options

The surfaces listed below are the surfaces that are being considered in this OAP.

- FAR Part 77 Surfaces (Critical for Airport Accessibility)
 - Part 77 Primary Surface (Runway Elevation)
 - Part 77 Approach Surface (20:1 and 34:1)
 - Part 77 Transitional Surface (7:1)
- Approach & Departure Surfaces
 - AC 150/5300-13B Approach Surface (20:1)
 - Departure Surface (40:1)
 - Vertical Guidance Surface (VGS) (30:1)

There are a range of other surfaces that are not included in this OAP but are sometimes applicable for airports. For runways these are the Runway Safety Area (RSA), Runway Visibility Zone (RVZ), Runway Obstacle Free Zone (ROFZ), Runway Object Free Area (ROFA). For Part 77 there is also the Horizontal and Conical Surface.

Obstacles

There are a range of obstacles that exist around the airport and some of these require actions to mitigate the impact of the obstacles. The mitigation includes tree trimming/removal, grading, relocating

a threshold and evaluating the obstacles through the FAA's OEAAA (Obstacle Analysis/Airport Airspace Analysis) process. When the mitigation efforts are completed, it will also be necessary to make sure the data in the FAA's Airport Data and Information Portal (ADIP) is corrected. This is done through the use of the Runway Airspace Management (RAM) Tool. Refer to ALP Inner Approach sheets 5 through 9, Part 77 Airspace sheet 10 and Runway Departure Surface sheet 11 for obstacle identification.

Trees

Vegetation that causes obstructions are unique because first the trees themselves are not a single point and are often a mass of trees identified as an area where the obstruction exists. Second, to mitigate the obstruction by trimming requires recognizing that vegetation continues to grow and therefore trimming further below the protected surface is necessary to account for growth. Ideally, the trees should be completely removed or removed and replaced with vegetation that will not exceed the protective surface. Please note that the amount to trim will depend on the type of trees and where the trees are in their lifecycle, so consulting with an arborist may be necessary. In any event, the typical practice is that FAA will only support a project to remove or trim the trees once. After that, it is the obligation of the Airport Sponsor to maintain the height of obstructions below the protective surfaces.

For Mobridge, all of the trees that need trimming listed in the following table are within the 40:1 clear zone easement acquired in 1958-59 by the City of Mobridge with funding from the FAA. The trees that require trimming or removal are listed in **Table E-1 Tree Trimming/Removal**.

Table E-1 – Tree Trimming/Removal

Obstacle DE - Departure	Description	Surface Penetration				Plan	Priority
		DE 40:1	Part 77 34:1	VGS 30:1	13B 20:1		
12-13 DE-2	Tree Mass	up to 20.6'	3.8' to 21.1'		to 0.3'	Clear 13B, DE	High
12-18 DE-3	Tree	up to 19.8'	18.4'	7.3'		Clear VGS, DE	High
12-19 DE-3	Tree Mass	up to 19.8'	to 11'			Clear DE	Mid
12-21 DE-3	Tree	up to 19.8'	19.1'	7.4'		Clear VGS, DE	High
12-25 DE-6	Tree Mass	6.7' to 20.5'	3.3' to 16.4'	to 1.6'		Clear VGS, DE	High
30-4 DE-10	Tree Mass	up to 5.7'	to 6.6'			Clear DE	Mid
30-5 DE-10	Tree Mass	up to 5.7'	to 3'			Clear DE	Mid
30-6 DE-11	Tree	up to 11.2'	0.6'			Clear DE	Mid
30-7 DE-12	Tree Mass	1.2' to 4.3'	0.8' to 4.1'			Clear DE	Mid
30-10 DE-11	Tree	up to 5.7'	10.2'			Clear DE	Mid
30-12	Tree		4.3'				Low
30-14	Tree		6.7'				Low
30-15	Tree		3.6'				Low
30-16	Tree		9.6'				Low
30-17 DE-14	Tree Mass	0.7' to 8'	to 6.1'			Clear DE	Mid
30-18 DE-15	Tree	up to 23.8'	21.6'			Clear DE	Mid

Source: KLI, Only Penetration numbers are shown

Grading

The FAA design standards require that certain surfaces surrounding the runway, notably the Part 77 Primary Surface, cannot be higher than the runway. When aeronautical surveys are completed, situations where the ground penetrates these surfaces are common. In order to adhere to design standards, a project will be scoped to grade these areas either as a standalone project or added to another project. The ground penetrations that require grading are listed in **Table E-2 Airfield Grading**.

Table E-2 – Airfield Grading

Obstacle	Description	Primary	Tr 7:1	DE 40:1	Part 77 34:1	13B 20:1	Plan	Priority
12-5	Ground	0' to 2.6'	0' to 2.6'				Grade	Mid
30-2	Ground	0' to 1.2'					Grade	Mid
30-3	Ground	0' to 3.2'	0' to 3.2'		0' to 2.5'	0' to 0.7'	Grade	High

Source: KLI, Only Penetration numbers are shown

Threshold Relocation

In rare circumstances the only option to mitigate an obstacle is to make a change to the threshold by either relocation, raising it or both. In addition, making such a change is only limited to critical surfaces which in this case is the 13B approach surface. For MBG, the 20:1 approach surface for Runway 17 is penetrated by the road to the north as the road rises to the east. The current penetration is 9.7 feet considering a 15 foot vehicle which is standard criteria for a public road. The mitigation will relocate the threshold 180 feet to the south and raise the threshold by 0.9 feet. This grading project will both remove the obstruction and will also correct the design standard requirement where the current runway safety area is higher than the runway. See **Table E-3 Threshold Relocation**.

Table E-3 – Threshold Relocation

Obstacle	Description	13B 20:1	Part 77 20:1	Plan	Priority
17-7	Road	0.4'	0.4'	Relocate Threshold 180' and Raise Threshold 0.9'	High
17-8	Road	9.7'	9.7'		
17-10	Tree	3.3'	3.3'		

Source: KLI, Only Penetration numbers are shown

OEAAA Evaluation

There are obstacles that may penetrate some surfaces but not critical design surfaces. The existence of these obstacles does not impede the use of the airport in visual flight rule (VFR) conditions, but they can impact access to the airport in instrument flight rule (IFR) conditions. The impact to airport access in IFR happens when there is not an accurate height and location of the obstacle and the FAA therefore adds ‘penalties’ to the approach minimums so that aircraft will not hit the object. All the obstructions found with the 2024 Aeronautical Survey meet the 1A survey standards. Completing the OEAAA evaluation places the object clearly in the FAA’s system. When it is done with a 1A survey then the IFR approaches for the airport are not unnecessarily penalized. See **Table E-4 Survey Accuracy Standards**. The obstacles that need to be evaluated are listed in **Table E-5 OEAAA Evaluation**.

Table E-4 – Survey Accuracy Standards

Horizontal Tolerance		Vertical Tolerance	
1	± 20’	A	± 3’
2	± 50’	B	± 10’
3	± 100’	C	± 20’
4	± 250’	D	± 50’
5	± 500’	E	± 125’
6	± 1,000’	F	± 250’
7	± ½ NM	G	± 500’
8	± 1 NM	H	± 1,000’
9	Unknown	I	Unknown

Source: FAA

Table E-5 – OEAAA Evaluation

Obstacle DE - Departure	Description	Tr 7:1	DE 40:1	Part 77 34:1	VGS 30:1	13B 20:1	Priority
12-7	Road	5.9’					Mid
12-8 DE-1	Road		to 0.4’	3.0’			High
12-12	Tree	4.8’					Mid
12-15	Tree	10.9’					High
12-16	Tree	18.8’					High
12-17	Tree	16.4’					High
12-22 DE-4	Ground	0’ to 9.5’	0.2’ to 14.6’	0’ to 9.5’			High
12-24	Fence			9.4’			High
12-28 DE-8	Road		to 17.1’	2.5’			High
12-29	Road			6.9’			High
12-35	Tree	6.6’					Mid
30-1	Windsock	15.2’					High
30-19	Tree	14.6’					Mid
30-24	Pole			8.4’			High
30-25	Pole			4.5’			High
30-26	Pole			3.3’			High
30-28	Tree			9.2’			High
30-29	Tree			1.5’			Mid
30-31	Building			5.6’			High
30-34	Building			5.4’			High
17-2	Tree Mass	9.3’ to 41.3’					High
17-3	Antenna	3.1’					Mid
17-5	Tree Mass	2.5’ to 23.9’					High
17-9	Tree Mass	up to 0.9’					Mid

Source: KLJ, Only Penetration numbers are shown