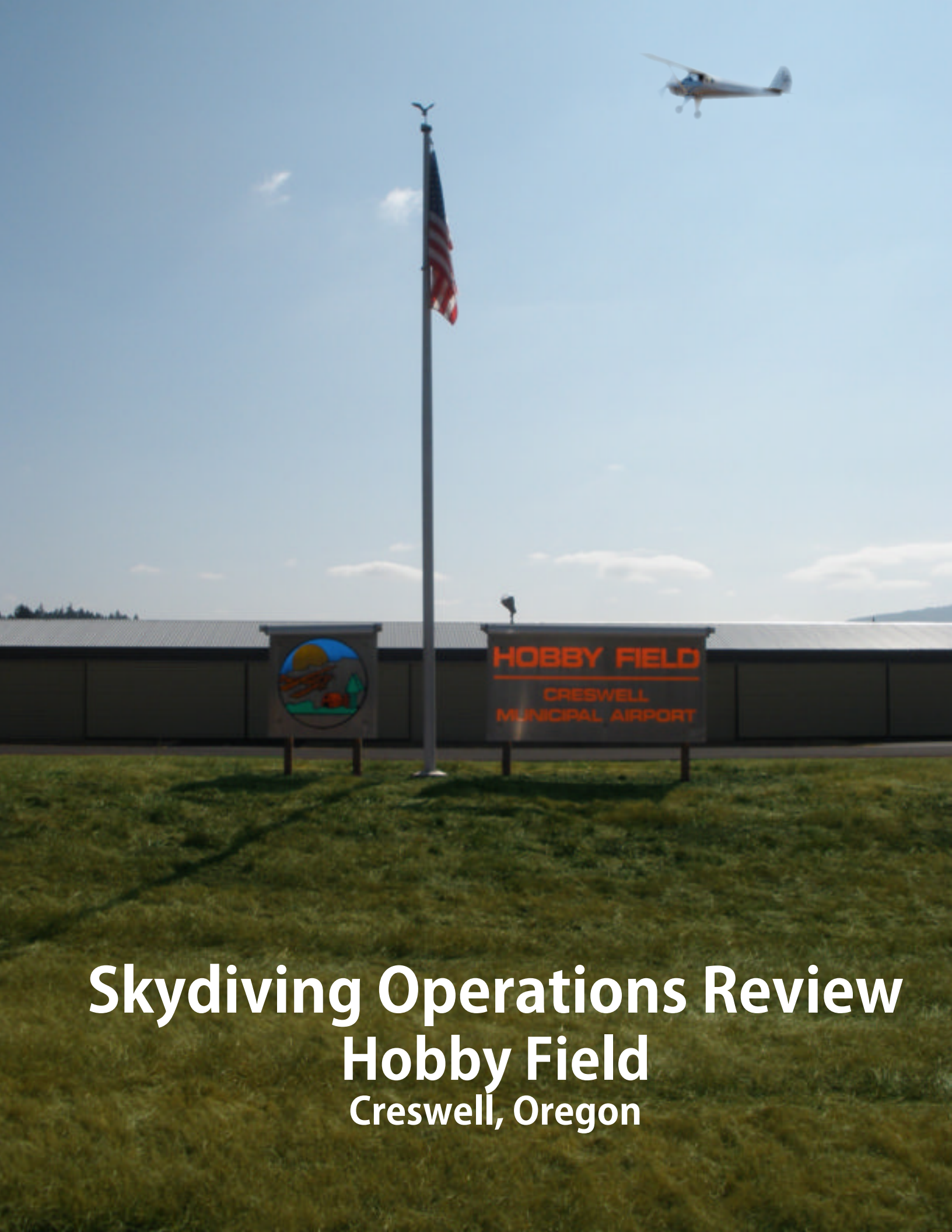

Skydiving Operations Review
Hobby Field
Creswell, Oregon

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GLOSSARY

AC – Advisory Circular

AGL – Above Ground Level

ALP – Airport Layout Plan

ARC – Airport Reference Code

DZ – Drop zone

FAA – Federal Aviation Administration

OFA – Object Free Area

OFZ – Obstacle Free Zone

RPZ – Runway Protection Zone

RSA – Runway Safety Area

SIM – Skydiver's Information Manual

TSA – Taxiway Safety Area

USPA – United States Parachute Association

VFR – Visual Flight Rules

BACKGROUND

The City of Creswell has been engaged in developing operating agreements for the conduct of three different commercial ventures; (1) a skydiving business, (2) a glider training and towing business, and (3) a banner towing business at the Hobby Field Airport. For ease of understanding and administration, Critical Path, Inc. (CPI) will prepare separate reports to the City on each operation when authorized. CPI was engaged by the City to conduct a review of each operation as it relates to the City's/Airport's responsibilities to assure that the operations can be conducted safely. A copy of the Statement of Work is included as **Exhibit A** to this report.

As part of our work, the City of Creswell coordinated a series of meetings between interested parties and CPI so that we could gain insight into the activities at the airport. A copy of the meeting schedule is included as **Exhibit B** to this report. On the day prior to the formal onsite visit, a fatal aircraft accident took the life of the owner of the glider and banner towing business. Because of this unfortunate accident, we were unable to interview the owner about his contemplated operation. However, during subsequent interviews with interested parties, we did receive some comments about the banner towing and glider operations.

The owner of Eugene Skydivers, Mr. Urban Moore, has filed an informal complaint under CFR Title 14, Part 13 with the FAA alleging that the City is in violation of its Grant Assurances by discriminating against Eugene Skydivers. The object of CPI's work is to ascertain if a drop zone (DZ), capable of supporting skydiving operations for all classes of skydivers, is feasible and, if so, what operating practices should be adopted to foster a safe environment for jumpers and other operators.

Following our interviews, we visited the airport to gain a feel for the size of the airport and the facility constraints that concerned us following our review of the Airport Layout Plan (ALP) and aerial images. The site visit confirmed our concerns about the physical limitations of the airport property. Given these concerns, we felt that it would be prudent to ascertain if it was "technically" possible to comply with FAA guidance (requirements) for siting a DZ. Section 2 of this report contains that technical review.

SECTION 1 – DOCUMENT REVIEW

As part of our research related to the skydiving operation, we reviewed the documents provided to CPI by the City Administrator. A copy of the Document Index that identifies each document reviewed by the Consultant is attached to this report as **Exhibit C.**

SECTION 2 – TECHNICAL SITE REVIEW

Airport Background Information

After reviewing the Airport Layout Plan and following an on-site visit of the airport, it became apparent that the first question to be explored and resolved would be the matter of available space for a drop zone.

Drawing S-1, in **Exhibit E**, shows the property boundaries and runway layout for Hobby Field. This drawing identifies the current PROPERTY LINE (airport boundary blue dashed line) and the current RUNWAY BOUNDARY (solid red line). The approximate distance from the runway centerline to the airport's east boundary is 264 feet. The runway width is 60 feet.

Based on our knowledge of airfield layouts and operating requirements, the first item of business was to review and identify pertinent data from the Hobby Field Airport Master Plan Update, dated November 2007, and the signed Airport Layout Plan. **Table 2.1** data is important to our review and is taken from the Hobby Field Airport Master Plan. The table below is the identification of Hobby Field's Airport Reference Code (ARC) as B-I (small). This classification will be used when the various dimensional characteristics of Hobby Field are identified.

Table 2.1 □ AIRPORT DATA

Airport Name/Designation	Creswell Municipal/Hobby Field (77S)
Airport Owner	City of Creswell
Date Established	1963
Airport Category	National Plan of Integrated Airport Systems (NPIAS) General Aviation FAA Airport Reference Code: B-I (small) Oregon Aviation System Designation: Community General Aviation Airport (Category 4) included in Oregon Core System of Airports
Airport Acreage	Approximately 102.6 Acres (based on Lane County Assessor ownership data)
Airport Coordinates	N 43□55' 51" W 123□00' 24"
Airport Elevation	535 feet Mean Sea Level (MSL)
Airport Traffic Pattern Configuration/Altitude	Left Traffic – 1,400 feet above mean sea level (MSL)

Source: Hobby Field Airport Master Plan Update

Airport Critical Aircraft

The quotation below is taken from the current Airport Master Plan Update and identifies the airport's "critical aircraft." Airports are planned and their airfields designed to specific dimensional criteria (length, width, etc.) based on the type of aircraft that are forecasted to use the airport; for planning purposes airport planners designate a "critical aircraft" for the airport. When the critical aircraft is determined, that will dictate which FAA ARC will be used to set the design or dimensional criteria for the airport. If the airport is designed using the correct ARC and only aircraft that match the ARC use the airport, then all of the protected areas around an airport work to protect the aircraft from obstacles.

> "The 2001 airport layout plan identifies a Beechcraft Baron 58, a light twin-engine aircraft as the current and future critical aircraft for Hobby Field. This aircraft is included in Airplane Design Group I and Approach Category B (B-I) and is classified as a "small" aircraft by FAA, since it weighs less than 12,500 pounds. The B-I (small) category includes the majority of light twin engine piston aircraft that operate at Hobby Field on a regular basis. The airport currently has two locally based "B-I" light twin aircraft, including a Baron 58 and a Cessna 340; a Piper Seneca (A-I), a similar light twin is also based at the airport. By FAA definition, the "design aircraft" must have a minimum of 500 itinerant annual operations, which at Hobby Field, is met by a combination of locally based and itinerant aircraft. For planning purposes, the recommended existing and future Airport Reference Code (ARC) for Hobby Field is B-I (small). It is estimated that approximately 1.5 to 2 percent of current operations are generated by "B-I" light twin aircraft. This percentage is expected to remain relatively stable during the planning period." Source: Hobby Field Airport Master Plan Update

Airport Protected Areas – Runway Safety Areas

Protected areas (sometimes the area is actually three-dimensional and includes a volume of airspace) are safety buffers for aircraft operations. As an example, in terms of a divided highway, the protected surface of a divided highway might be considered the median (smoothed and compacted area between the opposite direction traffic) or the shoulder area adjacent to the highway. On an airport, planners must provide these safety buffers, called Runway Safety Areas (RSA), Object Free Areas/Obstacle Free Zones (OFA/OFZ) and Runway Protection Zone(s) (RPZs). The ideas behind these protected areas is to minimize physical hazards to aircraft and to establish standards for items that must be located in these areas; items such as runway lights or other visual navigation aides. As stated in Table 2-1 above, the FAA Airport Reference Code for Hobby Field is B-1 (small). This is important because this ARC will establish the width of the required RSA, and the dimensions of the OFA/OFZ and RPZ. Below is the definition of an RSA from Advisory Circular 150-5300-13, *Airport Design.*

"**305. <u>RUNWAY SAFETY AREA (RSA).</u>** The runway safety area is centered on the runway centerline. Tables 3-1, 3-2, and 3-3 present runway safety area dimensional standards. Figure 3-1 depicts the runway safety area. Appendix 8 discusses the runway safety area's evolution.

(a) <u>Design Standards.</u> The runway safety area shall be:

(1) cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations;

(2) drained by grading or storm sewers to prevent water accumulation;

(3) capable, under dry conditons, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and

(4) free of objects, except for objects that need to be located in the runway safety area because of their function. Objects higher than 3 inches (7.6 cm) above grade should be constructed, to the extent practicable, on low impact resistant supports (frangible mounted structures) of the lowest practical height with the frangible point no higher than 3 inches (7.6 cm) above grade. Other objects, such as manholes, should be constructed at grade. In no case should their height exceed 3 inches (7.6 cm) above grade.

(b) <u>Construction Standards.</u> Compaction of runway safety areas shall be to FAA specification P-152 found in AC 150/5370-10.

(c) <u>Sub-standard RSAs.</u> RSA standards cannot be modified or waived like other airport design standards. The dimensional standards remain in effect regardless of the presence of natural or man-made objects or surface conditons that might create a hazard to aircraft that leave the runway surface. Facilities, including NAVAIDs, that would not normally be permitted in an RSA should not be installed inside the standard RSA dimensions even when the RSA does not meet standards in other respects. A continuous evaluation of all practicable alternatives for improving each sub-standard RSA is required until it meets all standards for grade, compaction, and object frangibility. FAA Order 5200.8, Runway Safety Area Program, explains the process for conducting this evaluation. Each FAA regional Airports division manager has a written determination of the established practicable alternative(s) for improving each RSA. Therefore, runway and RSA improvement projects must comply with the determination of the FAA regional Airports division manager." Source: FAA Advisory Circular 150/5300-13 (Changes 1-13) Airport Design.

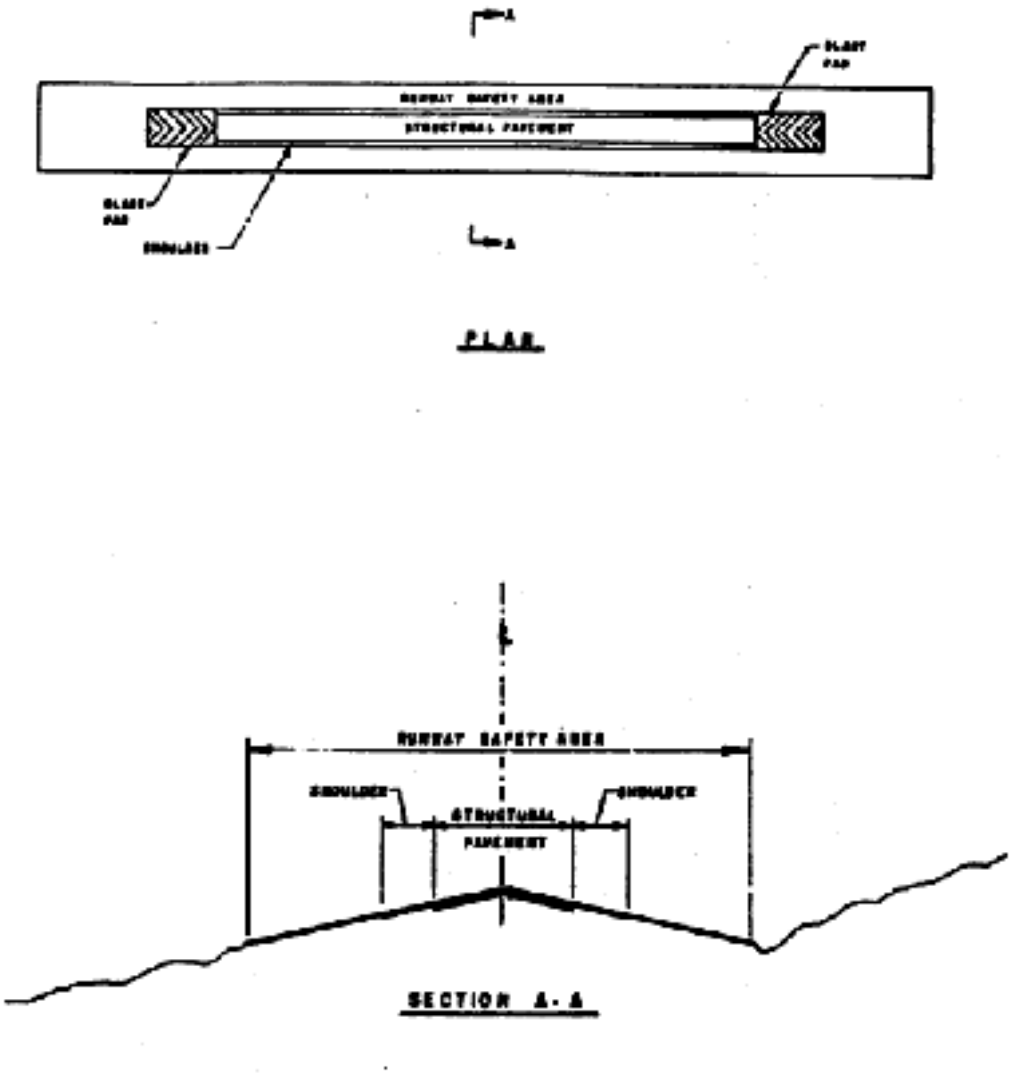

Figure 3-1. Runway safety area

Drawing S-2, in **Exhibit F**, identifies the current PROPERTY LINE, RUNWAY BOUNDARY and adds the RUNWAY SAFETY AREA (RSA) limit line. The RSA is 60 feet (120 feet in total width) either side of the runway centerline and extends beyond the runway end 240 feet.

Airport Protected Areas – Object Free Area/Obstacle Free Zone

Another important protected area (safety buffer) is the Object Free Area (OFA) and the Obstacle Free Zone (OFZ). These areas are variations of the same "safety buffer" concept except the OFA is two dimensional. The OFA is defined by length and width and measured from the runway centerline. The OFZ has a third dimension of height; it is a volume of airspace with the same dimensions as the OFA at the surface but extends vertically to 150 feet Above Ground Level (AGL). As you will read from the Hobby Field Airport Master Plan Update excerpt below, the OFA is 125 feet wide on each side of the runway centerline or a total of 250 feet in width.

> Aircraft hold lines are painted on all taxiway connections to Runway 15/33, 125 feet from the runway centerline. This distance corresponds to the outer edges of a 250-foot wide runway obstacle free zone (OFZ) and runway object free area (OFA) that are defined for runways used by small aircraft exclusively." Source: Hobby Field Airport Master Plan Update

Below is the technical definition of an OFA from the FAA Advisory Circular 150/5300-13, *Airport Design*. This definition is important because it tells us what may or may not be in an OFA. Clearly, the FAA intends, from the language below, that nothing be in the OFA "except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes."

> *Object Free Area (OFA)*. An area on the ground centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. Source: AC 150/5300-13, Chapter 1, page 2. Definitions.

> 307. **OBJECT FREE AREA**. The runway object free area (OFA) is centered on the runway centerline. The runway OFA clearing standard requires clearing the OFA of above ground objects protruding above the runway safety area edge elevation. Except where precluded by other clearing standards, it is acceptable to place objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes and to taxi and hold aircraft in the OFA. Objects non-essential for air navigation or aircraft ground maneuvering purposes are not to be placed in the OFA. This includes parked airplanes and agricultural operations. Tables 3-1, 3-2, and 3-3 specify the standard dimensions of the runway OFA. Extension of the OFA beyond the standard length to the maximum extent feasible is encouraged. See figure 2-3. Source: AC 150/5300-13, Chapter 3, 307. OBJECT FREE AREA.

Below is the technical definition of OFZ from the FAA Advisory Circular 150/5300-13, *Airport Design*. This definition is important because it tells us what may or may not be in an OFZ. The FAA intends that nothing be in the OFZ "except for frangible visual NAVAIDs that need to be

located in the OFZ because of their function", and further states that the OFZ is provided "in order to provide clearance protection for aircraft landing or taking off from the runway, and for missed approaches."

Obstacle Free Zone (OFZ). The OFZ is the airspace below 150 feet (45m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway, and for missed approaches. The OFZ is sub-divided as follows:

Runway OFZ. The airspace above a surface centered on the runway centerline. *AC 150/5300-13, Chapter 1, Obstacle Free Zone (OFZ).*

***Note: the definition of OFZ contains additional sub-divisions but none of the sub-divisions are applicable to Hobby Field.**

306. **OBSTACLE FREE ZONE (OFZ)**. The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function. The runway OFZ, and when applicable, the precision OFZ, the inner-approach OFZ and the inner-transitional OFZ comprise the obstacle free zone (OFZ). Figures 3-2, 3-3, 3-4, 3-5, and 3-6 show the OFZ.

(a) Runway OFZ (ROFZ). The runway OFZ is a defined volume of airspace centered above the runway centerline. The runway OFZ is the airspace above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The runway OFZ extends 200 feet (60m) beyond each end of the runway. Its width is as follows:

(1) For runways serving small airplanes exclusively:

(a) 300 feet (90m) for runways with lower than ¾-statute mile (1,200m) approach visibility minimums.

(b) 250 feet (75m) for other runways serving small airplanes with approach speeds of 50 knots or more.

(c) 120 feet (36m) for other runways serving small airplanes with approach speeds of less than 50 knots. Source: AC 150/5300-13, Chapter 3, 306.OBSTACLE FREE ZONE (OFZ).

The following drawing is from AC 150/5300-13, *Airport Design*, Chapter 3, Figure 3-2, and graphically depicts the relationship of the runway and the Runway OFZ.

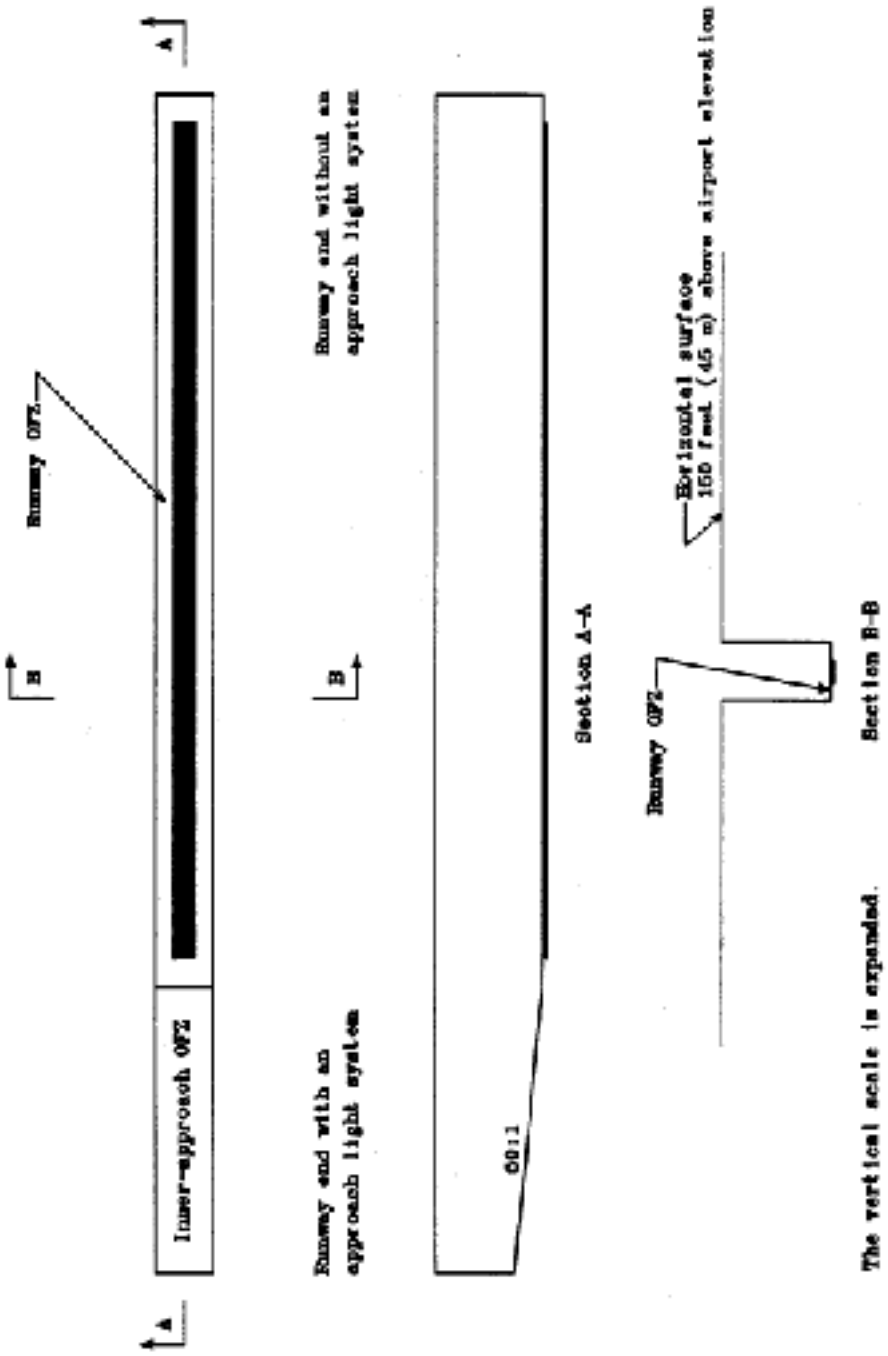

Figure 3-2. Obstacle free zone (OFZ) for visual runways and runways with not lower than 3/4-statute mile (1 200 m) approach visibility minimums

Drawing S-3, in **Exhibit G**, identifies the current PROPERTY LINE, RUNWAY BOUNDARY, RSA and adds the OBJECT FREE AREA/OBSTACLE FREE ZONE (OFA/OFZ) boundary. The outer edge of the OFA/OFZ boundary is 125 feet from the runway centerline (250 feet in total width) either side of the runway centerline and extends beyond the runway end 200 feet.

Airport Protected Areas – Runway Protection Zone

The last relevant major protected area is the Runway Protection Zone (RPZ). The RPZ is defined as:

> *Runway Protection Zone (RPZ).* An area off the runway end to enhance the protection of people and property on the ground. Source: AC 150/5300-13, Chapter 1, 2. Definitions.

> **212. RUNWAY PROTECTION ZONE (RPZ).** The RPZ's function is to enhance the protection of people and property on the ground. This is achieved through airport owner control over RPZs. Such control includes clearing RPZ areas (and maintaining them clear) of incompatible objects and activities. Control is preferably exercised through the acquisition of sufficient property interest in the RPZ.
>
> (a) Standards.
>
> (1) **RPZ Configuration/Location**. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The central portion and controlled activity area (are (sic)) the two components of the RPZ (see Figure 2-3). The RPZ dimension for a particular runway end is a function of the type of aircraft and approach visibility minimum associated with that runway end. Table 2-4 provides standard dimensions for RPZs. Other than with a special application of declared distances, the RPZ begins 200 feet (60m) beyond the end of the area usable for takeoff and landing. With a special application of declared distances, see Appendix 14, separate approach and departure RPZs are required for each runway end.
>
> (a) **The Central Portion of the RPZ.** The central portion of the RPZ extends from the beginning to the end of the RPZ, centered on the runway centerline. Its width is equal to the width of the runway OFA (see Figure 2-3). Paragraph 307 contains the dimensional standards for the OFA.

(b) **The Controlled Activity Area.** The controlled activity area is the portion of the RPZ to the sides of the central portion of the RPZ.

(2) **Land Use.** In addition to the criteria specified in paragraph 211, the following land use criteria apply within the RPZ:

(a) While it is desirable to clear all objects from the RPZ, some uses are permitted, provided they do not attract wildlife (see paragraph 202g., *Wildlife Hazards*, and Appendix 17 for dimensional standards), are outside of the Runway OFA, and do not interfere with navigational aids. Automobile parking facilities, although discouraged, may be permitted, provided the parking facilities and any associated appurtenances, in addition to meeting all of the preceding conditions, are located outside of the central portion of the RPZ. Fuel storage facilities may not be located in the RPZ.

(b) Land uses prohibited from the RPZ are residences and places of public assembly. (Churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typify places of public assembly.) Fuel storage facilities may not be located in RPZ. Source: AC 150/5300-13, Chapter 2, 212. RUNWAY PROTECTION ZONE (RPZ).

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The following graphic from AC 150/5300-13 shows a typical RPZ.

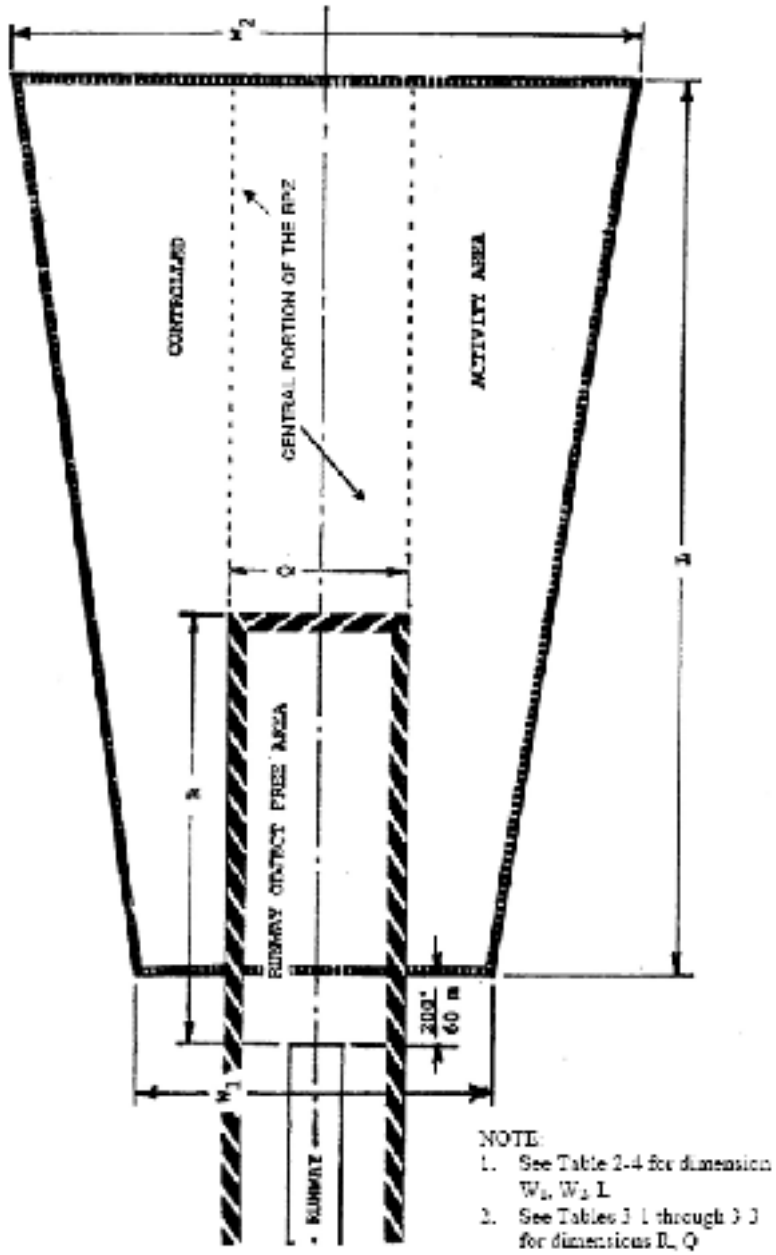


Figure 2-4 Runway protection zone

Drawing S-4**,** in **Exhibit H**, identifies the current PROPERTY LINE, RUNWAY BOUNDARY, RSA, OBJECT FREE AREA/OBSTACLE FREE ZONE (OFA/OFZ) and adds the RUNWAY PROTECTION ZONE. The RPZ is trapezoidal in shape; 1,000 feet in length, 250 feet in width (closest to

runway end) and 450 feet in width at the most distant point from the runway end. The RPZ begins 200 feet from the runway end.

The preceding information establishes a base for understanding the areas surrounding the airport's runway. Table 3-1 that follows is from AC 150-5300-13, *Airport Design,* and summarizes in table form the requirements at Hobby Field.

Table 3-1. Runway design standards for aircraft approach category A & B visual runways and runways with not lower than 3/4-statute mile (1,200 m) approach visibility minimums

(Refer also to Appendix 16 for the establishment of new approaches)

ITEM	DIM 1/	AIRPLANE DESIGN GROUP				
		I 2/	I	II	III	IV
Runway Length	A	Refer to paragraph 301				
Runway Width	B	60 ft 18 m	60 ft 18 m	75 ft 23 m	100 ft 30 m	150 ft 45 m
Runway Shoulder Width		10 ft 3 m	10 ft 3 m	10 ft 3 m	20 ft 6 m	25 ft 7.5 m
Runway Blast Pad Width		80 ft 24 m	80 ft 24 m	95 ft 29 m	140 ft 42 m	200 ft 60 m
Runway Blast Pad Length		60 ft 18 m	100 ft 30 m	150 ft 45 m	200 ft 60 m	200 ft 60 m
Runway Safety Area Width	C	120 ft 36 m	120 ft 36 m	150 ft 45 m	300 ft 90 m	500 ft 150 m
Runway Safety Area Length Prior to Landing Threshold 3/, 4/		240 ft 72 m	240 ft 72 m	300 ft 90 m	600 ft 180 m	600 ft 180 m
Runway Safety Area Length Beyond RW End 3/, 4/	F	240 ft 72 m	240 ft 72 m	300 ft 90 m	600 ft 180 m	1,000 ft 300 m
Obstacle Free Zone Width and Length		- Refer to paragraph 306 -				
Runway Object Free Area Width	O	250 ft 75 m	400 ft 120 m	500 ft 150 m	800 ft 240 m	800 ft 240 m
Runway Object Free Area Length Beyond RW End 5/	R	240 ft 72 m	240 ft 72 m	300 ft 90 m	600 ft 180 m	1,000 ft 300 m

1/ Letters correspond to the dimensions on figures 2-1 and 2-3. Use this table only when both ends of the runway provide not lower than ¾ statute mile approach visibility minimums.

2/ These dimensional standards pertain to facilities for small airplanes exclusively.

3/ The runway safety area (RSA) length begins at each runway end when a stopway is not provided. When a stopway is provided, the length begins at the stopway end.

4/ The standard RSA length beyond the runway end may be reduced to the standard RSA length prior to landing threshold if a standard Engineered Materials Arresting System (EMAS) is provided. To qualify for this reduction, the EMAS installation must provide the ability to stop the critical aircraft exiting the end of the runway at 70 knots, and the runway must provide either instrument or visual vertical guidance for approaches in the opposite direction. See AC 150/5220-22.

5/ The runway object free area length beyond the end of the runway never exceeds the standard RSA length beyond the runway end as provided by note 4 above.

The information that is relative to Hobby Field from Table 3-1 (above) is contained in the third column from the left. Hobby Field has an Airplane Design Group designation of B-I (small); that classification requires the following dimensional criteria be observed.

- Runway Safety Area Width 120 feet
- Runway Object Free Area Width 250 feet

As identified in the most recent Master Plan Update, Hobby Field is a VFR airport.

> Hobby Field has no electronic navigational aids or published instrument approaches and operates exclusively under visual flight rules (VFR) conditions. In 2004, updated airspace planning was conducted for the airport based on the planned development of a non-precision instrument approach. The airspace surfaces for the runway were upgraded to non-precision instrument approaches for utility runways. Source: Hobby Field Airport Master Plan Update.

Drop Zone Site

Having established the size and clearing criteria for Hobby Field, our next review element centered on how to site a drop zone. In our review, we use the term "drop zone" (DZ) to mean the area where skydivers plan to land. Our reference for this element of the review is the document prepared by the United States Parachute Association (USPA) titled *Skydiver's Information Manual (SIM).*

> DEFINITIONS AND TERMS
>
> "H. DROP ZONE REQUIREMENTS
>
> 1. Areas used for skydiving should be unobstructed, with the following minimum radial distances to the nearest hazard:[S]
> a. solo students and A-license holders – 100 meters
> b. B- and C- license holders – 50 meters
> c. D-license holders – unlimited
> 2. Hazards are defined as telephone and power lines, towers, buildings, open bodies of water, highways, automobiles, and clusters of trees covering more than 3,000 square meters. [MW]
> 3. Manned ground-to-air communications (e.g., radios, panels, smoke, lights) are to be present on the drop zone during skydiving operations. [NW]" Source: Section 2-1, H., United States Parachute Association 2009 – 1010 Skydiver's Information Manual.

A careful reading of the USPA SIM on "Drop Zone Requirements" reveals an interesting and useful approach to locating DZs. Rather than state a specific size or shape for a DZ, the USPA indicates distances from hazards or as they state the requirement, "minimum radial distances

to the nearest hazard." This approach suggests that any area can be used if it is unobstructed and free of hazards. The FAA also discusses the designation of DZs in AC 105-2C, *Sport Parachute Jumping*.

The USPA SIM suggests that hazards are objects such as "telephone and power lines, towers, buildings, open bodies of water, highways, automobiles, and clusters of trees covering more than 3,000 square meters." While this list is representative, it certainly does not cover all possible obstructions or hazards that could be encountered. It is important to note the USPA document is silent on the issues related to protected surfaces around airports.

The approach suggested by the requirements in the USPA's SIM is that landing in a precise area or on a precise spot is dependent on a number of factors including the parachutist's skill and weather, among other factors. In order to keep the risk of landing in a obstructed or hazardous area to a level as low as reasonably possible, the USPA suggests a set-off or buffer area from hazards of 100 meters (328 feet) for solo students and A License holders to no buffer for D-license holders. This approach seems to recognize that as a jumper's skill increases, his/her ability to land precisely improves and the need for a buffer between the edge of a DZ and any hazard can be safely reduced. The concept of providing a "minimum radial distance" (buffer or setoff) seems a prudent mechanism to minimize miscalculations or deviations in the skydiver's approach resulting in a potentially hazardous conflict with other aeronautical users.

As we reviewed the areas surrounding the airport, it was apparent that the areas immediately to the west of the runway centerline are unusable for a DZ because of the taxiway, ramps, hangars, other airport buildings and the highway just west of the airport boundary. Looking for a DZ in the approach or departure corridors of the runway was eliminated because these are protected surfaces and would pose a danger to both jumpers and pilots.

The most likely area for a DZ, capable of supporting all classes of jumpers, on the airport is the area east of the runway. The east property boundary of the airport property lies approximately parallel to the runway centerline and as depicted on the ALP is about 264 feet from the runway centerline. At the Runway 15 end of the airport, the boundary changes to parallel the Runway Protection Zone (RPZ).

The Hobby Field property is relatively small and does not contain additional buffer property like some airports. The major controlling dimensional standard related to the siting of a DZ on Hobby Field is the Object Free Area (OFA). In order to understand the interplay of the various surfaces and the hazard setoff (safety buffer), we created the following drawing to show those relationships.

Drawing S-5, in **Exhibit I**, identifies the current PROPERTY LINE, RUNWAY BOUNDARY, RSA, OBJECT FREE AREA/OBSTACLE FREE ZONE (OFA/OFZ), RUNWAY PROTECTION ZONE and the USPA recommended BUFFER ZONE. The BUFFER ZONE is 328 feet (100 m) radial distance from

the closest protected surface. In this instance, the closest (farthest from the runway centerline) is the OFA/OFZ and the RPZ. The "hatched area" bounded in red represents the BUFFER ZONE.

Drop Zone

The next step is to consider the recommendations of the USPA as they pertain to the siting of a drop zone. The USPA SIM recommends that the unobstructed area for students and A-license holders should be 100 meters (328 feet) to the nearest hazard. For the purposes of this analysis/review, this distance will be called a safety buffer. From reading the USPA SIM, the purpose of the safety buffer is to allow a safety margin between hazards and jumpers. The safety margin or buffer can be reduced as the skill of the jumper increases.

FAA Correspondence

Much has been made of the definition of the term "hazard" as it relates to the runway environment; i.e., Runway Safety Area (RSA), Object Free Area/Obstacle Free Zone (OFA/OFZ) and the Runway Protection Zone (RPZ). The USPA SIM is silent about the protected area around a runway and therefore is not helpful in determining the use of these areas for skydiving activities.

The guidance provided by the FAA on the issue is not specific as it relates to skydiving operations in the OFA/OFZ and RPZ. As we reviewed the correspondence between the various parties involved in the dispute and from information gathered during interviews with the various users of the airport, it became clear that we must determine if it is an acceptable practice to use these areas as a DZ.

In order to clarify this matter we requested from the FAA Northwest Mountain Region a direct response to three questions; those questions follow:

1. Is it acceptable to include or allow the use of any portion of a Runway Safety Area (RSA) or a Taxiway Safety Area (TSA) for or as a parachute/skydiving landing area? If so, are there restrictions associated with such use?

2. Is it acceptable for a parachutist under canopy to enter any Obstacle Free Zone, other than as the consequence of an emergency? If so, are there restrictions associated with such entry?

3. Is it acceptable for a parachutist to enter any Obstacle Free Area during any skydiving related activity other than as the consequence of an emergency? If so, are there restrictions associated with such entry? Source; September 4, 2009, letter to Donna Taylor, Manager, Airports Division,ANM-600, from Tim Phillips, Critical Path, Inc.

The point of the questions was to get a clear determination by the FAA about the use of the OFA/OFZ or RSA as a skydiving landing area other than as the consequence of an emergency. The complete reply by the FAA is provided in **Exhibit D**, attached to this report. The operative portions of the reply follow.

All three questions are addressed in the following excerpt from the Draft Advisory Circular (AC) 105-2D, *Sport Parachuting*:

> Areas such as runway, taxiways, clear ways and obstacle free zones should not be used as a primary landing area but are not prohibited from inadvertent entry and should be vacated as soon as practical if a parachutist should land there unintentionally. Primary landing areas are to be defined in accordance with the United States Parachute Association (USPA) guidelines. The USPA has recommended that areas used for skydiving should be unobstructed, with the following minimum radial distances to the nearest hazard as defined in the USPA's Basic Safety Requirements:
>
> 1. Solo students and A – License holders – 100 meters
> 2. B and C License holders – 50 meters
> 3. D License holders – unlimited Source: December 4, 2009 letter from Donna Taylor, Manager, Airport Division, ANM-600, to Mark Shrives, City Administrator, City of Creswell

The response is consistent with the Consultant's understanding of the FAA guidance provided in other Advisory Circulars. The reply is however, problematic in that the response relies on a Draft Advisory Circular and the letter from Ms. Taylor is closed with the following caveat "This represents our initial position with regards to the subject questions, based on the Northwest Mountain Region's Airports Division's interpretation of the Draft AC, and does not represent a final agency decision."

<u>Conclusion</u>

Based on our review of the Advisory Circulars, the draft guidance above, and our understanding of the FAA's intent to keep the OFA/OFZ clear of anything that does not need to be in these areas (i.e., items fixed by function) including skydivers, we believe the following:

- The OFA/OFZ is a critical aircraft operating area and should not be used for routine skydiving operations.
- In order to minimize the potential for inadvertent entry into the OFA/OFZ (and other critical areas) and provide a DZ appropriate for all classes of skydivers, the DZ should be no closer to the OFA/OFZ and RPZ boundary than 100 meters (328 feet) as recommended by the FAA and the USPA.
    - This places the boundary for a DZ beyond the existing airport property boundary by approximately 198 feet.

- Given the dimensional characteristics of Hobby Field, FAA standards and USPA recommendations, it is not possible to locate a DZ for all classes of skydivers on airport property owned by the City of Creswell.
- As measured from the runway centerline, a DZ for all classes of skydivers, should be no closer than approximately 453 feet (at the mid-point of the runway), and more distant from the runway centerline when measured from the edge of the RPZ.

EXHIBIT A – STATEMENT OF WORK

CITY OF CRESWELL, OREGON
HOBBY FIELD AIRPORT
STATEMENT OF WORK
August 1, 2009

Background

The City of Creswell desires to complete a review of its operational and safety procedures related to the potential use of the airport for skydiving, glider, and banner towing activities. Potential operators seeking permission to conduct such commercial operations have approached the City. The City, as the airport operator, is concerned about the risks associated with these potential operations given the size and development of the Hobby Field Airport.

The City desires to engage Critical Path, Inc. (Consultant) to review the contemplated operations and to provide recommendations to the City on these activities. The work is to be completed in two phases as described below.

PHASE I

Task 1.0 Document Review

Consultant will review the City s applicable records to complete a due diligence review related to the study subjects. The City will supply to the Consultant a copy (digital copy preferred) of each document requested by Consultant.

ACTION: Consultant will review the documents on site in Creswell during the first site visit.

DELIVERABLE: Consultant will provide the City with a list of each document reviewed.

Task 2.0 On-site Review

Consultant will complete an on-site review of Hobby Field Airport to gain insight into the suitability of, and risks related to, the contemplated operations (skydiving, glider operations, and banner towing). Consultant may interview appropriate interested parties as needed as part of the on-site review. Consultant will interview the owners/operators of the skydiving, banner towing and glider operations while on the site visit if the parties are available.

DELIVERABLE: Consultant will submit a report detailing the findings and recommendations related to the contemplated operations.

DELIVERABLE: Consultant will provide an informal out briefing (verbal only) of the findings with the City Administrator at the conclusion of the on-site review.

Task 3.0 Risk Assessment

Consultant will complete a risk assessment of the contemplated operations and report the findings and recommendations. The risk assessment shall qualify and quantify the Airport s risk related to the contemplated operations.

DELIVERABLE: Consultant will provide a detailed risk assessment report outlining the Consultant s findings and recommendations related to the contemplated operations. The report will be transmitted to the City no later than sixty (60) working days from the completion of the site review (Task 2.0).

PHASE II

Based on the activities completed in Phase I, the City and Consultant will / may develop a supplemental Statement of Work to complete other tasks as defined and required by the City.

Task 4.0 Commercial Agreement Review

The City has developed the following documents that the City desires the Consultant to review:

- AGT Operations Plan
- Commercial Operators Permit

DELIVERABLE: Consultant will review each document and provide recommendations for improvement (if any) related to airport management / FAA compliance concerns. The deliverable will provide recommendations, not actual suggested changes to the documents. CPI does not provide legal advice.

EXHIBIT B – ON-SITE MEETING SCHEDULE

City of Creswell Interview Schedule
For
Tim Phillips, Consultant, Critical Pathways, Inc.
August 25, 2009
Creswell Community Center Conference Room

Time	Interviewee
AM	
8:00 □ 9:00	**Takewing, Inc. □ Flight School** Dorothy Schick, owner
9: 15 □ 10:15	**Eugene Skydivers** Urban Moore, owner
10:30 □ 11:30	**Airport Commissioners:** Larry Lowenkron (chair) Ed Weeks
11:30 □ 12:30	**LUNCH**
PM	
12:30 □ 1:30	**PCC Aviation & Staton Companies (High Performance Aircraft)** Steve Weston (Chief pilot) Mark Stroble
1:45 □ 2:45	**Glider Operations** Scott Henderson (co-owner □ Banner Towing Owner) Bill Kelly (co-owner) Mark Stroble (Chief Pilot)
3:00 □ 4:00	**Papa Papa, Inc. □ Flight Instructor with About Time Aviation** Paul Preziose

4:15 □ 5:00	**Experimental Aircraft Association & Creswell Pilots** Ben Hallert, EAA President Nelson Page, pilot/hangar owner Dave Koester, pilot/hangar owner Don Schiltz, pilot/hangar owner Steve Searle, pilot

EXHIBIT C – DOCUMENT REVIEW LIST

CRESWELL AIRPORT REVIEW
DOCUMENT INDEX

No.	Date	Type	Document Description
Correspondence			
		Log	Correspondence Log Prepared by Creswell Airport
1	8/19/2009	Letter	From Christy Monson to Donna Taylor, FAA Subject: Legal response to FAA on City's concerns regarding the FAA's letter dated 8/6/2009
2	7/22/2009	Letter	From Mark Shrives to Donna Taylor Subject: Response Regarding Skydiving Review Timeline
3	7/1/2009	E-Mail	From Randy Ottinger to Brad Pearson Subject: Regarding Teleconference
4	6/25/2009	E-Mail	From Joelle Briggs to Donna Taylor Subject: Preparation for Creswell Meetings
5	5/26/2009	E-Mail	From Shelley to Ken Jones Subject: Glider Operations at Creswell
6	5/22/2009	E-Mails	Glider Operations Documents to Mark Shrives for City of Creswell / Airport-Glider Concession Permit. Included: Letter from Christy, Proposed Release of Liability Form; and Proposed Concession Permit for Airplane Glider Services at the Airport.
7	4/29/2009	Letter	From Carol Suomi, FAA to Jerry Norcia, Creswell Subject: Response to letter regarding the through-the-fence access fee and questioning the need for an airport manager. (*Not on Airport Master Correspondence List)*
8	4/27/2009	E-Mail	From Patricia Deem to Joelle Briggs Subject: City approaching non-compliance
9	3/16/2009	E-Mail	From Joelle Briggs to Dwight Williams Subject: Overview of Creswell Issue
10	1/26/2009	Letter	From Douglas Minger to Joelle Briggs Subject: Urban Moore/Eugene Skydivers v. City of Creswell
11	1/20/2009	Letter	From David Case to Joelle Briggs Subject: Personal Concerns and Perceptions
12	1/9/2009	E-Mail	From Joelle Briggs to Brad Pearson Subject: Update on Skydiving at Creswell – City's Response and Enclosures
13	10/27/2008	E-Mail	From Donna Taylor to Brad Pearsons Subject: Guidance Relating to Informal Complaint Process
14	9/15/2008	Letter	From Urban Moore to Joelle Briggs Subject: Outline of hardships to Eugene skydivers

No.	Date	Type	Document Description
Correspondence Continued			
15	8/12/2008	Letter	From Douglas Minger to Joelle Briggs Subject: Urban Moore/Eugene Skydivers v. City of Creswell Minger Response to City of Creswell's Response (6/28/08) to the 5/29/09 FAA Inquiry
16	6/6/2009	E-Mails	From Jeffrey Renner (Senator Gordon H. Smith) to Greg Rasnake Subject: Eugene Skydivers (*Not on Airport Master Correspondence List)*
17	5/15/2008	E-Mails	Follow up on Creswell City Council Meeting of 5-12-09
18	4/25/2008	Letter	From James Ballough, FSDO to Gordon Smith, US Senator Subject: Has determined skydiving to be a low risk activity with mitigating procedures but it is airport's decision to permit
19	4/17/2008	Record of Telephone Call	Randy Ottinger, Bread Pearson, Jody Radcliff and Hank Baller
20	2/21/2008		Special City Council Meeting regarding skydiving drop zone at or near Hobby Field
21	3/6/2007	Letter	From William Watson, FAA to Urban Moore, Eugene Skydivers Subject: Hobby Field, Complaint Concerning Skydiving Operations ADO did not find sufficient evidence to reopen a Part 13 investigation
22	2/22/2007	Memo	From Bradley Pearson, FAA to Seattle and Airports Division Subject: Review of Urban Moore's Response to the City of Creswell's Decision to Withdraw Authorization for Skydiving Operations on the Airport at Hobby Field
23	11/30/2006	Letter	From William Watson to Mark Shrives Subject: Skydiving Operations Complaint
24	3/2/2006	Letter	From William Watson, FAA to Shelley Humble, Airport Manager Subject: Hobby Field/Creswell Airport Runway Safety Area Crossings
25	2/28/2006	Letter	From Michael Harris to Shelley Humble Subject: Response to request evaluation for possible locations for a drop zone on airport property
26	11/18/05	Memo	From Peter Dula to David Bennet Subject: Request Additional Review of 6/30/04 Paris Henry County Safety Review – Response
27	11/20/1991	Letter	From Carolyn Read, FAA to Ron Hansen, City Manager Subject: Concur with Airport's decision to restrict parachute operations at Hobby Field related to proposed plan from Eugene Skydiving Club
28	No Date	Letter	To Mr. Baller – Unknown sender Subject: Comments regarding current jump operator at Creswell

No.	Date	Type	Document Description
Miscellaneous Documents			
29	November 2007	Table	Creswell Municipal Airport – Hobby Field Airport Master Plan Table 4-1: Hobby Field Overview of Non-Conforming Item (FAA Standards)
30	November 2007	Table	Creswell Municipal Airport – Hobby Field Airport Master Plan Table 4-2: Hobby Field Overview of Conformance with FAA Standards
31	November 2007	Table	Creswell Municipal Airport – Hobby Field Airport Master Plan Table 4-5: Airport Design Standards Summary (Dimensions in Feet)
32	8/23/09	News Article	Article from The Register-Guard about tow pilot airplane crash in Creswell on 8/23/09
33	NA	Resume	Resume for Dorothy Schick – Flying D Enterprises
34		Operations Plan	Draft Operations Plan for Creswell Title: Landing Zone: Skydiving, Skydiver Operations Plan
35		Airport Permit	Creswell Municipal Airport Ingress/Egress Permit for Gerald and Barbara Norcia
36	5/14/2009	PowerPoint Presentation	FAA's Residential Through the Fence Policy and 5-Year Airport Capital Improvement Plan (ACIP) Process. Presented to IAMA by Carol Suomi, Manager Seattle ADO
37			Application and Election Process Document for 2010 LOC Board of Directors - League of Oregon Cities

No.	Date	Type	Document Description
Ogden Airport Documents			
38	6/18/2009	Insurance Certificate	Airport Liability Insurance Certificate for Skydive Ogden
39	6/20/2009	Insurance Certificate	Certificate of Insurance for Brian Wallace dba Skydive Ogden
40	7/30/2007	LOA	Letter of Agreement with Ogden, SLC TRACON, Ogden Skydiving Center, 75th Operations Support Squadron and Ogden-Hinckley Airport Subject: Non-Emergency Parachute Jumping Within the Ogden Jumping Area. Radio Call Sign and Discrete Transponder Code Use
41	Title 8	Ordinance	Ogden Airport - Ordinance

No.	Date	Type	Document Description
Regulatory Documents			
42	8/26/1993	Advisory Circular	AC-90-66A – Recommended Standard Traffic Patterns and Practices for Aeronautical Operations at Airports Without Operating Control Towers
43	11/12/2003	CertAlert	No. 03-07 – Personnel and Equipment in the Runway Safety Area
44	9/29/1989	Advisory Circular	AC 150/5300-13 – Airport Design
45	10/2008		2009-2010 Skydiver's Information Manual

No.	Date	Type	Document Description
CPI Project Documents			
46		Email Responses	Responses received from interviewees confirming interview time with CPI and requests for information
47	8/25/2009		CPI Site Visit Interview Schedule

EXHIBIT D – FAA LETTER

U.S. Department of Transportation
Federal Aviation Administration

Northwest Mountain Region
Colorado, Idaho, Montana
Oregon, Utah, Washington
Wyoming

1601 Lind Ave. SW
Renton, Washington 98057

December 4, 2009

Original Signed by
Donna P. Taylor

Mr. Mark Shrives, City Administrator
City of Creswell
13 South 1st Street
P.O. Box 276
Creswell, OR 97426

Dear Mr. Shrives,

We have received correspondence from your consultant, Mr. Tim Phillips with Critical Path, Inc., who is in the process of determining where and if it is possible to site a skydiving drop zone on Hobby Field. More specifically, Mr. Phillips has asked for guidance on possible airport areas to be used as a skydiving drop zone under normal airport and skydiving operations and not exceptions for emergencies. Mr. Phillips provided the following three questions for comment:

1) Is it acceptable to include or allow the use of any portion of a Runway Safety Area (RSA) or a Taxiway Safety Area (TSA) for or as a parachute / skydiving landing area? If so, are there restrictions associated with such use?

2) Is it acceptable for a parachutist under canopy to enter any Obstacle Free Zone, other than as the consequence of an emergency? If so, are there restrictions associated with such entry?

3) Is it acceptable for a parachutist to enter any Obstacle Free Area during any skydiving related activity other than as the consequence of an emergency? If so, are there restrictions associated with such entry?

All three questions are addressed in the following excerpt from the Draft Advisory Circular (AC) 105-2D, *Sport Parachuting*:

> Areas such as runways, taxiways, clear ways and obstacle free zones should not be used as a primary landing area but are not prohibited from inadvertent entry and should be vacated as soon as practical if a parachutist should land there unintentionally. Primary landing areas are to be defined in accordance with the United States Parachute Association (USPA) guidelines. The USPA has recommended that areas used for skydiving should be unobstructed, with the

2

following minimum radial distances to the nearest hazard as defined in USPA's Basic Safety Requirements:

1. Solo students and A – License holders – 100 meters
2. B and C License holders – 50 meters
3. D License holders – unlimited

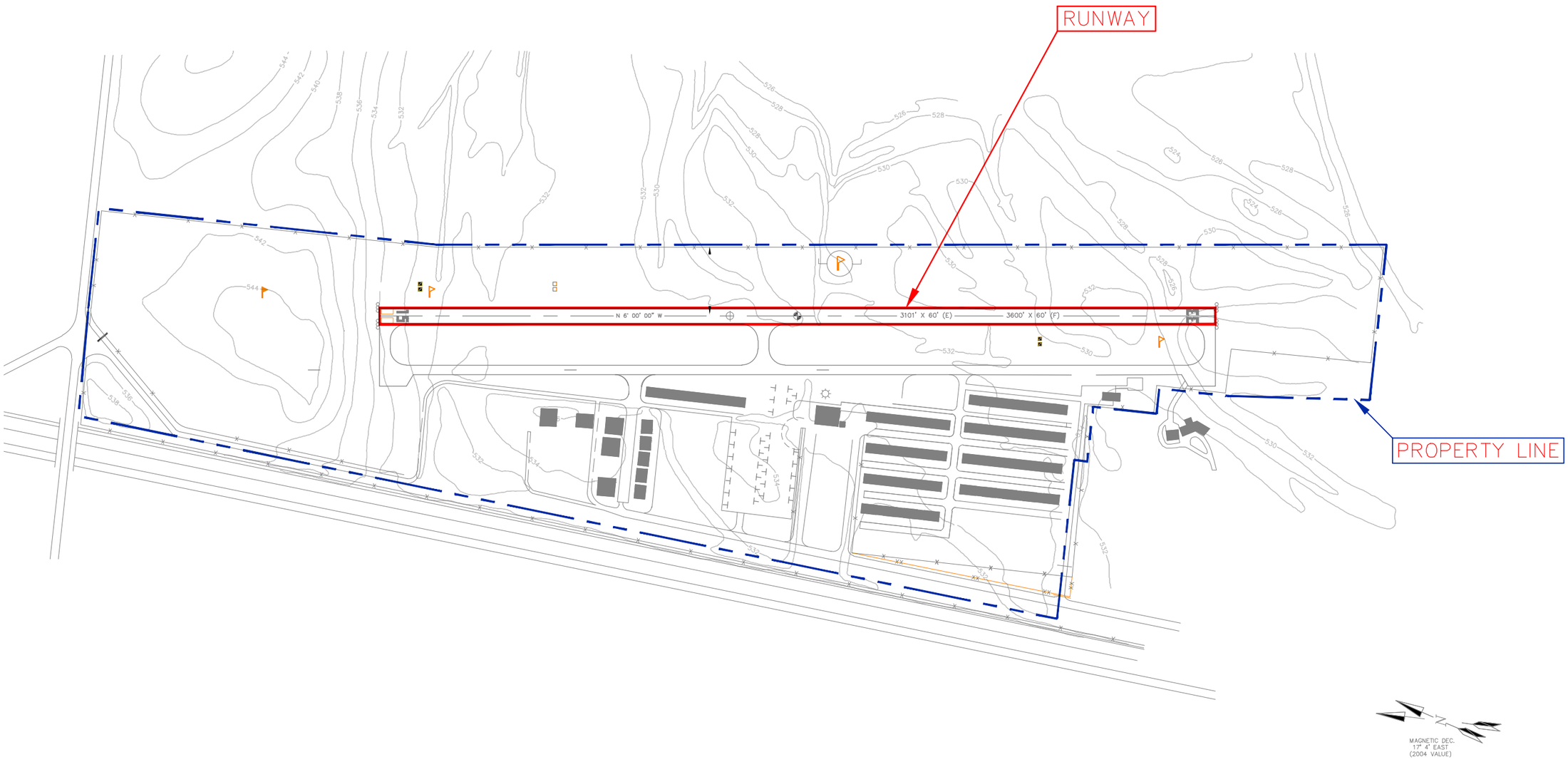
Thank you for allowing us the opportunity to comment on these skydiving drop zone questions. This represents our initial position with regards to the subject questions, based on the Northwest Mountain Region's Airports Division's interpretation of the Draft AC, and does not represent a final agency decision.

If you have any questions regarding our comments please feel free to contact Joelle Briggs, Regional Compliance Manager, at (425) 227-2636

Sincerely,

Donna P. Taylor
Manager, Airports Division
Northwest Mountain Region

cc: Urban Moore, Eugene Skydivers
Mr. Tim Phillips, Critical Path Inc
ANM-200
ANM-007
Marc Miller, DEN ADO, Acting Compliance Program Manager



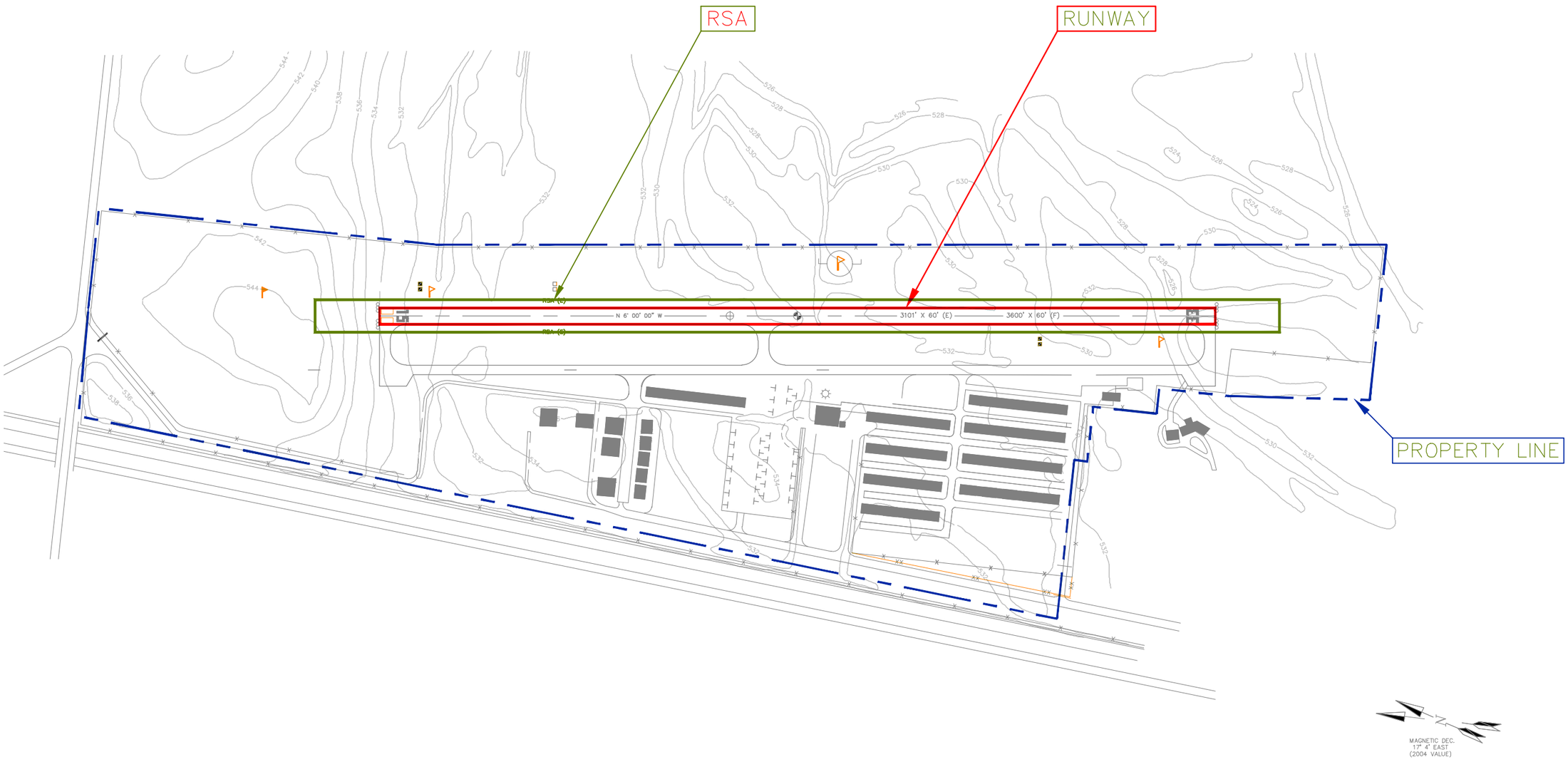
CRITICAL PATH inc.
550 Colorado Gulch Road - Missoula, Montana

HOBBY FIELD AIRPORT
PROPERTY LINE

DATE: 01 / 12 / 10
SCALE: 1" = 400'

S-1

SHEET
1 of 5



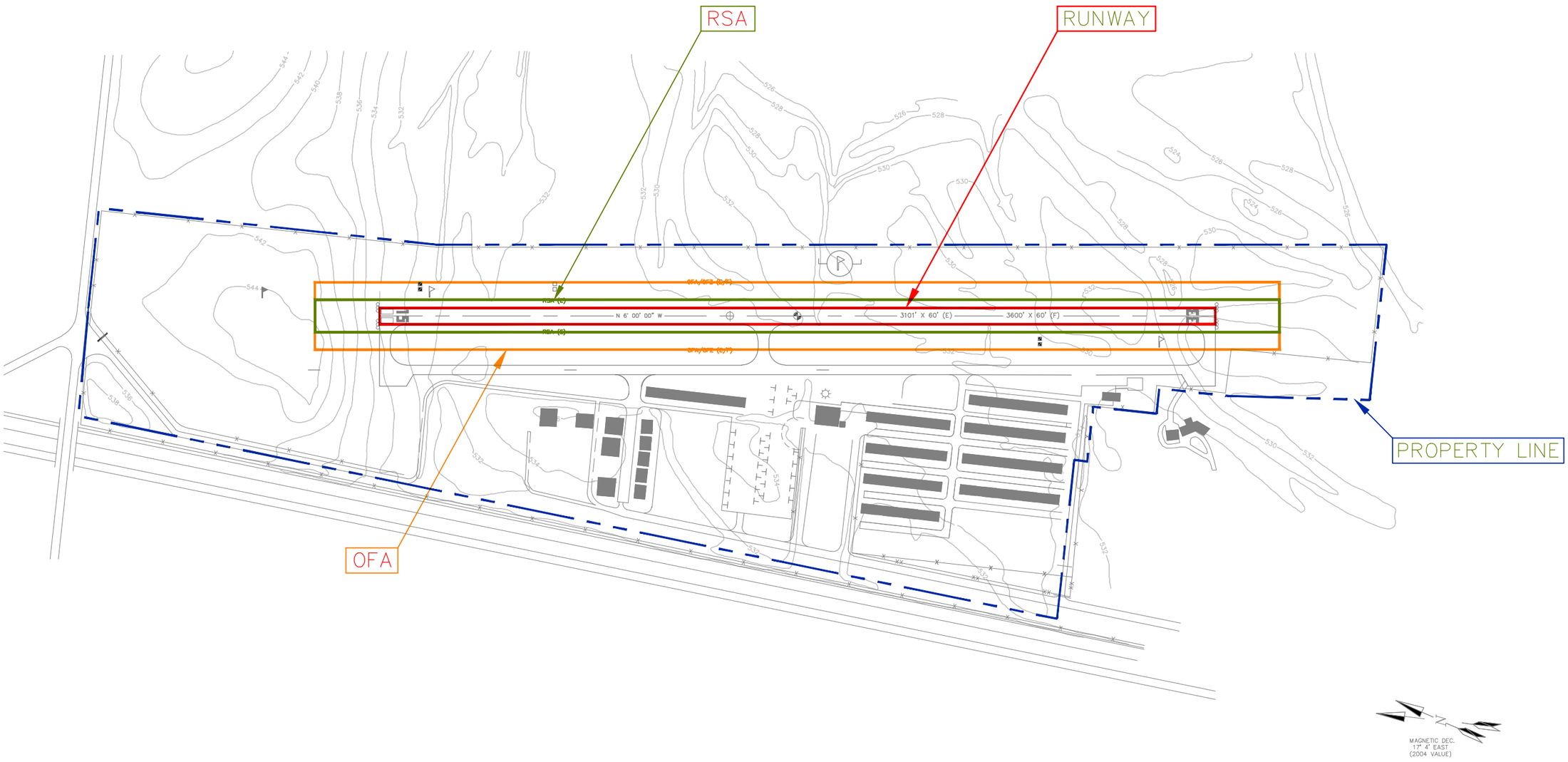
CRITICAL PATH inc.
550 Colorado Gulch Road - Missoula, Montana

HOBBY FIELD AIRPORT
- - -

DATE: 01 / 12 / 10
SCALE: 1" = 400'

S-2

SHEET
2 of 5

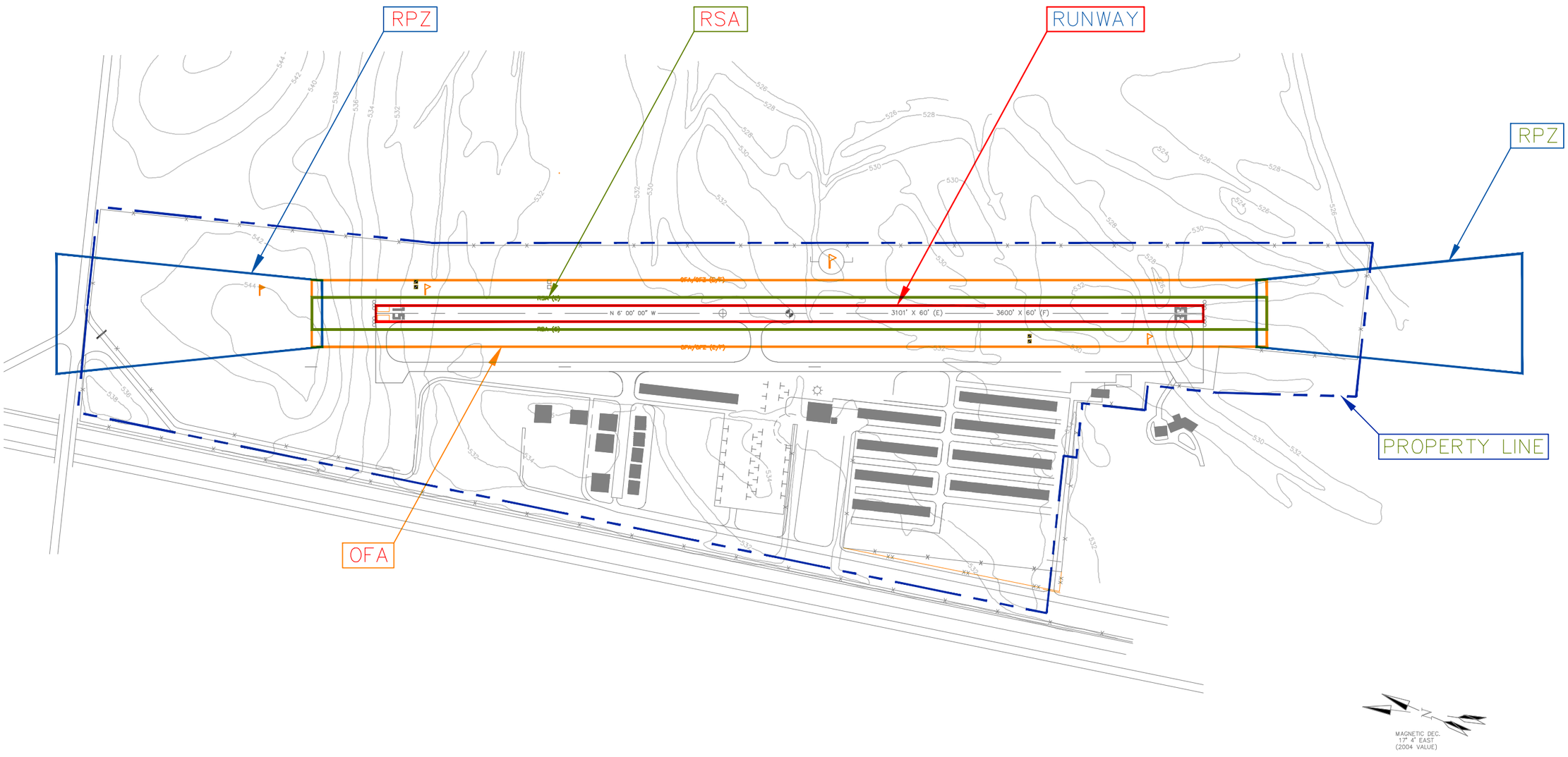


CRITICAL PATH inc.
550 Colorado Gulch Road - Missoula, Montana

HOBBY FIELD AIRPORT
- - -

DATE: 01 / 12 / 10
SCALE: 1" = 400'

S-3
SHEET
3 of 5

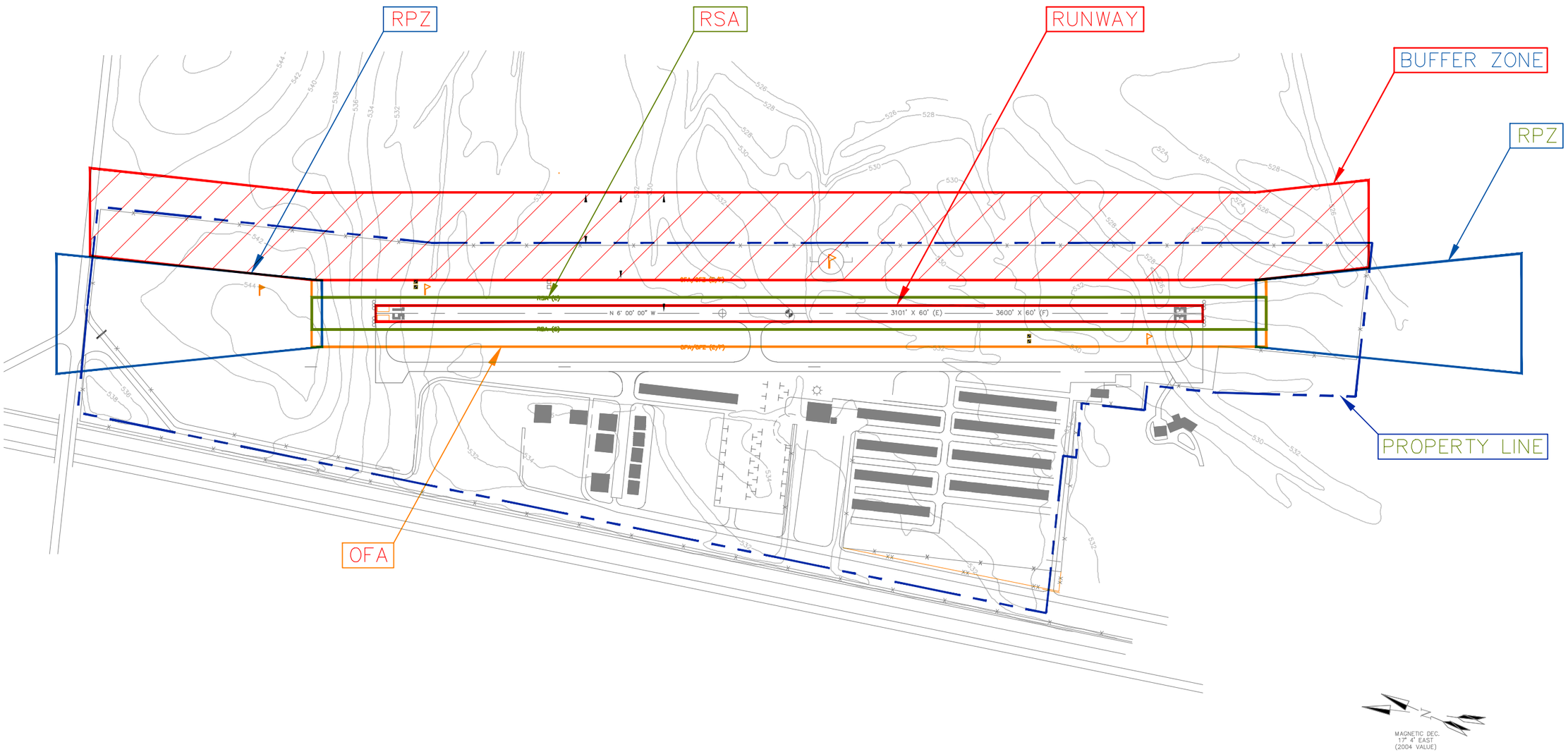


CRITICAL PATH inc.
550 Colorado Gulch Road - Missoula, Montana

HOBBY FIELD AIRPORT
- - -

DATE: 01 / 12 / 10
SCALE: 1" = 400'

S-4
SHEET
4 of 5



CRITICAL PATH inc.
550 Colorado Gulch Road - Missoula, Montana

HOBBY FIELD AIRPORT
- - -

DATE: 01 / 12 / 10
SCALE: 1" = 400'

S-5

SHEET
5 of 5

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