

## 2.1 Introduction

The airport master planning process for the Kalispell City Airport has evolved through the development of forecasts of future demand, an assessment of future facility needs, and the evaluation of airport development and non-development alternatives to meet those future facility needs. The planning process has included an extensive public involvement effort that began with a City held Airport Information Presentation on November 30, 2009 and continued through the completion of this final Airport Master Plan Update in March 2012. The following is a summary of the public involvement provided through this planning effort:

- ✚ November 30, 2009 - Airport Information Presentation by City of Kalispell
- ✚ January 25, 2010 – City Staff Presentation to City Council on Questions and Answers received from November 30, 2009 forum
- ✚ July 20, 2010 – City Acceptance of Planning Grant from FAA for Preparation of Master Plan Update
- ✚ September 22, 2010 – Kick-Off Meeting by Consultant
- ✚ January 18, 2011 – Master Plan Update Progress Open House by Consultant
- ✚ April 25, 2011 – Preliminary Alternatives Open House by Consultant
- ✚ December 13, 2011 – Draft Master Plan Update Presentation to City Council
- ✚ February 2, 2012 – Affected Landowners Open House by Consultant
- ✚ April 9, 2012 – Final Master Plan Update Presentation to City Council
- ✚ May 7, 2012 – Public Hearing on Final Master Plan Update

In Chapter 6, several development alternatives were analyzed to explore options for the future of the Kalispell City Airport. These alternatives included three development alternatives and two non-development alternatives. The recommended alternative was selected through a comprehensive review and evaluation process which included the evaluation of both aeronautical and non-aeronautical criteria, a scoring matrix, and consideration of public comments. This chapter describes, in narrative and graphic form, the recommended direction for the future use and development of Kalispell City Airport.

## 2.2 Recommended Master Plan Concept

**The recommended alternative as presented in Chapter Six – Improvement Alternatives is Site 1, Option B.** This alternative will provide future development of an airport that fulfills airside safety design standards, best utilizes existing facilities, and best meets the needs of the current and planned airport users as well as the City of Kalispell. Selection of this alternative is consistent with all of the other planning studies completed over the past ten years.

The recommended master plan concept, as presented on the Airport Layout Plan in **Appendix Q**, presents an ultimate configuration for the airport that meets FAA design standards, enhances safety, increases overall airport capacity, and provides a variety of aircraft storage options. A phased

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program to implement the recommended development configuration will be presented in Chapter 7 - Capital Program. The following sub-sections will describe the recommended master plan alternative in detail.

#### 2.2.1 FAA Design Standards

The FAA has established design criteria to define the physical dimensions of runways and taxiways, as well as the imaginary surfaces surrounding them, which provide for the safe operation of aircraft at the airport. These design standards also define the separation criteria for the placement of landside facilities.

FAA design criteria primarily center on the airport's critical design aircraft. The critical aircraft is the most demanding aircraft or family of aircraft which currently, or are projected to, conduct 500 or more operations (take-offs and landings) per year at the airport. Factors included in airport design are an aircraft's wingspan, tail height, approach speed, and, in some cases, the instrument approach capability for each runway. The FAA has established the Airport Reference Code (ARC) to relate these critical aircraft factors to airfield design standards.

Analysis conducted in Chapter Four – Aviation Forecasts concluded that the current critical aircraft is defined by the family of small general aviation airplanes that fall into ARC B-I (approach speeds between 91 and 120 knots, wingspans less than 49 feet). This category of aircraft would include aircraft such as the Cessna 340, Piper PA-31, and the Beechcraft 55. Design Group II standards (wingspans 49' to 79') will likely be warranted in the near future and all planning, design, and future development should meet the requirements for ARC B-II design standards. However, the timing necessary to upgrade to Design Group II standards is not so certain. During the past year, very few aircraft meeting Design Group II standards used this airport. Documented operations were well below the 500 annual operations needed to justify a DG-II facility. In order to plan effectively, development should, at a minimum, protect for the upgrade to Design Group II standards and be prepared to accommodate usage by this group of aircraft within the 20-year planning period. FAA design guidance provides the flexibility to justify development to the next higher ARC design standard when development constraints preclude the possibility of a crosswind runway. In consideration of the current level of aeronautical activity at Kalispell City Airport, an initial increase in design standards to ARC B-II will serve to provide an increased level of safety at the airport. **Thus, the recommended planning and development goals for Kalispell City Airport is for initial development to fully meet ARC B-II standards.** The Capital Improvement Plan presented in Chapter 7 provides a road map of short-term, medium-term, and long-term development that would provide for staged development at the Kalispell City Airport.

It is not necessary to design all airfield and landside elements to the same design standards. Varying design standards can be applied to landside development areas based upon the role of the facilities and the aircraft using the area. For example, taxiways providing access to T-hangar areas can be designed to accommodate smaller, Design Group I aircraft since T-hangars typically cannot accommodate a larger twin-engine aircraft.

#### 2.2.2 Runway Length Recommendations

Runway length is another design element that can be planned in stages. Runway length is a function of airport elevation, mean maximum temperature of the hottest month, aircraft take-off weight, aircraft engine performance, runway gradient, etc. All of these variables affect the lift of the aircraft on departure. Current FAA guidance (Chapter 2 of AC 150/5325-4B) allows for runway length

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recommendations for 95 percent and 100 percent of the small airplane fleet. This guidance provides “Runway lengths for Small Airplanes with Maximum Certificated Takeoff Weight of 12,500 Pounds (5,670 kg) or Less”. Under this design concept, aircraft using the airport are grouped according to approach speed. The highest approach speed group is then divided on the basis of passenger capacity into “airplanes having fewer than 10 passenger seats” and “airplanes having more than 10 passenger seats”. The less than 10 passenger seat category is then further based on two percentages of fleet: “95 percent of the fleet” and “100 percent of the fleet”. For Kalispell City Airport, the critical aircraft are twin-engine airplanes with a takeoff weight less than 12,500 pounds (utility or small aircraft), approach speeds between 91 knots and 120 knots (Aircraft Approach Category B), and wing spans less than 49 feet (Design Group I). Following through this design rationale for the Kalispell City Airport results in the following recommendations for runway length:

✚ 95% of Small Airplanes with 10 or Less Passengers	4,200 Feet
✚ Small Airplanes with 10 or More Passengers	4,580 Feet
✚ 100% of Small Airplanes with 10 or Less Passengers	4,700 Feet

Runway 13/31 at 3,600 feet does not meet the minimum recommended length to accommodate 95 percent of the small aircraft fleet with 10 or less passengers. The runway would need to be lengthened by 600 feet to 4,200 feet to the minimum recommended runway length requirements to meet this criterion. Although the ultimate extension to 4,700 feet required to accommodate 100 percent of the small aircraft fleet with 10 or fewer passengers must be planned for and depicted on the Airport Layout Plan, the need for this additional length is not anticipated during the 20-year planning period. **Therefore, the recommendation for runway length at Kalispell City Airport is for initial development to 4,200 feet which will accommodate 95 percent of the small aircraft fleet with 10 or less passenger seats.**

### 2.2.3 Recommended Improvements

#### 2.2.3.1 Airside Recommendations

The airside recommendations primarily focus on meeting the safety area standards for the runway and taxiway system and upgrading facilities for larger, more demanding aircraft. Of primary consideration is meeting FAA design standards for the runway safety area (RSA), object free area (OFA), obstacle free zone (OFZ), and runway protection zone (RPZ).

To develop to Design Group II standards at the Kalispell City Airport, the current runway alignment and orientation must be shifted to the south and west; and rotated 5.3 degrees in a clockwise direction. These changes are necessary to allow meet FAA requirements for Runway Protection Zones, Runway/Taxiway Object Free Areas, and to mitigate FAR Part 77 airspace obstructions. The runway and taxiways would be constructed to meet Design Group II design and separation standards. Runway length would initially be constructed to 4,200 feet which will accommodate 95 percent of the small aircraft fleet with 10 or fewer passengers.

If the critical aircraft changes to a higher performance airplane in the future, runway and taxiway length would be extended to the ultimate length of 4,700 feet which would accommodate 100 percent of small airplanes with 10 or fewer passengers. As stated earlier, the ultimate 500-foot runway extension, from 4,200 feet to 4,700 feet, would be planned and shown on the Airport Layout Plan but development would not be required during the 20-year planning period. Since there does not appear to be much support for a longer runway at this location, a runway extension is not

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identified as a capital improvement during the planning period. It would be entirely up to the Sponsor to proceed with the runway extension.

#### 2.2.3.2 Landside Recommendations

The primary goal of landside facility planning is to provide adequate aircraft storage space to meet the forecast need while also maximizing operational efficiencies and land uses. At the Kalispell City Airport, development constraints surrounding the existing site limit options for landside facilities. The recommended plan will consolidate landside facilities on the west side of the airport where the majority of apron and hangar development has been planned and constructed. New apron and hangar spaces would be developed to the south of the existing facilities. These facilities will be needed in the first phasing of development to allow for the relocation of the FBO facilities to its new location.

With multiple development constraints surrounding the existing site, future planning efforts should always consider any opportunity to acquire additional property which is contiguous to airport property. For landside development expansion, these opportunities should be explored to adjacent properties on the west side of the airport. It is possible that minor relocations or crossings of Ashley Creek could be considered to free up additional property for expansion. Similarly, land currently occupied by the City Wastewater Treatment Plant could potentially be feasible land for expansion if there was a future need to expand the existing plant and it could not be accomplished at the existing site.

#### 2.2.3.3 Summary of Recommended Improvements

The following is a summary of the recommended improvements proposed during the 20-year planning period for the Kalispell City Airport as presented in the Site 1, Option B alternative:

- ✚ New 75' x 4,200' Paved Runway with an Orientation of 14/32 Rated for 12,500 Pound Aircraft (Single Wheel Gear). The pavement strength would be designed to handle aircraft weighing up to 12,500 pounds;
- ✚ ARC B-II Dimensional Standards including a 150' Runway Safety Area, a 500' Runway Object Free Area, 240' Minimum Separation Between Runway Centerline and Taxiway Centerline, and a 131' Taxiway Object Free Area;
- ✚ A New 35' x 4,200' Full-Length, Parallel Taxiway on the West Side of the Runway;
- ✚ An Aircraft Ramp Expansion (296' x 682') with 17 New Aircraft Tie-Downs;
- ✚ Pavement Edge Drains for Runway, Taxilanes, and Ramp Areas;
- ✚ A Medium Intensity Runway Lighting System;
- ✚ Two (2) New PAPI's for Runways 14 and 32;
- ✚ FBO Facilities including heated hangar and shop space, finished office space, access roads, and parking areas;
- ✚ New AvGas and Jet A Fuel System with Card Reader;
- ✚ A New Public-Use Heliport located on the West Side of the Airport;

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- ✚ Perimeter Wildlife Fencing. Construct approximately 15,500 lineal feet of fence around the perimeter of the airport. This fence would secure the airport from encroachment of unwanted vehicles, people and animals;
- ✚ Land Acquisition necessary for Construction of the Improvements to 4,200' including the Required Future Runway Protection Zone. Acquire approximately 114.35 acres of land adjoining the airport in fee or by easement. This included 27 tracts owned by 17 different property owners;
- ✚ Relocate Several buildings on Existing Airport Property and Newly Acquired Airport Property. Tenant Relocation assistance is anticipated for a few of the parcels that will be acquired;
- ✚ Mitigation of the Two (2) KGEZ Radio Towers Airspace Hazards Located South of the Airport. The hazard to navigation need to be mitigated by lowering, relocating, or removal of the towers. This could be accomplished through the cooperation of the radio station owner, by purchase of the towers, or by condemnation;

Cost Estimates and future funding recommendations are presented in Chapter 7 – Capital Program.

## 2.3 Federal Requirements

In addition to meeting FAA design standards for planning and development, the recommended alternative would be partially funded with federal grant funds from the Airport Improvement Program (AIP). As is common with most grant or loan programs, public or private, contractual obligations are typically tied to the acceptance of these funds. By accepting federal grant funding through the AIP program, the City will be obligated to comply with Airport Sponsor Assurances for a duration of 20-years from the acceptance of each grant offer. In addition, the FAA will only be able to issue grants and make reimbursements to payment requests in accordance with the federal guidance and rules established under AIP. Grant assurances and other federal requirements are discussed in greater detail in the following paragraphs.

### 2.3.1 Airport Sponsor Assurances

As indicated above, a list of Airport Sponsor Assurances will be incorporated as part of each grant agreement and offer accepted by the City for airport development, airport planning, and noise compatibility program grants. A current copy of the Airport Sponsor Assurances is attached in **Appendix R**. Several of these assurances are included to deter airport owners from allowing ‘through-the-fence’ operations at their airport. A “through-the-fence” operator is anyone who is permitted to access to the public landing area from adjacent property not owned by the airport. Historically this has been an issue at Kalispell City Airport. When the original Master Plan was prepared in 1999, six “through-the-fence” operators were identified including two fixed base operators (FBOs). Through land acquisition efforts over the last several years, the number of “through-the-fence” operators has been reduced to two (Tract 2E – Barrett and Tract 3AB – Diamond Aire); and only one FBO. The proposed land acquisition efforts required for the recommended alternative would eliminate these two remaining “through-the-fence” operations. The FAA discourages “through-the-fence” operations for the following reasons:

#### 2.3.1.1 Rights and Duties of the Owner

The obligations to make an airport available for the use and benefit of the public does not impose any requirement by the owner of the airport to permit access by aircraft from adjacent property. The

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existence of such a “through-the-fence” arrangement could place an encumbrance upon the airport property unless the airport owner retains the legal right to, and in fact does, require the off-site property owner or occupant to conform in all respects to the requirements of any existing or proposed grant agreement.

#### 2.3.1.2 Practical Considerations

The owner of an airport is entitled to seek recovery of initial and continuing costs of providing a public use landing area. The development of an aeronautical enterprise on land uncontrolled by the owner of the public airport can result in a competitive advantage for the “through-the-fence” operator to the detriment of on-airport operators. To equalize this imbalance; the airport should obtain from any off-base enterprise a fair return for its use of the landing area.

#### 2.3.1.3 Safety Considerations

Arrangements that permit aircraft to gain access to a public landing area from off-site properties complicate the control of vehicular and aircraft traffic. Special safety operational requirements may need to be incorporated in a “through-the-fence” agreement.

#### 2.3.1.4 FAA Position

As a general principle, the FAA will recommend that airport owners refrain from entering into any agreement which grants access to the public landing area by aircraft normally stored and serviced on adjacent property. Exceptions can be granted on case-by-case bases where operating restrictions ensure safety and equitable compensation for use of the airport. Examples may include:

Where a bonafide airport tenant has already leased a site from the airport owner and has negotiated airfield privileges, but also desires to move aircraft to and from a hangar or manufacturing plant adjacent to off-airport property. In this case, actual access will be gained through the area provided by the airport owner.

Where an individual or corporation, actually residing or doing business on an adjacent tract of land, proposes to gain access to the landing area solely for aircraft use incidental to such residence or business without offering any aeronautical services to the public. This situation is commonly encountered where an industrial airpark is developed in conjunction with the airport.

#### 2.3.1.5 “Through-the-Fence” Determinations

The existence of arrangements granting access to a public landing area from off-site locations contrary to FAA recommendations shall be reported to the FAA Airports Division with a full statement of the circumstances. If the Regional Airports Division determines that the existence of such an agreement circumvents the attainment of the public benefit for which the airport was developed, the owner of the airport will be notified that the airport may be in violation of its agreement with the federal government.

Prior to issuing any development grants for the recommended alternative, the FAA will require that any existing “through-the-fence” agreements be reviewed to ensure that they meet the standards outlined above. If no formal agreements exist with adjacent landowners for use of the airfield, then access should be restricted until such agreements (which must be acceptable to the FAA) can be made.

#### 2.3.2 Radio Tower Hazard Mitigation

Mitigation of the existing radio tower obstructions into the FAR Part 77 airspace at Kalispell City Airport will be a prerequisite to any federal funding for land acquisition or development. This requirement applies to all future land acquisition and development as well as prior reimbursements. The 2002 Environmental Assessment included an investigation by the City of Kalispell on options to eliminate the airspace penetrations associated with the KGEZ radio towers. Removing the existing towers, the preferred option, by outright purchase could be accomplished through a willing sale by the current owner or condemnation. FAA funding participation will be limited to the costs required for the physical removal or demolition of the structures, less any salvage value received from the materials. The difference in cost between the final purchase price and the estimated value of removal or demolition of the towers must be entirely funded by the City. Active negotiations with the radio station owner to lower the towers and mitigate the hazard should begin once an official decision by the City Council is made to concur with the Recommended Alternative presented in this Master Plan Update. Ideally, an agreement with a schedule to remove the towers will be in place at the time the NEPA process is completed (completion of the EA and FONSI); the towers could remain in operation until all of the land required for the project is under contract.

#### 2.3.3 Land Acquisition

All land required for development and runway protection zones as depicted on Kalispell City Airport Exhibit "A" Property Map must be acquired in fee or controlled by the City through easements or other measures as a prerequisite to any federal funding. The land acquisition effort must be fully complete to include all twenty-seven (27) tracts of land owned by seventeen (17) property owners. In addition, the land acquisition process must conclude with any federal relocation assistance for the estimated three (3) businesses and five (5) residential tenants occupying several of the properties.

#### 2.3.4 Federal Funding Prerequisites

Prior to funding any prior reimbursements, land acquisition, hazard mitigation, or development, the FAA will require that following steps have been completed:

NEPA process has concluded with a finding of "No Significant Impact";

All required land necessary for development and protection of the approaches (as depicted on the approved Exhibit "A" Property Map) is held in fee by the City or controlled through easement;

The radio tower hazards have been mitigated.

To accomplish this, the City will need to either "front" the costs for tower mitigation and land acquisition or execute contracts that defer payment (or partial payment) to the sellers until after federal reimbursement is processed by the FAA. With significant costs estimated for land acquisition and tower mitigation, reimbursement will likely take three to four years.

## 2.4 Airport Plan

As part of this master plan update, the Federal Aviation Administration (FAA) requires the development of several computer drawings detailing specific parts of the airport and its environs. These drawings were created on a computer-aided drafting system (CAD) and serve as the official depiction of the current and planned condition of the airport. These drawings will be delivered to the FAA for their review and inspection.

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The FAA will critique the drawings from a technical perspective to be sure all applicable federal regulations are met. The FAA will use the CAD drawings as the basis and justification for funding decisions. It should be noted that the FAA requires that any changes to the airfield (i.e., runway and taxiway system, etc.) be represented on the drawings. The landside configuration, developed during this master planning process, is also depicted on the drawings but the FAA recognizes that landside development is much more fluid and dependent upon developer needs. Thus, an updated drawing set is not typically required for minor landside alterations.

The following is a description of the CAD drawings included with this master plan in **Appendix Q**.

#### **2.4.1 Airport Layout Plan and Aerial Image with ALP Overlay**

The Airport Layout Plan (ALP) drawings (2 Sheets) graphically present the existing and ultimate airport layout plan. The ALP drawing includes such elements as the physical airport features, wind data tabulation, location of airfield facilities (i.e., runways, taxiways, navigational aids), and existing general aviation development. Also presented on the ALP are the runway safety areas, airport property boundary, and landside development areas. The ALP is used by the FAA to determine funding eligibility for future capital projects.

#### **2.4.2 Terminal Drawing**

The Terminal Area Drawing is a larger scale plan view drawing of existing and planned aprons, buildings, hangars, parking lots, and other landside facilities. It includes a graphic depiction of existing and proposed utility locations in the area. It is prepared in accordance with FAA AC 150/5300-13, Airport Design.

#### **2.4.3 FAR Part 77 Airspace Drawing and Profile**

Federal Aviation Regulation (F.A.R.) Part 77, Objects Affecting Navigable Airspace, was established for use by local authorities to control the height of objects near airports. The Part 77 Airspace Drawing and Profile (2 Sheets) included in this master plan is a graphic depiction of this regulatory criterion. The Part 77 Airspace Drawing is a tool to aid local authorities in determining if proposed development could present a hazard to aircraft using the airport. The Airspace Drawing can be a critical tool for the airport sponsor's use in planning against future development limitations. The City of Kalispell should do all in its power to ensure development stays below the Part 77 surfaces to protect the future role of the airport.

The Part 77 Airspace Drawing assigns three-dimensional imaginary areas to each runway. These imaginary surfaces emanate from the runway centerline and are dimensioned according to the visibility minimums associated with the approach to the runway end and size of aircraft to operate on the runway. The Part 77 imaginary surfaces include the primary surface, approach surface, transitional surface, horizontal surface, and conical surface. Part 77 imaginary surfaces are described in detail in Chapter 5 – Facility Requirements.

#### **2.4.4 Inner Portions of the Approach Surface Drawings**

The Inner Portion of the Approach Surface Drawings (2 Sheets) are scaled drawings of the runway protection zones (RPZ), the runway safety areas (RSA), the obstacle free zones (OFZ), and the object free areas (OFA) for each runway end. A plan and profile view of each RPZ is provided to facilitate identification of obstructions that lie within these safety areas. Detailed obstruction and facility data is provided to identify planned improvements and the disposition of obstructions.

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Included on these drawings are the 40:1 departure surfaces as defined in Appendix 2 of FAA AC 150/5300-13. It graphically depicts the departure surfaces for runway ends designated primarily for instrument departures superimposed over an aerial image of the vicinity around the airport.

#### 2.4.5 Exhibit “A” Property Map

The Exhibit “A” Property Map (2 Sheets) are the drawings depicting the airport property boundary, the various tracts of land that were acquired to develop the airport, and the method of acquisition. The drawing also depicts easements beyond the airport property boundary.

## 2.5 Environmental Summary

#### 2.5.1 Environmental Actions

The recommended improvement depicted on the ALP would construct a new 75’ x 4,200’ runway and parallel taxiway with a new orientation of 14/32. Potential impacts for the proposed development were summarized in **Table 6-9** in Chapter 6. No significant impact is anticipated as a result of the proposed improvements.

#### 2.5.2 Environmental Impacts of Selected Plan

An overview of the potential environmental impacts from all alternatives was completed in Chapter 6. A summary of the environmental categories of the selected plan is provided in **Table 6-9**.

## 2.6 Conclusions

The recommended master plan concept has been developed in conjunction with the City of Kalispell, airport management, tenant representation, and the interested public. It is designed to assist in making decisions on the future development and growth of Kalispell City Airport. This plan provides the necessary development to accommodate and satisfy the anticipated growth over the next 20 years and beyond.

Flexibility will be very important to future development at the airport. Activity projected over the next 20 years may not occur as predicted. The plan has attempted to consider demands that may be placed on the airport even beyond the 20-year planning horizon to ensure that the facility will be capable of handling a wide range of circumstances.

The recommended plan provides the airport stakeholders with a general guide that, if followed, can maintain the airport’s long term viability and allow the airport to continue to provide air transportation service to the region.

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