Chapter 6 IMPROVEMENT ALTERNATIVES

6.1 Introduction

In the previous chapter, airside and landside facilities required to satisfy the demand for the long range planning period were identified. The next step in the planning process is to evaluate reasonable ways these facilities can be provided. There can be countless combinations of design alternatives, but the alternatives presented here are those with the greatest potential for implementation.

Any development proposed for a master plan is evolved from an analysis of projected needs for a set period of time. Though the needs were determined by the best methodology available, it cannot be assumed that future events will not change these needs. The master planning process attempts to develop a viable concept for meeting the needs caused by projected demands for the next twenty years. However, no plan of action should be developed which may be inconsistent with the future goals and objectives of the City of Kalispell and its citizens, who have a vested interest in the development and operation of the airport.

The development alternatives for Kalispell City Airport can be categorized into two functional areas: the airside (runway, navigational aids, taxiways, etc.) and landside (general aviation hangars, apron, and terminal area). Within each of these areas, specific facilities are required or desired. In addition, the utilization of the airport property to provide revenue support for the airport and to benefit the economic development and well-being of the regional area must be considered.

Each functional area interrelates and affects the development potential of the others. Therefore, all areas must be examined individually, than coordinated as a whole to ensure the final plan is functional, efficient, and cost-effective. The total impact of all these factors on the existing airport must be evaluated to determine if the investment in Kalispell City Airport will meet the needs of the community, both during and beyond the planning period.

The alternatives considered are compared using environmental, economic, and aviation factors to determine which of the alternatives will best fulfill the local aviation needs. With this information, as well as the input and direction from local government agencies and airport users, a final airport concept can evolve into a realistic development plan.

6.2 Proposed Action from 2002 Environmental Assessment

An Environmental Assessment was performed in 2002. The City of Kalispell, with assistance of the FAA, proposed a major project to reconfigure the Kalispell City Airport. The improvements were to occur on most of the current airport property upon which the existing airport facilities are situated and on newly acquired property contiguous to the airport. The reconfigured airport would have provided additional margins of safety between aircraft operations and the surrounding community. The proposed improvements were to include realigning and lengthening the main runway, improving navigational facilities, and adding the potential for instrument approaches.

To accomplish these proposed improvements, the City would have needed to purchase land or easements on properties to the south and west of the current airport. Several residences, businesses, hangars, and other buildings would have likely been relocated or purchased for removal. The radio

towers and some trees southeast of the airport would have been removed, relocated or lowered as they are obstructing flight paths in and out of the airport.

The proposed improvements would have developed the airport to meet ARC B-II lateral separation and safety standards for runway/taxiway, apron, and building separation distances. Future development would have been staged in accordance with these standards.

The following items were included as the proposed action presented in the 2002 Environmental Assessment:

- Land Acquisition – Acquire approximately 72 acres of land adjoining the airport in fee or by easement. This included 35 tracts owned by 18 different property owners.
- New Runway - Construct a new runway with a 14/32 orientation by rotating the existing runway alignment 5.3 degrees clockwise. This new runway would be developed in stages to an ultimate length of 4,700 feet by 75 feet wide. The pavement strength would be designed to handle aircraft weighing up to 12,500 pounds. At the time the FAA had commented favorably upon designing the pavements to handle aircraft of up to 18,000 pounds in weight, should the City decide to do so.
- New Runway Lighting System – Install a new Medium Intensity Runway Lighting (MIRL) System in conjunction with construction of the new runway.
- New Taxiways – Construct new 35 foot wide taxiway to connect the apron to the new Runway 14/32. Construct new full length parallel taxiway to improve runway capacity and provide access to future hangar development areas.
- Improve NAVAIDs – Install new Precision Approach Path Indicators (PAPI) at each end of Runway 14/32. Install new Runway End Identification Lights (REIL).
- Security Fencing – Construct approximately 15,600 lineal feet of fence around the perimeter of the airport. This fence would secure the airport from encroachment of unwanted vehicles, people and animals.
- Ground Access/Road Changes – Cemetery Road would have had an approximately 700 feet long section reconstructed to go around the perimeter of the Runway Protection Zone (RPZ) if the runway were constructed to its ultimate length. Construct new roads to access various parts of the newly improved airport.
- Building Relocations – Several buildings would have needed to be relocated for the proposed airport improvements project.
- Radio Tower Hazard – The hazard to navigation presented by the KGEZ Radio towers would have been mitigated by lowering, relocating, or removal of the towers. This would have been accomplished through the cooperation of the radio station owner, by purchase of the towers, or by condemnation.

The new apron and taxiway on the west side of the airport were constructed in the orientation consistent with the clockwise rotation of the runway by 5.6 degrees, as depicted in the latest Airport Layout Plan.

6.3 Airport Development Objectives

It is the goal of this effort to produce a balanced airside and an appropriate landside aircraft storage mix to best serve forecast aviation demands. However, before defining and evaluating specific alternatives, airport development objectives should be considered. As owner and operator, the City of Kalispell provides the overall guidance for the operation and development of the Kalispell City Airport. It is of primary concern that the airport is marketed, developed, and operated for the betterment of the community and its users. With this in mind, the following development objectives have been defined for this planning effort:

- To preserve and protect public and private investments in existing airport facilities.
- To develop a safe, attractive, and efficient aviation facility in accordance with applicable Federal, State, and local regulations.
- To develop a balanced facility that is responsive to current and long term needs of all general aviation.
- To be reflective and supportive of the City of Kalispell community wide goals and policies.
- To develop a facility with a focus on self-sufficiency in both operational and developmental cost recovery.
- To ensure that future development is environmentally compatible.

6.4 Summary of Facility Needs

Considering the facility requirements identified in Chapter 5, the primary needs for the Kalispell City Airport to comply with FAA design standards and development requirements can be summarized as follows:

Airport Reference Code Dimensional Standards: Much of the current airfield does not conform to the dimensional standards for Category B, Design Group I. Based on the anticipated fleet mix and operations forecast during the planning period, **development at the Kalispell City Airport is recommended to meet ultimately ARC B-II design standards.** To meet ARC B-II requirements, the following improvements are required:

- Increase runway width from 60 feet to 75 feet and widen runway safety area to 150 feet.
- Increase taxiway width from 20 feet to 35 feet and widen taxiway safety area to 79 feet.
- Increase runway and parallel taxiway separation to 240 feet.
- Acquire property needed for a 500 foot wide Runway Object Free Area and a 131 foot wide Taxiway Object Free Area.

Runway Length: The forecasted aeronautical operations and the FAA's current guidance on runway length support a recommendation at Kalispell City Airport for initial development of a runway length of 4,200 feet to accommodate 95 percent of small airplanes with less than 10 passenger seats and an ultimate length of 4,700 feet to accommodate 100 percent of small airplanes. This will require that the City acquire all of the land required for the airside facilities which meet the minimum recommended runway length of 4,200 feet for 95 percent of the small airplane fleet (less

than 10 passengers). The City will also be required to depict an ultimate runway extension to 4,700 feet for 100 percent of the small airplane fleet (less than 10 passengers) on its Airport Layout Plan with the necessary land requirements. A staged approach to runway length would require that the City periodically "re-evaluate" the critical aircraft using the airport and plan for a future runway extension accordingly.

Runway Protection Zones: The current airfield does not have the required runway protection zones necessary for Approach Category A and B. The minimum recommended RPZ dimensions at Kalispell City Airport is 500 feet by 700 feet by 1,000 feet (Approach Category A & B and "Not Lower Than 1- Mile"). However, alternatives should be evaluated and compared to accommodate the greater RPZ dimensions consistent with approach minimums of "Lower Than ¾-Mile". To meet this standard at the existing site, following improvements will be required:

- Acquire property on both runway ends for a 500 feet x 700 feet x 1,000 feet Runway RPZ.
- Remove obstructions within the 500 feet x 700 feet x 1,000 feet RPZ on Runway 13.

Hangar Development Areas: Prepare a phased hangar development plan to implement timely and economical expansion of private hangar areas.

Aircraft Parking Ramps and Tie-Downs: Establish areas for expansion of aircraft parking ramps and tie-down areas.

Navigational Aids: Install new medium intensity runway lights and precision approach path indicators (PAPIs).

Removal of Close-In Airspace Obstructions: Remove airspace obstructions necessary to meet Part 77 requirements for a "Larger than Utility, Non-Precision Runway with Visibility Minimums Greater than ¾ Mile". Obstruction mitigation would require the following changes at the existing airport:

- Mitigation of the transitional surface penetrations of businesses located along US Highway 93, on the east side of the airport.
- Removal or lowering of the two radio towers located southeast of Runway 31.
- Mitigation of the penetrations of the lights at Legends Field to the 34:1 approach slope.

6.5 Improvement Constraints

6.5.1 Runway Length, Orientation, and Location

The Kalispell City Airport is located in south Kalispell, approximately one mile south of the downtown business district. The alignment of Runway 13/31 is on a true bearing of S33°06'10"E which is parallel to U.S. Highway 93 immediately east of the airport. Because the airport has been operating in such close proximity to central business area of Kalispell for so long, extensive development has occurred around the airport. Major development constraints at the existing site include the following:

6.5.1.1 U.S. Highway 93 and Business Development

Development on the east side of the airport is limited because of existing businesses fronting U.S. Highway 93. There are dozens of existing businesses in this area; some of the larger, more

significant ones include the Aero Inn, Hilton Garden Inn, Rosauers Grocery Store, and Murdochs. It would be cost prohibitive to relocate even a few of the major business so any development alternatives at the existing site will need to account for the existing development and issues associated with it.

6.5.1.2 18th Street E

Development is restricted at the north end of the airport by 18th Street E. Most of the existing Runway 13 RPZ lies north of airport property and encompasses 18th Street E and a few residences and business on the north side of the street. To meet FAA design standards for the RPZ, the runway will need to shift to the south to move the RPZ onto airport property.

6.5.1.3 Airport Road, City of Kalispell Wastewater Treatment Plant and Ashley Creek

Future development towards the west side of the airport is constrained at the north end by Airport Road and the City of Kalispell Wastewater Treatment Plant. The north-south alignment of Airport Road constricts airport property at the north end but skews away from the runway alignment as it continues south. At the north end, the east side of Airport Road is predominantly airport property with hangar development; the exception being the privately owned Diamond Aire. At about mid-field between the runway and Airport Road is the City of Kalispell's Wastewater Treatment Plant which encompasses several acres of City property. The west side of Airport Road has a variety of established uses including single-family homes, an apartment complex, several small businesses, and the softball fields. Although Airport Road skews away from the airport as it continues south, Ashley Creek becomes a constraint to airport development. The creek meanders adjacent to the east side of the airport, south of the wastewater treatment plant and constrains development in this area.

6.5.1.4 Demersville Cemetery

The Demersville Cemetery is located just north of Cemetery Road. Options to shift and extend Runway 13/31 further south may have the potential to extend onto cemetery property. Due to significant environmental issues that would result from construction activities occurring on cemetery property, no improvements should be planned on this property. Furthermore, it is not likely that the south runway protection zone would be allowed on this property if fee ownership of the RPZ is required.

6.5.1.5 Cemetery Road

Runway lengthening to 100 percent length requirements will require an extension to the south (towards Cemetery Road). This will likely require the relocation of a portion of Cemetery Road to keep the Runway Protection Zone clear of major roadways.

6.5.1.6 West-Side Apron and Hangar Development

A major apron and taxilane development project was completed in 2006. This new development was constructed on the west side of Runway 13/31 and was in conformance to the planned development depicted on the approved Airport Layout Plan at that time. This development included a new aircraft parking ramp, several new taxilanes, and hangar development areas; the location and orientation was based on the future relocation and reorientation of Runway 14/32.

6.5.2 Airspace Obstructions – Federal Aviation Regulations Part 77 Surfaces

6.5.2.1 U.S. Highway 93 and Business Development

Several of the larger buildings fronting U.S. Highway 93 extend up into the 7:1 transitional surface of Runway 13/31. There are several buildings with penetrations exceeding 10 feet including the Hilton, Rosauers, a retail building, Penco, Murdochs, and Burton's garage. It would be cost prohibitive to remove these obstructions so development alternatives will need to consider shifting the runway away from the buildings.

6.5.2.2 KGEZ Radio Towers

There are two 300 feet tall AM radio towers located southeast of the airport that extend into the existing Runway 31 approach surface and transitional surface. One of the towers extends into the existing 20:1 visual approach surface by 173 feet; the other tower penetrates the transitional surface by 108 feet. These penetrations increase significantly if when a 34:1 approach surface for a "larger than utility, non-precision, instrument runway" is considered. Any development alternatives at or near the existing airport site will require the removal or lowering of the radio towers.

6.5.2.3 Terrain

The Kalispell City Airport is located approximately one mile from mountainous terrain to the west. This terrain rises into and penetrates the conical surface for a visual runway. The terrain penetrations expand into the horizontal surface when a "larger than utility, non-precision, instrument runway" is considered. Although these terrain penetrations are not considered too hazardous for VFR conditions, the proximity to the airport does limit alternatives that would result in approaches towards the terrain or approach procedures with lower visibility minimums.

6.5.3 Instrument Flight Suitability

The predominant visual approach to Kalispell City Airport is from the northwest, over southwest Kalispell, and onto Runway 13. The alternate approach to Runway 31 from the southwest similarly follows the valley corridor and parallels U.S. Highway 93.

Kalispell City Airport is not currently rated for IFR activity. It is a VFR facility only, although suggestions received during the November 2010 pilot survey indicated a strong interest for a straight-in, non-precision instrument (GPS) approach.

The width of the primary surface for visual runways is 250 feet while the width of the primary surface for a non-precision instrument runway is 500 feet. In order for the existing Runway 13/31 to qualify for a non-precision approach, obstructions within 250 feet each side of the runway would have to be removed and obstructions into the 7:1 transitional surface extending upward from the primary surface would need to be mitigated. With the current runway alignment and location, there are no obstructions into the primary surface but there are significant penetrations into the transitional surface on the east side of the runway. Since removal of the businesses along U.S. Highway 93 is not practical, the most feasible solution is to shift the runway away from the development on U.S. Highway 93 and the remove any other structures located on airport property.

6.5.4 Expandability

Chapter 5.0, Section 5.5 describes the runway length requirements to accommodate 95 percent and 100 percent of smaller airplanes with 10 or less passenger seats. Runway length is not a published FAA design standard. Rather, required runway length at a particular airport is typically determined by evaluating the most demanding aircraft that are frequently operating at the airport and providing a length that safely accommodates that aircrafts performance requirement. When the most demanding aircraft normally operating at an airport are small aircraft only, runway length can be established to meet the capacity requirements for 95 percent or 100 percent of the small aircraft fleet**. It should be noted that it is the Sponsor's ultimate decision to pursue a runway length which exceeds the 95 percent length requirements; the FAA will not require or direct a Sponsor to construct a longer runway than the minimum requirement. However, the FAA will require the Sponsor to depict an ultimate runway extension to meet the 100 percent length requirement on the ALP.**

The existing runway length of 3,600 feet does not meet the 4,200 foot length requirement to accommodate 95 percent of the small aircraft fleet and would require an extension of 600 feet. To meet length requirements for 100 percent of the small aircraft fleet, an extension to 4,700 feet would be required.

For any runway extension considered, additional land south of he existing airport would need to be acquired. Land required for the construction of an extension and the necessary runway protection zone would include a combination of agriculture, residential, commercial, and industrial use land.

Development constraints are graphically depicted on **Exhibit 6-1**.

6.6 Sponsor, User, and Public Participation

Open houses, public review and comment, City staff review, newspaper articles, and the pilot's survey have been used in obtaining Sponsor, user, and local support for the selection of the alternatives studied and evaluated in this Master Plan Update. An Open House was held on April 25, 2011 at City Hall to present a wide range of preliminary alternatives for airport development with several options at the existing airport site and several options at multiple, alternative sites in the vicinity of Kalispell. Public participants were encouraged to provide written comment on any or all of the alternatives presented. Extensive comment was received and entered into the public record for this project. Copies of the written comments are included in **Appendix I.**

In addition to public comment, City Planning Staff and the Kalispell City Airport Advisory Board met independently and provided formal written comment and recommendations to the alternatives presented. Copies of the recommendations from Planning Staff and the Advisory Board are included in **Appendix J.**

6.7 Alternative Evaluation Criteria

As described in the Introduction, the purpose of this Chapter on Improvement Alternatives is to identify potential alternatives for the Kalispell City Airport, screen out alternatives which have obvious shortcomings, and ultimately select the most appropriate alternative. In determining the most appropriate alternative, several direct and non-direct aeronautical factors are considered. The aeronautical and non-aeronautical factors presented in **Table 6-1** will be considered during the preliminary screening effort and evaluated in a matrix evaluation for the final airport alternatives.

TABLE 6-1
Alternative Evaluation Criteria

Aeronautical Criteria	Non-Aeronautical Criteria
Safety-Design-Geometry	Access to the Airport/Proximity to Kalispell
Airspace/FAR Part 77 Obstructions	Environmental Concerns
Instrument Capability	Economic Benefit
Wind Alignment	Available Infrastructure
Expandability	Public Acceptance/Support
Proximity to Other Airports	Owner/User Support
	Initial Development Costs
	Local Cost Contribution

6.8 Preliminary Alternatives

Thirteen (13) preliminary alternatives were developed and presented to the public, City staff, Airport Advisory Board and the FAA at the April 25th Open House. Of the preliminary alternatives, six (6) options were developed at the existing airport site and seven (7) options were developed at four (4) alternate sites. Graphical depictions of each alternative are included in **Appendix K**. Each of these options is described in the following sections:

6.8.1 Existing Airport Site

Six alternatives were developed and/or considered for future development at the existing airport site. Three (3) alternatives would meet FAA criteria for ARC B-II design standards and be eligible for federal funding. The remaining three (3) alternatives would only meet ARC B-I design standards and would not be eligible for federal funding. Each of these six alternatives is described in this Section.

6.8.1.1 Site 1 – Option A (Sheet 1A):

This option is the original Alternate #1 presented in the 2001 Site Selection Study. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-II design standards (75 feet runway width, 240 feet separation between runway and taxiway, 35 feet wide taxiways);
- Parallel offset of the runway centerline to the southwest, away from the businesses/buildings along US 93 to mitigate airspace obstructions;
- Longitudinal shift of the runway centerline to the southeast to move the Runway 13 RPZ onto airport property;
- No rotation of the runway, orientation remains 13/31;
- Requires the relocation of several hangars and shops on airport property;
- Requires the full or partial acquisition of approximately 40 land parcels;
- Requires relocation of 15 residences;
- Would require relocation of a portion of Cemetery Road if the runway was ever extended to 100 percent length requirements.

Exhibit 6-1

6.8.1.2 Site 1 – Option B (Sheet 1B):

This option is the original Alternate #2 presented in the 2001 Site Selection Study; the selected alternative currently depicted on the current Airport Layout Plan. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-II design standards (75 feet runway width, 240 feet separation between runway and taxiway, 35 feet wide taxiways);
- Parallel offset of the runway centerline to the southwest, away from the businesses/buildings along US 93 to mitigate airspace obstructions;
- Longitudinal shift of the runway centerline to the southeast to move the Runway 14 RPZ onto airport property;
- Clockwise rotation of the runway by approximately 5.3 degrees, orientation becomes 14/32;
- Requires the relocation of several hangars and shops on airport property;
- Requires the full or partial acquisition of approximately 23 land parcels;
- Requires relocation of 4 residences;
- Would require relocation of a portion of Cemetery Road if the runway was ever extended to 100 percent length requirements.

6.8.1.3 Site 1 – Option C (Sheet 1C):

This option is a combination of Alternate #2 and Alternate #3 presented in the 2001 Site Selection Study. This option sites the proposed airport partially on the existing airport site, north of the U.S. Highway 93 Alternate Route. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-II design standards (75 feet runway width, 240 feet separation between runway and taxiway, 35 feet wide taxiways);
- South end of airport would be located on City owned property currently used for spray irrigation by the wastewater treatment plant;
- Middle portion of airport situated over an existing gravel pit;
- Clockwise rotation of the runway by approximately 5.3 degrees, orientation becomes 14/32;
- Requires the relocation of several hangars and shops on airport property;
- Requires the full or partial acquisition of approximately 22 land parcels;
- Requires relocation of 5 residences;
- Requires closure of a portion of Cemetery Road;
- Requires relocation of a portion of Ashley Creek.

6.8.1.4 Site 1 – Option D (Sheet 1D):

This option provides minimal improvements to the current B-I airport facility. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-I design standards (60 feet runway width, 150 feet separation between runway and taxiway, 25 feet wide taxiways);
- Runway reconstructed to it's current length of 3,700 feet but could be extended to a length of 4,300 feet;
- No shift or offset of runway centerline;
- No rotation, orientation remains 13/31;
- Requires the relocation of five hangars and three shops on airport property;

- Requires the full or partial acquisition of approximately 16 land parcels;
- No residential relocation required;
- Would not be supported by the FAA.

6.8.1.5 Site 1 – Option E (Sheet 1E):

This option is provides marginal improvements to the current B-I airport facility. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-I design standards (60 feet runway width, 150 feet separation between runway and taxiway, 25 feet wide taxiways);
- Runway reconstructed to it's current length of 3,700 feet but could be extended to a length of 4,300 feet;
- Runway remains on centerline but is shifted to the southeast to move the RPZ onto existing airport property;
- No rotation, orientation remains 13/31;
- Requires the relocation of one hangar and three shops on airport property;
- Requires the full or partial acquisition of approximately 19 land parcels;
- Requires relocation of four residences and two businesses;
- Would not be supported by the FAA.

6.8.1.6 Site 1 – Option F (Sheet 1F):

This option is provides significant improvements to the current B-I airport facility. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-I design standards (60 feet runway width, 150 feet separation between runway and taxiway, 25 feet wide taxiways);
- Runway reconstructed to it's current length of 3,700 feet but could be extended to a length of 4,300 feet;
- Southwesterly offset and southeasterly shift of the runway will move north RPZ onto airport property and mitigate airspace penetrations;
- Clockwise rotation of runway orientation in conjunction with centerline offset will mitigate airspace penetrations and reduce impacts to residences southeast of airport;
- Requires the relocation of four hangars and five shops on airport property;
- Requires the full or partial acquisition of approximately 21 land parcels;
- Relocation of two residences is required;
- Would not be supported by the FAA.

6.8.2 Alternate Sites

There were seven (7) alternatives developed on four (4) alternate sites in the vicinity of Kalispell. Alternate sites were selected after reviewing the original Site Selection Study prepared by Robert Peccia and Associates in 2001 and evaluating those original sites to see if they were still viable after 10 years. Preliminary site selection criteria included the following:

- Site must be located in an area that is consistent with the City's Growth Policy and be a feasible distance to extend City utilities and provide City services.

- Site must provide sufficient area to construct a B-II Facility with ultimate runway dimensions of 75 feet x 4,700 feet, a parallel taxiway separated 240 feet from the runway, and areas for apron and hangar development.
- Site must have suitable topography for airport construction. Existing ground topography must not have excessive grades.
- Site should not be located too close to high density housing areas.
- Site cannot be too close to the mountainous terrain west of Kalispell.
- Site should not bisect or encroach on any major roadway that would require road closure or relocation.
- Site should not be located in within the flood plain, major wetland area, or wildlife management area.
- Site should be located a sufficient distance from Glacier Park International and not conflict with the airspace or instrument approaches into GPI.

6.8.2.1 Site 2 – Option A (Sheet 2A):

This is the first of two options that were developed for Site 2. Site 2 is located south of the existing airport, on the east side of U.S. Highway 93, near Old School Station. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-II design standards (75 feet runway width, 240 feet separation between runway and taxiway, 35 feet wide taxiways);
- Runway orientation would be northwesterly/southeasterly;
- Requires the closure of Dumersville Road;
- Requires relocation of Foy's Bend Lane;
- Located in 100 year flood plain;
- Requires the full or partial acquisition of approximately 13 land parcels;
- Relocation of two residences is required;

6.8.2.2 Site 2 – Option B (Sheet 2B):

This is the second of two options that were developed for Site 2. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-II design standards (75 feet runway width, 240 feet separation between runway and taxiway, 35 feet wide taxiways);
- Runway orientation would be north/south;
- Requires relocation of Foy's Bend Lane;
- Located in 100 year flood plain;
- Requires the full or partial acquisition of approximately 10 land parcels;
- Relocation of one residence is required;

6.8.2.3 Site 3 – Option A (Sheet 2B):

This Option is similar to the original Alternate #5 (VOR Site) from the 2001 Site Selection Study. The only difference is that the site is shifted further to the west to eliminate impacts to a newly developed subdivision adjacent to Montford Road. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-II design standards (75 feet runway width, 240 feet separation between runway and taxiway, 35 feet wide taxiways);
- Runway orientation would be north/south;
- Requires closure of Holt Stage Road;
- Requires relocation or burial of overhead power adjacent to Holt Stage Road;
- Requires mitigation of small wetland area near the south end of the site;
- Requires the full or partial acquisition of approximately 5 land parcels;
- No residences will be relocated;

6.8.2.4 Site 4 – Option A (Sheet 4A):

This Option is similar to the original Alternate #4 from the 2001 Site Selection Study. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-II design standards (75 feet runway width, 240 feet separation between runway and taxiway, 35 feet wide taxiways);
- Runway orientation would be north/south;
- Requires relocation of Egan Road and two private roads;
- Requires relocation or burial of overhead power on Egan Road;
- Requires the full or partial acquisition of approximately 8 land parcels;
- No residences will be relocated;

6.8.2.5 Site 4 – Option B (Sheet 4B):

This Option is similar to Site 4 – Option A, but would shift the airport further to the south. This change eliminates the relocation of Egan Road and one private road identified in Option A, but requires the relocation of one residence. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-II design standards (75 feet runway width, 240 feet separation between runway and taxiway, 35 feet wide taxiways);
- Runway orientation would be north/south;
- Requires closure of one private road;
- Requires the full or partial acquisition of approximately 3 land parcels;
- Relocation of one residence.

6.8.2.6 Site 4 – Option C (Sheet 4C):

A third option, also located on Site 4 incorporates a revised runway orientation. This orientation eliminates the relocation of Egan Road and one private road but requires the relocation of two residences. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-II design standards (75 feet runway width, 240 feet separation between runway and taxiway, 35 feet wide taxiways);
- Runway orientation would be northwesterly/southeasterly;
- Requires the full or partial acquisition of approximately 6 land parcels;
- Relocation of two residences.

6.8.2.7 Site 5 – Option A (Sheet 5A):

This option is a new site situated northwest of Kalispell near the West Valley area. The site is located near the intersection of West Reserve Drive and West Spring Road. Proposed improvements are described as follows:

- Airport facilities constructed to ARC B-II design standards (75 feet runway width, 240 feet separation between runway and taxiway, 35 feet wide taxiways);
- Runway orientation would be north/south with slight counterclockwise rotation to avoid a hill;
- Requires the full or partial acquisition of approximately 4 land parcels;
- Relocation of one residence.

6.8.2.8 Other Site Considerations

One other site was explored following comment at the April 25th Open House. A review request was made for a site near the Sommers wastewater lagoons and treatment area south of Kalispell. Although potentially feasible, the site is too far from the City of Kalispell to comply with the City's Growth Policy or to extend City utilities or provide City services. Development of the site would also require the closure/relocation of one road and the relocation of three residences. Because the site offered no advantages to the ones previously considered, it was eliminated from further consideration.

6.8.3 Preliminary Alternative Screening

After preliminary evaluations of each site and utilizing feedback obtained from public comment and recommendations from Planning staff and the Airport Advisory Board, the majority of the preliminary alternatives were eliminated from further consideration. One of the key references for evaluating alternate airport sites is the guidance provided in FAA Order 5090.3C - Field Formulation of the National Plan of Integrated Airport Systems (NPIAS). Section 2-5 indicates that "A proposed airport located 30 minutes or more average ground travel time from the nearest existing NPIAS airport may be included if there is clear evidence that at least 10 aircraft will be based at the airport within the first year of its operation." The purpose of this criterion is to prevent multiple airports serving the same geographic area from being located to close to one another. A brief summary of the factors that led to the elimination of specific alternatives and sites is provided in the following paragraphs:

6.8.3.1 Site 1 Screening

The goal in screening the options developed for Site 1, the existing airport site, was to select one preferred alternative that would meet FAA design standards for an ARC B-II facility and would be eligible for federal funding and one preferred alternative that would provide, cost effective safety upgrades to the existing airport that would not qualify for federal funding. Site 1 is located approximately 10 miles from Glacier Park International Airport but requires travel through the City limits of Kalispell. Although the airport are in somewhat close proximity, the average travel time between these two aviation facilities is approximately 30 minutes. In addition, the City airport has existed at its present location for many years and currently has 82 based aircraft, well above the 10 required to comply with FAA Order 5090.C. Site 1 has been through a review process several years ago and was accepted into the NPIAS at that time.

- Option A was ultimately eliminated because the runway could not be extended without significant impacts to multiple residences on Cemetery Road, Shefferd Lane, and Wulf Lane. The runway rotation depicted in Option B allows the extension to be constructed without relocation of any of these residences.
- Option C was eliminated for several reasons: First, the location of the airport would require closure of Cemetery Road, an important arterial route in the area; the airport would also extend into an area that has been master planned for commercial and residential development; and finally, there are environmental impacts with relocating Ashley Creek and some possible impacts from the floodplain.
- Options D, E and F were the three options developed that would provide minimal improvement to the existing airport. All three options were based on maintaining/constructing a facility that would only provide for ARC B-I dimensional standards. None of these options would be eligible for federal funding so the burden funding would fall entirely on the airport or City. Options E and F were eliminated primarily because of cost. There are significant costs resulting primarily from land acquisition and higher construction costs to provide the marginal safety benefits offered by Options E and F.

6.8.3.2 Elimination of Site 2

- Site 2 is located within the 100 year flood plain. In addition to the host of development issues associated with a flood plain, the City's growth policy strongly discourages development of public infrastructure within the flood plain.
- Location is very close to a high-density, single family housing area.
- There was some public opposition against development of an airport at this site.

6.8.3.3 Elimination of Sites 3 and 4

Sites 3 and 4 are located east of the City of Kalispell approximately 12 miles from Glacier Park International Airport. Driving time between these two proposed sites and GPI would be approximately 15 to 20 minutes due to the fact the routes are State and Federal highways without much urban congestion. Both of these sites would likely be challenging locations for acceptance into the NPIAS. In addition, the City of Kalispell Planning Department established criteria for evaluating alternate airport sites during their review of the preliminary alternatives (ref. Planning Memo dated September 13, 2011 in Appendix J). One of the key criteria of a City owned airport was compliance to the City's Growth Policy and Zoning Policy. Sites 3 and 4 are well beyond the limits of the City's planning authority and are not in areas consistent with the City's Growth Policy. Specific factors that led to the elimination of these sites are summarized below.

- Sites 3 and 4 are located east and well beyond of the City's planning jurisdiction. Relocation of the airport to either of these sites would require annexation of an island of land well beyond the City's planning and zoning boundaries. Because GPI is essentially "the County Airport" for this area, it is very unlikely that Flathead County would be interested in shared sponsorship of second airport. Essentially this is a City Airport and will need to be solely owned and operated by the City of Kalispell. Thus, it is very important to comply with Kalispell development, planning and zoning requirements.

- Sites 3 and 4 are located in a somewhat rural setting and would not have convenient access to local business districts; transportation between the airport and the community would be deter many current users from relocating and itinerant aircraft from using the airport.
- Extension of City utilities to the site is not feasible. Although it would be feasible to construct on-site water and wastewater facilities, this is not the preferred method to provide these services.
- There was strong public opposition against development of an airport at this site.

6.8.4 Selected Alternatives for Additional Study

The preliminary screening process led to the selection of three (3) development alternatives that will be reviewed and evaluated in greater detail in the following section. It was the goal of this process to select 1) a preferred development alternative on the existing airport site that would meet FAA design requirements and be eligible for federal funding; 2) a preferred development alternative on the existing airport site that would not be eligible for federal funding but would provide some safety improvements; and 3) an new, preferred site that the City airport could be relocated to. In addition to these three alternatives, a "No-Action" or do nothing alternative will be evaluated as a potential option.

6.9 Development Alternatives

There were three (3) development alternatives for the Kalispell City Airport that are recommended for further study following the preliminary screening process; two (2) are located on the existing airport site and the third is located at an alternate site. Site 1, Option B on the existing site and Site 5, Option A on the alternate site provide for improvements which increase standards to ARC B-II and would be fully eligible for federal funding. Site 5, Option A was the only alternate site that made it through the preliminary screening process. Although this location is much closer to Glacier Park International Airport, travel time between these two locations could be close to the 30 minute threshold needed to be accepted into the NPIAS. This site would need a more thorough consideration however, to make this determination. This location can also conform to the City's growth policy and can be reasonably annexed and serviced with City Utilities. There would likely be substantial opposition to this location as there are several residential subdivisions planned or platted in this area. Site 1, Option D, also at the existing site, will offer minimal improvements to increase safety with minimal additional investment into the existing airport and would not be eligible for federal funding. **Exhibits of each alternative, labeled Site 1, Option B, Site 1; Option D; and Site 5, Option A are included at the end of this Chapter along with applicable cost estimates for each development alternative.**

6.9.1 Site 1, Option B: Existing Site with ARC B-II Standards

6.9.1.1 Summary of Improvements

- 75' x 4,200' Paved Runway with an Orientation of 14/32 Rated for 12,500 Pound Aircraft (Single Wheel Gear);
- A 35' x 4,200' Full-Length, Parallel Taxiway on the West Side of the Runway;
- An Ultimate Runway and Taxiway Extension of 500' from 4,200' to 4,700';

- A Future 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;
- Completion of Perimeter Security Fencing;
- 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;
- Land Acquisition Necessary for Construction of the Improvements to 4,200' Including the Required Future Runway Protection Zone;
- Removal of the Two (2) KGEZ Radio Towers Located South of the Airport;

Site 1, Option B would provide an increase in dimensional standards to ARC B-II at the existing site by shifting the runway to the south approximately 600 feet, rotating the runway orientation approximately 5.3 degrees, and offsetting the runway to the west away from the development along U.S. Highway 93 to clear airspace penetrations. Site 1, Option B would comply with FAA design standards and development requirements and would be eligible for federal funding.

6.9.2 Site 1, Option D: Existing Site with ARC B-I Standards

6.9.2.1 Summary of Improvements

- Resurface the Existing 60' x 3,600' Paved Runway with an Orientation of 13/31 Rated for 12,500 Pound Aircraft (Single Wheel Gear);
- Reconstruct the Parallel Taxiway on the West Side of the Runway to 25' width and 150' Runway Separation and Extend Full Length to 3,600';
- ARC B-I Dimensional Standards including a 120' Runway Safety Area, a 250' Runway Object Free Area, 150' Minimum Separation Between Runway Centerline and Taxiway Centerline, and a 89' Taxiway Object Free Area;
- Land Acquisition necessary for Construction of the Improvements including the Land Necessary for the Future Parallel Taxiway Extension and the Required Future Runway Protection Zone;

Site 1, Option D would provide a marginal improvement in safety at the airport by meeting the minimum FAA dimensional criteria for ARC B-I standards while minimizing the construction and maintenance costs. This Alternative would allow for a mill and overlay of the existing 60 foot by 3,600 foot runway in its present location which will significantly reduce the costs associated with relocating and widening the runway to fully comply with FAA requirements as depicted in Site 1, Option B. The existing west-side taxiway would need to be reconstructed at further setback from the runway centerline and to 25-feet width to comply with B-I standards. Site 1, Option D would not fully comply with FAA design standards and development requirements and would be ineligible for federal funding; all costs would be the direct responsibility of the City of Kalispell and the Airport.

6.9.3 Site 5, Option A: Relocate to Site 5 with ARC B-II Standards

6.9.3.1 Summary of Improvements

- 75' x 4,200' Paved Runway with an Orientation of 17/35 Rated for 12,500 Pound Aircraft (Single Wheel Gear);
- A 35' x 4,200' Full-Length, Parallel Taxiway on the East Side of the Runway;
- Aircraft Parking Ramp (502' x 457') with 39 New Aircraft Tie-Downs;
- Two (2) 25' x 457' Taxilanes and One (1) 35' x 457' Taxilane;
- An Ultimate Runway and Taxiway Extension of 500' from 4,200' to 4,700';
- An Ultimate Aircraft Ramp Expansion (250' x 457') with 22 New Aircraft Tie-Downs;
- A Medium Intensity Runway Lighting System;
- Two (2) New PAPI's for Runways 17 and 35;
- 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;
- Land Acquisition necessary for Construction of the Improvements and a Future Runway Extension to 4,700' including the Required Future Runway Protection Zone;
- Extension of Basic Utilities including City Water, City Sewer, Electricity, and Phone;

Site 5, Option A is a complete relocation of the Kalispell City Airport to a new site northwest of the City of Kalispell. The new site is primarily agriculture land with one occupied residence and one vacant residence. It is located north of the intersection of West Reserve Drive and West Spring Creek Road. The location is close enough to the northwest fringe of the City of Kalispell that is feasible to annex the property into City limits and extend City utilities to the site. The alternate site would provide the necessary development area to construct a new airport facility meeting ARC B-II dimensional standards with the additional land necessary to construct a new aircraft parking ramp and hangar development areas and taxilanes. Site 5, Option A would comply with FAA design standards and development requirements and the costs associated with development of the aviation facilities on the site would be eligible for federal funding. Costs to relocate private facilities from the existing site to the new site and the cost to extend utilities to the site would not be eligible for federal funding.

6.10 Non-Development Alternatives

When analyzing alternatives for development, consideration must first be given to non-development alternatives. These alternatives include the "No-Action" or "do-nothing" alternative and the "Immediate Closure" alternative. The "No-Action" alternative would essentially be a decision to "constructively close" the airport. As described below, a no-action decision would ultimately result in a deterioration of facilities until they are no longer useable. There are many impacts associated with airport closure that are difficult to consider in detail within the limited scope of this Master Plan Update. Some preliminary guidance has been provided for this study by the Kalispell City Attorney in a memorandum dated February 21, 2012 (**Appendix L**). These alternatives need to be examined in process to determine whether future development of Kalispell City Airport is in the best interest of the City of Kalispell and the region as a whole.

6.10.1 No-Action Alternative

The No-Action alternative essentially considers keeping the airport in its present condition and not providing for any improvement to the existing facilities. Under this alternative, the City would continue to maintain (crack seal, fog coat, stripe and mark) and operate (snow plow and mow) the airport to keep it operational as long as possible but would not make any major investments into costly rehabilitation and upgrades. The inevitable result of this alternative would be the inability of the airport to satisfy the projected aviation demands in a safe and functional manner. At some unknown future date, the facilities would fail and become unusable. A No-Action decision would be contradictory to the activity that has occurred and is expected to continue at the airport. Because of this activity, some improvements will continue to be needed.

The region has experienced strong growth in all socioeconomic categories over the past few decades. Forecasts indicate this trend will likely continue throughout and beyond the long term planning horizon. The City of Kalispell has a vested interest in maintaining and improving airport facilities for both recreational and business users. Without a commitment to ongoing maintenance and improvement of the airport, regular users of the airport and potential future users of the airport would not be able to maximize use of the airport's air transportation capabilities. Several negative consequences would ultimately result from a No-Action alternative:

6.10.1.1 Airport Closure

The long term consequences of the No-Action alternative would be the gradual deterioration of the existing airport pavements over time, ultimately leading to the closure of the airport when pavements have failed and are no longer useable. The typical useful life of an asphalt concrete pavement is approximately 20 years. Pavement life can be extended with periodic maintenance including crack sealing and fog coats to decrease oxidation. Since it has been 25 years since the taxiways were constructed and the runway was overlaid, airport pavements are nearing the end of their useful life. With some investment in crack sealing and fog coats, the pavements may remain useable for a period of 5 to 10 years. At that time a major reconstruction or rehabilitation project will be required. Without any investment in pavement maintenance, there is a good chance pavements will fail in less than 5 years. The No-Action alternative is paramount to “constructively closing” the airport.

6.10.1.2 Diminished Use

A secondary consequence of the No-Action alternative would be the airport’s inability to accommodate a potential new group of airport users or even keep existing users. Existing users include recreational, business, corporate/agency, and flight instruction. Without a commitment to at least maintain the existing facilities, existing users will likely relocate to other nearby airports. Corporate aviation plays a major role in the transportation of business leaders and key employees. Thus, an airport’s facilities are often the first impression many corporate officials will have of the community. If the airport does not have the capability to meet hangar, apron, or airfield needs of potential users, the City’s capability to attract the major sector businesses that rely on air transportation could be diminished.

6.10.1.3 Buyout of Tenant Leases and Business Leases

Another detrimental impact from a No-Action alternative is that the City of Kalispell would be legally liable to “buyout” the value of buildings (hangars) that have been privately constructed on leased land and the business lease with Red Eagle Aviation if or when the airport was closed. All

tenants and businesses operating on airport property have entered into lease agreements with the City of Kalispell. Lease agreements are necessary to protect the private investment of the tenants when they build hangars or shops on the airport property and to protect the City's interest and control of the airport. If the airport was no longer maintained and was forced to close, the City would have a financial obligation to buyout the remaining terms of the current lease holders. Red Eagle Aviation, the flight school operating at the airport, is the only Part 61 and Part 141 certified flight school operating in the area. Red Eagle provides both helicopter and fixed wing flight instruction and operates a very successful business at the Kalispell City Airport. It is unknown if Red Eagle would relocate to another airport and continue its business elsewhere. It is also not known what the ultimate cost would be to buy this business out if the airport were to be closed. Valuation and terms of the "buy-out" would likely be a complicated. It would require consideration of both fixed assets and lost future revenue and earnings. A reasonable guess has been made to include a value for the buy-out Red Eagle Aviation in this Study but it is only a guess. A formal valuation is recommended to fully assess the potential cost impact of this buy-out. The total estimated value of the combined lease buyout at this time is $4.8 million and is summarized in **Table 6-2**. This value of the buyout is expected to decrease over time as lease agreements near their term or expire.

TABLE 6-2

Estimated Costs for Existing Lease Buyout

Lease Description	Estimated Value
Seven Hangar Leases at Fair Market Value	$1,907,262
Three Hangar Leases, 15 Year Straight Depreciation	$335,136
Red Eagle & Hilton Business Leases	$2,600,000
Subtotal Lease Buyout Costs	*$4,842,398*

SOURCE: City of Kalispell Airport Progress Report, Responses To Public Input Session, November 30, 2009

6.10.1.4 Loss of Potential Reimbursement from FAA for Past Land Acquisition and Airport Upgrades

Although not a new, direct cost to the City, a No-Action alternative would result in a loss of potential federal reimbursement of grant money for prior land acquisition and airport development. The City has made prior investments into the airport that would ultimately meet FAA design standards and be eligible for federal reimbursement under the Airport Improvement Program (AIP). The City has invested a total of $3,538,604.32 in the airport since 1999 and received FAA funding of $213,844.00. The majority of the remaining investment would be eligible for federal reimbursement in the future, provided the City improves the airport to required FAA standards. **Table 6-3** summarizes the remaining costs that would be FAA eligible following an upgrade of the airport to FAA standards. Under the current AIP program (recently reauthorized in 2012), the FAA would be able to reimburse 90 percent of these costs if and when federal funds become available. These prior development costs will be subject to review by the FAA at the time of the reimbursement regarding current federal contract procurement requirements and current Airport Improvement Program (AIP) legislation. (The FAA Reauthorization Bill signed by the President on February 14, 2012 reduced AIP match from 95 percent to 90 percent) This could ultimately lead to additional grant funding coming to the City of approximately $2,937,278.

The Kalispell City Airport is also eligible to receive up to $150,000 per year in non-primary entitlement funds provided the airport is upgraded to the required FAA standards. This entitlement would be lost if the airport proceeds with the No-Action alternative.

6.10.1.5 Lost Economic Benefit to the City of Kalispell

The City Airport also provides a significant economic benefit to the City and local businesses in south Kalispell. An Economic Impact Study prepared by Wilbur Smith Associates in 2008 estimated that total economic impact resulting from the operation of the Kalispell City Airport was $24.2 million in 2008. This estimate includes economic output of $7.3 million in direct, on-airport activities; $7.5 million in direct visitor spending; and $9.4 million of indirect, second round spending in the community. A copy of the Wilbur Smith Economic Impact Study for Kalispell City Airport is included in **Appendix M**. Thus, an additional consequence to the No-Action alternative is that a significant amount of the economic benefit to the City of Kalispell would be lost. Because Glacier Park International Airport, Ferndale Airport, and Whitefish Airport would ultimately accommodate some of the users of the City Airport, it would not be expected that all of the economic benefit would be lost. Some of it would naturally transfer to these other facilities.

TABLE 6-3

Summary of Costs of Prior Work Eligible for Federal Reimbursement

Item Description	Unreimbursed Costs
Professional Services for Land Acquisition & North End Design - 2005	$83,540.00
Purchase of Torgerson Property – 2005	$566,474.42
North End Ramp & Taxilane Construction - 2006	$1,454,530.11
North End Ramp & Taxilane Construction Administration - 2006	$41,582.04
Purchase of Red Eagle Aviation – 2006	$774,715.00
Purchase of Billmayer Property – 2006	$230,131.42
Professional Services for Land Acquisition - 2007	$13,438.77
Professional Services for Tower Relocation Study – 2008	$15,200.00
Professional Services for Surveys, Geotechnical & ALP Update - 2008	$68,068.00
Professional Services for Tower Relocation Review – 2009	$3,638.75
Professional Services for CIP & Bid Documents – 2009	$12,324.03
Total Cost of Work Eligible for Federal Reimbursement	*$3,263,642.54*

SOURCE: City of Kalispell Airport Progress Report, Responses To Public Input Session, November 30, 2009

On the positive side, once the airport is closed, the land owned by the City would be available for other uses. The City could use the property for other City infrastructure or lease it or sell it for development. Although the cost of demolishing and removing the airport facilities would minimize some of the economic benefit the land might provide.

To pursue a policy of No-Action for Kalispell City Airport would have significant negative impacts on not only the users of the airport but also the community as a whole. The No-Action alternative is also inconsistent with the development objectives outlined previously. Therefore, the No-Action alternative is not considered to be prudent or feasible.

6.10.2 Immediate Closure Alternative

Similar to the No-Action alternative, is the option of immediately closing the Kalispell City Airport. Under this alternative, existing tenants and users would need to vacate the City Airport as directed by the City of Kalispell. This would likely result in most tenants and businesses relocating their aircraft and operations to another facility; most likely to Glacier Park International Airport (GPI), Ferndale Airfield (53U), Whitefish Airport (58S), Polson Airport (8S1), Ronan Airport (7S0), or any of the other airports in the area. The primary difference between this alternative and the "No-Action" alternative is the timing of closure. Under the No-Action alternative, the City Airport would remain open as long as airport pavements remained useable and the airport remained reasonably safe; under the Immediate Closure alternative, the City would make a direct policy decision to close the airport by a certain date requiring that all of the tenants vacate the airport property within the set time frame. The City would not participate in any costs associated with relocating tenants and businesses.

It is anticipated that most airport tenants and users would choose to relocate to Glacier Park International Airport, however there are several alternatives. Ferndale Airfield and Whitefish Airport are both public use airports within 15 nautical miles of the Kalispell City Airport. Both of these airports offer turf runways that may be subject to seasonal closures. Polson Airport is 29 nautical miles to the south and offers a paved runway with available hangar development areas. Ronan Airport is 38 nautical miles to the south-southeast and also offers a paved runway with available hangar development areas. Of these facilities, GPI is the only airport that could fully accept the additional aviation activity and based aircraft resulting from a closure of the City Airport. There are available and planned apron/tie-down facilities as well as hangar development areas that could reasonably accommodate the transfer of these users.

Kalispell is the only city in Montana that has two (2) public use airports. GPI, which is only 8 nm to the northeast, is a commercial service airport with two runways. It is thus able to provide a greater level of aviation service than the Kalispell City Airport can provide. From discussions with GPI staff, there are available hangar development areas with the required facilities to support the transfer of based aircraft from Kalispell City Airport. General aviation ramp and tie-down areas may be limited however, and a future ramp expansion may be needed to support un-hangared aircraft needs.

Glacier Park International Airport is a part-time, towered airport operating from 8:00 AM to 12:00 AM daily. It is designated as Class D airspace, the fringe of which extends up to Kalispell City Airport. Since the City Airport does not fall within GPI's Class D airspace, there are no radio communication requirements between aircraft operating at the City Airport and air traffic control at GPI unless those aircraft travel through GPI's Class D airspace. Eliminating an uncontrolled airport that is situated on the fringe of GPI's Class D airspace would reduce the potential hazard of uncontrolled VFR flight in the vicinity of GPI.

Transferring services to Glacier Park International Airport or any of the other local airports would have similar financial and economic impacts as the "No-Action" alternative. First, there would be a similar lease buyout cost to the City to terminate leases at the City Airport of approximately $4.8 million. There would also be the lost potential reimbursement of $*2.9* million from federal AIP funds for the land and improvements already invested into the existing site. A partial loss of the economic benefit the airport provides to the community is another negative consequence of this alternative. Another financial consideration on the positive side would be the value of the land, less

the cost of demolishing the facilities that the City would benefit from if the airport was no longer operating on this site.

6.11 Comparison of Alternatives

Alternative comparison is relatively straight forward for development alternatives but a little more complex for the two non-development alternatives. With the non-development alternatives, some assumptions must be made on what the short-term and/or long-term impacts would be for each of the criteria. For the "No-Action" alternative, it is assumed that it is business as usual at the Kalispell City Airport for as long as the airport can remain useable and open. This would mean that in the short-term, there would likely be no changes in usage or activity but over time, usage would gradually decrease until the airport is closed. With the Immediate Closure alternative, it is assumed that most users and tenants would relocate to Glacier Park International Airport. Since the facilities (runways, taxiways, airspace, NAVAIDs, ATC, etc.) at GPI offer significant advantages and improvements over those at Kalispell City Airport, this alternative will naturally rank higher under the aeronautical criteria than any general aviation alternative at the existing site or a new site.

6.11.1 Aeronautical Criteria

All of the direct aeronautical criteria evaluated in this section were fully described in Chapter 5 of this document. Aeronautical criteria specifically address an airport facility's capability of safely accommodating the aviation activity expected at that facility.

6.11.1.1 Safety-Design-Geometry

Safety and design geometry refers to how well an alternative meets the design criteria outlined in FAA Advisory Circular 150/5300-13, Airport Design. The specific criteria examined are separation standards, runway and taxiway width and shoulder width, runway protection zones (RPZ), and runway and taxiway object free areas (OFA). Although the Kalispell City Airport could continue to operate as a less stringent B-I facility, operations are significant enough from the larger B-II type aircraft to warrant the increase in dimensional standards. The FAA has also indicated that they will not support funding of the Kalispell City Airport unless it is developed to the higher standard. Based on these conclusions, a general comparison of each alternative's conformance to FAA Design Standards is provided in **Table 6-4**.

6.11.1.2 Obstruction - FAR Part 77 Surfaces

The airspace surrounding each alternative was evaluated to determine the desirability of the site for compliance to FAR Part 77. Factors considered in this assessment included possible conflict with existing terrain, radio and cellular phone towers, power lines, trees, and buildings. Site 1, Option B and Site 5, Option A were developed with FAR Part 77 Surface (airspace) requirements for "non-precision instrument runway, larger than utility and visibility minimums greater than ¾ mile"; Site 1, Option D was developed for a "visual, utility runway" and is similar to the No-Action alternative. Based on these considerations, a general comparison of each alternative's conformance to FAR Part 77 Surfaces is provided in **Table 6-5**.

TABLE 6-4
Conformance with FAA Design Standards

Design Standard	Alternative				
	Site 1 Option B B-II	**Site 1 Option D B-I**	**Site 5 Option A B-II**	**No Action**	**Immediate Closure**
Separation Standards	B-II	B-I	B-II	No	Yes
R/W & T/W Widths	B-II	B-I	B-II	R/W – Yes T/W – No	Yes
R/W Protection Zones	Clear	R/W 13-No R/W 31-Yes	Clear	No	Yes
R/W & T/W OFA's	B-II	B-I	B-II	No	Yes
Rank	*3*	*2*	*4*	*1*	*5*

TABLE 6-5
Penetration of Imaginary Surfaces

Design Standard	Alternative				
	Site 1 Option B B-II	**Site 1 Option D B-I**	**Site 5 Option A B-II**	**No Action**	**Immediate Closure**
Approach Surfaces	None(1)	Tower	None	Tower	None
Transitional Surfaces	One	Numerous(2)	None	Numerous(2)	None
Horizontal Surface	Terrain/Tower	None	None	None	None
Conical Surface	Terrain	Terrain	None	Terrain	None
Rank	*3*	*1*	*4*	*2*	*5*

NOTES: (1) Radio Towers will be removed under Site 1, Option B.
(2) Obstructions from existing buildings along U.S. Highway 93 will not be mitigated.

6.11.1.3 Instrument Capability

A significant consideration when determining the feasibility of development alternatives is evaluation of the of the approach potential for instrument flight procedures. The critical approach surface to the runway ends is the Threshold Siting Surface (TSS) and/or the Glide Qualification Slope (GQS) as described in FAA Order 8260.3B, Terminal Instrument Procedures (TERPS) and Advisory Circular 150/5300-13, Airport Design, Change 17. The GQS is a surface used to evaluate approach procedures with positive vertical guidance. The GQS limits the height of obstructions between the decision altitude and runway threshold. If these surfaces are penetrated, the approach procedure is either not feasible or some mitigating action must be taken. The applicability of the TSS and/or GQS is further dependent on the primary runway for departure and evaluation of the Departure Surface (DS). Dimensional Standards for the TSS for different runway types that should

be evaluated with consideration of airside alternatives and the DS and the GQS, are identified in **Table 6-6** with keyed dimensions presented on **Exhibit 6-2**.

TABLE 6-6

Approach/Departure Requirements for Category A and B Aircraft[1]

Runway Type	Dimensional Standards (Feet)[2]				Slope/ OCS
	A	B	C	D	
Approach End of Runways Expected To Support Instrument Straight-In Night Operations, Serving Approach Category A and B Aircraft Only	200	200	1,900	10,000	20:1
Approach End of Runways Expected To Accommodate Instrument Approaches Having Visibility Minimums ≥ ¾ but < 1 Statute Mile, Day or Night	200	400	1,900	10,000	20:1
Approach End of Runways Expected To Accommodate Instrument Approaches Having Visibility Minimums < ¾ Statute Mile, or Precision Approach (ILS, GLS, or MLS), Day or Night	200	400	1,900	10,000	34:1
Approach End of Runways Expected To Accommodate Approaches with Positive Vertical Guidance (GQS)	0	½ Width of Rnwy + 100	760	10,000	30:1
Departure Runway Ends for All Instrument Operations	0	NA	NA	NA	40:1

(1) *"Airport Design", FAA Circular 150/5300-13, Appendix 2.*
(2) *Reference Dimension Key to* ***Exhibit 6-2****.*

Each Alternative has been evaluated for instrument approach potential based on the runway type criteria summarized in **Table 6-2**. For an instrument approach to be feasible, the obstacle clearance slope (OCS) must be clear of obstructions. **Table 6-7** summarizes the approach potential for each alternative.

Ideally, the Kalispell City Airport will pursue a GPS circling or straight-in instrument approach within the 20-year planning period. Non-precision approaches with 3/4-mile or less visibility minimums, requiring approach lights, high intensity runway lights (HIRL), a clear 34:1 approach slope, and an 800-foot wide object free area (OFA) are not very practical for a Kalispell City Airport at any location within the valley. Low visibility minimums will continue to be available at Glacier Park International Airport. A non-precision approach with 1-statute mile visibility minimum, possibly with vertical guidance, would be a realistic planning goal for a future Kalispell City Airport. A medium/low intensity lighting system and 20:1 approach slopes are minimum design requirements. Approach lights and a parallel taxiway are recommended, but not required by design standards. When obstacles exceed the height of the GQS, an approach procedure with vertical guidance (LPV, LNAV, ILS, etc) is not authorized. The approach and missed approach slopes *(30:1 GQS)* would have to be free of obstruction, as well as having a defined flight path and holding patterns well clear of terrain and not in conflict with established approaches for existing approaches at GPIA.

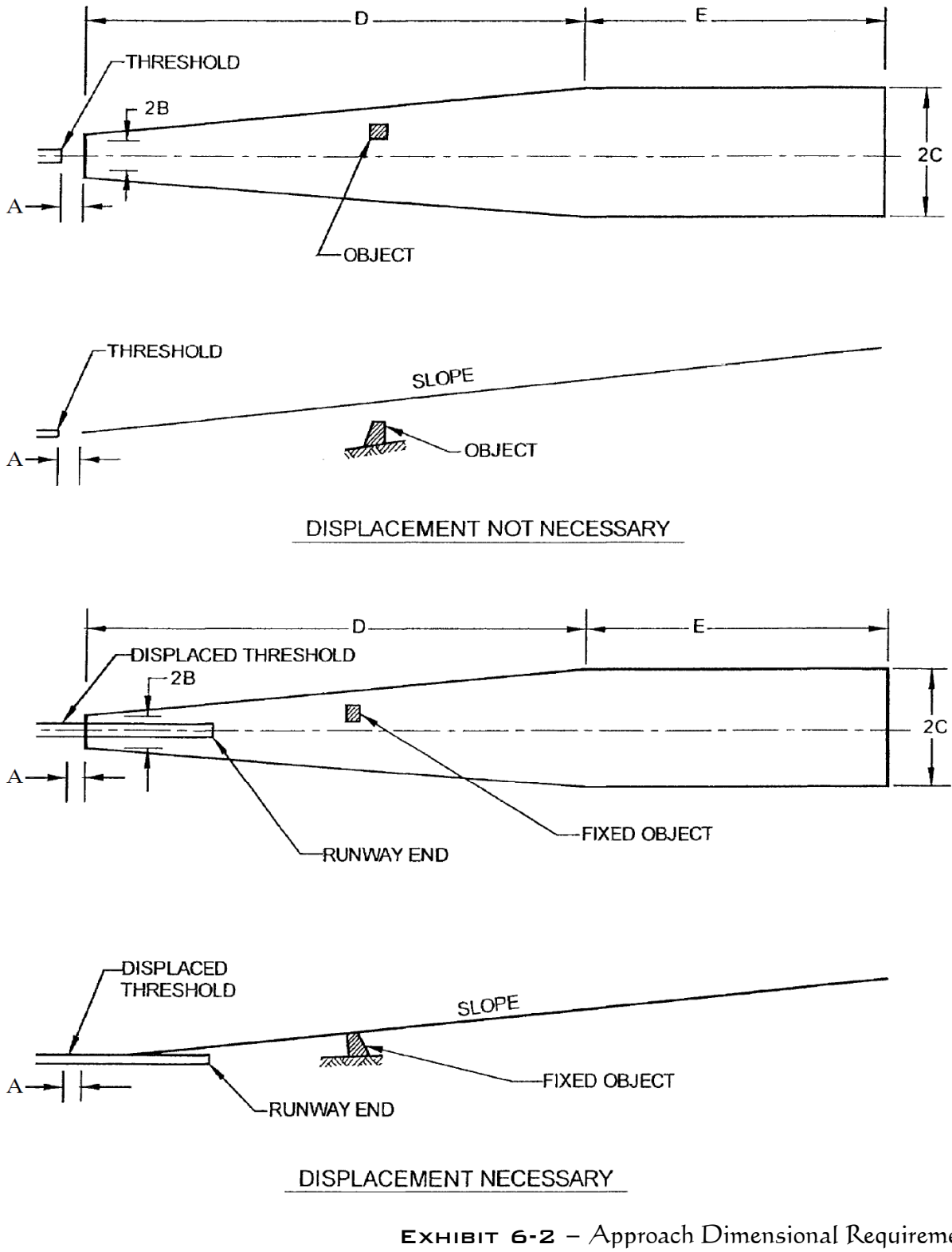

EXHIBIT 6-2 – Approach Dimensional Requirements

TABLE 6-7
Summary of Clearances to GQS/DS

Runway Type	Alternative				
	Site 1 Option B B-II	**Site 1 Option D B-I**	**Site 5 Option A B-II**	**No Action**	**Immediate Closure**
Straight-In Night Ops, Serving App. Category A and B Aircraft Only	Yes/Yes	No/No	Yes/Yes	No/No	Yes
Visibility Minimums ≥ ¾ but < 1 Statute Mile, Day or Night	No/Yes	No/No	Yes/Yes	No/No	Yes
Visibility Minimums < ¾ Statute Mile, or Precision Approach (ILS, GLS, or MLS), Day or Night	No/Yes	No/No	Yes/Yes	No/No	Yes
Approaches with Positive Vertical Guidance (GQS)	Yes/Yes	No/No	Yes/Yes	No/No	Yes
Departure	No/No	No/No	Yes/No	No/No	Yes
Rank	*3*	*2*	*4*	*1*	*5*

6.11.1.4 Wind Alignment

Wind affects can be significant on small aircraft that typically use a General Aviation (GA) airport like Kalispell City. Landing and taking off directly into the wind is the most desired condition. Operations with a tail wind can substantially increase the length of runway required to land or the distance required to gain altitude when taking off. Wind blowing at an angle across the runway makes keeping an aircraft on the pavement and aligned with the runway centerline more difficult due to "weather vane" effect. The stronger the wind and the larger the angle of the wind relative to runway alignment, the larger the "cross-wind" component and the more difficult the landing or take-off. Smaller aircraft are more often and more adversely affected by crosswinds. For single-runway airports with B-II Airport Reference Codes (ARC), the runway orientation should provide a crosswind component of less than 13 knots, 95 percent of the time. An additional safety margin might consider the 10.5 knot crosswind component used in designing airports for small aircraft conforming to ARC A-I and B-I categories.

Wind analysis from the 1999 Kalispell City Master Plan (1984-1993 GPIA wind data) was used to determine acceptable runway alignments. The current 13/31 alignment provides 93% coverage at less than 10.5 knots direct crosswind component, and 96% coverage at 13 knots. Local pilot consensus is that prevailing winds may be more southerly than this data indicates. Slight variations

in wind directions may be due to the location or elevation of the weather station relative to the airport, or there may be some variation in nighttime winds versus the daytime winds familiar to most local pilots.

Site 1, Alternative D and the No-Action alternative have the current runway orientation and are therefore essentially equal with respect to wind alignment. These two alternatives meet the 13 knot coverage requirement but do not meet the 10.5 knot coverage. The clockwise rotation of Runway 14/32 on Site 1, Option B, although minor, is towards the perceived southerly wind direction noted by the pilots using the airport. This orientation will likely provide a slight improvement in wind coverage but not likely enough to meet the 10.5 crosswind component. Similarly, the orientation of Runway 17/35 on Site 5, Option A is moving closer to the southerly wind direction reported for the area. This orientation will likely provide the preferred 10.5 cross wind component 95 percent of the time and is therefore the preferred single runway coverage of the alternatives. Of course, Immediate Closure and tenant relocation to GPI, will have the best wind since GPI has both a primary runway and the cross wind runway.

6.11.1.5 Expandability

There are potentially four types of expansion that could be planned for at the Kalispell City Airport: ground-side expansion, runway lengthening, runway strengthening, and reducing approach minimums.

Ground-side expansion is typically needed for building hangars, expanding hangar access taxiways, and enlarging the apron area for additional tie-downs; essentially accommodating future growth at the airport for both based aircraft and itinerant aircraft. The existing site (Site 1) is relatively constrained and limited on ground-side expansion. Even with significant land acquisition, there will be limitations on the extent of additional ramp areas and hangar development areas that can be realized. Site 5, Option A is generally unconstrained and can easily accommodate the additional ground side expansion that may be needed.

As described in Section 5.5, the recommended runway length for Kalispell City Airport is determined in accordance with Chapter 2 of AC 150/5325-4B which provides “Runway lengths for Small Airplanes with Maximum Certificated Takeoff Weight of 12,500 Pounds (5,670 kg) or Less”. In order to meet the demands of 100 percent of small airplanes with less than 10 passenger seats, the runway would need to be 4,700 feet long; to meet the needs of 95 percent of this group, the runway would need to be 4,200 feet long. The FAA will allow staged development to a length of 4,200 feet but will required that the Owner depict the future land requirements and runway length necessary to accommodate 100 percent of small airplanes with less than 10 passengers. Site 1, Option B and Site 5 Option A will both provide for the runway length required to meet 100 percent length requirements. Site 1, Option B will require the relocation of Cemetery Road to clear it from the ultimate Runway 32 RPZ.

An upgrade for heavier aircraft can usually be accomplished with a pavement overlay that strengthens the pavement section. While a straight-in, 1-mile-visibility "non-precision" approach from the south is quite likely, an approach with 3/4-mile or less visibility minimums and the required lead-in lighting and 34:1 approach slopes will not be required within the current planning period. A 34:1 approach slope could be included solely to provide an additional margin of safety. Based on these criteria, a general comparison of each alternative’s conformance to Expansion is provided in **Table 6-8**.

TABLE 6-8
Potential for Expansion

Expansion Type	Alternative				
	Site 1 Option B B-II	**Site 1 Option D B-I**	**Site 5 Option A B-II**	**No Action**	**Immediate Closure**
Ground-Side	Some	No(1)	Yes	No	Yes
Runway Extension	4,700(2)	No(1)	4,700	No	NA(3)
Pavement Strength	Yes	Yes	Yes	No	NA(3)
Approach Potential	1-Mile	No	1-Mile	No	NA(3)
Rank	*3*	*2*	*4*	*1*	*5*

NOTES: (1) Land acquisition requirements were minimized in Site 1, Option D; expansion is feasible if additional land is acquired.
(2) Extension to 4,700 feet will require relocation of Cemetery Road which is not desired or needed.
(3) Facilities at GPI exceed the expansion requirements at Kalispell City Airport.

6.11.1.6 Proximity to Other Airports

Development of a new airport or improvement to an existing airport should provide a large enough service base and avoid conflicting with air traffic patterns from adjacent airports. A properly located airport will provide convenient use and access, while a poorly located airport may be inconvenient and/or dangerous to operate on or near. Existing airports, public and private, documented on the Great Falls Sectional Chart dated June 30, 2011 are shown on the Overall Site drawing in **Appendix K**.

The area from which individuals travel to use an airport is referred to as the airport's "service base" or "service area." When two airports providing like services are constructed in close proximity to each other, the service area of each is decreased. Ideally, airports would be fairly evenly distributed among the population base providing reasonable parity in airport access to all. Presently, there are only three airports in the area with paved runways Kalispell City Airport, Glacier Park International, and Polson. There are also two unpaved public airports in the area: Whitefish and Ferndale.

From an air traffic perspective, airports which are located too close together may have conflicts with approach, departure, and traffic patterns; or be sufficiently close to adversely affect the safety of the flying public. In addition to the public use airports in the area, there are a number of private-use turf strips in the area that could adversely affect the safe operation of aircraft at a new airport location.

The current location of the Kalispell City Airport represented by the Site 1 alternatives and the No-Action alternative is located at a sufficient distance from GPI, Ferndale, Polson, and Whitefish that air traffic conflicts are generally minimal. There is a minor conflict at this site with the Runway 13 approach intersecting the precision approach for Runway 02 at GPI but that approach procedure was developed with consideration of the City Airport. The current site is also well situated in the area to service the south end of Kalispell and northern areas of Flathead Lake. Site 5, Option A relocates the airport to the northwest end of Kalispell and much closer to GPI. There is a greater potential at this location for air traffic conflicts and a decrease in capability to expand the service area of the airport. Alternative E ranks in the middle on this criterion: air traffic conflicts are eliminated by closing the City Airport but the service area is decreased by losing this facility in south Kalispell.

6.11.2 Non- Aeronautic Criteria

6.11.2.1 Access to Airport/Proximity to Kalispell

A general aviation airport that is in close proximity to the population center of a city or town is considered beneficial. An airport near town provides easy access for the itinerant flyer to community businesses and services and quick response to the airport by existing emergency services if needed. Even more beneficial is walking access to city businesses from a general aviation airport. Airports this close to the community's business district generate additional air traffic and economic activity in that would otherwise not exist. The Kalispell City Airport is often a frequent choice of the recreational and business flier primarily because of its ready access to services.

Access to the Airport/Proximity to Kalispell is exceptional at the existing site and would generally be the same for the Site 1 and No-Action alternatives (while the airport is in operation) but is substantially different for Site 5, Option A and the Immediate Closure alternative. There would be some minor access improvements for Site 1, Options B and D over the No-Action alternative. Site 5, Option A is somewhat of a remote site, located approximately one mile west of the City boundary. It would not be considered to be in walking distance to nearby businesses; it would however be annexed into the City and would therefore receive service from police, fire, and emergency medical. The Immediate Closure alternative, with probable relocations to GPI, is not within walking distance of City businesses either. Although the terminal at GPI does have car rental agencies that can easily provide transportation. Glacier Park also has emergency response providers at the airport and provides security, fire, and emergency medical at the airport.

6.11.2.2 Environmental Concerns

The Federal Aviation Administration will require an environmental assessment prior to any development in which is federally funded. The environmental assessment will examine 20 different impact areas which are shown below in **Table 6-9**. In order to effectively evaluate and compare alternatives, a preliminary environmental screening of each of the impact areas is warranted. Copies of the three development alternatives were sent out to several of the environmental resource agencies with a letter requesting comment on December 16, 2011. Copies of the letter and any responses received are included in **Appendix N**. Where applicable, agency concerns are discussed in the following sections.

Noise Impacts: A noise analysis is not required per FAA Order 5050.4A. The Airport Environmental Handbook only requires noise analysis for Airplane Design Group I and II airplanes at utility type airports if the operations forecast exceeds 90,000 annual propeller operations or 700 jet operations during the planning period. Although not required, noise contour modeling was completed for the proposed action as part of the Feasibility/Master Plan Study for the Kalispell City Airport (Morrison-Maierle, Inc., August 1999) and updated in the Environmental Assessment (Robert Peccia and Associates, December 2002). The 2002 EA concluded that "adverse noise impacts should not occur (with or without small jet use) on properties in the vicinity of the airport according to FAA criteria."

As part of this Master Plan Update, a noise contour analysis was prepared for the three development alternatives presented herein. A copy of the Kalispell City Airport Noise Contour Analysis (Big Sky Acoustics, LLC, January 4, 2012) is included in **Appendix O**. The results of the noise contour modeling for each alternative predict that the DNL 65 contour will not extend on to adjacent properties during the planning period and that "negative impacts should not occur on properties in

the vicinity of the airport according to FAA criteria. However, the study did caution that noise could be more of an annoyance for Site 5, Option A (Alternative C) since the noise generated from aircraft operations is in an area unfamiliar with this type of noise.

TABLE 6-9

Environmental Concern Comparison

Criteria	Alternative				
	Site 1 Option B B-II	**Site 1 Option D B-I**	**Site 5 Option A B-II**	**No Action**	**Immediate Closure**
Noise	low	low	low	low	low
Compatible land use	low	low	potential	low	low
Social Impacts	potential	low	potential	low	potential
Air Quality	potential	potential	potential	low	low
Water Quality	low	low	low	low	low
DOT Section 4(f) Lands	low	low	low	low	low
Cultural Resources	low	low	potential	low	low
Biotic Communities	low	low	low	low	low
Endangered Species	low	low	low	low	low
Wetlands	low	low	low	low	low
Floodplains	potential	low	low	low	low
Coastal Zone Management	n/a	n/a	n/a	n/a	n/a
Coastal Barriers	n/a	n/a	n/a	n/a	n/a
Wild & Scenic Rivers	low	low	low	low	low
Farmland	low	low	potential	low	low
Natural Resources	low	low	low	low	low
Light Emissions	low	low	low	low	low
Solid Waste Impacts	low	low	low	low	low
Construction Impacts	low	low	low	none	none
Rank	*2*	*3*	*1*	*5*	*4*

Social Impacts: Social impacts are those associated with relocation or other community disruption which may be caused by the proposal. A specific analysis will be required if the proposal involves the need to relocate any residence or business, alter surface transportation patterns, divide or disrupt established communities, disrupt orderly, planned development, or create and appreciable in employment. The 2002 EA estimated that the proposed action could affect approximately 20 residents and 5 businesses. The EA concluded that the proposed action "would be unlikely to isolate or divide existing residential areas or cause a disproportionately high adverse human health or environmental effects on any social or ethnic groups, handicapped, elderly, or low-income populations" and that "business relocations would not be expected to cause an appreciable change in employment in the Kalispell area. There have not been any significant changes in the vicinity of the

existing airport to predict that there would be any changes to these findings. Site 1, Option B would require the relocation of five hangars on the airport but only two businesses and three residences (trailers). Site 1, Option D would require the relocation of only four hangars; no businesses or residences would be impacted. Site 5, Option A would require the relocation of one residence although there is a second home site on the property which is presently abandoned. Alternatives D and E have no social impacts.

Air Quality Impacts: FAA guidance for the assessment of air quality is changing. Generally, if an airport is in the vicinity of any declared non-attainment zone, then the airports contribution to that zones non-attainment must be examined. There are two sites declared in Kalispell as non-attainment for carbon monoxide: the intersection of U.S. Highway 2 and U.S. Highway 93 and a second site located further east at the Laser School. There are also two sites declared for particulate matter: one site is downtown Kalispell on Main Street and the other site is at the Evergreen Fire Station on U.S. Highway 2. The 2002 EA included coordination with the MDEQ Permitting and Compliance Division on particulate matter (PM-10). The MDEQ concluded that the "existing and future PM-10 emissions from aircraft do not meet the applicability threshold for PM-10." These findings resulted in a determination that "the emissions from aircraft are considered de minimis and will not cause or contribute to violations of the PM-10 standards in the Kalispell PM-10 nonattainment area. With much fewer operations now forecast at the airport, air quality impacts would be expected to be less of a concern. Improvements at the existing site (Site 1, Options B and D) and Site 5, Option A would require an air quality study since both locations are within 10 miles of the non-attainment zones. The No-Action and Immediate Closure alternatives would not require an air quality study since by definition they would have no impact on air quality.

Water Quality Impacts: The MDEQ has the responsibility under the Clean Water Act and the Montana Water Quality Act to monitor and assess the quality of Montana surface waters and ground waters. Site 1 (Options B and D) is located adjacent to Ashley Creek and both alternatives have the potential to impact this body of water. Site 5, Option A although not adjacent to any surface water body, is situated in a location with a very shallow ground water table. There is some concern of potential impacts to the ground water aquifer with this alternative.

DOT Section 4f Land Impacts: Department of Transportation 4(f) Lands are any publicly owned park, recreation area, refuge, or historic site that have been determined significant by the federal, state, or local official having jurisdiction over it. There are no parks, recreation areas, refuges, or historic sites at either the existing airport site (Site 1) or Site 5. There are no impacts to 4(f) lands under any of the proposed alternatives.

Cultural Resource Impacts: Historic, architectural, archeological, and cultural resources are generally considered "show- stoppers", and are therefore considered very sensitive. Generally the Montana State Historic Preservation Office (SHPO) requests that a cultural resource inventory be conducted as part of any environmental assessment. In the specific case of Kalispell City Airport, the proximity of the historic DeMersville Cemetery would virtually ensure that a cultural resource inventory be conducted prior to development. Site 1, Option B would require the acquisition of part of this cemetery for use as runway protection zone. Site 1, Option D would not have any impact on the cemetery. The 2002 EA included a cultural field inventory of the area of potential effect for the proposed action. The result of this work is that there were no cultural resources or properties identified within the area affected by the proposed action. Site 5, Option A, located at a different site, does not appear to have any cultural, architectural, archeological, and cultural resources present on the site but would require a cultural resource inventory prior to development. The No-Action and

Immediate Closure alternatives would have no impact. The SHPO responded in two (2) letters dated December 19, 2011 that neither existing Site 1 nor Site 5 had previously recorded cultural properties within the search area locale. The SHPO did feel that the disturbance at both sites had the potential to impact cultural properties and would recommend that a complete cultural inventory be completed on undisturbed ground during the Environmental Assessment. Since a cultural inventory has been completed on potentially impacted properties at the existing site without identifying anything of significance, it is safe to conclude that there are no historic, architectural, archeological, or cultural resources of concern at Site 1. Site 5 would require a complete cultural inventory of the property to complete this assessment.

Wetland Impacts: Wetlands are "those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, rivers, overflows, mud flats, and natural ponds. Wetlands also have the potential to be "show stoppers" because the requirement to mitigate wetlands impact by replacement on-site conflicts with the requirement to reduce bird attracting hazards in the vicinity of the airport. The 2002 EA included an evaluation of impacts to Biotic Communities, which includes wetlands, for the proposed action. The evaluation concluded that "The proposed action would cause no long-term negative impacts or irretrievable losses to wildlife or habitat. There have not been any significant changes in the vicinity of the existing airport to predict that there would be any changes to these findings. There may be wetlands in the vicinity of Ashley Creek but a formal wetlands investigation will be needed to determine if any of the proposed development under Site 1, Option B would have an impact; none of the development under Site 1, Options D would extend into these areas. There also does not appear to be any wetlands in the vicinity of Site 5, Option A which is generally higher ground without any surface water in the area. The No-Action and Immediate Closure alternatives would have no impact.

Farmland Impacts: The NRCS responded in a letter dated January 1, 2012 that Site 1, Option B (Alternative A), Site 1, Option D (Alternative B) and Site 5, Option A (Alternative C) would likely have some impacts to soils that are important to farmland. The NRCS will require that a Farmland Conversion Impact Rating (form AD-1006) be completed for the recommended alternative during the Environmental Assessment.

Biotic Communities & Endangered Species Impacts: Fish, Wildlife and Parks provided a verbal response by telephone on December 21, 2011 indicating that there are no threatened or endangered specifies that might be affected by any of the alternatives and that they had no concerns regarding any of the proposed alternatives.

Floodplain Impacts: A cursory floodplains review has been completed as part of the Master Plan effort. There are floodplains in the vicinity of Ashley Creek at Site 1 that may be impacted by the ramp and FBO facilities proposed on Option B; there would not be any impacts associated with the improvements on Site 1, Option D. The access road and parking areas proposed for the new ramp and FBO facilities would be partially located in the fringe of the Ashley Creek floodplain. To construct these facilities, there would be some fill areas that fall within the boundaries of the floodplain. An accurate floodplain delineation would be required along with a flood plain permit to proceed with this option. There does not appear to be any flood plain issues with Site 5, Option A.

6.11.2.3 Economic Benefit

A municipal airport should boost local commerce, provide connections which encourage community growth, and assist in the flow of goods and services through the community. The City of Kalispell expects some economic return on the infrastructure investment they are making in their airport.

Site 1, Option B has the greatest potential for economic benefit to the community. The existing site is in a very favorable location to encourage commerce generated through aviation activity. If the airport was improved to increase safety and the condition of facilities, the upgrade would likely attract more local users and itinerant users from other areas. Site 1, Option D, being at the same location, would still benefit from the location, but would not likely increase in activity. The No-Action alternative would provide some economic benefit to the community while the airport is still operating but would eventually decline as the airport facilities decline. Site 5, Option A and the Immediate Closure alternative, being located further from the City center, would tend to offer the least economic benefit, although the Immediate Closure alternative, assuming relocation of users to GPI, would benefit some from the rental care agencies located at GPI.

6.11.2.4 Available Infrastructure

Infrastructure includes access roads, parking lots, hangars, utilities, storm drainage, fencing, and fuel storage. Costs of establishing a similar level of service for each alternative will be compared and evaluated.

Since accessibility is an important consideration in the location of a public airport, the location of each alternative relative to existing transportation routes was evaluated. Major considerations included the distance to existing roadways, access time from the community to the airport facility, increased maintenance costs for existing roadways, and the need for new access routes. Obviously, an airport site requiring a major expenditure to construct a new access road would be ranked less favorably than a site located adjacent to an existing roadway.

Preferred utility hook-ups for airport alternatives include: water, sewer, electric, gas, telephone, cable TV, and fiber optic lines. One of the preliminary screening criteria was that any feasible site be located sufficiently close to Kalispell for connection to municipal utilities. Natural gas, propane, and electrical power are all possible sources for heating systems, at least one of which must be present, with two options preferred. Electrical and phone lines would be mandatory at any site, with buried lines providing a larger safety margin than overhead lines.

Though not required, access to cable TV and fiber optics would be a plus for any site. The Weather Channel on cable TV assists many pilots with their "go/no go" decision. Future high level graphic weather and briefing information, upgrading the existing DUATS system, will most likely be transmitted via a fiber optic network.

Paving an area large enough for a runway, taxiways, and an apron generates significant quantities of concentrated runoff. A storm drainage system removes runoff while preserving the integrity of the pavement.

Fencing separates ground traffic, people, and animals from aeronautical-use areas to provide a safer facility for those on the ground and in the air. While fencing seems a minor expense per unit length, the lineal footage required often makes fencing the entire airport perimeter very expensive.

Fuel availability is an important asset at any airport. Credit card pay-at-the-pump systems give 24-hour fuel availability and increase itinerant sales. Storage tanks, pumps, and control systems are an expensive (*approximately $250,000*) and important investment to retain current users of the Kalispell City Airport.

Obviously the existing airport site has the infrastructure in place to support the facility. This location is close to the City center and easily accessible. It has all the necessary services readily available. Site 1, Option B, by realigning the runway and taxiway, would better conform to the hangar and taxilane development completed in 2006.

6.11.2.5 Public Acceptance/Support

Generally, an airport in close proximity to town is considered beneficial. From responses received at several public meetings and public comment provided at City Council meetings, there are diverse opinions and differing viewpoints about the existing airport location. Those that support the current location because the airport brings economic activity to the community that would otherwise not exist. Those that do not support it claim the airport generates significant noise, poses a safety risk to residences in the area, and is not a valid public service that should be supported with local tax dollars. The affected parties are generally very active in opposing their opinions.

Formal public comment was received on the draft Master Plan Update document between December 13, 2011 and January15, 2012. Copies of the written and electronic comments are included in **Appendix P**. The majority of the comments provided included opinions and/or recommendations on each individuals preferred alternative, as presented in the draft document. Eighty-nine comments were received and reviewed during the comment period. The following generalizations were developed from review of the comments:

Seventy-one (71) comments supported maintaining the airport at the existing site (with or without improvements); 29 comments were opposed to the continued operation of the airport at the existing site (close or relocate airport).

Of the 71 comments supporting the existing site, 47 supported upgrading to ARC B-II standards, 4 supported keeping the airport smaller or as it currently is, and the remaining 20 comments did not specifically comment on whether to improve the airport or leave it as is.

Of the 29 comments supporting the closure of the airport at it's existing site, only 3 comments supported Site 5 on West Reserve Drive, 12 comments supported the Do-Nothing alternative that would eventually require the closure of the airport, and 8 comments supported an immediate closure of the airport with the intent to relocate the aviation activity to GPI. The remaining 6 comments were not necessarily specific to which alternative was preferred, just the closure of the airport at this site.

There were 2 comments directly opposed to Site 5, Option B.

6.11.2.6 Owner/User Support

Owners and users of the airport utilize different criteria than the general public with regards to the benefits or issues of an airport since they are the group actually using the facility or maintaining the facility. The Owner group would include City officials and staff as well as the Airport Advisory Board. Users would be area residents that base aircraft at the facility, businesses and employees operating at the airport, and itinerant pilots visiting Kalispell.

From discussions with City staff and the Airport Advisory Board, Site 1, Option B is the preferred alternative followed by Site 1, Option D. Site 5, Option A had moderate acceptance while the No-Action and Immediate Closure alternatives had no support.

6.11.2.7 Total Development Costs

Total development costs are defined as those costs which are required to build the facility to ultimate development as depicted on the Airport Layout Drawing. It does not represent a lump sum which must be spent all at once; rather it is the aggregate of all separate project costs less interest expense. In a later chapter of this study, a program for capital improvement at the airport will be described, which will layout a schedule of individual projects which are required. For the purpose of this analysis, lower total cost was considered better. Non-essential Costs are those costs which planners are compelled to recommend, but need not be built to have a fully operational airport. Essential Costs are those costs which are necessary to the function of the airport. Detailed cost estimates for the three development alternatives are included at the end of this Chapter.

Land acquisition costs make up a significant component of total development cost for all three of the development alternatives. Land valuations for Site 1 were based on original appraisals completed for land acquired from 2004 through 2006. The appraised values of the acquired properties have been used as a basis for appraising the values of other similar properties that have not yet been acquired. Estimated adjustments have been made to account for differences in the improvements on each of the properties. The valuations have also been reduced by approximately 50 percent based on consultation to the original appraiser that valued the property to approximate current market conditions in the local real estate market.

The land acquisition necessary for Site 5, Option A is presently agriculture property. Although an appraisal has not been completed for this property, it is likely that it would appraise at highest and best-use. In recent years, there have been two preliminary plats approved for subdivisions on land contiguous to this property. It is highly likely that the property needed for Site 5 would be appraised as residential without improvements. Based on this assumption, a per acre valuation of $16,000 has been used for estimating land values for this option.

Obviously there are no direct development costs under the No-Action and Immediate Closure alternatives since there would be no development conducted by the City. Minor pavement maintenance costs ($150,000) have been included for the No-Action alternative to provide for crack sealing, fog coat, and stripping and marking in the short term. Since the City will not likely have the funds to perform mill and overlay rehabilitation, the pavements would likely fail at some point during the planning period. In respect to the three development alternatives, Site 1, Option D has the lowest total development cost followed by Site 1, Option B and Site 5, Option A. As can be seen from the detailed cost estimates, Site 1, Option B and Site 5 Option A are very similar in total development cost. For comparison purposes, these two options would score and rank equally.

6.11.2.8 Local Cost Contribution

Two of the alternatives developed would be eligible for federal funding, while the other three would not receive any federal funding. There is also the potential federal reimbursement to the City on past investment that could be recovered if the City proceeds with a development alternative that is supported by the FAA. These prior development costs will be subject to review by the FAA at the time of the reimbursement regarding current federal contract procurement requirements and current Airport Improvement Program (AIP) legislation. Finally, there are significant costs to consider in

the form of lease buy-outs that the City would be financially obligated. **Table 6-10** summarizes the local cost contribution the City of Kalispell would be obligated to for each of these alternatives. Positive numbers indicate funds coming back to the City through federal reimbursement and negative numbers indicate cash outflow to pay for development and lease buyouts. Site 1, Option B is a federally funded alternative that would result in a local match (10%) of $2,587,575; there would be no lease buy-outs; and the City would be eligible to be reimbursed for prior development and land acquisition (subject to meeting all federal obligations). Assuming the federal funding program continues at its current level and current provisions, the City of Kalispell would ultimately be reimbursed for 90 percent of all eligible development and land acquisition costs incurred in the future and in recent years. This results in a net reimbursement to the City of $349,704. Site 1, Option D on the other hand is not eligible for federal funding so the City would not receive any funding assistance from the FAA. This alternative would also continue the operation of the airport at its current location so there would not be any lease buyout requirements from current tenants and businesses. The remaining three alternatives include the lease buy-out estimated at $4,842,398. The lease buyout has been reduced under the No-Action alternative because it is assumed that the airport could continue to operate for a few years with periodic pavement maintenance.

TABLE 6-10
Local Cost Contribution

Cost Component	Alternative				
	Site 1 Option B B-II	Site 1 Option D B-I	Site 5 Option A B-II	No Action*	Immediate Closure
Total Development	-$2,587,575	-$3,790,200	-$3,436,672	-$150,000	$0
Lease Buy-Out	$0	$0	-$4,842,398	-$3,631,799	-$4,842,398
FAA Reimbursement	$2,937,279	$0	$0	$0	$0
Total	$349,704	-$3,790,200	-$8,279,070	-$3,781,799	-$4,842,398
Rank	*5*	*3*	*1*	*4*	*2*

** Assumes the airport can maintain with minor maintenance for several years thereby reducing the lease buyout cost by 25 percent.*

6.11.3 Summary of Alternative Comparison Criteria

An evaluation matrix has been prepared for all of the aeronautical and non-aeronautical criteria discussed in this section. The Alternative Evaluation Matrix compiles rankings for the five proposed alternatives in each of the evaluation categories, weights each by importance, and computes the weighted rankings. The importance factors were based on the importance weight assigned during the Site Selection Study in 2002; new categories were assigned a weighting by the Consultant. The Site Evaluation Matrix includes three separate scoring columns which are described as follows:

- Column I is a simple ranking of each of the alternatives. It is a comparative ranking among alternatives with 5 being the best ranking and 1 being the worst ranking.
- Column II is a weighted ranking of each of the alternatives. The numeric value under each alternative in Column II is calculated by multiplying the ranking in Column I by the weighting factor provided for each criterion. The purpose of this column is to provide higher numeric scores for criteria that have a higher importance factor than other criteria.

- Column II is simply a non-comparative score for each of the alternatives with 1 being the lowest and 10 being the highest. An alternative that completely meets all the requirements of a specific criterion perfectly would score a 10 in this column.

Table 6-11 indicates that the Site 1, Option B alternative has the highest score with a ranking of 354 followed closely by the Immediate Closure alternative with a score of 344. These two alternatives weighted considerably higher than the other three alternatives and are very close numerically.

6.12 Conclusions and Recommendations

The process utilized in assessing the proposed development and non-development alternatives involved a detailed analysis of short and long term requirements, as well as future growth potential. Current airport design standards were considered at every stage in the analysis. Safety, both air and ground, were given the highest priority in the analysis of alternatives.

The Alternative Evaluation Matrix scored the Immediate Closure Alternative very close to the Site 1, Option B, ARC B-II development at the existing site and much higher than the other alternatives.

This is primarily because it is assumed that most existing businesses, tenants, and users of the Kalispell City Airport will relocate their operations to Glacier Park International Airport. Since GPI is a commercial air carrier airport with commercial airside facilities, it scores very strong in the aeronautical criteria; better than Site 1, Option B. However, there are some inherent problems with this assumption that must be considered and weighed subjectively:

Transferring additional general aviation operations to GPI will increase the amount of general aviation activity mixed in with commercial activity at this facility. Not only will there be an increase in operations, there would be an increase in the proportion of general aviation, VFR operations to commercial IFR operations. There would likely be some impacts to GPI that are not accounted for in this study.

Most private pilots using Kalispell City Airport choose to use this facility, in part, because it is not a controlled airport. Many based aircraft owner may choose to relocate to a different airport to minimize communication requirements with air traffic control. Additionally, higher fueling costs and ground lease costs may drive many aircraft owners to other facilities.

The scoring matrix ranks and scores the Immediate Closure alternative higher that Site 1, Option B because the facilities at GPI are to higher standards than needed for the fleet mix operating at Kalispell City Airport. These increased standards do provide a safety enhancement to the relocated aircraft using GPI but the increased standards are not necessary and could be considered “overkill”. The assumption does not take into account that some users may relocate to Ferndale or Whitefish which are inferior facilities and would not score as high as any of the other options in the aeronautical criteria. After considering these subjective factors, it can be concluded that the scoring of the immediate closure alternative in the matrix evaluation is erroneously high.
Closure of the Kalispell City Airport will require the buy-out of the active leases at the City Airport, a cost which has been considered in the evaluation. However, there is likely to be a significant legal requirement of the City to negotiate the buy-outs and fight any lawsuits that arise in the process. These legal battles have the potential to drag on for many years.

TABLE 6-11
Alternative Evaluation Matrix

		Alternative														
		Site 1 Option B B-II			1 Option D B-I			Site *5* Option A B-II			No-Action			Immediate Closure		
Aeronautical Criteria	**Weight**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Safety-Design-Geometry	*5*	3	15	9	2	10	5	4	20	10	1	5	5	5	25	10
Airspace/FAR Part 77 Obstructions	4.38	3	13	7	1	4	3	4	18	9	2	9	5	5	22	10
Instrument Capability	3.17	3	10	6	2	6	3	4	13	8	1	3	1	5	16	10
Wind Alignment	3.98	3	12	6	2	8	5	4	16	8	1	4	4	5	20	10
Expandability	3.52	3	11	7	2	7	3	4	14	9	1	4	1	5	18	9
Proximity to Other Airports	2.33	3	7	6	3	7	6	1	2	3	4	9	6	5	12	10
Subtotal		18	67	41	12	43	25	21	83	47	10	34	22	30	112	59
Non-Aeronautical Criteria	**Weight**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
Access to the Airport/Proximity to Kalispell	4.11	5	21	10	4	16	9	2	8	6	3	12	7	1	4	5
Environmental Concerns	3.76	2	8	6	3	11	7	1	4	3	5	19	8	4	15	7
Economic Benefit	3.73	5	19	9	4	15	7	3	11	4	1	4	5	2	7	3
Available Infrastructure	3.65	5	18	9	4	15	8	1	4	3	3	11	8	2	7	7
Public Acceptance/Support	3.58	5	18	7	4	14	6	1	4	2	3	11	5	2	7	5
Owner/User Support	*3.5*	5	18	10	4	14	7	1	4	2	2	7	3	3	11	4
Initial Development Costs	3.22	2	6	4	3	10	7	1	3	1	4	13	10	5	16	10
City Cost	*4.5*	5	23	10	3	14	5	1	5	6	4	18	6	2	9	4
Subtotal		34	129	65	29	109	56	11	42	27	25	94	52	21	77	45
Grand Total		52	196	106	41	151	81	32	124	74	35	128	74	51	189	104
Numeric Total		354			273			230			237			344		

COLUMN I - Ranking of alternatives relative comparison only, on a 5 through 1 scale with the best being 5
COLUMN II - Using COLUMN I scores, apply multiplier to weight for importance of consideration. Multipliers were used from the 2002 Site Selection Study
COLUMN III - Underweighted scoring based on 1 to 10 scale, with 10 being the ultimate score, non-comparative to other sites.

One last consideration that may deserve some extra consideration is the criteria of Local Cost Contribution. As can be seen in Table 6-10, there is a significant difference in the potential local cost contribution between Site 1, Option B and all of the other alternatives. This table summarizes the direct cost that would need to be borne by the taxpayers in the City of Kalispell. If the estimated costs are reasonably accurate, there is a potential cost difference between Site 1, Option B and the lowest cost of the other four alternatives of over $5 million (with Site 1, Option D). This difference does not include any offset revenues associated with alternative uses of the property or additional costs associated with reclamation of the property following airport closure.

After careful review of the scoring criteria; other subjective factors; and input from the FAA, the City of Kalispell, airport users, and the public; Site 1, Option B was selected as the recommended alternative for the Kalispell City Airport. Although Immediate Closure scores high in the matrix, there are several inherent problems resulting from the assumptions made for scoring and evaluation as described above. It is our opinion that the assumptions made for the Immediate Closure alternative, although necessary for scoring purposes, result in an erroneously high score for this alternative.

Site 1, Option B represents 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 development plan for Kalispell City Airport must represent a means by which the airport can evolve in a balanced manner to accommodate the forecast demand and capacity. In addition, the plan must provide flexibility to meet activity growth beyond the long range planning horizon.

The following chapter, Chapter 7 – Capital Program, is dedicated to refining the recommended alternative into a final plan, with recommendations to ensure proper implementation and timing for a demand-based program. Chapter 2 – Recommended Airport Plan provides a summary of the airport improvements recommended from this master planning effort.