

**Springbank Airport
Runway 16/34 Extension Project
Environmental Assessment**

**Prepared for:
The Calgary Airport Authority**

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Executive Summary

The Calgary Airport Authority (“Authority”) commissioned an environmental assessment (screening) of the proposed extension of Runway 16/34 at Springbank Airport (“Airport”) consistent with, though not a requirement of the Canadian Environmental Assessment Act. The project will lengthen the existing 3000 foot runway to 5000 feet, on land situated entirely within the boundaries of the Airport, located in the Municipal District of Rocky View, No. 44, Alberta, commonly referred to as “Springbank.” The project is identified in the *Springbank Airport 10 Year Development Plan, 2002 – 2011* (“Plan”) adopted by the Authority in 2002. The Plan followed completion of a regional airports system study and other studies directed specifically to Springbank Airport. Responsibility for the Airport was assumed by the Authority in 1997 by way of long-term lease with the Government of Canada. The Plan identified an extension to approximately 4300 feet, subject to further study. The Authority has selected a 2000 foot extension for the following reasons:

- Response to a long-standing provision since 1971 for Springbank Airport to function as a reliever airport for Calgary International Airport and creation of the Springbank Airport Zoning Regulations in 1976 to provide for a 5000 foot Runway 16/34; the role of the Airport to serve as a reliever facility in the hierarchy of regional airports again was confirmed in the *Calgary Area Airport Systems Study* (Calgary Economic Development Authority 2000).
- Operational safety of aircraft using the Airport due to the base elevation, local topography and weather patterns experienced at the site.
- Cost efficiencies; mobilize a strategy consistent with that previously engaged for Airport zoning and complete a 2000 foot extension now for long-term operations rather than stage development – i.e., a 1300 foot extension to meet needs of the next 5 to 10 years, followed by a 700 foot extension.

This document examines the project in the context of (a) strategic assessment of planned developments at the Airport and area planning goals, and (b) the specifics of runway extension. In the first instance there are approved Key Corporate Directions, a Role Statement and Plan Objectives set out for the Airport by the Authority. These remain unchanged. Similarly, the selected runway length is not related to any specific change in expected aircraft volumes or types. Use of the Airport by jet aircraft is restricted at this time and will remain so in the future. Forthcoming criteria to be prepared by the Authority regarding future jet aircraft use of the airfield will be reviewed with stakeholders.

The Municipal District of Rocky View, No.44 has an approved Municipal Development Plan and other planning documents in place for land use surrounding the Airport. These documents acknowledge the presence of the Airport and related zoning provisions and confirm that proposals for proximate re-designation, subdivision and development of land should be compatible with the safe and efficient operation of the Airport.

The project has been examined in terms of purpose and justification, alternatives to the project and alternative means to complete the project.

- Alternatives to the project included “do nothing,” “extend Runway 07/25” and “direct traffic elsewhere” scenarios
- Alternative means to complete the project included addressing benefits and impacts of extending Runway 16/34 to 4300 feet, 5000 feet and 6000 feet respectively.

The preferred approach to the project – that is, extending Runway 16/34 to 5000 feet - then was examined in greater detail, in terms of:

- Planning and construction including zoning, reference code, runway and taxiway design criteria, pavement design, asphalt plant, construction access, earthworks and grading, drainage, landscaping, localizer placement and utility and service requirements
- Project development procedures such as scheduling, construction area of work and environmental protection.

The project site, the Airport and surrounding area were described in terms of land use history; current land use, planning and zoning; the biophysical environment and cultural environment.

Environmental assessment of the project was directed to preliminary design, to establish what changes could be introduced to the design at this stage to eliminate or reduce adverse construction phase and operations phase impacts respectively. Changes were made in two important areas; place emphasis on natural sheet flow of runoff water from the small catchment rather than ditching and channeling runoff, and relocate some landscape berms so as to facilitate continued recharge by surface water of nearby ephemeral wetlands. These changes are reflected in current engineering design drawings.

The environmental assessment next examined key aspects of the biophysical, cultural and social components of the Springbank Airport area, to identify potential impacts and mitigations procedures arising during the construction and operations phases respectively. For the most part impacts are associated with construction activities and are project site specific. Impacts arising during the operations phase, based on the Calgary Airport Authority’s stated Role for Springbank Airport, are mainly to be a function of future decisions regarding area planning and land use in response to the presence of an established, operating airport.

Key impacts and mitigations are summarized below.

Noise

- Impacts. Noise was considered from two perspectives. The first is the effect of extending Runway 16/34 from 3000 feet to 5000 feet upon the 30 NEF (Noise

Exposure Forecast) contour. The 30 NEF contour previously had been mapped for a 3000 foot runway, in one instance based on 241,000 aircraft movements (prepared 1991, sourced at Calgary International Airport) and in another for 180,000 aircraft movements (1999, sourced at Municipal District of Rocky View, No. 44). The latter undertaking gave rise to the Springbank Airport Interface Zone in the *North Springbank Area Structure Plan* (NSASP). The zone was created in response to interpretation by authors of the NSASP as to the location of the 30 NEF.

Second, noise was considered in terms of individual and community perspectives based on current operations at the Airport. Noise is believed to represent the most important environmental issue from the perspective of some stakeholders, principally residents of the Springbank community.

- Mitigation. In 2004 the 30 NEF contour was again modeled for Runway 16/34. in this instance for a 5000 foot runway with 250,000 annual aircraft movements and limited jet aircraft in the mix of aircraft types. The contour is largely contained on Airport property; outside the property in all instances where lands are zoned as Springbank Airport Interface in the NSASP, the contour lies within and occupies less of this zone than does the 30 NEF contour ascribed to the existing 3000 foot runway at either 180,000 or 241,000 aircraft movements. Land use zoning will be required north of Runway 16/34, however, to reflect extension of the 30 NEF contour beyond Airport property in this area (as previously demonstrated for 241,000 movements on a 3000 foot runway).

A number of noise mitigations will accompany operation of Runway 16/34 at 5000 feet. There will be reallocation of some air traffic currently using Runway 07/25, thereby reducing impacts to the west and to the east of the Airport (including residential areas); as aircraft use demand reaches Airport capacity, aircraft performing local circuits may move to other regional airports; the Authority will develop criteria to guide the type and distribution of aircraft with access to the Airport, including any restricted jet aircraft, and review these criteria with stakeholders; all jet aircraft will be restricted to manufactured Chapter 3 aircraft noise certified standards, and in light of population growth and land use development on Calgary's urban fringe consideration should be given by authorities to establishment of an Airport Vicinity Protection Area (AVPA) for Springbank Airport.

Landform and Soils

- Impacts. The project will require approximately 400,000 m³ of fill to extend the runway and taxiway. All fill material will be sourced on Airport property, immediately east of the Runway 16/34 construction site, with two temporary topsoil stockpile sites contiguous to the disturbed area. Ground elevations in the borrow area will be reduced; the land surface at the runway/taxiway extension will be elevated approximately 5.5 m in places.

- Mitigation. The borrow area now is seeded for fodder crops. Following construction the site will be restored to the pre-existing slope profile (1 in 20 or 5%) and in a condition fit for continued agricultural use. Adequate time in the schedule will be allocated to provide for acceptable compaction of fill material on the runway.

Hydrology

- Impacts. Directed drainage of water will be created in the area between the runway and the taxiway during construction. Water discharged via sheet flow from hard surface areas during operations may increase volumes of water received in shallow pond features, as well as the length of time water is held there.
- Mitigation. Project design has been modified to reduce to a minimum the area of the project site requiring directed drainage; most of the site will continue to experience natural sheet flow. Discharge of water to ephemeral ponds offsite will mitigate minor losses of ephemeral water surfaces at the construction site.

Vegetation

- Impacts. There is to be permanent loss of land to runway/taxiway extension that long has been under agricultural use and which exhibits a diversity of indigenous and introduced plant life. There is to be temporary loss in the borrow/stockpile area of land under cultivation for fodder crops.
- Mitigation. Land temporarily lost to agricultural production is to be restored to a condition allowing continuation of this practice during the operations phase.

Wildlife

- Impacts. There will be permanent loss of habitat for small mammals, song birds and hawks on the project site; species such as badgers and Richardson's ground squirrels will be displaced to adjacent habitats.
- Mitigation. No mitigation is advocated. Wildlife management at airports is directed primarily to matters of aircraft operational safety; habitat limitation is a goal of wildlife management.

Pollution

- Impacts. The risk of pollution impacts is low. Commissioned studies to date to examine the presence or potential for pollution impacts at the Airport have determined there not to be adverse conditions on the property. Site soils and water testing for this project has revealed no in situ contamination of soils or surface or ground waters.
- Mitigation. Mitigation during construction is to be exercised in terms of standard construction techniques and established contractual procedures for environmental protection set out in contractual documents issued to the contractor by the Calgary

Airport Authority. During both construction and operations phases environmental management system protocols and updated environmental management plans prepared by the Authority will be in place to reduce the risk of site pollution.

Air Quality

- Impacts. There is potential for reduced air quality during construction activities as a result of asphalt plant operation and dust from areas stripped of soil and temporary soil stockpiles. Impacts on air quality are not expected during the operations phase.
- Mitigation. Asphalt plant operations must conform to requirements and conditions set out in the Provincial permit for the operation of mobile asphalt plants. Watering of disturbed surfaces and potentially, work suspension during high winds are means to reduce the risk of dust impacts.

Visual Effects

- Impacts. There will be temporary impacts during construction evidenced at the Airport entrance (parking lot, asphalt plant).
- Mitigation. Airport landscaping is an ongoing process that will mitigate effects of construction infrastructure.

Public Facilities and Services

- Impacts. Construction traffic will use the TransCanada Highway, Range Road 33 and Township Road 250. Construction traffic potentially may have an impact on local roadways. Community emergency services vehicles located at the Firehall on Airport property must be able to move freely at all times on adjacent roadways.
- Mitigation. Construction activities are to take place primarily on Airport property; roadway traffic increases largely will be confined to movements at the start and finish of the working day. All traffic must abide by established provincial road restrictions. Instructions regarding maintaining free movement of emergency vehicles are to be delivered to all personnel engaged on the project.

Public Safety

- Impacts. The Airport will continue to operate during most of the construction phase. However, during certain stages of construction Airport operational activities will be impacted in the interest of aviation safety. Upon completion operation of the project, assisted by improved navigational aids, will enhance aviation safety.
- Mitigation. Safe construction practices that forego risk to aircraft operations are to be in the Plan of Construction and finalized in association with final tender documents and contract obligations on the part of the contractor.

Cultural Heritage

- Impacts. The project site holds potential for the presence of historical resources to be exposed during construction.
- Mitigation. An archaeological study undertaken as part of the environmental assessment recommends the project proceed with no concerns for historic period, archaeology resource or palaeontological issues. Nevertheless, in the event such resources are encountered construction activities will be suspended pending a decision on resource disposition by the responsible authorities.

Socio-economics

- Impacts. Socio-economic concerns may take into account matters such as consequences for lifestyles, potential changes in property values, employment opportunities, observations by special interest groups and project impacts on quality of life. Added to these may be direct and indirect effects on local and regional businesses and residents. These potential impacts are addressed in the context of an operating airport in existence for over three decades.
- Mitigation. Potential socio-economic effects of development were examined at the time of Plan preparation, notably through the auspices of a Plan Advisory Committee; community linkage by the Authority is maintained on an ongoing basis through committees such as the Noise Consultative Committee. An Open House was held to receive input on this project. In addition there exist other formal planning procedures at the municipal level that integrate socio-economic concerns and aspirations in the municipal plan, area structure plans and other planning documents.

Cumulative Effects

- Impacts. The cumulative environmental and socio-economic effects of the project will enhance the operational capability of the Airport as well as fulfill its role as a general aviation reliever airport for Calgary International Airport. Cumulative environmental effects are to be determined in some measure through implementation of other aspects of the Plan and the effects of Airport operations on area planning, zoning and land use development.
- Mitigation. Through provision of an improved facility at Springbank promoting the relocation of light, slow aircraft from Calgary International Airport capacity issues at the International are minimized, with benefits in reduced delays and associated aircraft noise and emissions. Consultation with stakeholders will continue, to ensure that compatible land use decisions are undertaken both in regard to Airport property and adjacent lands.

The Authority organized an Open House and other **public consultation** arrangements to present the project and to receive public input regarding the proposed undertaking. Input from stakeholders is incorporated in environmental assessment reporting, based on a

record of the Open House held on September 9, 2004 and written and verbal communications that followed.

The Role of Springbank Airport is integrated with that of Calgary International Airport in a regional system of airfields. From an overall perspective of impact mitigation the Calgary Airport Authority is to continue to transfer to Springbank Airport the protocols and practices of the well-established environmental management system (EMS) that has been developed over a number of years at Calgary International Airport. The system is continuously updated in various ways in response to both regulatory requirements and best available management practices for environmental management at airport facilities. For example, environmental management plans for all components of airport environmental management are prepared on an annual basis in response both to short- and long-term environmental management objectives and operational issues; and component-specific plans are prepared for matters such as noise management, contaminant management and wildlife management.

EMS protocols and procedures transferred to Springbank Airport are to reflect the Role ascribed to the Airport and operations undertaken on the property.

In summary, the environmental assessment did not identify environmental impacts associated with the proposed project that cannot be avoided or minimized through application of mitigation procedures identified in the environmental assessment. These mitigations, in part, are directed to specific impacts identified for the project's construction and operation phases respectively, and in part through transfer to Springbank Airport of environmental management procedures in place at Calgary International Airport.

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Glossary

Airport: Springbank Airport, Alberta
ARCAL: aircraft radio control of aerodrome lighting
ASP: area structure plan
Authority: The Calgary Airport Authority
AVPA: Airport Vicinity Protection Area
CAA: The Calgary Airport Authority
CASS: *Calgary Area Airport Systems Study*
CC: Canada Customs
CCC: constant current regulator
CEAA: *Canadian Environmental Assessment Act*
CIA: Calgary International Airport
CIP: construction Implementation plan
COPA: Commercial Owners and Pilots Association
CSASP: *Central Springbank Area Structure Plan*
CSB: cement stabilized area
DME: distance measuring equipment
EA: environmental assessment
FEC: filed electric centre
GPS: global positioning system
HILAR: high intensity approach lighting system
IFR: instrument flight rules
ILS: instrument landing system
MD: Municipal District of Rocky View, No. 44
MDP: *Municipal Development Plan*, Municipal District of Rocky View, No. 44
MDrP: master drainage plan
NDB: non-directional beacon
NEF: noise exposure forecast
NSASP: *North Springbank Area Structure Plan*, Municipal District of Rocky View, No. 44
ODALS: omni-directional approach lighting system
OLS: obstacle limitation surface
PAPI: PDK Airport Planning Inc.
Plan: *Springbank Airport 10 Year Development Plan, 2002 – 2011*, The Calgary Airport Authority
RILS: runway end identification light system
SABPA: Springbank Airport Business and Pilots Association
VHF: very high frequency
VHFDF: very high frequency direction finding system
VOR: very high frequency omni-directional range

