

Chapter 20

Monitoring and Follow-up Program

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20. Monitoring and Follow-Up

In accordance with *Canadian Environmental Assessment Act* (CEAA) Guidance (CEAA 2002), the need for a monitoring and follow-up program was considered for the purpose of determining if the identified environmental effects occur as predicted in the Comprehensive Study (CS), as well as to confirm whether the proposed mitigation measures are effective and whether or not new mitigation measures will be required.

The follow-up program developed for the Parallel Runway Project (PRP) includes a monitoring strategy and schedule that provides the level of environmental protection defined in the CS. It also provides for monitoring the effectiveness of mitigation measures. In addition, further specific monitoring commitments including commitments to contingency actions necessary should environmental monitoring and/or environmental assessment (EA) compliance monitoring find that mitigation measures are not effective.

20.1 Mitigation

As part of the CS, numerous mitigation measures have been identified for implementation by the Calgary Airport Authority (the Authority). They are listed in the Sustainability Table in Volume III, Chapter 2. To facilitate the implementation of these measures, an Environmental Construction and Operations Plan (ECO Plan) has been established which describes mechanisms to manage implementation of the mitigation. This plan is a living document which will be developed in further detail in consultation between the Authority, its consultants and contractors.

Mitigation measures identified in the CS intended to be incorporated into project design are being addressed by involvement of environmental staff of the Authority and its consultants in the design process.

20.2 Monitoring Strategy and Schedule

As part of the PRP CS, a monitoring strategy and schedule was developed, which includes both environmental effects monitoring activities and EA compliance monitoring activities to verify that the proposed mitigation measures are implemented and functioning as prescribed by the CS.

20.2.1 Environmental Construction and Operation Plan

The ECO Plan prepared for the PRP is located in Volume V, Item 14 of this CS. It deals with implementation of the mitigation measures and monitoring requirements associated with each of the construction activities for the PRP. The ECO Plan will act as a reference document for use by the Authority and/or their agent during the construction of the PRP.

20.2.2 Environmental Effects Monitoring

A monitoring strategy and schedule was developed and will continue to be improved as the project proceeds. It describes the type and frequency of environmental effects monitoring to be carried out in relation to the mitigation measures identified in the CS in order to support the following goals:

- that the likely adverse effects are not exceeded;
- that the unexpected adverse effects are addressed; and
- that the predicted benefits are realized.

Table 20-1 summarizes the type and frequency of environmental effects monitoring in relation to each of the environmental components.

Table 20-1 Summary of Monitoring Requirements Outlined in the CS

Environmental Component	Monitoring Requirements
Soils and Terrain	<ul style="list-style-type: none"> The Authority has committed to defining a soil management program (i.e., Calgary Airport Authority Earthworks and Soil Management Guidance Document) for application on the PRP and campus wide. Soil stockpiles will be monitored during the first growing season to verify adequate revegetation and erosion protection. Monitoring of temporary, interim reclamation measures to verify reclamation success. Monitoring of all phases of reclamation process is required to verify landscape objectives are met.
Vegetation	<ul style="list-style-type: none"> An environmental inspector will be engaged to verify that activities follow the methods outlined in the ECO Plan (Volume V, Item 14).
Surface Water and Aquatic Resources	<ul style="list-style-type: none"> The Authority's existing water monitoring program will be assessed and updated to incorporate the PRP. The existing program samples water quality at several ponds and the discharge points directly into Nose Creek and indirectly through the City of Calgary stormwater system. Mitigation undertaken to restore wetland function will be monitored. The details of the monitoring program will be determined when the mitigative measures are designed.
Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> Monitoring will typically be a program designed to: <ul style="list-style-type: none"> confirm the effectiveness of the mitigation techniques determine whether increased or different approved mitigation techniques are required to achieve mitigation or reclamation goals The Authority's existing practices for monitoring fauna will be continued. Monitoring will verify encounters with Species at Risk are dealt with in accordance to the ECO Plan and mitigation outlined in the CS.
Groundwater	<ul style="list-style-type: none"> Groundwater elevations have been measured several times a day in three monitoring wells in the LSA since the summer of 2009, using transducers and dataloggers; this will continue. Groundwater level monitoring near underpass excavations will be completed to measure the effects of underpass dewatering before, during and after underpass construction. If spills of fuel or chemicals occur during construction or operations, then additional groundwater quality monitoring may be required in localized portions of the LSA to assess compliance with applicable water quality criteria.
Transportation	<ul style="list-style-type: none"> The City is already acting to mitigate the effects of the PRP on the transportation network including upgrades to 36 Street and Métis Trail, as well as widening of Country Hills Boulevard. The City monitors traffic volumes; as roads reach capacity, it acts to relieve congestion.
Land Use	<ul style="list-style-type: none"> There are no effects on land use within the LSA or RSA and as such no follow-up or monitoring will be required.
Noise	<ul style="list-style-type: none"> YYC has a very extensive noise monitoring network that has been operating for many years. The network will be redesigned to reflect the addition of the parallel runway to the airfield.
Climate and Greenhouse Gases	<ul style="list-style-type: none"> The continued maintenance of an annual inventory of GHG emissions for both internal management and potential external reporting needs is recommended as an action for follow-up.
Air Quality	<ul style="list-style-type: none"> The continued maintenance of an annual inventory of air quality emissions for both internal management and potential external reporting needs is recommended as an action for follow-up.
Cultural Resources	<ul style="list-style-type: none"> An environmental inspector will be on-site during construction. Any cultural resources discovered during construction at sites other than those described by FMA (Volume V, Item 11) will be repaired and any mitigative measures required by Alberta Culture and Community Spirit will be implemented. Any Human remains encountered will be reported to the Calgary Police Service.

Environmental Component	Monitoring Requirements
Socio-Economic Environment	<ul style="list-style-type: none"> • Undertake Public Attitude Research to verify EA predictions regarding changes in public attitudes and behaviours during the construction phase and during the operations phase. Focus of the research should be on the LSA and those communities where the greatest effects on use and enjoyment of property, community and recreational facilities and community character were anticipated. • Conduct a field survey of key stakeholders (e.g., airport visitors, taxi / limousine operators, hotel / motel operators) to verify the predictions regarding reduced attractiveness of airport hotels and motels due to the Closure of Barlow Trail. • Undertake a detailed economic analysis of YYC following the completion of the PRP and IFP to verify the beneficial effects of these projects on Human and Economic Assets.
Human Health	<ul style="list-style-type: none"> • Routinely evaluate trends in herbicide/pesticide and other chemical use with an aim to the facilitation of ongoing reductions in use. • Develop a monitoring program to detect relevant pesticide/herbicide or other chemical residues in surface runoff from treated areas, and provide feedback to application practices and rates.
Contaminated Sites and Waste Management	<ul style="list-style-type: none"> • The on-site environmental inspector will oversee demolition and will report any signs of chemical contamination so that appropriate remedial action can be taken.

20.2.3 EA Compliance Monitoring

Similar to environmental effects monitoring, a monitoring strategy and schedule was developed to monitor the implementation of the mitigation outlined in the CS during the construction and operation of the PRP. A commitment has been made that the proposed mitigation measures and monitoring requirements within the ECO Plan will be adhered to.

20.3 Follow-Up Program

The intention of a Follow-up Program is to establish “a program for verifying the accuracy of the environmental assessment of a project, and determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the projects” (CEAA 2002). The Follow-up Program for the PRP would report on:

- effectiveness of mitigation relating to project-related issues of public concern;
- the accuracy of the effects predictions of the EA;
- the effectiveness of mitigation as outlined in the EA;
- effectiveness of the EA where predictions had elements of uncertainty; and
- the effectiveness of mitigation measures that are new or unproven.

The environmental effects and compliance monitoring used in Section 20.2 should provide sufficient data to document the actual effects of the project and facilitate comparison of those actual effects with the effects predicted in the CS.