

## A CSCE NATIONAL HISTORIC CIVIL ENGINEERING PROJECT LAYS THE GROUNDWORK FOR CANADA'S PRESENT AIR TRANSPORTATION INFRASTRUCTURE

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Most of the delegates for the 2001 CSCE Annual Conference who arrived in Victoria through the Victoria International Airport may not have realized that this modern airport owes its origin to one of the Society's National Historic Civil Engineering Projects. Patricia Bay, as the original airfield at Victoria was named, is one of the airfields constructed as part of the British Commonwealth Air Training Plan (BCATP). The design and construction of the BCATP airfields and infrastructure was approved by the Society's Board of Directors as a National Historic Civil Engineering Project in 1998.

The purpose of the BCATP was to provide aircraft, airfields, and ancillary facilities to train pilots urgently required at the start of World War Two. Existing training facilities in Europe were likely to be subjected to enemy attack, rendering them unsuitable for a large-scale training program. In 1939, Great Britain,

Australia, New Zealand, and Canada signed an agreement to implement this plan. The scope of the plan required the construction of facilities to train up to 1,500 aircrew from the signatory countries every month. Originally, 58 training airfields were to be provided, with the first to be operational by 1940. Thirty-seven more had to be completed by 1941 and the remainder by April 1942. Not only did the BCATP succeed in carrying out its original objectives, it exceeded them considerably as additional pressure was applied to construct more facilities than originally envisioned and to complete them more rapidly than originally scheduled. In the event, 33 airfields were completed by 1940, 69 were completed by 1941, and 81 by 1942. Six more were built in 1943 and one final airfield was completed in 1944 bringing the total to 88. It should be remembered that for each of these airfields a "satellite" landing field was also constructed. Each of these satellites required many of the same facilities

that were provided on the main bases.

An excellent project management organization, standardized designs and extensive use of prefabricated components meant that once the plan had got properly "rolling", the time from green field site to operational facility was progressively reduced, and in at least one case took only six weeks. Runway layouts were standardized in an equilateral triangular pattern, so that there was always a runway available within 30° of the wind direction. Thirty five million square yards (we used the Imperial method of measurement in those days!) of runway, taxiway, and other paving had been laid by the end of the Project. Support facilities required that many different types of building had to be designed; hangars, workshops, machine shops, boiler rooms, administration offices, classrooms, barrack blocks, mess blocks, hospitals, motor pools, recreation halls and club rooms. The application of excellent project management methodology to this task led to the establishment of standard designs with components being prefabricated wherever possible. In total, some 8,300 hundred buildings were constructed. Included in this number were some 700 of the largest buildings on the project, the aircraft hangars.

When the plan was finally completed in 1945, Canada was left with a large number of airfields in every province for which the Air Force had no further need. This unexpected legacy from World War Two was to provide Canada with the basis of a potentially valuable post-war air transportation infrastructure.

Victoria International Airport is one of approximately 60 airfields constructed or expanded under the plan that are still



in active use today. Some of these airfields, like Toronto's Malton and Montreal's Dorval have developed into the country's major international airports. Many, like Victoria, in BC, Winnipeg in Manitoba, London, Hamilton, Windsor, and Thunder Bay in Ontario and Moncton in New Brunswick serve as vital links in Canada's internal routes as well as providing some international flights. Still others have become municipal airports contributing greatly to the development of industry and commerce in their areas. Oshawa Airport in Ontario, which is the only one of the BCATP airfields to have been commemorated and "plaqued" by the Society to date, is an excellent example of a BCATP airfield having become an important municipal airport. Other examples are Lethbridge and Edmonton in Alberta, Abbotsford in BC, and Kingston, St.

Photograph of Victoria International Airport showing how the original triangular runway configuration still forms the basis of the modern runway layout; a clear example of how our present day transportation infrastructure owes much to the past.

Catherines and Guelph in Ontario. The airfield at Brandon, Manitoba is also in this category and in addition houses the BCATP Museum. Many other fields across the country are used only by local flying clubs, indeed some, like the airfield at Dunville, Ontario, have been reopened for use by flying clubs after many years of abandonment.

Not all of the airfields have lost their original military function. The BCATP airfields at Trenton, Ontario; Bagotville, Quebec; Greenwood, Nova Scotia; Comox, BC and Moose Jaw, Saskatchewan (current home of the "Snowbirds") continue to serve to the present day as Canadian Forces Bases.

The legacy of airfields from the BCATP gave Canada a jump-start to the

new air transportation age that was to follow World War Two. Obviously, considerable modifications and additions to the original designs have been required to all of the airfields in current use, to adapt them to their new and developing functions. The original site selection criteria for the airfields carefully considered topographical and infrastructure requirements, and also required that they be located as near as possible to established settlements which could provide commercial and social services. Therefore, the siting of the great majority of the BCATP fields has resulted in their being admirably suited to enable them to be adapted to their current roles.

