

Program Structure

A. Existing Program Models in BC

As stated, most traditional flying schools offering commercial pilot's licenses and all commercial pilot diploma programs are located in the southern portion of BC. The goal of developing an aviation diploma program in Vanderhoof, BC is to offer students who have an interest in northern aviation an opportunity to study here in the north. The intention of developing such a program is not to be radically different or to compete directly with the southern programs, but rather to provide opportunities to best benefit students in the north and aviation in BC as a whole.

To that end, key personnel from three existing college programs and one traditional, yet specifically focused, flight school were interviewed in an effort to ascertain essential components from each that could be applicable to a program in Vanderhoof, BC. All personnel interviewed understood the objective of the interview and were supportive of the effort to further aviation across BC. In addition to basic questions about their program structure and objectives, personnel were asked to identify the contribution their program makes to its community and any partnering opportunities they could reasonably foresee with the College of New Caledonia.

Selkirk College

Selkirk College is located in Castlegar, BC. Its intensive two-year diploma program is designed to prepare students for commercial pilot positions in the Canadian and international airline industry, with courses transferrable toward an aviation degree at Embry Riddle Aeronautical University. Selkirk College owns and operates its own flight school and aircraft of five C-172's and two twin-engine BE-95's, plus three simulators. All instructors are Class 1 or Class 2 instructors, usually retired from the airlines, with real-world experience. Selkirk uses a practical syllabus, incorporating practical theory, even during simulation exercises. As part of the program, Selkirk offers a four-day winter survival course, First-Aid, CPR, and High Altitude training, and teaches the student Standard Operating Procedures (SOPs) from day one.

Selkirk states its contribution to its community is its relationship with Air Canada. Without Selkirk, Air Canada would not fly into Castlegar, BC, due to weather and geographical constraints. The community, the local government, and the college all work together to keep an observer in the airport tower. Without this observer, Air Canada has said it would not fly there, and Air Canada flights to the area are largely supported by the Castlegar community. In addition, because of the weather and geographical constraints of the area, Air Canada hires experienced Selkirk graduates as its pilots for the Castlegar route.

Selkirk College provides only pilot training; it does not have the diversity of some other programs in BC that provide add-on skills and upgrading. Selkirk College requires a student hold a private pilot's license before admission into its program. A partnering possibility posed by Selkirk would be to have the College of New Caledonia in Vanderhoof provide private pilot's license (PPL) training to a student who would then move to Castlegar for two years for commercial training, then move back to Vanderhoof for float rating, instructor rating and/or helicopter training.

BCIT Aerospace/Pacific Flight Club

The BCIT Aerospace facility is located adjacent to Vancouver International Airport in Richmond, BC. BCIT's Airline and Flight Operations program is designed specifically to meet the professional growth needs of airline pilots, who need to possess a strong skill set of aviation industry knowledge. BCIT's program combines flight training with industry focused academic training and emphasizes the core skills of verbal communications, project management, air operations, safety management systems, aircraft maintenance for pilots, and crew resource management. The program offers theory courses in aviation law, WHMIS, dispatching, safety officer training, and cockpit resource management. BCIT accepts students *ab initio* or "from the beginning" into its program, thus students are not required to possess a private pilot's license when they start. BCIT runs a fast-track commercial pilot license diploma of four continuous, 16-week terms and partners with Pacific Flying Club (PFC) for its flight training. PFC has a fleet of 25 aircraft (C-152's and C-172's), and two simulators.

BCIT/PFC states its contribution to the community is housing Canada's largest English-language aerospace training school. Its cutting-edge technology is a huge draw for students and provides them with access to learning tools directly relevant to the aerospace sector.

The BCIT/PFC program is very comprehensive. A partnering possibility posed by BCIT/PFC would be to have the College of New Caledonia in Vanderhoof provide commercial helicopter licensing and float instruction to augment its program.

University of Fraser Valley/Coastal Pacific Aviation

The University of Fraser Valley's aviation program is located at its Abbotsford, BC campus. Its one- and two-year diplomas and four-year Bachelor of Business Administration and Bachelor of Business Administration in Aviation degrees are all designed to prepare students for real-world industry and teach them how to run their own business. All programs ensure trainee pilots become well-versed in the manual skills required to fly an aircraft, attain a comprehensive academic background enabling understanding of complex aircraft systems, and acquire an overall awareness of the human factors and interpersonal skills needed to work effectively in a team. The University of Fraser Valley (UFV) partners with Coastal Pacific Aviation (CPA) for its flight training. CPA has a fleet of eleven C-172's, three PA-30's, and six simulators.

UFV/CPA states its contribution to the community is their dedication to turning out students who can run their own businesses and be successful in the industry. UFV/CPA's program functions much like a real airline, with students expected to act like professionals and be accountable. It is also dedicated to providing advanced training to help students further their skills and advance in their profession.

UFV/CPA is dedicated to furthering the aviation industry throughout the province. A partnering possibility with UFV/CPA would be to have the College of New Caledonia in Vanderhoof provide private license training and a two-year diploma for northern students, using the UFV/CPA curriculum. The student would have the option of earning a diploma after five semesters at the College, or choosing to move to Abbotsford and ladder into the UFV's programs during his/her last semester.

Montair

Montair is a private flight training facility located in Delta, BC. The company does not offer diplomas or degrees, but does provide flight training in an active charter environment and focuses on Chinese airline contracts. These contracts require a very structured program (cadet-

like), carefully monitored by the Chinese government, with high attention and time given to ground school training. Students are transported back and forth to housing units set up for the purpose of the program, are looked after by flight training personnel, and answer directly to their Chinese airline sponsors. The program is regularly reviewed by Montair and Transport Canada to ensure standards are being met.

Montair's contribution to its community is that it is often the face of Canadian aviation training on the international scale. In addition, student traffic from the flight school contributes significantly to local air traffic counts at the local Boundary Bay Airport.

A partnering possibility with Montair is likely not possible with the College of New Caledonia in Vanderhoof at the present time. A future opportunity could exist once the proposed program is firmly established.

B. Partnering

The College of New Caledonia is well-experienced in developing and sustaining successful partnerships with other post-secondary institutions. These agreements provide pathways for regional students to programs they might otherwise never be able to access but which are greatly needed in the north.

The objective of developing an aviation diploma program in Vanderhoof, BC is to attract students who have an interest in northern aviation. More specifically, with a future pilot shortage predicted (ATAC 2001, 2003) and a gap projected in the north for supply and demand of Natural and Applied Sciences, of which pilots are a subset, the proposed program seeks students who might wish to also stay in the north.

When presented with program summaries from existing BC aviation programs and details of what partnership agreements might entail with each, the Steering Advisory Committee stated it was important to the community to present an entire diploma program in Vanderhoof, rather than just a small piece of a program or an "add-on". The reasons behind this decision were to provide a program:

- Where students would not have to travel so far and could stay tied to a northern lifestyle, thus maintaining a "connectedness" to the region and the smaller communities from which they came;
- Where students could train in a uncongested air traffic space; and,
- Where students could have the opportunity to fly in multiple weather conditions during four distinct seasons throughout the year.

The Steering Advisory Committee stated it is in favor of structuring a program that will utilize components of existing programs which best meets the needs of the North and are in line with the feedback from the Northern Air Operator Survey. These components include:

- A program that would accept students without requiring they already possess a private pilot's license;
- A program designed to prepare students for real-world industry and help teach them how to run their own business;

- A program that promotes the overall awareness of human factors and interpersonal skills needed to work effectively in a team;
- A curriculum no longer than two years with courses transferrable toward a four-year degree that would include the core skills of verbal communications, project management, and safety management systems;
- Class 1 or Class 2 instructors with real world experience;
- A practical syllabus that would present business basics, incorporate practical theory - even on simulators, and offer courses in Winter Survival Training, First Aid/CPR, High Altitude Training, Spatial Disorientation, Aviation Law, WHMIS, and Dispatch.

Partnering with an Existing Program

Although each of the existing programs interviewed possesses desirable elements, the University of the Fraser Valley's aviation program appears to be most in line with the Steering Advisory Committee's objectives. In keeping with the northern focus of the proposed program, the College of New Caledonia will provide the diploma credential, using curriculum developed by the University of the Fraser Valley and its flying school partner. Benefits to the University of the Fraser Valley are the use of its curriculum in another part of BC and the possibility of funneling more students into its four-year degree programs. Benefits to the College of New Caledonia are the use of proven and reputable curriculum and an instant network with the ability to continually draw students. Program administrators from both institutions are in favor of such a partnership agreement and detailed discussions are underway at the time of this study.

The University of the Fraser Valley's flight school partner, Coastal Pacific Aviation, uses its approved flight school operating and instructor certification, as per Transport Canada regulations, and has developed proven flight training modules for private and commercial license training. Coastal Pacific Aviation will partner with the local flying school in Vanderhoof to provide this flight training curriculum to the proposed program. Company operation managers are in favor of this partnership and detailed discussions are also underway at the time of this study.

The proposed program will be structured so an entering student trains for his/her private pilot's license in the first semester while taking non-aviation business courses. The student will then move into four subsequent semesters of training and non-aviation business courses that will cumulate with a commercial pilot license and diploma. This five semester program will start in May and end in December the following year, thus taking advantage of the best weather months of the region. During the fifth semester, students will have the option of obtaining a float rating at an additional cost while he/she finishes the required flight hours needed for the commercial pilot license. Following the student's completion of his/her commercial pilot license and diploma, the student will have the option of spending three additional months in Vanderhoof to add-on an instructor rating or a commercial helicopter license.

If the student wishes to obtain a multi-engine and multi-engine instrument flight rules (IFR) rating, a Bachelor of Business Administration, or a Bachelor of Business Administration in Aviation, he/she will ladder into third year curriculum in Abbotsford and carry on training with the University of the Fraser Valley/Coastal Pacific Aviation (UFV/CPA). If an entering student at the College identifies he/she wishes to transfer to UFV/CPA, a joint application/dual registration will be possible for the student, thus ensuring a seamless transition to the Abbotsford program. For the student who wishes to obtain the multi-engine and multi-engine IFR rating and not carry on

with one of the UFV/CPA degree programs, a diploma from the College will be awarded to the student at the completion of his/his multi-engine and multi-engine IFR flight training in Abbotsford.

Table 3 shows the proposed two-year diploma program model at the College. **Table 4** shows the two-year and four-year BBA program models at UFV for comparison.

The College and Community

In addition to partnering with another post-secondary institution, the College of New Caledonia is committed to working with the District of Vanderhoof and community partners to help bring the program to fruition. This help will initially be in the form of resource commitments necessary for the update of existing infrastructure and acquisition of new infrastructure, and will likely move to support commitments for business opportunities to further interests in local flying and northern aviation as a whole.

As previously stated, the Vanderhoof airfield possesses some existing infrastructure, some of which dates to World War II. The RCAF buildings present at the airfield currently function to provide visiting pilots with a washroom and telephone, but do not house a dispatch center or office space. One local flying business maintains a modern dome tent and cement floor hangar for aircraft maintenance, repair, and refuelling, but does not possess on-site office space or a dispatch center.

At the time of this study, community leaders are identifying items at the airfield which could most benefit the community of Vanderhoof, independent from the proposed program. The new lighting and navigation system will provide 24-hour access for the community and surrounding region for medevac services. In addition, an automated weather observing system (AWOS) is being sought to provide pilots with certified altimeter and weather readings. This system will be authorized by Transport Canada and Nav Canada and not only provide the community with real-time weather information, but would also allow pilots to use exact data during flight, rather than relying on data from Prince George which is often inaccurate during winter months and must be extrapolated.

In addition to these upgrades, other infrastructure items such as a terminal/dispatch building with public washrooms and office space, residential development, wildlife fencing, an overnight camping area, a public hangar with offices and showers, zoning and surveying of business space with roads and parking, and an on-site caretaker have also been put forth by local businesses as being potentially economically beneficial to the community if located at the airfield. Airport development planning will identify which items will come to fruition, any of which would benefit the proposed program.

C. Proposed Course Entrance Requirements, Cohort Size, and Schedule

Entrance Requirements

Examination of existing BC aviation diploma programs indicates similar student entrance requirements. To meet the requirements of Transport Canada, the College's proposed program will adopt the same general requirements:

- Proof of BC secondary school graduation, or equivalent;
- C+ or better in: Math 11, Math 12, Physics 11, Physics 12, and English 12;
- Current Transport Canada Category 1 Medical; and,
- Valid passport or other documentation allowing entry into the U.S.

In addition to the secondary school courses recommended, students will be encouraged to have taken Accounting 11, Computer Science, and French, or another second language. Students with minor academic deficiencies may still be considered for the program if there is room, but may be required to complete preparatory courses in addition to the aviation program coursework.

In addition to these entrance requirements, applicants will also be required to satisfy an entrance evaluation which consists of an interview, qualifying exam, and an assessment of references.

International students who wish to be considered for the program need to:

- be 18 years of age or more,
- have completed high school or equivalent of Grade 12 in British Columbia,
- meet all program admission requirements,
- possess a valid study permit, and:
- show proof of English Language proficiency, if applicable.

Cohort Size

Intake size for the proposed program will be limited to the space accommodations of the classroom, as well as simulator and airplane flight schedules. Based on these factors and the costs associated with running a program, the cohort size range is set at 16-24 students. Because this is a new program, an initial cohort of sixteen students is seen as manageable to accommodate space, equipment, and instructor limits during initial years of the program. If the demand for the program becomes higher in subsequent years, this cohort size will be expanded to the larger end of the range.

Five Semester Diploma Proposed Course Schedule

The proposed program is envisioned to be a five semester program (each four months in length), starting in May and ending in December the following year. Qualified applicants will be interviewed by the College and key personnel from the local flight school during January and February for May enrollment. This schedule is not meant to disallow graduating high school seniors to immediately enter the program, but rather takes advantage of the best weather months of the year in Vanderhoof, with only one semester falling in the historically poor weather

months from January to April. Options for admission for graduating high school seniors who already possess a private pilot's license will be reviewed on a case-by-case basis.

Based on partnership possibilities with UFV/CPA, it is anticipated coursework would roughly align with the following schedule:

Semester 1 (May-August):

- Fitness
- Intro to Aviation
- Flight Training- PPL
- Intro. Business
- Accounting
- Business Communications
- Microeconomics

Semester 2 (September-December):

- Fitness
- Flight Training- PPL
- Marketing
- Accounting
- Organizational Behavior
- Business Law
- Macroeconomics

Semester 3 (January-April):

- Fitness
- Aviation Theory
- Simulation
- Commercial Aircraft I
- Human Factors I
- Computerized Business Applications
- Statistics
- English

Semester 4 (May-August):

- Fitness
- Aviation Theory
- Simulation-Instruments
- Commercial Aircraft II
- Human Factors II
- Human Resource Mgt.
- Accounting
- English

Upon completion of Semester 4, the student will need 50 additional flight hours to qualify for a commercial pilot's license. If the student stays at the College, he/she will have the option of adding a float rating to his/her commercial license while finishing his/her flying time and the remainder of his/her non-aviation diploma courses. As many as three non-aviation business courses will be offered during Semester 5 and are under discussion at the time of this study.

Semester 5 (September- December):

Non-Aviation Business Courses (up to 3)

Potential Float rating

Aviation Coursework in: Winter Survival Training, Human Factors, Spatial Disorientation, Dispatch Training

If the student wishes to obtain a multi-engine and multi-engine IFR rating, he/she will transfer at the end of his/her fourth semester at the College and attend UFV/CPA in Abbotsford, BC. During this time the non-aviation course work will focus on multi-crew operations and personnel management. If at this point a student wishes to end his/her schooling and enter the workforce, he/she will be granted a diploma from the College. If the student wishes to continue on with a fourth year of school, he/she will need to be enrolled in a degree program at UFV/CPA (likely a Bachelor of Business Administration, or a Bachelor of Business Administration in Aviation) and will be granted a degree upon completion by UFV/CPA.

Post Diploma Add-On Options

The focus of the proposed program is to train pilots in the north, but Northern Air Operators state this is not the only aspect that matters to them. The number of hours a pilot has logged as pilot-in-command (PIC) of an aircraft, also matters to northern operators. One way for a new pilot to increase PIC hours is to become a flight instructor. Employers often prefer candidates with an instructional background as it demonstrates he/she has developed a solid understanding of the principles of flight, a willingness to accept responsibility, and a willingness to work within a disciplined and focused aviation environment.

For this reason, the proposed program will offer students who have completed their diplomas the option of adding an instructor rating to their licenses. The student who adds this rating in the three months following graduation at the local flight school, will be eligible to instruct students in time for the next intake of students.

Respondents to the Northern Air Operator Survey also state commercial helicopter training is desirable with operators in northwest Canada. If a student is interested in exploring this option, he/she will complete his/her diploma and move on to a commercial helicopter license in the three months following graduation. The student will complete ground instruction and a minimum of 60 additional flight hours in a helicopter. Upon completion the student will hold a commercial pilot license, a business diploma, and a commercial helicopter license with 260+ hours of total flight time before entering the job market. This is in comparison to his/her competition who may have completed training through a traditional helicopter flight school and obtained a commercial helicopter license and only 100+ hours of total flight time.

D. Enrolment Projections

Annual student intake for aviation diploma programs in BC varies, but the typical incoming class size during the last ten years has been 10-30 students. While the global economy falters and air operators see plenty of supply for the current demand of commercial pilot jobs, there is a slow-down in student commercial pilot enrollment. The cyclical nature of the industry indicates more baby-boomer pilots will retire within the next few years and the economy will improve, thus resurrecting the urgency of the pilot shortage highlighted by ATAC in 2001 and 2003.

The strength of the proposed program is in the choices available to the student. Pilots are a subset of the Natural and Applied Sciences, a gap in which is projected for the north in supply and demand between 2007 and 2015 (Barry 2008). Enrolment numbers for the proposed program will be subject to the same factors as other Natural and Applied Science programs, and will be dependent on the availability and choice in training. The proposed program will provide students with a local alternative, geared toward training and employment in the region, and will be partnered with an existing program and recruiting network that will provide further opportunities if the student wishes to go beyond that of the local area.

Currently, students from the north who want to acquire a diploma with their commercial pilot license and stay in western Canada must choose from four programs in the southern BC, or programs in Alberta. One of these schools reports at least five percent of its enrollment each year comes from north of Williams Lake (Cave 2009). If the assumption is made that five percent of all six of these programs is made up of northern students, there are six to nine students each year who leave the region for this type of training, or approximately half of the cohort for the proposed program.

Although this number is an assumption, it is a conservative one, as it does not include the number of students who make the choice to go further outside of BC or Alberta, students from southeast Alaska, the Yukon or the Northwest Territories, and does not factor in how many individuals would pursue a career as a commercial pilot if the training was local and was promoted through regional school districts and the Northern Pilot Network. In addition, the fluctuation of the Canadian dollar may have an international influence on enrollment numbers for the proposed program.