

## **Financial/Economic Feasibility of Proposed Program**

This study has come about as a result of a need to diversify the regional economy following negative impacts from the Mountain Pine Beetle infestation. Although collaborative efforts within the region are increasing awareness and support for the use of new technologies to strengthen the economy, there is no funding surplus identified specifically for the creation of a program such as that proposed in this study. Wages, services, and other direct costs for the proposed program are, therefore, presented here as a cost-recovery model. This presumes all costs will be recoverable from fees charged to students and are estimated as such for the purpose of discussing realistic costs.

Preliminary financial estimates for the proposed program are presented for both the College and the local flight school. The College portion of the budget assumes costs for all non-aviation related courses and instructor supplies and is estimated as one lump sum, as per typical program costs (**Table 6**). The local flight school portion of the budget assumes costs for all aviation-related courses, training, and supplies and is estimated on a per student basis, as per the completion of training modules (**Tables 7-11**). Costs to students for the proposed program include all aviation training manuals, aviation texts, aviation workbooks, charts, maps, log books, and other relevant supplies needed for flight training, non-aviation text books, per semester uniform costs, and living expenses (**Tables 13-16**).

All estimates are based on the assumptions the proposed program will run for five semesters in a 20-month time frame, and there will be an annual intake of 16 students for the program each May. Flight instruction and aviation courses will be contracted by the College to the local flight school so students will pay one tuition payment each semester. This will allow program costs to be eligible for student loans. All flight time is based on current fuel costs and is subject to recalculation if significant changes occur.

Students who choose to ladder to the University of the Fraser Valley will complete the last 50 hours needed for his/her commercial license at that campus and he/she will be charged according to fees applicable at the University of the Fraser Valley and Coastal Pacific Aviation.

### **A. College/Non-Aviation Budget**

Using a cost recovery model means recovering or funding the full costs associated with the proposed program through student tuition. Costs include those directly connected with the proposed program such as staff and equipment, and those which draw on the rest of the institution such as administration, student services, human resources, IT/computer systems, etc. The full cost of the proposed program, therefore, includes wages and benefits for staff directly associated with the program and overhead costs for all anticipated elements that will be linked to it to make it succeed.

To estimate the overall budget for the College for the non-aviation portion of the proposed program, personnel needs were estimated for the non-aviation curriculum presented in the Program Structure and Technical Feasibility chapters of this study. This budget is based on the College's current faculty collective agreement. If changes arise between now and proposed program implementation, the budget can be adjusted to allow for additional instructional staff needs. Details of this overall budget are presented in **Table 6**.

**Table 6: College Budget**

<b>Wages:</b>	
<i>Faculty:</i>	
2 Part-time instructors with benefits (Semesters 1 & 2)	
1 Part-time instructor with benefits (Semesters 3 – 5)	
	90,330.00
<i>Administrative/Support:</i>	
Full time Program Coordinator with benefits (24 months)	
1 Part-time Clerical/Registration with benefits (21months)	
	179,013.00
<b>Overhead Costs:</b>	
Supplies, Instructor Books/Resources, Photocopying/Printing	24,465.00
Equipment (AV equipment, computers, printers)	1,800.00
Space	23,000.00
Local Travel	2,525.00
Advertising/Promotion	9,170.00
Telephone, Postage/Mail/Freight, Misc.	4,185.00
<b>TOTAL</b>	<b>334,488.00</b>

**B. Local Flight School/Aviation Budget**

All flight instruction and aviation courses for the proposed program will be contracted by the College to the local flight school at a cost per student. Cost estimates presented in this section are based on the completion of set training modules designed to meet Transport Canada requirements.

***Commercial Pilot License***

Transport Canada requires a student obtain a private pilot license (PPL) prior to starting his/her training for a commercial pilot license (CPL). Unlike UFV’s two-year diploma program, the proposed program will offer the private pilot license in the first semester. This will require 65 hours of total flight time, 35 hours of dual instruction (with an instructor in the aircraft) and 30 hours of solo flight (without an instructor in the aircraft). Budget details for this portion of the proposed program are presented in **Table 7**.

**Table 7: Private Pilot License (PPL)**

Ground school, flight training, books, flight tests, written tests, English proficiency test (to meet ICAO English requirements)	<b>\$13,050.00</b>
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The commercial pilot license (CPL) will be offered during the last four semesters of the proposed program. For a commercial pilot license, a student is required to log 200 total flight hours, 100 of which the student must be pilot-in-command (PIC) of the aircraft. The 65 hours of flight logged by the student during his/her private pilot license training will count toward the 200 total flight hours required for the commercial pilot license. This leaves a total of 135 more total flight hours the student must log to meet Transport Canada’s requirements for his/her commercial license.

During the second, third, and fourth semesters of the proposed program, the student will complete 36 hours of dual instruction time, ten hours of time on a simulator with an instructor, 35 hours of solo flight and two hours of flight time during his/her flight testing. During the fifth semester of the proposed program, if a student chooses to complete his/her commercial pilot

license without adding on any other ratings he/she will have a total of 52 hours of flight time as Pilot In Command (PIC) of an aircraft to fulfill the 200 flight hour requirement for his/her commercial license. Budget details for this option of the proposed program, with no “add-ons”, are presented in **Table 8**.

**Table 8: Commercial Pilot License (CPL)**

<i>Semesters 2, 3, 4</i> Ground school, flight training, simulator training, books, flight tests, and written tests	16,520.00
<i>Semester 5</i> Additional 52 hours of flight time (on C-172)	7,400.00
<b>Total Cost for CPL Option</b>	<b>\$23,920.00</b>

During the fifth semester of the proposed program, if a student chooses to add-on a float rating (to enable him/her to fly a float plane), he/she will be required to complete 25 hours of dual instruction time and 25 hours of solo flight time on a float plane. All 50 hours of flight time will count toward the total hours needed for the commercial pilot license, but the student will still be 12 hours short of the 100 required PIC hours needed for the commercial license. These last 12 hours of solo flying will be completed on a non-float plane so as to reduce costs. Budget details for this option, a commercial pilot license with a float rating add-on, are presented in **Table 9**.

**Table 9: Commercial Pilot License + Float Rating**

<i>Semesters 2, 3, 4</i> Ground school, flight training, simulator training, books, flight tests, and written tests	16,520.00
<i>Semester 5</i> Training for Float Rating	14,220.00
Additional 12 hours of flight time as PIC (C-172)	1,704.00
<b>Total Cost for CPL+ Float Option</b>	<b>\$32,444.00</b>

***Commercial Pilot License + Additional Training***

A student who wishes to complete his/her commercial pilot diploma at the College and add an instructor rating will complete an additional 25-30 hours of dual instruction time, and associated written and flight examinations. Budget details for this option are presented in **Table 10**.

**Table 10: Commercial Pilot License + Instructor Rating**

<i>Commercial Pilot License</i> Ground school, flight training, simulator training, books, flight tests, written tests, and 52 hours of PIC flight time (on C-172)	23,920.00
<i>Instructor Rating</i> Dual instruction, theory, ground briefings, written tests, examination fee, use of aircraft, and update of license	9,000.00
<b>Total Cost for CPL+ Instructor Rating</b>	<b>\$32,920.00</b>

Because of interest expressed by respondents to the Northern Air Operator Survey, the local flight school is exploring partnering opportunities with a regional helicopter company to offer an

add-on commercial helicopter license to the proposed program’s fixed-wing commercial license and diploma.

A student who wishes to add a commercial helicopter license to his/her commercial pilot diploma will complete an additional 60 hours of flight time, and associated written and flight examinations. Budget details for this option are presented in **Table 11**.

**Table 11: Commercial Pilot License + Commercial Helicopter License**

<i>Commercial Pilot License</i> Ground school, flight training, simulator training, books, flight tests, written tests, and 52 hours of PIC flight time (on C-172)	23,920.00
<i>Commercial Helicopter License</i> Dual instruction, theory, ground briefings, written tests, examination fee, use of aircraft, and update of license	30,000.00
<b>Total Cost for CPL+ Commercial Helicopter License</b>	<b>\$53,920.00</b>

### ***C. Overall Cost of Proposed Program***

The total cost of the proposed program is somewhat variable, as it is uncertain how many students will choose an add-on option or ladder to the University of the Fraser Valley during their fifth semester. The best estimate of a baseline overall program cost is therefore derived by adding the total College/non-aviation budget (**Table 6**) to 16 times the local flight school commercial pilot budget (**Table 8**).

$$\$334,488.00 + 16(\$13,050.00) + 16(\$23,920.00) = \$926,008.00$$

As a comparison, overall program costs for a full cohort of 16 students completing a float rating is \$1,062,392.00, while the costs for a full cohort of 16 students completing an instructor rating or a commercial helicopter license is \$1,070,008.00 or \$1,406,008.00, respectively.

### ***D. Costs to Student***

Perhaps a more accurate estimate of costs is that per student. In order to determine this cost, Non-Aviation/College budget costs (**Table 6**) are divided by the full cohort of 16. This cost is then divided by five to determine the Non-Aviation/College budget costs per student each semester (**Table 12**.)

**Table 12: College Costs Per Student and Semester**

<i>College Costs per Student</i> \$334,488.00 / 16 students	<b>\$20,905.50</b>
<i>College Costs per Semester</i> \$20,905.50 / 5 semesters	<b>\$4,181.10</b>

Although budgets presented above include flight training manuals, aviation texts, workbooks, charts, maps, log books, and other relevant supplies, they do not include cost of living expenses, non-aviation text books, fitness fees, or uniforms for which the student will also be responsible. Based on contacts made with Vanderhoof area apartments and hotels offering monthly rent, it is estimated the average cost for lodging, transportation, and food in the Vanderhoof, BC area is approximately \$700 per month. This assumes a single adult sharing a two-bedroom accommodation with his/her own car. Non-aviation text books for proposed

program courses at the College will be selected by each instructor at the time the classes are offered, so exact costs are not known at this time. A cursory examination of books needed for currently offered College courses similar to those in the proposed program indicate a cost of \$500 per semester is likely. Student fitness costs are based on a two-year fee to a local health and fitness facility. A sign-up fee, 24-hour access card, and a personal training session are included with a total fitness cost of \$1050 to each student. Student uniform requirements will likely be different for the proposed program than that of Coastal Pacific Aviation, but an allotment of \$400 per student per semester is a reasonable assumption at this time, based on preliminary discussions with the local flight school.

The non-aviation/College cost per student per semester is added to the local flight school/aviation costs per student, along with a monthly cost of living estimate and books and uniform costs to determine the cost per student for the proposed program with no add-on's (Table 13).

**Table 13: Student Costs – 2 Yr Commercial Pilot Diploma**

Semester	College Expenses Per Semester	Flight School Expenses Per Semester	Cost of Living, Books, Fitness, Uniform	Total
Semester 1 (May-Aug.)	4,181	13,050	3,910	21,141
Semester 2 (Sept.-Dec.)	4,181	5,507	3,910	13,598
Semester 3 (Jan.-Apr.)	4,181	5,507	3,910	13,598
Semester 4 (May-Aug.)	4,181	5,507	3,910	13,598
Semester 5 (Aug.-Dec)	4,181	7,400	3,910	15,491
<b>Total Student Costs</b>	<b>\$20,905</b>	<b>\$36,971</b>	<b>\$19,550</b>	<b>\$77,426</b>

For students who choose to add-on a float rating to their CPL, the total cost would be an additional \$8,524 (Table 14). This cost is a result of the added flight time and training needed in a float plane with and without an instructor, but no extra expenses are incurred for non-aviation college courses or for cost of living, as this add-on is achieved by the student during the fifth semester of the proposed program.

**Table 14: Student Costs- 2 Yr Commercial Pilot Diploma + Float Rating**

Semester	College Expenses Per Semester	Flight School Expenses Per Semester	Cost of Living, Books, Fitness, Uniform	Total
Semester 1 (May-Aug.)	4,181	13,050	3,910	21,141
Semester 2 (Sept.-Dec.)	4,181	5,507	3,910	13,598
Semester 3 (Jan.-Apr.)	4,181	5,507	3,910	13,598
Semester 4 (May-Aug.)	4,181	5,507	3,910	13,598
Semester 5 (Aug.-Dec)	4,181	15,924	3,910	24,015
<b>Total Program Costs</b>	<b>\$20,905</b>	<b>\$45,495</b>	<b>\$19,550</b>	<b>\$85,950</b>

For students who choose to add-on an instructor rating to their CPL, the total cost will be an additional \$11,100 (Table 15). This cost is a result of the added flight time and training needed once the student completes his/her diploma, and three months of associated living expenses.

**Table 15: Student Costs – 2 Yr Commercial Pilot Diploma + Instructor**

Semester	College Expenses Per Semester	Flight School Expenses Per Semester	Cost of Living, Books, Fitness, Uniform	Total
Semester 1 (May-Aug.)	4,181	13,050	3,910	21,141
Semester 2 (Sept.-Dec.)	4,181	5,507	3,910	13,598
Semester 3 (Jan.-Apr.)	4,181	5,507	3,910	13,598
Semester 4 (May-Aug.)	4,181	5,507	3,910	13,598
Semester 5 (Aug.-Dec)	4,181	7,400	3,910	15,491
Post Program Training	N/A	9,000	2,100	11,100
<b>Total Student Costs</b>	<b>\$20,905</b>	<b>\$45,971</b>	<b>\$21,650</b>	<b>\$88,526</b>

For students who choose to add-on a commercial helicopter license to their CPL, the total cost will be an additional \$32,100 (**Table 16**). This cost is a result of the added flight time and training needed once the student completes his/her diploma, and three months of associated living expenses.

**Table 16: Student Costs – 2 Yr Commercial Pilot Diploma + Helicopter**

Semester	College Expenses Per Semester	Flight School Expenses Per Semester	Cost of Living, Books, Fitness, Uniform	Total
Semester 1 (May-Aug.)	4,181	13,050	3,910	21,141
Semester 2 (Sept.-Dec.)	4,181	5,507	3,910	13,598
Semester 3 (Jan.-Apr.)	4,181	5,507	3,910	13,598
Semester 4 (May-Aug.)	4,181	5,507	3,910	13,598
Semester 5 (Aug.-Dec)	4,181	7,400	3,910	15,491
Post Program Training	N/A	30,000	2,100	32,100
<b>Total Student Costs</b>	<b>\$20,905</b>	<b>\$66,971</b>	<b>\$21,650</b>	<b>\$109,526</b>

The student who chooses this option is at a great advantage over his/her competition who trains at a traditional helicopter school when looking for employment as a commercial helicopter pilot. The student who selects this option will graduate with a commercial helicopter license, a commercial pilot license, 260 hours of total flight time logged, and a diploma, vs. his/her competition who will graduate with a commercial helicopter license and around 100 hours of total flight time logged.

## E. Infrastructure

As it is envisioned, the proposed program could function with existing infrastructure at the College and, with some modifications, at the local flight school. Although economically frugal, this is not ideal, as it does not allow for the growth or expansion of a program that is to play a key role in the community's economic diversification plan.

### *Simulator*

Budgets presented above include at least ten hours of dual instructor time on a flight training device/simulator per student. Although simulators are not required by Transport Canada in the training of commercial pilots, they are convenient in all weather scenarios, they provide instructors the opportunity to simulate dangerous conditions over and over without harm to

student or aircraft, and flight training time on a simulator (up to ten hours for a commercial pilot license) charges out at lower rate than an actual aircraft, because of fuel and insurance costs.

The purchase of a PFC Level 2 simulator such as that used by the University of the Fraser Valley's flight training partner, Coastal Pacific Aviation, will ensure continuity of curriculum delivery for the proposed program. In addition, when not being used for the proposed program, the simulator can be used to provide recurrent training to regional pilots, creating the potential of further employment in the community.

Current estimates for a PFC Level 2 simulator average \$80,000.

### ***Simulator Building***

A PFC Level 2 simulator can be located at the College, but this is not as ideal for flight instructors and students as placing it in a structure at the Vanderhoof Airport. The simulator could be assembled inside an ATCO trailer during the proposed program initial startup. As the program grows, another simulator will likely be necessary as more students join the program, and regional pilots seek the use of a simulator for recurrent training needs. The cost of a 10' x 52' ATCO trailer with space for a simulator and a washroom is approximately \$46,500.

A permanent structure that will accommodate more than one simulator could be constructed at the Vanderhoof Airport. This building could be built large enough to accommodate the future needs of two PFC Level 2 simulators for the proposed program, and possibly an AL SIM (MCC200) simulator which can be reconfigured to simulate a wide range of aircraft. This larger simulator could be used for recurrent training needs for regional pilots and provide an economic spin-off opportunity for the community.

A structure measuring 25' x 30' with a concrete floor, proper insulation, venting, electrical, and one washroom could be built by a contractor, or by using College trades students for \$60,000-\$70,000, based on preliminary discussions with the local flight school.

## **F. Discussion**

The proposed two-year commercial pilot diploma program at the College of New Caledonia is different than two-year aviation diploma programs offered by most post-secondary institutions in British Columbia and Alberta. Although comparable in some aspects, the proposed program offers the private pilot license in its first semester along with introductory business courses and cumulates with the commercial pilot license, more advanced business courses, and an option to add a float rating. Most diploma programs require the student obtain a private pilot license prior to acceptance into a program (a cost that can range between \$8,500 and \$11,000 with a traditional flight school), and offer commercial pilot and multi-engine training along with introductory and advanced business courses.

BCIT offers an Airline and Flight Operations Diploma of Technical Studies geared toward the student who wants to work for a large airline. This program starts with private pilot training and cumulates with multi-engine, multi-engine IFR, and instructor ratings over an 18-month period. Non-flight training courses include subjects in the history of aviation; airline health, safety and survival; airport and airside operations, community and public relations, and crew resource management. While students are given an opportunity to ladder into a bachelor program with a partner institution, that institution is located in the southern US, and there is no offering of a float rating or commercial helicopter license.

The object of the proposed program is to train northern-minded pilots. Feedback from the Northern Air Operator Survey indicates pilots in the north need to have "real-world" training, a

sense of how to run a business, good communication and decision-making skills, and an attitude and maturity to live and work in the north.

Although the proposed program and BCIT's Airline and Flight Operations diploma program are similar in time-frame and in allowing students to start without already possessing a private pilot license, comparisons beyond these points cannot be made as the objectives for each program are widely different. The choices for the student in the proposed program are numerous because the focus is to create northern pilots who possess the necessary skills to contribute to aviation in the region. A student enrolled in the proposed program has the opportunity to add on a float rating in his/her last semester, then stay three months to add on an instructor rating or commercial helicopter license. If the student wishes to obtain a multi-engine and multi-engine IFR rating he/she has the option to do so by simply transferring to the partnered program at UFV and can stay within the province to do so. Likewise, if the student wishes to complete a four-year degree, he/she can enroll in the partnered program and easily ladder to a Bachelor of Business Administration in Aviation or a straight Bachelor of Business Administration degree.

Program costs for the 18-month diploma at BCIT add up to roughly \$66,000 per student. This amount covers tuition, a student activity fee, a student health and dental plan fee, flight time and training at Pacific Flying Club, Transport Canada exams and license fees, and most books and supplies related to the program. Costs not covered by BCIT program costs include parking and the cost of living in Vancouver, which can add up to between \$1000 and \$1500/month (BCIT 2009; CanLearn 2009), or an additional cost of \$18,000 to \$27,000 for the student. This adds up to a total cost to the student of \$84,000 to \$93,000, depending on individual living conditions.

Total costs to the student for the proposed program diploma at the College add up to roughly \$77,500 per student for the basic commercial pilot license, and \$86,000 per student for the commercial pilot license with a float rating. Although the program costs (tuition and flight school expenses) to the student are higher for the proposed program than those at BCIT, cost of living expenses are less as there are no parking costs associated with the proposed program and living expenses are estimated to be \$700/month for a single person sharing a two-bedroom apartment in Vanderhoof.