Planning Proposal

“Establishment of the Duquesne University Tropical Field Station at Lower Dover, Unitedville, Belize”

Developed By

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A. Project Overview:

Duquesne University aspires to establish a tropical field station at the site of the current Lower Dover Field Station in Unitedville, Cayo District, Belize, Central America. This proposal provides a detailed overview of the site; its current infrastructure; additional infrastructure that is needed if this project proceeds; the broader impacts and intellectual merit of the project; research, teaching, educational and outreach opportunities; and the specifics of building a relationship between Duquesne University, the Lower Dover Field Station, and participating partners. These partners include, but are not limited to, the Institute of Professional Environmental Practice (IPEP), and universities and colleges, government agencies and non-government organizations in Belize.

Duquesne University is a Catholic institution of higher learning in the Spiritan tradition, located in Pittsburgh, Pennsylvania, USA. Founded in 1878, Duquesne is organized into ten schools and one college, with just over 5,800 undergraduates and 4,500 graduate students enrolled at the university. Duquesne is classified by the Carnegie Foundation for the Advancement of Teaching as a Research University/High Activity, based upon its level of scholarly work. The mission of the university encourages students, faculty, staff and administrators to see their work as part of a larger effort to serve the common good and explore the various ways in which faith and service lie at the heart of education. Duquesne University emphasizes service-learning; community engagement and education; professional development; commitment to justice in all forms and expressions; and interreligious understanding. Spiritans serve on six continents, with many of their efforts focused on the developing world.

The university follows the teacher-scholar model, wherein scholarship and research are incorporated with instruction. Faculty members at Duquesne are skilled teachers and outstanding researchers. This means that our faculty is committed to providing experiential learning opportunities for students, and to guiding them to excellence in the classroom, careers, and life. Experience-based learning within the teacher-scholar model can take on a variety of forms, including community-engaged scholarship and service-learning. At
Duquesne, service-learning is defined as a teaching method that combines meaningful service, critical reflective thinking, and academic instruction to enhance student learning and social responsibility. Community-engaged scholarship is not a teaching method, but an orientation that generally describes community-based inquiry. Duquesne’s teacher-scholar model, service learning and community-engaged scholarship facilitates linkages with “communities” on a variety of scales, and fosters reciprocity as a means and end of collaborative work. Collaborative, responsible action better aligns university-grounded efforts with the agenda and vision of non-university partners. Rather than inserting a single-minded agenda, a multidisciplinary approach can facilitate discussion and be a catalyst for systemic assessment and change.

The establishment of the Duquesne University Tropical Field Station at Lower Dover, Unitedville, Belize fits perfectly with the mission of the university, in that it provides (1) a safe and secure location where Duquesne University students can gain invaluable real-world/field experience while working within the teacher-scholar model, and (2) a location where faculty, often working with students, can conduct on site research on a variety of topics. The field station can also serve as a base of operations where local-area and regional studies can be completed, or as a “headquarters” where collaborative projects between Duquesne University, the Institute of Professional Environmental Practice (IPEP), universities and colleges in Belize, government agencies and non-government organizations, can be housed. It can also serve the same function for educational outreach.

**Intellectual Merit**

This project builds on Duquesne University’s unique strengths inherent in the teacher-scholar model, where applied research and problem-solving strategies, interdisciplinary research, and hands-on learning, and educational outreach are of paramount importance. The project will serve as a conduit for interdisciplinary collaborations among Duquesne University faculty, students, IPEP and various partners in Belize, with the innovative integration of natural and social sciences being stressed. Synergies developed as part of the cross-disciplinary teaching, research, professional development and outreach that will occur at or be facilitated through the Lower Dover Field Station, will lead to the development of transformative knowledge and curricula, with applications relevant to many social, human, scientific and environmental issues. At the same time, implementation of this project will assist in raising awareness regarding the scope and magnitude of these issues, and some of the differences and challenges pertaining to these issues in the developed and developing world. Belize, and the Lower Dover Field Station, provides a perfect natural laboratory where service learning, community engagement, the intrinsic value of research-based inquiry, professional development and educational outreach are stressed. Teaching about and studying the intersections of social, human, scientific and environmental issues will provide a new understanding of what it means to work within the teacher-scholar model and at the same time follow the Spiritan tradition.
**Broader Impacts**

This project will add to the existing base of knowledge about the linkages that exist between experience-based learning within the teacher-scholar model, and its applications to community-engaged scholarship, service-learning, and research in a developing country like Belize. The research will take on a variety of forms working within the teacher-scholar model, to include (1) exploratory research to assist in identifying research problem development, (2) constructive research where hypotheses and theories are tested and solutions/conclusions proposed, and (3) empirical research, where knowledge is gained via direct and indirect observation. This research will involve aspects of both qualitative (where human behavior and the reasons that govern such behavior are examined) and quantitative research (where numeric data is collected and analyzed and conclusions are drawn). It will also have an educational outreach component wherein Duquesne University faculty and students will have the opportunity to work with faculty and students from Belizean universities and colleges, primary and secondary students from the local area schools, local teachers, government officials, and representatives of NGO’s. Additionally, working with the Institute of Professional Environmental Practice (IPEP), which is housed at Duquesne University, ways to enhance professional development opportunities in Belize will be explored. IPEP is the independent, not-for-profit certifying organization for the Qualified Environmental Professional (QEP) and the Environmental Professional Intern (EPI) certifications. Their mission is to provide a meaningful certification that encourages environmental professionalism, ethics, maintenance of a high quality of practice, continued career development and, a standard of giving back to the community. IPEP strives to improve the practice and educational standards of environmental professionals around the globe through administration of these multi-disciplinary certification programs. Implementation of these programs in Belize, through an IPEP affiliation with Lower Dover, will serve to better train Belize’s environmental professionals, and allow them to be part of the mission set forth by IPEP.

This project will facilitate the integration of research, teaching, community engagement, service learning, professional development, certification and educational outreach on a number of levels, to include, but not limited to: 1) cross-disciplinary research projects that will bring together stakeholders from Duquesne University and Belize. 2) Learning opportunities based on the teacher-scholar model that will allow the acquisition and dissemination of knowledge important to all participants. 3) Student participation in the project to include: fieldwork, data collection and analysis, dissemination and publication. Both graduate and undergraduate students from the various participating stakeholders will undertake directed, independent projects related to research problems formulated and designed by participating faculty, and government and non-government participants. 4) Professional development and certification for Belize’s environmental professionals. (5) Educational outreach wherein participants work with local schools both onsite at Lower
Dover and offsite at the various participating schools. Students participating in the projects will gain first-hand knowledge of the scientific method, research and analytical techniques, skills related to scientific writing, and they will sharpen their research, critical thinking and leadership skills. Participation in this project will aid in establishing a legacy of educational and personal and professional development. The students learn the importance of completing the task at hand, how to work side by side with a diverse cross-section of their peers and the community, how to enhance their scientific skills through field and laboratory practice, and how to develop personal and leadership qualities.

B. The Site

Lower Dover Field Station is situated south of the Belize River between Little Barton Creek to the east and Big Barton Creek to the west. It is just under 100-acres in size, with approximately 80% of the property forested. The vegetation is mostly secondary growth, and the land use history of the property indicates that it was at least partially cleared about 50-years ago to use for cattle ranching. Other property amenities include an extensive trail system, direct access to the Belize River, Big Barton Creek and Little Barton Creek, the Lower Dover Archaeological Site, and two cleared areas where a banana plantation, and buildings affiliated with the field station, and various fruit and hardwood trees, are located (Figures 1 to 5).
Figure 1 – The Location of Lower Dover Field Station.

Figure 2 – The Lower Dover Field Station, Unitedville, Cayo District, Belize.
Figure 3 – The Lower Dover Archaeological Site circa 2013.
Figure 4 – Approximate boundary of the Lower Dover Field Station and surrounding area.

Figure 5 – The facilities at the Lower Dover Field Station.
Specific Features and Attributes of the Lower Dover Field Station

Trails

Over two kilometers of trails exist on the property. These trails in some cases parallel the river and creeks. Others transect the property cutting through heavily forested areas. Still others cut through the forest to connect the larger and more open trails, with smaller trails that connect to the Lower Dover Archaeological Site, and other parts of the property. Not all of the trails that exist on the property are depicted in Figure 2. Figures 6 and 7 illustrate sections of the trail network.

![Figure 6 – Trail, north of Plaza H.](image)
![Figure 7 – Plantation Trail through property.](image)

Rivers and Creeks

The property is bordered on the east by Little Barton Creek. This stream’s headwaters are located in the hills to the east of the village of Unitedville. The stream’s waters, rich in dissolved calcium carbonate, have formed a spectacular series of tufa dams, which are formed where degassing of carbon dioxide takes place at riffles in the stream (Figure 8). The Belize River forms the north border of the property, and separates Lower Dover from the Mennonite settlement of Spanish Lookout, located on the north side of the river. The Belize River forms about 20 river kilometers upstream from Lower Dover where the Macal and Mopan Rivers join at Branch Mouth. The Belize River drains more than one-quarter of Belize as it winds through the center of the country for 270-kilometers past Lower Dover to enter the sea just north of Belize City (Figure 9). A segment of Big Barton Creek enters the Belize River in the northwest part of the property. Big Barton Creek emerges from Barton Creek Cave in the foothills of the Maya Mountains approximately 15-kilometers due south of Lower Dover.
The Lower Dover Archaeological Site

Archaeological research at the Lower Dover Archaeological Site (see Figure 3) has been conducted by the Belize Valley Archaeological Reconnaissance (BVAR) Project, directed by Dr. Jamie Awe, the director of the Belize Institute of Archaeology. Any agreement between Lower Dover and Duquesne University will mandate that BVAR excavations can continue at the site following their current and future research designs. The site is a classic era Maya site that may have been one of the most socio-politically important sites in the Belize River Valley. Research related to the socio-political development of the site and its role in Belize River Valley archaeology has been ongoing by BVAR since 2010. Thus far twelve “plazas” have been discovered and mapped. Early results indicate that Lower Dover was more “long-lived” than its classic era counterparts in the Belize River Valley, and that it was still occupied just prior to the Terminal Classic Period. The 2014 excavations will complement the 2013 research, which exposed small portions of the interior courtyard and structures of the acropolis (Figures 10 and 11). Excavations will focus on the southern-most plaza of the acropolis complex and will feature systematic large-scale horizontal exposures of the courtyard and acropolis structures. In addition, vertical trenches will be placed into the structures in order to identify the chronological history of construction episodes, and to begin to develop a model regarding the use of space through time in the acropolis complex.
Buildings and Infrastructure at the Lower Dover Field Station

The following buildings are part of the current “compound” area at the Lower Dover Field Station (see Figure 2).

1. The main house (see Figure 15) – a large structure where the owners of the Lower Dover Field Station, Bill and Madeline Reynolds reside.
2. The old kitchen/library (see Figures 16 and 17) – An original (circa 1995) wood, thatched roof structure which was the original kitchen for the station in the early years, and has now been converted into a library.
3. Caretaker’s house/dorm (see Figure 12) – The original wood frame house on the property was used as the caretaker’s residence and was converted into a dorm that can sleep six and has an indoor bathroom with external/adjacent hot water shower.
4. The new kitchen (see Figure 20) – Contains modern appliances, as does the main house, as well as a traditional wood fired hearth where traditional Belizean meals are cooked over an open fire.
5. Rec room (see Figure 18) – A meeting place and recreation facility that contains a billiards table, sitting areas, and a television where dvd’s can be viewed.
6. Chicken coop – Where the resident population of chickens and turkeys reside. It is a structure that is moved often so that the droppings-rich soils can be used as a garden plot.
7. Dining hall (see Figure 18) – Where meals are served, and the structure also doubles as a classroom where lectures can take place, and during non-meal times quite study or meeting can occur.
8. Shed – A very sturdy structure where equipment is stored. Field supplies can be stored in this building as well. It has a very solid door that is always locked with a padlock.
9. Cabana #1 (see Figure 14) – An elevated cottage with a zinc roof, and covered porch. This cabana contains one single bed and one double bed, as well as a desk with chair, and dresser. There is an adjacent external bathroom and hot water shower.
10. Cabana #2 – Similar to Cabana #1, #2 is slightly larger, and contains similar features, including an adjacent external bathroom, this time with a cold-water shower.
11. Cabana #3 (see Figure 19) – Is an elevated, zinc roofed cottage that is similar in structure to cabanas 1 and 2, but contains one double bed and an indoor bathroom. Behind cabana #3 is a structure that contains a cold-water shower.
13. Dorm – Also called the “high rise” is a two story structure that has been repurposed to serve as the caretaker’s quarters (the lower floor), and a single-room on the upper floor that contains two double beds.
14. Outdoor Kitchen – Is a very rough-hewn wood structure, with a zinc roof that is a traditional Belizean-style cookhouse. It is used occasionally to cook traditional Belizean meals.
15. **Cabana #4** – Not depicted on the map in Figure 1, is also called the Rasta cabana. It is an elevated zinc-roofed cottage that is larger than cabanas 1, 2 and 3, contains a queen-size bed, has an in-cottage bathroom and shower, and is air conditioned.

Currently, the various cottages at Lower Dover can sleep 14 people or more if beds are shared. Additional construction is planned at the Lower Dover Field Station. The tentative plan is as follows:

1. Enclose the area under cabana #4 (the Rasta cabana) (see Figure 13) and use that area as a dorm room that will contain four bunk beds and two single beds (10 beds total). An adjacent bathroom will also be constructed.

2. Construct a structure similar to, but larger than the current dining hall (see Figure 18), that will be used as a new dining hall. The tentative location for this building is between the new kitchen and cabana #2 (see Figure 2). As part of this construction a sustainable rainwater collection system will be installed. Upon completion, potable water will be extended to the washroom facilities of each cabana. The current dining hall will then be used full-time as a classroom.

3. Construct a structure, similar in size to the current dining hall that will be used as the “laboratory” for Lower Dover. It will be equipped so that various types of experiments can be completed in this space. The tentative location for this building is to the north of cabana #1 (see Figure 2).

Figures 12 to 20 depict photographs of some of the buildings at the Lower Dover Field Station.

Figure 12 – The caretaker’s house/dorm.  
Figure 13 – Cabana #4 prior to enclosure.
Figure 14 – Cabana #1

Figure 15 – The main house with the old kitchen/library to the left of the house.

Figure 16 – Closer view of the library.

Figure 17 – Interior view of the library.

Figure 18 – The dining hall (green), rec room (red door), backside of the caretaker/dorm, main house & library.

Figure 19 – Harvesting coconuts with cabana #3 in the background.

Figure 20 – Making tamales the traditional way in the new kitchen.
Other Infrastructure Information

The Lower Dover Field Station has electricity in every structure on the property, with the current being 110/220 V, similar to the United States. It also has internet (wifi) that comes to the property via cellular signal. All sleeping areas have ceiling and floor fans. Cabana #4 (the Rasta cabana) is air conditioned. Drinking water is collected off the zinc roofs, and is stored in large vats and passes through a filter before consumption. These vats also provide water to the showers, but the water in the sinks and used to flush toilets is usually water that is pumped from nearby Little Barton Creek. This water is not potable. Laundry facilities are available on site.

The Lower Dover Field Station is located about ½ mile (0.8 km) off of the Western Highway (a 15-minute walk). The access road to Lower Dover is near mile marker 59 on the Western Highway, meaning that it is 59 miles (~95 km) west of Belize City. The twin cities of San Ignacio and Santa Elena (collectively referred to locally as Cayo) are located 12 miles (19 km) west of Lower Dover. Cayo has all types of retail and eating establishments. Bus service in Belize is privatized and is generally good and for the most part reliable. There is one retail store in the village of Unitedville, which is a 15-minute walk from Lower Dover. This store, called the Mile 59 Superstore, has a fairly wide selection of food and beverages.

C. Research Opportunities at the Lower Dover Field Station and Other Areas

The Lower Dover Field Station is an outstanding natural laboratory for teaching and research. Possible areas of research include, but are not limited to, ecology, forestry, soils, agrobiology, geology, geomorphology, micro-climatology, microbiology, bacteriology, dendrology, dendochronology, botany, orchidology, micro-phytology, palynology, zoology, mammalogy, ichthyology, piscatology, micro-paleontology, anthropology, archaeology, avian biology, ornithology, environmental chemistry, biochemistry, zoocronology, biogeography, conservation biology, biometrics, bionomics, cytology, parasitology, Plant and animal physiology, pharmacology, pharmacognosy, ethology, entomology, herpetology, arachnology, hydrology, hydrobiology, limnobiology, limnology, and water resources.

Research on these topics can be initiated by faculty, working within the teacher-scholar model, very often using multidisciplinary research designs. Duquesne University students will be involved in these projects on a number of levels, including, but not limited to, (1) summer field camps organized through the university. (2) Research projects organized by Duquesne faculty, sometimes working with partner institutions or organizations in Belize, wherein Duquesne and Belizean students are involved. (3) Undergraduate and graduate student independent study, thesis or dissertation research, which will be supervised by Duquesne University faculty. (4) Joint student projects completed by Duquesne and Belizean students supervised by Duquesne and Belizean Faculty. (5) Educational outreach projects that involve Duquesne University faculty and students, and students and teachers from the local and regional community.
The Lower Dover site is rich in both flora and fauna, and the bird populations are especially large and varied (Figures 21 to 23).

Mammals and reptiles are also abundant on the property. Perhaps the most prevalent mammal is the Coati mundi (Nasua narica) which is locally called the “quash.” They are diurnal, living both on the ground and in the trees. As a member of the raccoon family they are omnivorous, feeding on fruits, invertebrates, and other small animals. They often are seen at Lower Dover living in large groups of 30 or more individuals (Figure 24). The Common Agouti (Dasyprocta agouti) is also commonly found on the property (Figure 25), as are many other types of mammals. Agouti’s are related to guinea pigs and looks quite similar, but is larger and have longer legs. The species vary considerably in color, being brown, reddish, dull orange, greyish or blackish, but typically with lighter underparts. Their bodies are covered with coarse hair which is raised when alarmed. Baird’s Tapir (Tapirus bairdii) is usually found in the mountainous areas of Belize, but occasionally find their way down into the Belize River Valley (Figure 26). Additionally, many different species of snakes are found on the property, as are iguanas and various types of lizards. The forest is also very diverse and exhibits species adapted to riverine and upland environments (Figure 27). There are also locations where experimental plots can be sited to study flora, fauna, and processes.
There are also research and teaching opportunities in the local and regional areas around Lower Dover that can include topics outlined above. Social Science focused research and teaching off-site from Lower Dover can include, but are not limited to, public health, social justice, political science, ethnology, criminology, law, gerontology, demography and demographics, development theory, environmental education, biotechnology, economics, economic development, social policy, theology, sociology of development, policy studies, mass communication and media, urban/suburban/rural studies, and women's studies. The Lower Dover Field Station already has a stellar reputation in the local community, as well as with universities and colleges in Belize, government agencies and non-government organizations. Hence, the field station can serve as a “headquarters” where collaborative projects between Duquesne University and these other “players” are housed.

Lower Dover can also serve a similar function for educational outreach and professional development. An educational outreach project that is being developed, for potential implementation in Belize, is a teacher education program that focuses on establishing increased levels of environmental understanding among local populations. This program will focus on the general themes: 1) environmental awareness and assessment, 2) environmental degradation, 3) environmental protection, 4) conservation, ethics and policy, 5) sustainability, 6) relationships between human health and the environment, and 6) resource distribution, utilization, conservation, and depletion. Specific topical areas within the program will include, for example: 1) the Earth as a system, 2) natural and human-induced changes to the Earth system, 3) human population dynamics, 4) water and soil resources, 4) air, water and soil pollution, 5) global warming, 6) climate change, 7) urban versus rural phenomena, 8) agriculture and land use changes, 9) ecosystems and biodiversity decline, 10) risk, exposure and health, and 11) energy challenges. The long-term goal of the project is implementation of this teacher education program in Africa over the next ten years. The facilities at Lower Dover, and the local community, can be used as a site where project materials are created, tested and refined before implementation in Africa. Specifically, the program will train teachers to teach about the environment, and the combined effects that the general themes and specific topical areas outlined above, have on their local and regional communities. Local students will be part of the process of developing and testing teaching materials. These concepts, methods and materials are transferable to other locations, like Africa, which is an area of specific interest for Duquesne University. Both Belize and the areas of Africa where the project is deployed (we are targeting Ghana for the initial implementation of the program) will benefit from this endeavor.

In terms of professional development, the physical environment in Belize is the “number one” natural resource. Tourism and Eco-tourism are the largest industries in Belize, and hence, drive the economic engine of the country. It is essential that Belize be conservation and preservation minded to protect this important and essential resource. Opportunities for training and certification that can be developed and facilitated in cooperation with IPEP will
assure that Belize’s environmental professionals are well trained and ready to meet the environmental conservation and preservation challenges of the future. The Qualified Environmental Professional (QEP) certification offered through IPEP is the first and only credentials of its kind. It is a multi-media, multi-disciplinary, fully accredited credential that requires environmental professionals to see “the big picture” and to have the skills and knowledge to solve “real world problems”. The QEP certification assures that environmental professionals can demonstrate the breadth and depth of their knowledge and experience related to the environment, and that they can abide by IPEP’s Code of Ethics. The Environmental Professional Intern (EPI) program is an optional first step toward obtaining QEP status for environmental students and professionals just beginning their careers. The EPI credential is an opportunity for students who anticipate entering the environmental field, or for graduates who have entered the field within the last five years, to demonstrate personal knowledge of general environmental science.

D. Timeline, Resources, and Funding

The timeline, resources, and funding for the development and implementation of the establishment and evolution of the Duquesne University Tropical Field Station at Lower Dover is divided into three phases.

**Phase 1:**

1. Creation of a draft planning proposal (completion date: February 11, 2014).
2. Distribution of the proposal at Duquesne University and other interested parties to identify potential participants (February 14, 2014).
3. Period of review by Duquesne personal (February 14 to March 1, 2014).
4. Creation of a list of interested participants at Duquesne University and initial discussions with these individuals (March 1 to 15, 2014).
5. Development of a document that details the expertise of Duquesne University participants, in terms of teaching and research, as it applies to this project (March 15 to April 15).
6. Create a new draft of the proposal that better reflects the information gathered as part of item #5 (April 15 to May 15).
7. Visit the Director of the Lower Dover Field Station in Belize to discuss and refine the proposal. This trip will be made by Dr. Philip Reeder, Dean of the Bayer School at Duquesne University. He will fund this trip (on or about May 15, 2014).

**Phase 2:**

1. After returning from Belize another draft of the proposal will be completed (~May 20 to July 1, 2014).
2. Working with the Duquesne University Office of Research, possible agencies to fund the planning part of the project are identified (~July 1, 2014). This will be an ongoing process which was begun in phase 1.

3. The proposal is distributed to funding agencies (~July 1, 2014)

4. Funding is procured (in the amount of ~$25,000) and a plan is developed for a representative team from Duquesne University to go to Belize on two occasions. Working with the Director of the Lower Dover Field Station, an operational strategy is developed regarding implementation of the project. The dates these trips will happen, and all subsequent parts of the project, are open since it is dependent upon procuring the funds for the planning grant.

5. After these visits, new drafts of the proposal are completed, that reflect the latest details of the project.

6. A draft Memo of Understanding (MOU) that clearly establishes the relationship between Duquesne University and the Lower Dover Field Station is developed.

7. Remaining funds from the planning grant can be used for additional site visits in Belize, beyond the two already mentioned, and/or to invest in infrastructure improvements that were previously outlined in this proposal.

**Phase 3:**

1. Phase three involves the procurement of long term, sustainable funding for the project.

2. Working with the Duquesne University Office of Research, possible agencies to fund the implementation part of the project are identified (this will be an ongoing process begun in phase 1).

3. A detailed budget, with justification, is developed as part of the newest version of the proposal.

4. A business plan for the operation of the Duquesne University Tropical Field Station at Lower Dover will be developed and incorporated into the proposal.

5. A final MOU will be drafted and be part of the proposal.

6. The proposal is distributed to funding agencies to fund the first two to three years of operation of the field station and associated research, teaching, professional development, and outreach activities.

7. The business plan also details the measures that will be taken to make many of the activities at Lower Dover self-sustaining via a combination of fees charged, grants, and contracts.

8. The business plan will be continuously reviewed and updated, and is expected to evolve through time as the Field Station evolves.

9. A scholarship program is established that is funded in part by the fees charged, grants, and contracts. These scholarships will be for Duquesne students, Belizean students, and local teachers and students to participate in activities at Lower Dover.
E. Budget Considerations

It is expected that funding for this project will occur in a number of different ways. The Lower Dover Field Station currently funds itself by charging fees to use their facilities. An overview of the fees for educational groups is included in Appendix 1. The first phase of funding, as the Lower Dover Field Station evolves into the Duquesne University Tropical Field Station, involves the procurement of a planning grant by Duquesne University. A portion of these funds will be used for the planning phase, as Lower Dover’s affiliation with Duquesne University is established. This planning phase will involve site visits by the Duquesne University group, and infrastructure development as part of Lower Dover’s evolution. It is estimated that the planning grant will be in the amount of $25,000 U.S. The preliminary budget estimates below are based on this number.

Preliminary Budget Estimates

1. Planning trip #1 to Belize for the Duquesne University team members to visit Lower Dover and tour the property, local area and region, make local connections, and further develop the proposal for longer term funding.
   - The group from Duquesne will consist of ten people. The visit will be for five nights and six days. The breakdown of expenses is as follows:
     a. Airfare from Pittsburgh to Belize City – 10 people x $900/Ticket = $9,000
     b. Roundtrip airport shuttle (rent van because of large group size) = $700
     c. Van rental for local transportation, 4 days x $150/day = $600
     d. Room and Board at Lower Dover, 5 nights x 10 people x $50/night = $2,500
     \[ \text{Total} = \$12,800.00 \]

2. Planning trip #2 to Belize for the Duquesne University team to return to Lower Dover, build on local connections that were established during trip #1, and to further develop the proposal for longer term funding.
   - The group from Duquesne will consist of five people. The visit will be for five nights and six days. The breakdown of expenses is as follows:
     e. Airfare from Pittsburgh to Belize City – 5 people x $900/Ticket = $4,500
     f. Roundtrip airport shuttle (purchase seats on van because of smaller group size) 5 x $30 x 2 = $300
     g. Van rental for local transportation, 4 days x $150/day = $600
     h. Room and Board at Lower Dover, 5 nights x 10 people x $50/night = $2,500
     \[ \text{Total} = \$7,900.00 \]

3. Total for both planning trips to Lower Dover = \$20,700.00

4. The remaining $4,300.00 can be used for initiatives to further build the infrastructure at Lower Dover.
Educational Group Pricing - Lower Dover Field Station

There is special pricing for educational groups at Lower Dover Field Station.

1. The accommodation rate is reduced about 25% from the usual per person rate and/or per cabana/cottage/dorm rate.
2. Meal rates are also reduced about 25% for educational groups.
3. Educational group pricing includes the sleeping accommodation, meals and all taxes and fees.
4. The educational group price is $50 US per day per person.
5. The number of occupants per room varies by building.
6. The group is responsible for determining who occupies what building.
7. The number and type of beds per building is as follows:
   a. Cabana #1 – double and single bed.
   b. Cabana #2 – double and single bed.
   c. Cabana #3 – double bed
   d. Cabana #4 – queen bed.
   e. Caretaker’s house/dorm – three bunk beds.
   f. High rise – two double beds.
8. Meal times for educational groups can be set to meet the group’s schedule.
9. The meals include breakfast, lunch and dinner.
10. If the group is going to be offsite for lunch, a sack lunch can be provided.
11. Transportation can be organized through Lower Dover.
12. Rates vary based upon the distance and duration of a trip, and size of the vehicle required.
13. Standard rates are as follows:
   a. 15-passanger van one-way from Philip Goldson International Airport to Lower Dover or Lower Dover to Airport = $350.00 each way.
   b. 15-passanger van per day for local travel = $150.00.