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### Innovative Sources of Non-Aviation Revenue at Small, Non-Hub Airports

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INNOVATIVE SOURCES OF NON-AVIATION REVENUE  
AT SMALL, NON-HUB AIRPORTS

BY

BRANDON D. FRISBIE

BA, Binghamton University, 2009

CAPSTONE PROJECT

Submitted in partial fulfillment of the requirements for  
the degree of Masters in Public Administration  
in the Graduate School of  
Binghamton University  
State University of New York  
2011

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Accepted in partial fulfillment of the requirements for  
the degree of Masters in Public Administration  
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2011

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### **Executive Summary**

The Greater Binghamton Airport (BGM) in Maine, New York, is owned by Broome County and operated under the authority of the Broome County Department of Aviation. The purpose of this capstone project is to identify innovative sources of non-aviation revenue that are viable at small, non-hub airports, like BGM. The Department of Aviation would like to increase non-aviation revenue at BGM in order to achieve lower station costs for airlines and to preserve the airport's self-sustaining capability.

A thorough review of the literature on non-aviation revenue is included in this project and organized according to the two dominant themes in the literature, which are determinants of non-aviation revenue and examples of innovative sources. To answer the research question posed, I interviewed airport administrators at nine facilities that are similar in size to BGM. Three findings were identified: (1) there are a variety of innovative non-aviation revenue sources that are viable at small, non-hub airports; (2) the greatest challenges associated with implementing innovative sources of non-aviation revenue are inadequate passenger volume and high personnel expenses; and (3) airport administrators are willing to share their knowledge and experience regarding non-aviation ventures. Based on these findings, I offer three recommendations to the Department of Aviation: (1) review the innovative sources of non-aviation revenue identified in this project and evaluate their viability at BGM; (2) assess potential revenue sources of interest in terms of required passenger volume and personnel expenses; and (3) work with fellow airport administrators.

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## **Problem Definition**

### **Introduction**

The purpose of this capstone project is to identify innovative sources of non-aviation revenue that are viable at small, non-hub airports, like the Greater Binghamton Airport (BGM). BGM is located in Maine, New York, approximately eight miles northwest of the City of Binghamton. BGM is owned by Broome County and operated under the authority of the Broome County Department of Aviation as an enterprise fund. In this capacity, the airport operates as a financially self-sustaining entity with no financial assistance from Broome County. BGM serves a population of 495,000 people (BGM Passenger Demand Analysis and Business Map, 2009). Three airlines operate at BGM: US Airways Express, Delta Connection, and United Express. Direct commercial service is provided to Philadelphia, Detroit, and Washington, D.C. (Dulles). As of June 1, 2010, these airlines offered a combined total of 24 daily arrivals and departures.

### **Problem Statement**

The economic recession of 2007 negatively impacted the air service industry. Even though the recession ended in 2009 (Business Cycle Dating Committee, 2010), its effects are still being felt at airports nationwide (Ingledew, 2010). According to the Air Transport Association of America, Inc., national and international passenger traffic decreased by 39.4 million passengers in 2009, resulting in the lowest passenger traffic total in five years (2010). Thus, airport administrators find it difficult to cover operating expenses and finance projects that do not qualify for funding from the Federal Aviation Administration (Smith, 2010).

Many airport administrators are cultivating additional non-aviation revenue streams to overcome budget challenges. Traditionally, non-aviation revenue is derived from land and non-terminal facility lease agreements, food and beverage operations and retail stores, parking, and

rental car agencies (Smith, 2010). Non-aviation revenue is different from aviation revenue which is derived directly from aeronautical activities and services provided to passengers or other airport users. Examples of innovative sources of non-aviation revenue in existence are farming, golf courses, pet kennels, pharmacies, renewable energy projects, and walk-in health clinics (Transportation Research Board, 2010).

The Department of Aviation would like to increase non-aviation revenue at BGM in order to achieve lower station costs for airlines. Station costs are made up of the landing fees and rental rates that an airport charges an airline. Therefore, station costs are an important factor that airlines consider when deciding which airports to operate at and the amount of service to provide. An airport's ability to offer low station costs has become increasingly important because airlines, like airports, are also experiencing rising operating expenses and declining revenues. In 2009, seating capacity on passenger airlines in the United States decreased 7%, which is the sharpest decline in 67 years, erasing 10 years of industry growth (Air Transport Association of America, Inc., 2010).

At BGM from 2007 through 2009, the number of passengers boarding flights decreased 18.6% and non-aviation revenue decreased \$153,692 (Federal Aviation Administration, BGM 2007; 2008; 2009). This is problematic for the Department of Aviation because decreases in passenger activity and revenue impede its ability to offer competitive station costs to airlines. A common misconception is that the Department of Aviation controls airline ticket prices at BGM. The airlines are solely responsible for setting ticket prices and the revenue generated from ticket sales go directly to the airlines, thereby having no effect on the department's budget.

This project is relevant to the field of public administration because BGM is a public-use airport that is owned by Broome County. The Department of Aviation exists to provide Greater



Binghamton and surrounding communities with safe and efficient air travel facilities and services (Broome County, 2010). Generating additional revenue from non-aviation sources will help preserve BGM's self-sustaining capability, allowing the airport to continue to operate without encumbering Broome County taxpayers. In addition, the airport plays a vital role in the local economy by connecting local businesses to the global market, providing tourists with access to the community, and supporting the local general aviation community (Smith, 2010).

Even though there is a considerable amount of literature on non-aviation revenue, much of it focuses on non-aviation revenue generation at large, hub airports. Large, hub airports, such as the Dallas/Fort Worth International Airport, have access to very different opportunities than small, non-hub airports, such as BGM. Consequently, the two types of facilities employ very different business models and it is unlikely that the suggestions for generating non-aviation revenue at large, hubs are viable at small, non-hubs. Pursuant to the research question below, this project explores innovative sources of non-aviation revenue at small, non-hub airports that are similar in size to BGM.

### **Research Question**

What are innovative sources of non-aviation revenue that are viable at small, non-hub airports?

### **Literature Review**

To expand the depth and breadth of my understanding of non-aviation revenue, I critically assessed the scholarly and professional literature on the topic. The review is organized according to the two dominant themes in the literature, which are determinants of non-aviation revenue and examples of innovative sources.

**Determinants of Non-Aviation Revenue**

Much of the literature on non-aviation revenue focuses on factors that determine the amount of non-aviation revenue an airport generates. For example, using econometric and descriptive analysis techniques, Volkova and Muller (2010) analyzed data from 97 airports in the United States between 1999 and 2008. Consistent with the literature, their findings suggest that there are three major factors that influence non-aviation revenue: the size of the airport, the types of passengers the airport serves, and the location of the retail shops and restaurants inside the airport.

**Airport size.** Airport size is based on passenger boardings, or enplanements, and has a significant effect on non-aviation revenue. Large airports are able to support a wider range of facilities, such as specialty retail shops and restaurants, than small airports (Graham, 2009; Volkova & Muller, 2010). As a result, large airports often generate higher levels of non-aviation revenue, especially from airport retail shops (Appold & Kasarda, 2006). In addition, large airports employ more people than small airports. This is important because airport employees also contribute to non-aviation revenue, mainly through restaurant purchases (Kasarda, 2008).

**Types of passengers.** The amount of non-aviation revenue an airport generates also depends on the types of passengers it serves. Tovar and Martin-Cejas (2009) studied airports throughout Spain and found that an airport's non-aviation revenue increases in proportion to the number of international passengers it serves. Volkova and Muller (2010) reported similar findings in their study of airports in the United States. However, neither Tovar and Martin-Cejas nor Volkova and Muller explain why international passengers spend more than other types of passengers. In addition, Torres, Dominguez, Valdes, and Aza (2005) report that vacation travelers spend more than business travelers when the boarding time is more than 45 minutes.

However, if the boarding time is less than 45 minutes, the opposite is true. This means that the amount of time spent in the airport is an important part of the relationship between passenger types and their effect on non-aviation revenue.

**Shop and restaurant location.** The location of retail shops and restaurants in the airport is another important factor in non-aviation revenue generation (Volkova & Muller, 2010), and it represents a source of competitive advantage for operators of airport shops and restaurants (Hernandez, Bennison, & Cornelius, 1998). To maximize non-aviation revenue, Hsu and Chao (2005) suggest placing the shops and restaurants with the greatest revenue per square meter in the most accessible locations. However, more recent research suggests that most passengers prefer to shop after completing the check-in and security screening processes because they are more relaxed (Graham, 2009). Therefore, as additional security and screening measures are enacted, the demand for shops and restaurants located in the departure lounge, beyond the security checkpoint, is likely to increase.

**Other considerations.** Even though their impact on non-aviation revenue may be less significant, the literature suggests that consideration also be given to these three factors: the disappearance of free in-flight catering, the income per capita of the area where the airport is located, and the emotional aspect of the airport experience.

The demand for food and beverages at airports is expected to increase as airlines continue to eliminate free in-flight catering (Appold & Kasarda, 2006). This is good news for airport administrators because restaurants, which are already visited by more passengers than retail shops (The Moodie Report, 2007), contribute to the airport's overall non-aviation revenue. In addition, the impact that an airport's restaurants have on passengers' perception of the facility is also expected to increase (Graham, 2009). According to the literature, the income per capita of

the area where the airport is located is also a determinant of non-aviation revenue. Volkova and Muller (2010) analyzed the relationship between the income per capita and non-aviation revenue and found the greater the income per capita, the greater the amount of non-aviation revenue generated at the airport from retail stores.

Along with in-flight catering and income per capita, the emotional aspect of the airport experience should also be taken into account. In *Maximizing non-aeronautical revenues: Making the emotional connection*, Peter Spurway (2011) draws on the work of Pamela Danzinger, a renowned expert on understanding the mind of consumers, and advises airport administrators to focus on creating an atmosphere that touches passengers and visitors “personally and emotionally” (p. 103). This is relevant to non-aviation revenue generation because higher spending at the airport is the result of a great airport experience, which is characterized by low stress, low anxiety, and an inviting facility that makes passengers and visitors feel welcome (Bork, 2007; Entwistle, 2007; Spurway, 2011).

### **Examples of Innovative Sources**

The airport has evolved from a public utility with the primary mission of providing basic infrastructure to airlines to a more commercialized center that supports an array of businesses (Edwards, 2005; Jarach, 2001; Kasarda, 2008; Nichol, 2007). In response, there is a growing body of literature that is devoted to providing examples of innovative sources of non-aviation revenue (Abeyratne, 2007; Holes, 2010; Kramer, 2010; Reiss, 2007). For example, the:

- Detroit Metropolitan Wayne County Airport has a 420-bedroom upscale hotel inside one of its terminal buildings (Abeyratne, 2007).

- Denver International Airport leases a portion of its unused property to farmers, generating approximately \$300,000 in additional non-aviation revenue each year (Nichol, 2007).
- El Paso International Airport recently opened the Airport Butterfield Trail Golf Club. The professionally designed golf course is complete with an 8,800 square-foot clubhouse.
- Kansas City International Airport plans to open a motorsports park that includes two race tracks, a premier go-kart track, private garages, and a clubhouse (Kramer, 2010).

These examples show that the field of airport management is very dynamic. However, because the literature focuses almost exclusively on large, hub airports, which are able to support a wide range of functions, the literature seemingly neglects small, non-hub airports. Furthermore, the examples are presented in a very broad manner (Abeyratne, 2007; Kramer, 2010). Discussion on the internal and external factors that guided the airport administrators' decision making process is very limited, which suggests that the viability of each venture depends on factors that are unique to each individual airport. For this reason, I interviewed airport administrators at facilities that are similar in size to BGM to answer the research question posed in this project.

## **Methodology**

### **Participants**

I established that in order for an airport to be considered similar in size to BGM, the airport must be within approximately 20,000 enplanements of BGM for 2008 and 2009. In 2008 and 2009, BGM enplaned approximately 108,000 and 98,000 passengers, respectively. As such, similarly sized airports are those facilities with approximate enplanement levels between 88,000 and 128,000 passengers in 2008, and 78,000 and 118,000 passengers in 2009. I used the FAA's *Passenger Boarding (Enplanement) Data* for 2008 and 2009, which is publicly available online,

to identify these facilities. I did not include airports that are within BGM's catchment area or outside the contiguous United States, thereby excluding airports in Alaska, Hawaii, and Puerto Rico. Of the twelve airports that met the criteria, I interviewed administrators at nine of them. The nine airports, along with their location and enplanement levels for 2008 and 2009, are listed in Appendix A.

### **Procedures**

I conducted semi-structured telephone interviews with an administrator at each of the nine airports on the topic of non-aviation revenue. In one instance, two administrators participated in the interview. A copy of the interview instrument is included in Appendix B. For each innovative source of non-aviation revenue that was identified, participants were asked about the factors that prompted them to undertake the initiative and where the idea for the initiative originated. Participants were also asked if each initiative had proven to be a viable way of increasing non-aviation revenue at the airport. In this project, viable means capable of being done in a practical way and having the ability to succeed.

One of the distinct advantages of using telephone interviews as the data collection method for this project is that I was able to pose follow-up questions to the participants. As a result, I obtained more detailed answers to questions than would have been possible using an alternative method, such as written surveys. In-person interviews were not feasible because participants were located at airports throughout the country. Each interview lasted between twenty and forty minutes. Prior to the interviews, this project was reviewed and approved by Binghamton University's Human Subjects Research Review Committee. A copy of the approval letter is included in Appendix C.

**Limitations**

There are limitations associated with the data collection method that I employed. First, the number of interviews was limited because of time constraints. It was not feasible to carry out additional interviews. Second, the airport industry is competitive. Participants may not have answered the interview questions truthfully because of my allegiance to the Broome County Department of Aviation. However, this limitation was mitigated by interviewing administrators at airports outside the catchment area of BGM. Third, it is naïve to think that an initiative that is viable at one airport will be viable at another, simply because the two airports are similar in size. Even though I obtained information from each participant about the types of passengers served and the local economy, time constraints prevented important variables beyond the size of the airport from being thoroughly examined. A replication of this study should incorporate such variables, including those identified in the literature.

**Data Analysis**

I took detailed notes during each telephone interview. The qualitative data that I collected was iteratively reviewed and analyzed using a thematic coding technique. This process allowed me to connect information from each participant and develop a larger contextual framework. Within this framework, I identified pertinent information for answering the research question posed in this project.

**Findings**

Three findings were identified as a result of the data analysis. First, there are a variety of innovative non-aviation revenue sources that are viable at small, non-hub airports. Second, the greatest challenges associated with implementing innovative sources of non-aviation revenue are

inadequate passenger volume and high personnel expenses. Third, airport administrators are willing to share their knowledge and experience regarding non-aviation ventures.

**Finding 1: There are a variety of innovative non-aviation revenue sources that are viable at small, non-hub airports.**

**Agriculture.** Agriculture represents a viable source of non-aviation revenue for some airports. The Chicago/Rockford International Airport in Rockford, Illinois, leases approximately 600 acres to a tenant farmer who harvests corn and soy. The lease generates \$55,000 in revenue each year. The airport is also experimenting with another revenue producing crop: alfalfa. Chicago/Rockford International has replaced 40 acres of grass with alfalfa, which is mowed in much the same way as grass and sold by the airport. Amy Ott, Deputy Director of Administration and Finance at Chicago/Rockford International, says that the revenue derived from the alfalfa sales offset the cost of mowing.

Jon Stout, Manager of the Sonoma County Airport in Santa Rosa, California, is developing a contract with a local farmer who is interested in leasing a portion of the airport's property for cattle grazing. The lease is expected to generate \$2,500 in revenue each year. Similarly, Chris White, Assistant Manager of the Onslow County Airport in Jacksonville, North Carolina, is working with a company that is interested in growing sod at the airport. White says that a similar agreement already exists at the McGhee Tyson Airport in Knoxville, Tennessee. He is also familiar with airports that harvest trees and sell timber. Like Ott, White says the major appeal of farming on airport property is that it offsets expenses. Even if an agricultural venture does not generate a substantial amount of revenue, "at least the airport is getting someone else to pay the cost of maintaining the land," says White.



**Commercial Shopping Centers.** In addition to agriculture, commercial shopping centers also represent a viable source of non-aviation revenue. David Gaines, Manager of the Laughlin/Bullhead International Airport in Bullhead City, Arizona, says that the commercial shopping center that is located on airport property brings in more than \$500,000 each year and is a major source of non-aviation revenue. The shopping center features such stores and restaurants as Sam's Club, Home Depot, McDonald's, International House of Pancakes, Chili's, Taco Bell, and Long John Silver's. Gaines explains, "The tourists really use the restaurants and the community members use the Sam's Club and Home Depot, especially as the community grows." Gaines attributes the success of the airport shopping center to its location and to the demands of the local community. The administration at the Laredo International Airport in Laredo, Texas, is also interested in developing a commercial shopping center. However, it may be three or more years before the idea, which was the product of discussions with a land developer, moves beyond its conceptual form.

**Business and Medical Parks.** Business and medical parks are also potentially viable sources of non-aviation revenue for some small, non-hub facilities. Administrators at two airports are interested in building business parks on airport property. Christopher Rodgers, Executive Director of the Erie International Airport in Erie, Pennsylvania, is developing plans for a business park with a local engineering firm. The airport has approximately 30 acres of developable land that can be used for the project. Once complete, the seven different parcels can be leased individually or collectively to a business park developer. John Stout, Manager of the Sonoma County Airport, is also interested in developing a business park. This summer, the administration will begin working on a strategic business plan that is aimed at identifying

businesses that are interested in establishing operations at the airport. The plan is expected to be complete in three to five years.

Like business parks, medical parks also contribute to non-aviation revenue. Fifteen years ago, the Laredo International Airport initiated the development of a medical park by selling 50 acres to the Laredo Medical Center. This sale served as a catalyst for future development. Over the years, more than 24 acres of airport property have been sold to develop hospitals for entities such as Ernest Health Group and the University of Texas. Furthermore, since the development of the medical park, the fair market value of airport property has increased significantly.

**Miscellaneous Ventures.** Four of the administrators that I interviewed discussed innovative sources of non-aviation revenue beyond the aforementioned categories. These miscellaneous ventures vary in yield and complexity. The La Crosse Municipal Airport in La Crosse, Wisconsin, leases a small amount of land to a company that operates cell phone towers. The ten year lease agreement generates \$30,000 annually. At the Chicago/Rockford International Airport, a portion of undevelopable land is leased to a mineral extraction company. The airport receives royalties from the company on the rock and sand that is mined.

Jon Stout, Manager of the Sonoma County Airport, discussed several miscellaneous ventures, including the airport's lease agreement with a nearby waste water treatment facility. The lease, which generates \$8,500 each year, allows the waste water treatment facility to use airport property to irrigate the water that cannot be discharged in rivers and streams. Also, by renting a portion of its unused taxiway to local junior colleges, police departments, and sports car clubs as a place to practice driving, the airport generates an additional \$25,000 of non-aviation revenue each year. According to Stout, there is a strong demand for such facilities. He says, "What we are finding is that it is more and more difficult for these organizations to find places to

use, to practice their driving, and set-up courses.” Additionally, the Sonoma County Airport has been approached by a company that is interested in building a 50 acre, 5 megawatt solar field on airport property. The lease for the solar field is expected to bring in between \$150,000 and \$200,000 in revenue, or the airport could opt for an electricity credit of equivalent value. The administration would prefer the electricity credit so the airport can be marketed as a green facility.

At the Onslow County Airport, Christ White, Assistant Manager, would like to add a Redbox, which is a fully-automated DVD rental kiosk. “It’s in a lot of airports,” says White. “People want to be able to rent a movie, hop on a flight, watch the movie on their laptop, and return it at the next airport.” This would contribute to the airport’s non-aviation revenue because Redbox would pay the airport a percentage of gross sales and a minimum monthly guarantee.

**Finding 2: The greatest challenges associated with implementing innovative sources of non-aviation revenue are inadequate passenger volume and high personnel expenses.**

It is widely accepted among the administrators that I interviewed that the greatest challenges associated with implementing innovative sources of non-aviation revenue at small, non-hub airports are inadequate passenger volume and high personnel expenses. Patrick Dame, Executive Director of the Grand Forks International Airport in Grand Forks, North Dakota, said, “We [small, non-hub airports] don’t have enough passenger volume.” Five other administrators echoed the sentiments of Dame, which further substantiates the research by Volkova and Muller (2010) on passenger volume and non-aviation revenue.

In addition to passenger volume, personnel expenses were commonly cited as a major challenge. Staff resources are a major concern at small airports because employees are often the greatest expense. Dame says, “I am constantly asking myself: ‘How do you run things most

efficiently but with the least amount of people?” This is important because, as Rodgers, Executive Director of the Erie International Airport, points out, “it’s hard to manage something before revenue starts coming in.” For almost every non-aviation venture, expenses precede revenues, which is a difficult hurdle for small airports to overcome.

**Finding 3: Airport administrators are willing to share their knowledge and experience regarding non-aviation ventures.**

Airport administrators may be able to help one another overcome the challenges associated with implementing innovative sources of non-aviation revenue. Four of the administrators that I interviewed expressed a willingness to share their knowledge and experience regarding non-aviation ventures with fellow administrators, like Rodgers, Executive Director of the Erie International Airport, who says, “We [the airport] are not as healthy as I would like us to be in terms of non-aviation revenue diversification. We need to take steps to make the change.” Even though “the pressures on each airport are unique and different, we [airport administrators] all have a common goal,” says White, Assistant Manager of the Onslow County Airport.

Patrick Dame, Executive Director of the Grand Forks International Airport, is one of the administrators who expressed a willingness to share their knowledge and experience. “We want our counterpart airports to be successful,” he says. A new terminal is scheduled to open at the airport later this year. At that time, Dame will begin sharing details with other administrators who are interested about the design of the airport’s new restaurant, which has been designed to serve customers on both the pre- and post-security sides using a non-public access corridor. “To my knowledge, we will be the second airport in the country that is able to serve both sides. At a minimum, we expect concession revenues to double,” says Dame. The research by Graham

(2009), which suggests that most passengers prefer to shop when they are on the post-security side of the terminal, substantiates Dame's estimation.

David Gaines, Manager of the Laughlin/Bullhead International Airport, is also willing to share his knowledge and experiences regarding non-aviation ventures with others. "We [Laughlin/Bullhead International Airport] hold our self out as an example for small airports to show them what they can become," he says. In general, Gaines advises fellow administrators at small, non-hub facilities to "look at what the larger airports are doing and downsize it to make it workable in their community." Flores, Director of the Laredo International Airport, also stresses the importance of "looking at the local community and seeing what kind of niche the airport can fill." Ultimately, Gaines says that it is important for administrators to have a plan for their airport. He says, "Develop a twenty-year plan and try to stay on track. The trick is to stay focused. It's ok that the priority of projects change, but you need to stay focused. You have to know where you want to go."

### **Recommendations**

Based on the findings, I offer the following recommendations to the Broome County Department of Aviation. First, review the innovative sources of non-aviation revenue identified in this project and evaluate their viability at BGM. Second, assess potential revenue sources of interest in terms of required passenger volume and personnel expenses. Third, work with fellow airport administrators.

#### **Recommendation 1: Review the innovative sources of non-aviation revenue identified in this project and evaluate their viability at BGM.**

The Department of Aviation should review the innovative sources of non-aviation revenue identified in this project and attempt to implement those that it deems viable at BGM.

The Commissioner and Deputy Commissioner of Aviation are best suited to determine the viability of each venture at BGM because of their knowledge and expertise as it relates to the field of airport management and, more specifically, the Greater Binghamton Airport. As previously noted, this project does not account for important variables beyond airport size. Because of this, the Commissioner and Deputy Commissioner should critically analyze each venture. For example, the location of the Laughlin/Bullhead International Airport (IFP) is a major reason why the airport's commercial shopping center is successful. The airport is in close proximity to residential developments, casinos, hotels, and a major highway. However, BGM is located in a much more rural setting. As a result, it is unlikely that a commercial shopping center, like the one at IFP, would be sustainable at BGM. Thus, the innovative sources of non-aviation revenue that have been identified in this project are meant to be investigated and not necessarily replicated.

Based on my knowledge of BGM, two sources of non-aviation revenue that I think are particularly worth exploring are harvesting trees and adding a Redbox kiosk. The 1,199 acres of land that the airport occupies is on a hilltop. Because of the terrain, the land may not lend itself to traditional farming. However, tree harvesting may be a viable alternative, especially because portions of the land are heavily wooded. The department should also consider adding a Redbox, which would contribute to the airport's non-aviation revenue and constitute another amenity for passengers.

**Recommendation 2: Assess potential revenue sources of interest in terms of required passenger volume and personnel expenses.**

Once the Department of Aviation has identified the revenue sources that it would like to pursue, it should assess each venture in terms of required passenger volume and personnel

expenses, which are the greatest challenges associated with implementing innovative sources of non-aviation revenue at small, non-hub facilities. The concerns that these challenges present are likely to vary by alternative and the department may wish to select the alternative that minimizes these concerns.

**Recommendation 3: Work with fellow airport administrators.**

The Department of Aviation should monitor the development of non-aviation ventures at other airports, regardless of size, as suggested by David Gaines, Manager of the Laughlin/Bullhead International Airport. When implementing a new source of non-aviation revenue, the department should discuss the venture of interest with administrators at other airports who have experience with it. These discussions will likely provide the department with valuable information that will enhance its ability to efficiently and effectively cultivate the revenue stream at BGM. For example, an administrator may tell the Commissioner or Deputy Commissioner about unexpected challenges associated with the project of interest that his or her airport had to overcome. As a result, the Department of Aviation can prepare for these challenges and avoid any mistakes that may have been made.

**Conclusion**

The Broome County Department of Aviation's ability to achieve lower station costs for airlines at the Greater Binghamton Airport and continue to operate the airport without encumbering Broome County taxpayers is contingent, in part, on the department's ability to increase non-aviation revenue. Fortunately, there are a variety of innovative non-aviation revenue sources that are viable at small, non-hub airports; the greatest challenges associated with implementing innovative sources of non-aviation revenue are well-known; and, airport administrators are willing to share their knowledge and experience regarding non-aviation

ventures with others. The recommendations set forth in this capstone project constitute a strong foundation on which the Department of Aviation can build its efforts of cultivating and sustaining innovative sources of non-aviation revenue.



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## Appendix A

## Participant Information

<b>Airport Name</b>	<b>City</b>	<b>State</b>	<b>Identifier</b>	<b>2008 Enplanements</b>	<b>2009 Enplanements</b>
<i>Greater Binghamton</i>	<i>Binghamton</i>	<i>NY</i>	<i>BGM</i>	<i>108,325</i>	<i>98,090</i>
Chicago/Rockford International	Rockford	IL	RFD	110,151	96,812
Coastal Carolina Regional	New Bern	NC	EWN	111,184	112,881
Ellis Airport	Jacksonville	NC	OAJ	126,947	119,961
Erie International	Erie	PA	ERI	124,667	121,164
Grand Forks International	Grand Forks	ND	GFK	88,093	97,361
La Crosse Municipal	La Crosse	WI	LSE	111,462	104,537
Laredo International	Laredo	TX	LRD	106,682	101,252
Laughlin/Bullhead International	Bullhead City	AZ	IFP	122,192	107,595
Sonoma County	Santa Rosa	CA	STS	100,676	91,241

## Appendix B

## Interview Instrument

Introductory questions for all participants:

- What are the major contributors to the airport's non-aviation revenue?
- Is the restaurant/shop located pre- or post-security?
- Have you undertaken any new or innovative initiatives to increase non-aviation revenue?

Questions for participants who have undertaken innovative initiatives:

- What prompted you to undertake the initiative(s)?
- Where did you get the idea(s) for the initiative(s)?
- Have the venture(s) proven to be viable ways of increasing non-aviation revenue at the airport?

Question for participants who have *not* undertaken innovative initiatives:

- Why not?

Concluding questions for all participants:

- Are there any ventures that you are interested in undertaking in the future to increase non-aviation revenue?
- What do you think are the biggest challenges for small, non-hub airports when it comes to generating non-aviation revenue? If possible, how can these challenges be overcome?
- Is there something unique about your area or local economy that has a significant impact on the airport's non-aviation revenue?
- What types of passengers does the airport primarily serve?

## Appendix C

## Human Subjects Research Approval Letter

Date: February 28, 2011  
To: Brandon Frisbie, MPA  
From: Anne M. Casella, CIP Administrator  
Human Subjects Research Review Committee

Subject: Human Subjects Research Approval

Protocol Number: 1628-11

Protocol title: *Generating Additional Non-Aviation Revenue at the Greater Binghamton Airport*

Your project identified above was reviewed by the HSRRC and has received an Exempt approval pursuant to the Department of Health and Human Services (DHHS) regulations, 45 CFR 46.101(b)(2) .

An exempt status signifies that you will not be required to submit a Continuing Review application as long as your project involving human subjects remains unchanged. If your project undergoes any changes these changes must be reported to our office prior to implementation, using the form listed below:

[http://humansubjects.binghamton.edu/2009\\_Forms/012\\_Modification%20Form.rtf](http://humansubjects.binghamton.edu/2009_Forms/012_Modification%20Form.rtf)

Principal Investigators or any individual involved in the research must report any problems involving the conduct of the study or subject participation. Any problems involving recruitment and consent processes or any deviations from the approved protocol should be reported in writing within five (5) business days as outlined in Binghamton University, Human Subjects Research Review Office, Policy and Procedures IX.F.1 Unanticipated Problems/adverse events/complaints. We also require that the following form be submitted:

<http://humansubjects.binghamton.edu/Forms/Forms/Adverse%20Event%20Form.rtf>

University policy requires you to maintain as a part of your records, any documents pertaining to the use of human subjects in your research. This includes any information or materials conveyed to, and received from, the subjects, as well as any executed consent forms, data and analysis results. These records must be maintained for at least six years after project completion or termination. If this is a funded project, you should be aware that these records are subject to inspection and review by authorized representative of the University, State and Federal governments.

Please notify this office when your project is complete by completing and forwarding to our office the following form:

<http://humansubjects.binghamton.edu/Forms/Forms/Protocol%20Closure%20Form.rtf>

Upon notification we will close the above referenced file. Any reactivation of the project will require a new application.

This documentation is being provided to you via email. A hard copy will not be mailed unless you request us to do so.

Thank you for your cooperation, I wish you success in your research, and please do not hesitate to contact our office if you have any questions or require further assistance.

cc: file

Kristina Lambright

***Diane Bulizak, Secretary***

*Human Subjects Research Review Office*

*Biotechnology Building, Room 2205*

*85 Murray Hill Rd.*

*Vestal, NY 13850*

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