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Frederick Municipal Airport: Expansion & Business Development Strategy

Airport Team 2

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Executive Summary

Frederick Airport (FDK) has the potential to become a self-sufficient, leading executive airport by focusing on increasing the number of customers and leveraging existing space and expertise. The runway extension will increase the number of potential customers that can land at FDK, but an improved online presence will attract customers who simply were not aware of FDK. Frederick can also capitalize on existing space, in turn capturing additional revenue, by building additional T hangars, which will simultaneously satisfy the backlog of customers waiting for hangar space to rent.

Additionally, recommendations are to improve the airport's value to the community by hosting aviation related events and participating in "agritourism" with hot air balloon type services. The future of the unmanned aerial vehicle industry may also present opportunities for FDK to provide valuable services; however, it may present safety issues and Frederick should make a concerted effort to stay apprised of the best practices in order to keep air travel at FDK safe.

Industry Analysis of Domestic Airports using Porter's Five Forces

The airport industry is a highly competitive market; passengers see one flight as indistinguishable from another, as long as it gets them from place to place. As a result, 70 percent of airports do not turn a profit. Airports are capital intensive, which keeps the number of airports in any one location low. The following is an in depth analysis of the factors affecting airport profitability.

Overview

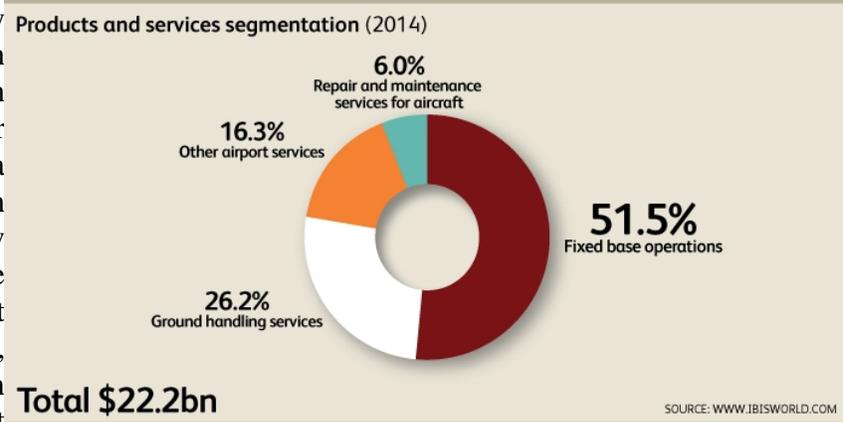
The domestic airport industry includes businesses that operate international, national, municipal airports or public flying fields. It also includes operators that support airports, offering aircraft refueling, aircraft parking, hangar space rental, air traffic control services, cargo handling services and others. This industry does not include wholesale fuel at airports, janitorial services, food services or conversion and rebuilding of aircraft.¹ The scope of this report will focus on major airports due to lack of information directly related to municipal airports.

Domestic airports make money by providing the following services:

1. Refueling
2. Airplane storage
3. Airplane maintenance
4. Air traffic control
5. Baggage and cargo handling
6. Rental cars
7. Miscellaneous amenities (restaurants, shops, etc.)

Note: See Appendix for STEEP analysis and nearby airport information.

The domestic airport industry is a low concentration (C4=24.2 percent) \$22.2 billion industry with a recent 5-year growth rate of 2.7 percent, a rate that is expected to remain at this level for the next few years. In recent years, the economic downturn was offset by increased corporate profits, which kept airport growth steady. It should be noted that



while the revenues are in the tens of billions for the industry, there is a total loss of \$467 million. Approximately 70 percent of airports do not break even.² The most profitable airports, and those that account for the majority of the revenue, are the few major airports located in or near highly dense urban cities. Smaller municipal airports have experienced large losses in recent years, but are slowly recovering as corporate profit margins return.

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Another major economic driver for the airport industry is the price of crude oil, which has seen a significant downturn since June of this year. This reduction in cost of oil can be leveraged to increase the margin on oil sales to improve the airport's balance sheet.

The general increase in economic activity drives an increase in regular flights, business flights, and recreational usage of airports. This upward trend is expected to continue over the next five years. However, even with these improvements in economic drivers, the average industry profit margin will remain at -2.1percent, according to IBIS World.

See Appendix for additional information regarding major industry players and an explanation of Porter's Five Forces.

Industry Outlook

During the recession, many major airports cut capacity by reducing the overall number of flights. The increase in U.S. economic activity will allow airports to expand operations moving beyond challenges of the past year, helping them to cover the high fixed costs associated with operating an airport. The federal government has established an airport improvement program, which has set aside \$3 billion annually over the next five years to provide capital to the growing airport

industry. While this is convenient, the ability to help airport profitability is limited as stated on the faa.gov site:

“Eligible projects include those improvements related to enhancing airport safety, capacity, security, and environmental concerns. In general, sponsors can use AIP funds on most airfield capital improvements or repairs and in some specific situations, for terminals, hangars, and non-aviation development. Any professional services that are necessary for eligible projects — such as planning, surveying, and design — are eligible.

Projects related to airport operations and revenue-generating improvements are typically not eligible for funding. Operational costs — such as salaries, equipment, and supplies — are also not eligible for AIP grants.”³

While the project cannot be strictly for profit-based items, the Federal Aviation Administration's (FAA) new NextGen air traffic control (ATC) technology will increase the efficiency with which aircraft move, transforming the United States' air traffic control system from a ground-based system to a satellite-based system. The new system will ultimately shorten routes, save time and fuel, reduce traffic delays, increase capacity and enhance safety. This sort of improvement may qualify for airport improvement money and may increase competitive advantage for the Frederick Municipal Airport.

Private travel demand is projected to increase over the next five years at a rate of roughly 3.2 percent, as employment and wages return to pre-recession levels. More importantly, corporate travel is expected to increase at a rate of 3.4 percent per year, reaching an all-time high in 2019, as companies' profit margins allow them to fund air travel needs for their business.⁴ This is good news for airports because corporate travelers tend to spend more money, as they are not spending their own disposable income.

FDK Competitor Analysis

Competitive Environment

FDK's proximity to two major metropolitan areas, Baltimore and Washington, D.C., creates a unique, competitive environment for a regional airport. Not only is FDK vying for business with other General Aviation airports in the area, they must also contend with large regional and international airports offering hundreds of daily flights from around the globe. For travelers that value convenience, FDK has a significant advantage over large airports. Travelers can avoid the lengthy security, baggage claim, parking, and other logistical issues commonly experienced at regional airports. Furthermore, FDK holds a geographic advantage with its proximity to major highways, most notably Interstate Highway 70 and State Highway 270. These major highway systems conveniently put Baltimore and Washington within an hour drive from FDK. Finally, FDK is situated between two areas of restricted airspace, DC and Camp David, allowing easier flight planning and navigation.

The following analysis is broken into three parts: Baltimore Metro Area Competitors, Washington, D.C. Metro Area Competitors and similar sized airports that have Landmark Aviation as Fixed Based Operator (FBO).

Baltimore Metro Area Competitors

The two major competitors FDK faces in the Baltimore Metro Area are Baltimore-Washington International Airport (BWI) in Hanover, MD and Martin State Airport (MTN) in Middle River, MD. Both BWI and MTN are located within 15 miles of the City of Baltimore and are easily accessible by major highways.

BWI is a major international airport that handles an average of 700 flights per day, with 80 percent of those being commercial flights. Signature Flight Support manages BWI. As a major airport, BWI offers a number of services, including a variety of amenities to pilots: a number of restaurants, showers and lockers, 24-hour fitness center, and full de-icing services. Passengers have access to restaurants, rental cars, paid parking with shuttle service and public transportation, including Light Rail, MARC Trains, and taxi services. With four runways ranging from 5,000 ft. to 10,502 ft., BWI is designed to accommodate commercial aviation services that support any size aircraft. BWI operates 24 hours a day, 365 days a year. While BWI operates as a major commercial airport, it also handles storage for 70 field-based aircraft, made up of 47 single engine aircraft, 16 jets, and 7 multi-engine aircraft.

Conversely, on average MTN's daily flights number slightly over 200 with Transient General Aviation flights making up 61 percent of that daily volume. Pilots have access to Wi-Fi, a pilots' lounge, snooze room, and full de-icing services, but there is no restaurant on the premises. Airport hours are from 0600 to 2300, seven days a week. MTN operates with one runway that is 6,997 ft. in length. Additionally, MTN offers hangar and tie down storage to 229 field based aircraft, consisting of 160 single engine aircraft, 27 multi-engine aircraft, 24 military aircraft, 10 jets, and 8 helicopters.

Washington, D.C. Metro Area Competitors

In the Washington, D.C. Metro Area, FDK faces similar competition from large international airports and regional airports that it faces in the Baltimore region. The major competitors that FDK faces in the D.C. market are Dulles International Airport in Dulles, VA, Leesburg Executive Airport in Leesburg, VA, and Warrenton-Fauquier Airport in Warrenton, VA.

Dulles International Airport (IAD), managed by Landmark Aviation and Signature Flight Support, is located 20 miles west of downtown D.C. and is a major international operation. On average, IAD handles 974 flights a day: 47 percent are commercial, 39 percent are air taxi services, and 12 percent are transient general aviation customers. The amenities offered on premises are Wi-Fi, pilot's lounge, VIP services, and executive conference rooms. In addition to these services, there are also a number of restaurant, transportation (public and private), paid parking with shuttle service, and rental car services available. The airport is in continuous operation, open 24 hours a day, 365 days a year, with three runways ranging from 9,400 ft. to 11,500 ft. IAD offers hangar and tie down storage for 54 field based aircraft, consisting of 37 jets, three single engine aircraft, three helicopters, and two multi-engine aircraft.

Situated approximately 20 miles southwest of downtown D.C., Leesburg Executive Airport (JYO) serves as a hub for general aviation pilots in Northern Virginia. Managed by ProJet Aviation, JYO handles just over 300 flights on average each day. Flights consist of 87 percent local general aviation, 10 percent transient general aviation, 2 percent air taxi, and 1 percent

military. This airfield also serves 248 Field Based Aircraft, made up of 208 single engine aircraft, 30 multi-engine aircraft, six helicopters, and four jets. Onsite amenities include bottled oxygen, private aircraft charter, flight planning center, pilots' lounge, conference room and concierge services. JYO operates seven days a week from 0600 to 2200, with a single runway stretching 5,499ft. JYO does not have a control tower onsite.

Warrenton-Fauquier Airport (HWY) is located 50 miles southeast of D.C., similar to FDK's proximity to Baltimore, and operates with a single 5,000 ft. runway. This public airport operates seven days a week from 0800 to dusk and does not have a control tower. Managed by Warrenton Fauquier, amenities include a pilot school, passenger terminal and lounge, flight training aircraft, aircraft rental and aircraft charter. At HWY, there are 103 field-based aircraft, consisting of 85 single engine, 12 multi-engine, three helicopters, and three ultralight aircraft. On average, there are 126 daily flights: 63 percent are Local General Aviation, 35 percent are Transient General Aviation, and one percent are Air Taxi services.

Landmark Aviation Competitors

The following analysis for Charlottesville-Albemarle Airport of Charlottesville, VA and Chester County G.O. Carlson Airport in Coatesville, PA serve to compare FDK to other airports of a similar size managed by Landmark Aviation.

Charlottesville-Albemarle Airport (CHO) is a continuous operation, open seven days a week and managed by Landmark Aviation. The runway is 6,801 ft. long and is considered to be in good condition. CHO offers hangar and tie down storage for 68 field based aircraft, consisting of 49 single engine aircraft, 11 jets, seven multi-engine, and one helicopter. The airport handles an average of 186 daily flights, of which 39 percent are Transient General Aviation, 27 percent are Local General Aviation, 27 percent Air Taxi, and 7 percent military. Onsite amenities include passenger lobby, pilot lobby, courtesy transportation, executive conference room and a flight planning room. There is no restaurant on the premises but catering services are available to accommodate meetings that take place in the executive conference room.

Located in Coatesville, PA, the Chester County G.O. Carlson Airport (MQS) operates with a single 5,400 ft. runway 24 hours a day, seven days a week, 365 days a year. There are a total of 119 Field Based Aircraft utilizing hangar and tie down services, consisting of 84 single engine aircraft, 20 jets, and 15 multi-engine aircraft. Average daily flights, which total 114, are made up of 55 percent Transient General Aviation, 38 percent Local General Aviation, and 6 percent Air Taxi services. The Flying Machine Café is the only restaurant onsite. Additional amenities include a passenger lobby, workstations with internet access, heated hangar, wireless internet and a flight-planning center.

Marketing Strategy⁵

Currently, FDK's presence is not widely known, familiar only to the general aviation (GA) community that uses the airport. In order to secure a larger presence, we suggest that FDK develop a comprehensive marketing strategy that creates a brand image that attracts new and existing audiences. This includes a revamp of its website, creating a press kit for easily accessible contact information, installing new signage and marketing directly to potential FDK

users via e-mail and mail. The development of a social media presence is also paramount for FDK to reach a larger audience.

Branding

FDK currently has no brand to identify itself from other aspects of The City of Frederick. We recommend that they create a brand by developing a key message that represents the airport, cohesive graphics to be used by the airport, a color scheme, and a logo.

In an effort to project FDK's brand to the aviation marketplace, airport management could initiate a re-naming campaign. FDK could involve management, employees and the surrounding community in compiling a list of suggestions that ties the airport with the brand, its mission and its importance to the community. Alternatively, management could select a name such as Frederick Executive Airport, Frederick National Airfield, or another name to help fit closely with FDK's desired identity.

Graphics, Color Scheme and Logo

Frederick is proud of its rich heritage and reputation as a hub for innovation. Due to its proximity to the Civil War battlegrounds of Monocacy, Antietam and Gettysburg, we suggest that FDK choose a silver, red, white and blue color scheme. This reflects the City's historic past and its passion for innovation.

See Appendix for supplemental materials.

Website

The current FDK website is basic, contains limited information. It is embedded within The City of Frederick website. We propose an independent website that is solely for the airport. On this website, appropriate parts of the press kit (details below) would be available to disseminate key contact information. The website would also include information about The City of Frederick and a direct link back to the City's page. The website needs to have a greater presence on Internet searches; currently, FDK is difficult to find. Some investment should be made in order to place the FDK site among the top five search results when searching for "Frederick, MD." The website should also have links to local businesses that are affiliated with the aviation industry as well as a link to The City of Frederick's tourism page.

Press Kit

The FAA recommends that airports compile a press kit to support all media activities an airport might encounter.⁶ FDK should create both a print version of the press kit and an electronic version that can be accessed on the airport website. There are many benefits to having a press kit, including consistent branded responses and the ability to provide accurate information in a timely manner.

See Appendix for information on components of the Press Kit.

Signage

The current FDK signage should be improved to help renovate FDK's image. We propose that FDK install attractive, prominently displayed airport signage that identifies aviation and non-aviation capabilities at FDK. The signage should be consistent with the brand of FDK, described in a later section. The newly installed signage will allow patrons to easily identify buildings such as the hangar location, aviation fuel stations, restaurant and airport lounge. In addition, signs can be placed on streets approaching FDK from downtown Frederick, providing directions and a sense of entering the airport grounds. In some cases, fabric banners can be used and would be changed for various FDK events. When possible, the airport should seek to use local vendors to foster a greater sense of community between local businesses and FDK.

Direct Marketing

FDK should obtain a list of pilots and aircraft owners within 50 miles of the airport for a direct marketing plan. The list should include name, address, email and type of aircraft owned. Throughout the year, FDK should solicit this list by mail to encourage owners to explore local aircraft rentals, hanger leases, maintenance services and fueling opportunities. FDK should also create a periodic newsletter to be sent via email regarding announcements and developments at FDK, including upcoming events.

Advocacy & Social Media

FDK is well liked by visitors⁷, which provides a good foundation for growing its customer base. A strong reputation for service and amenities is critical for attracting additional visitors. In general, visitors of FDK do not widely share their positive experience at FDK with others. We propose the following strategies to help expand FDK's presence and reputation:

Perks with Full Service Fueling

This can be as simple as coupons to local businesses/airport restaurant and information for upcoming events in the area.

Social Media Presence

Provide perks to pilots and/or guests that use social media—such as Facebook, Twitter or AirNav—to “check-in” at FDK or comment about their experience at least five times a year. These benefits could be a free coffee in the lounge, FDK T-shirt, or discounts to local restaurants and hotels. AirNav and other GA platforms are of great importance, because word-of-mouth bears great weight in the tightknit community of private pilots.

Data from social media tagged for FDK could be leveraged to understand trends or seasonality of pilot behavior. Additionally, FDK could advertise events on these platforms, potentially bringing in people who would have not known about the event otherwise.

Customer Appreciation Events

Consider instituting customer appreciation events at FDK, such as steaks for pilots that purchase 100 gallons of fuel a month, a summer general aviation barbeque, an airshow co-hosted with The City of Frederick and/or local businesses, or a charity pancake breakfast at the airport (with special pilot's invitation).

Expansion Strategy

Frederick Airport has an existing demand for 55 T hangar rentals that it should accommodate by building more T hangars, in accordance with the layout guidance provided in the FDK Master Plan. By issuing 20-year bonds at three percent interest, this would generate profits for FDK.

Overview

Per the results of the Delta Consultants report, it would cost Frederick Airport around \$9.4 million to build 72 T hangars. If bonds can be issued at 3 percent to raise the capital required to complete the project, the additional T hangars will result in profits for Frederick airport. There is an existing waiting list of 55 people interested in renting T hangar space at Frederick Airport, so the occupancy for 72 hangars would be 76 percent almost immediately.

If the recommendations mentioned in this report are implemented, it is expected that a significant amount of additional executive traffic will flow through FDK. It makes sense that the interest in T hangar space would also increase, making the 72 hangars a strategic option that would capture future customer needs.

It is assumed that bonds would be issued to raise the capital needed for the T hangar project. A sensitivity analysis was done to determine the impact of interest rates and the durations of those bonds on the profitability of the project. It was also determined that a competitive rate for hangar rental would be \$700-\$800/month. Our model does not account for the occasional increase in rental prices that would naturally occur over the life of the bonds, which would have a positive impact on the profitability of the hangars.

Financial Analysis

Assuming an interest rate of 3 percent, 72 hangars rented at \$700 each would result in an overall profit of \$24,000/yr. The same interest rate and number of hangars, charged at a rate of \$800 each would result in \$110,000 per year in profits.

Hangars	Monthly Rent rates	Revenue Per T Hangar/Year	Revenue/year	Debt Cost/Year	Profit/Year
72	\$700.00	\$8,400.00	\$604,800.00	\$580,743.71	\$24,056.29
72	\$800.00	\$9,600.00	\$691,200.00	\$580,743.71	\$110,456.29

It should be noted that the sensitivity to the cost of capital was high. At interest rates of four percent, the rental rate would have to be \$800/month in order to generate profit. Anything above four percent would require a rate that is unrealistic. The rental rates, as noted above, would naturally increase over time and would make higher interest rates possible but, due to time constraints, that analysis was not performed.

Alternative Use Strategy

Overview

As the primary executive regional airport in the Baltimore/D.C. Metro area, business travel will account for the lion's share of activity on weekdays at FDK. It is expected that weekends at FDK

will have far fewer business travelers. Representing nearly 30 percent of FDK's operating days, weekends should be optimized for capturing profit and providing value for the community.

Events and services that are complementary to the airport or flight industry, such as AOPA events and UAV/UAS (unmanned aerial vehicles/unmanned aircraft systems), should be considered to supplement business travel and private aviation. For some Frederick residents, the airport is already a familiar place for leisure activities. Families can observe planes taking off and landing in the surrounding grassy areas and parking lot, but there is an opportunity to make additional observation space to make the airport more inviting. A stronger bond with the community should be made through the alternative uses that are discussed below. Not only will Frederick citizens view the airport as an important community asset, but the airport also stands to gain additional revenue through auxiliary services and amenities.

Aerial Sightseeing Services

The Frederick Municipal Airport is well positioned to cater to aerial sightseeing services, given their designated Class D airspace, which can be used by helicopters, hot air balloons and small planes. The Sightseeing Transportation Industry produced \$3.3 billion in revenue in 2014.⁸ Over 17 percent of total industry revenue was generated by aerial sightseeing services including helicopter rides, hot air balloon rides and small airplane rides.⁹

The Airport can increase revenue and generate tourism by leveraging aerial sightseeing services. According to the Official Tourism of Frederick County website, the surrounding area consists of wineries, orchards and historic Civil War battlefields. The interactive map found online shows ten wineries and two microbreweries all within miles of the Frederick Municipal Airport (see Appendix).¹⁰ Agritourism is popular and prevalent in the area with autumn farm festivals, corn mazes, and "Farm-to-Fork" experiences (sponsored by The City of Frederick). These tourism opportunities could leverage hot air balloon rides or helicopter rides as a mode of transportation between farms, wineries or battlefield grounds. Packages could be created between local restaurants, wineries, breweries, and farms that would partner with FDK to offer day-trips.

Leased space to aerial sightseeing companies would generate additional revenue and require use of very little land. Coordination would be required between the tour companies and the Airport to ensure minimum disruption to regular landing and takeoff activity. Class D Airspace requires use of 2-way radio communication, easing the challenges of coordination by using the control tower.¹¹

Additionally, many municipal airports host hot air balloon festivals to draw both locals and tourists to the area for a weekend full of events, such as a balloon rallies, evening balloon glow shows and free rides, all among food, music and other entertainment offerings. Municipal airports rely on local businesses and corporate partners to sponsor and fund events. Corporate advertising on hot air balloons is another revenue opportunity. Volunteers are used to set up, tear down and assist visitors during the events, minimizing costs to the Airport.

FDK would enjoy monopolistic benefits if hot air balloon services were offered, as there are no hot air balloon ports in the state of Maryland. The closest private balloon port near Frederick is located in Unison, Virginia, approximately 30 nautical miles away, and the next nearest in New

Jersey, over 150 nautical miles away.¹² There are no public hot air balloon ports in a 200 nautical mile radius.

Adoption of hot air ballooning may be difficult since Maryland does not have a balloon club or hobbyist group.¹³ Many states have an established hot air balloon club, which is similar to a pilot's club such as the AOPA. Operators of hot air balloons must obtain a pilot's license, which requires flight time with a licensed operator prior to a check ride and written exam, among other requirements. However, FDK could partner with a professional balloon company to offer fee-based rides initially and create interest among the community.

UAV/UAS

UAV integration safety, government regulation, and customer demand need to be the key areas of focus for the Airport.

Safety

It is in FDK's best interest to work with Landmark to ensure that the newest policies and procedures for UAV operations are followed. A close relationship with Griffiss International Airport, NUAIR, and the three leading UAV manufacturers will provide cutting-edge guidance as these documents are developed.

It is also recommended that a public awareness campaign be created to educate the citizens of Frederick about the existing rules governing model UAV operations. Adults and children alike will be purchasing UAVs for recreational use in the near future and they may not be aware of the restrictions, such as not operating a UAV within 5 miles of an airport, not flying them in populated areas, and not exceeding 400ft in altitude. A partnership with the Frederick Model Aircraft Club may be mutually beneficial to develop joint policies and public education.

While this focus will not directly bring in additional revenue, it will protect the airport's reputation by protecting the community. The costs of non-action—tangible and intangible—should be considered.

Government Regulation

As mentioned above, developing a relationship with Griffiss International Airport will keep Frederick Airport informed of the likely guidance that will be established for UAV operations. Knowing the guidance before it is published will give Frederick the opportunity to comply quickly and develop best industry practices. It will also provide insight into future customer demand as the legislation opens the air space to more types of UAVs, allowing Frederick to intelligently position itself and optimize value capture.

As the FBO, Landmark should be steeped in the current legislation as well as any changes in government policy governing UAV operations. The Airport should discuss the developments within the UAV industry with Landmark to ensure that the City's vision for UAV integration aligns with Landmark's role as FBO.

Customer Demand

Additional hangar bays and maintenance facilities should be built, or existing ones upgraded, to accommodate the new types of aircraft. Control tower features may also need to be upgraded.

UAV price tags are similar to that of manned jet aircraft; Reapers cost around \$12M and Predators around \$5M, but the technology may warrant additional airport security.

See Appendix for supplemental information regarding UAV/UAS.

Appendix

Supplemental Industry Analysis

The Port Authority of New York and New Jersey Airport Facilities – Financial Performance (Largest market share – 11 percent)

The Port Authority of New York and New Jersey (industry-specific segment) – financial performance

Year	Revenue (\$ million)	(% change)	Operating Income (\$ million)	(% change)
2009	1,969.5	7.6	285.1	47.1
2010	2,040.5	3.6	305.3	7.1
2011	2,122.9	4.0	292.1	-4.3
2012	2,169.9	2.2	305.7	4.7
2013	2,331.8	7.5	398.9	30.5
2014*	2,457.7	5.4	430.1	7.8

*Estimates

SOURCE: FEDERAL AVIATION AUTHORITY

JFK International Airport, Newark Liberty International Airport, LaGuardia Airport, Stewart International Airport, Teterboro Airport, Atlantic City International Airport

BBA Aviation PLC – Financial Performance (Second largest market share – 5.2 percent)

BBA Aviation PLC (North American flight support segment) – financial performance

Year	Revenue (\$ million)	(% change)	Operating Income (\$ million)	(% change)
2009	814.3	-19.3	75.8	-12.0
2010	924.9	13.6	97.2	28.2
2011	1,062.4	14.9	99.5	2.4
2012	1,065.1	0.3	90.7	-8.8
2013	1,105.9	3.8	103.9	14.6
2014*	1,155.7	4.5	109.8	5.7

*Estimates

SOURCE: ANNUAL REPORT AND IBISWORLD

Supplemental Porter's Five Forces

Threat of a Substitute Product or Service – High

- 1.1 Aviation is a constantly advancing industry where technology and efficiency play primary roles in improvement and change. New products could emerge, or existing products could become more affordable and accessible.
- 1.2 Aviation is often the most expensive method of transportation.
- 1.3 There are seven municipal airports within an hour of Washington, D.C. alone. There are also three accessible commercial airports in Baltimore and D.C. Amtrak, rail, car transportation and buses are current substitutes for air travel. The D.C./Baltimore Metro has an extensive highway system making car road travel easy. However, traffic is some of the worst in the country.

Bargaining Power of Suppliers – Medium

- 2.1 The land has already been purchased to extend the runway. The surrounding highways, golf course, housing developments and river limit construction of an extended runway. Note: See Appendix for surrounding area map.
- 2.2 Fuel, parts and plans are readily available from manufacturers and third party suppliers.
- 2.3 Storage space and hangar space has also been purchased, but redevelopment must take place.

Bargaining Power of Customers – Low

- 3.1 Fuel prices are often volatile and drastically effect demand for recreational aviation. High net worth or high discretionary income is required for private aviation. Licensing costs are approximately \$10,000 and equipment rental is expensive.
- 3.2 Aviation is already differentiated. Recreational aviation is not adopted widely due to costs, equipment and licensing.
- 3.3 There is high demand for indoor private jet storage with climate control. The land to build hangars is already purchased.

Threat of New Entrants – Low

- 4.1 Construction of airports is capital intensive, requires land acquisition and permits, and is highly regulated by federal and local government. Building a new airport for municipal use versus commercial use would require less capital and planning. However, there is neither the population nor the demand to justify a second municipal airport in or near Frederick, because of the proximity other regional airports in D.C. and Baltimore.

- 4.2 The airport industry has consolidated over the past few decades. Airports that have acquired land in recent years have enjoyed stronger competitive positions due to the potential for expansion of their runways. FDK is an example where the airport has secured additional land and could expand the runway with further development.

Intensity of Competitive Rivalry – High

- 5.1 The location of the Frederick Municipal Airport is a competitive advantage given its proximity to Baltimore and D.C. FDK is also close to National Institute of Health, Walter Reed National Military Medical Center, 270 Biotech Corridor and Camp David.
- 5.2 All airports offer the same service. There is a distinct market for commercial aviation and municipal aviation. Large commercial airlines lease terminals at regional and international airports servicing private commercial travelers. Conversely, a Fixed Based Operator (FBO) leases and operates a municipal airport where small, privately owned airplanes used for business and private travel arrive and depart. Storage for privately owned airplanes is also offered on premise at municipal airports.
- 5.3 Many airports are closer to D.C. or Baltimore than the Frederick Municipal Airport, but those airports are highly congested. All regional airports near FDK have runways that accommodate larger planes and many operate 24 hours, 7 days a week. In comparison, FDK is open 7 days, but only 22 hours each day.
- 5.4 The market for airports is stagnant and there has been consolidation. Airports can expand runways to serve more segments in the market. Entirely new airports are very rare.

Supplemental Marketing Strategy

Press Kit¹⁴

A Press Kit typically includes the following:

- A website or physical cover with the airport's brand (logo, key message, graphics, and colors)
- Information for media inquiries
- Office hours
- Phone numbers
- How to request an interview
- Airport access
- Fact sheet about the airport
- Image library (photos of the airport)
- Airport newsletter
- News releases
- Staff biographies
- Members of the airport governing group (airport commission or authority)
- Airport tenants and businesses
- Airport statistics
- Airport financial records

- Business cards and stationery that carry the airport’s brand
- A copy of the most recent master plan and descriptions/visuals about current airport projects.

Graphics, Color Scheme and Logo

Example of a new logo for the Frederick Municipal Airport:



Supplemental Alternative Use Strategy



Frederick Tower & Class D Airspace

QUICK REFERENCE CARD
airsafetyinstitute.org/fdktower

CLASS D REQUIREMENTS

- Equipment: Two-way radio
- VFR: Establish and maintain two-way communication with ATC
- IFR: ATC clearance
- Visibility: 3 statute miles
- Cloud clearance: 500' below, 1000' above, 2000' horizontal

UAV/UAS

Unmanned aerial vehicles and systems (UAV/UAS) are the future competitive advantage for many businesses in a variety of industries. UAV and UAS are expected to become a \$27 million/day (\$9.86B/year) industry.¹⁵ This boom in demand is the result of a myriad of commercial applications that will provide substantial cost savings.

“Today, unmanned aircraft are flying in the NAS [national airspace system] under very controlled conditions, performing border and port surveillance by the Department of Homeland Security, helping with scientific research and environmental monitoring by NASA and NOAA, supporting public safety by law enforcement agencies, helping state universities conduct research, and supporting various other missions for public (government) entities.”¹⁶ - FAA

Currently, the Department of Defense accounts for 90 percent of industry spending on UAV manufacturing.¹⁷ This high percentage is driven by the fact that the US mostly operates drones in

foreign airspace for military purposes—but that will change. The FAA has a plan in place to establish operating procedures for UAVs in the US national airspace system (NAS) by September 15, 2015. While there are currently UAVs in use via Certificates of Authorization by the FAA, primarily granted to farmers and the film industry, once the procedures are established and the legislation is passed there will be a surge in commercial demand.

There are six sites approved by the FAA tasked with developing a plan for safely integrating UAVs into NAS. These sites are currently focusing on vehicles that weigh 55lbs or less and have been cleared for testing through 2017. They are tasked with providing a safe environment for establishing policies and procedures for pilot and crew, control stations, data links and unmanned aircraft (Figure 1).

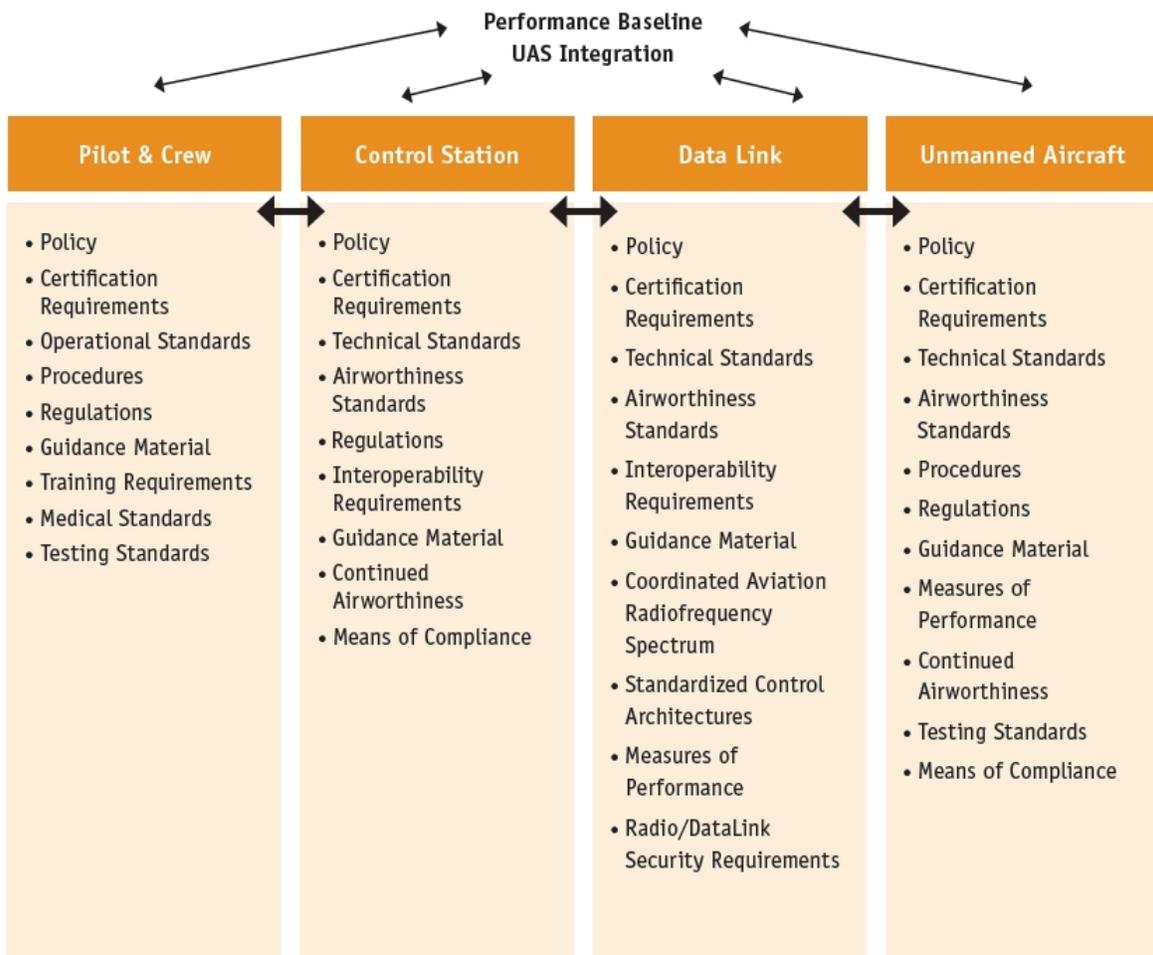


Figure 1 – Areas of Required Development for UAV Integration

There are three major players in the UAV manufacturing industry: General Atomics, Northrup Grumman and Textron. These three companies comprise 56.8 percent of the industry revenue. With high barriers to entry, it is unlikely that these major players will change in the near future.

Maryland is centrally located (Figure 2) to 15.8 percent of the UAV manufacturing market (MD, VA, PA, NJ); it should be noted that the distribution of manufacturing facilities has not changed

significantly in the past few years. Additionally, the Northeast UAS Airspace Integration Research Alliance (NUAIR) is operating out of Griffiss International Airport in New York, which is one of the six UAS test sites approved by the FAA.



Figure 2 – Geographical Distribution of UAV Manufacturing Facilities¹⁸

The figure below (Figure 3) shows that there have been 70 crashes since 2001, 15 close calls within the last two years and that there are 110 UAV bases planned for development by 2017. The UAV industry was in its earliest stages when these incidents occurred and as more drones enter the airspace, the risk of these incidents will increase. Also or note are the relatively large number of incidents and UAV bases around Maryland.



Figure 3 – UAV Crashes, Close Calls, and Planned Bases Since 2001¹⁹

The Washington Post also provided details on a few of the incidents:

“On May 5, a quad-copter — a drone with four rotors — crashed into the 30th floor of St. Louis’s Metropolitan Square building, the city’s tallest. In March, the FAA fined a Brooklyn man \$2,200 for striking two midtown Manhattan skyscrapers with his quad-copter before it nearly hit a pedestrian. In August, a small drone with multiple rotors crashed into the grandstand at Virginia Motorsports Park in Dinwiddie County, injuring three spectators.

On Sept. 22, while at an altitude of 2,300 feet over Phoenix, a pilot reported a near-collision with a black-and-white drone the size of a basketball, according to records the FAA released with many details redacted. The pilot reported that the drone was 200 feet ahead and closing in. The pilot swerved left and the two aircraft missed each other by 50 feet.”

Familiarizing itself with industry needs will allow FDK to better serve their customers, or to attract them in the first place. For example, Figure 4 compares the MQ-9 Reaper to the Cessna 402. The max range for the Reaper is almost seven times that of the Cessna. Is this because the Reaper is exceptionally efficient or is it because the Reaper carries more fuel? In fact, the Cessna can carry 26 gallons of fuel while the Reaper can carry as much as 667 gallons. While it is unlikely that Reapers would be taking off from FDK, the unique requirements for these types of vehicles must be understood.

Additional hangar bays and maintenance facilities should be built, or existing ones upgraded, to accommodate the new types of aircraft. Control tower features may also need to be upgraded. UAV price tags are similar to that of manned jet aircraft, Reapers costing around \$12M and Predators around \$5M, but the technology may warrant additional airport security.

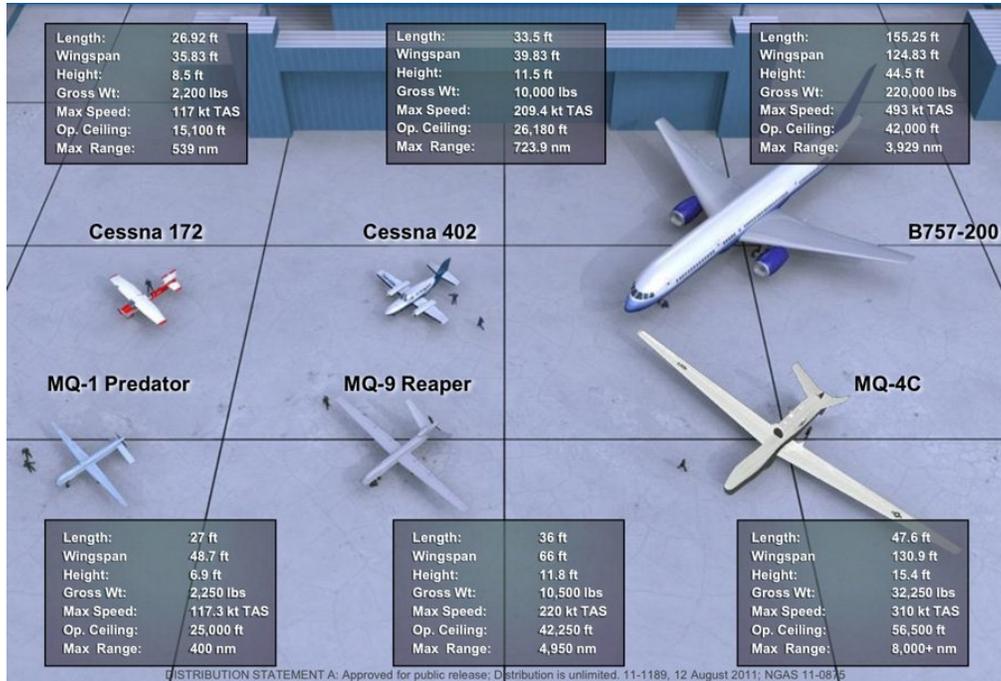


Figure 4 – Comparable Planes to Drones

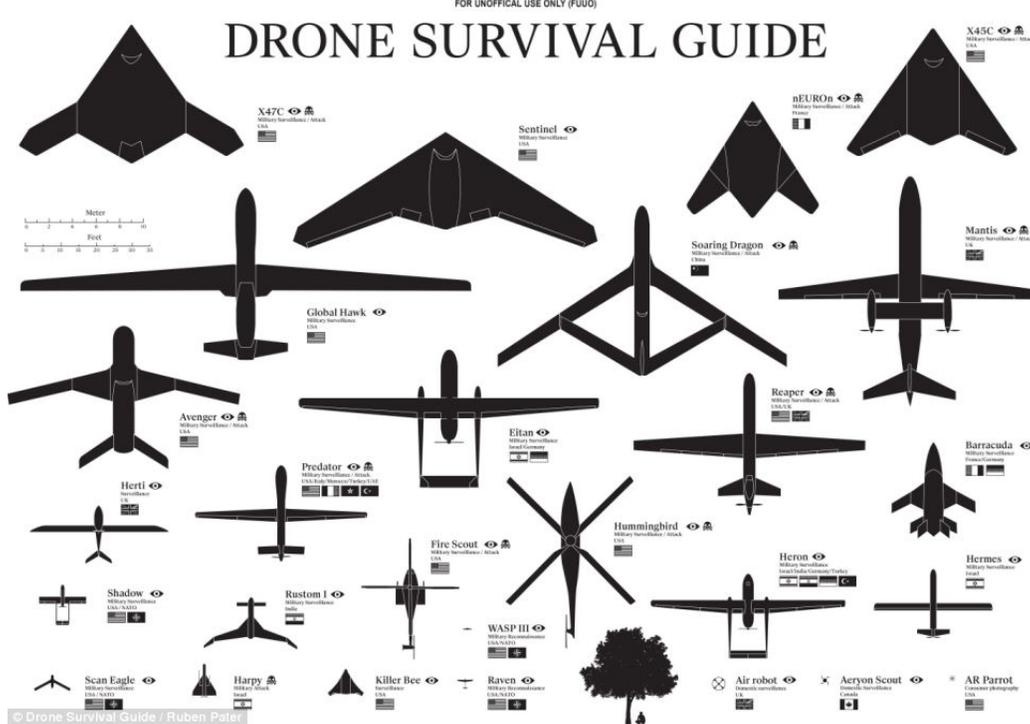


Figure 5 – Drones to Scale

Endnotes

- ¹ Airport Operations in the US, IBIS World <http://clients1.ibisworld.com.proxy-um.researchport.umd.edu/reports/us/industry/default.aspx?entid=1194>. Web Page. Accessed 11/15/2014.
- ² Airport Profitability. Airport World 2013. <http://www.airport-world.com/features/economics/2691-airport-profitability.html>. Accessed 11/15/2014.
- ³ Airport Improvement Program. <http://www.faa.gov/airports/aip/overview/>. Accessed 11/15/2014.
- ⁴ Airport Industry Analysis, IBIS World. <http://clients1.ibisworld.com.proxy-um.researchport.umd.edu/reports/us/industry/industryoutlook.aspx?entid=1194>. Accessed 11/15/2014.
- ⁵ DeKalb Taylor Municipal Airport Marketing Plan January 2012. <http://www.cityofdekalb.com/DeKalb%20Airport/1Airport%20Marketing%20Plan%20Jan2012-Final.pdf>
- ⁶ FAA Airport Cooperative Research Program Report 28 “Marketing Guidebook for Small Airports” 2010 http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_028.pdf
- ⁷ <http://www.airnav.com/airport/KFDK/LANDMARK>
- ⁸ Sightseeing Transportation in the US, IBIS World, <http://clients1.ibisworld.com.proxy-um.researchport.umd.edu/reports/us/industry/default.aspx?entid=1952>. Accessed 11/29/2014.
- ⁹ Sightseeing Transportation in the US, IBIS World, <http://clients1.ibisworld.com.proxy-um.researchport.umd.edu/reports/us/industry/default.aspx?entid=1952>. Accessed 11/29/2014.
- ¹⁰ Official Tourism Website of Frederick County, <http://www.visitfrederick.org>, Accessed 11/30/14.
- ¹¹ Balloon Flying Handbook. U.S. Department of Transportation Federal Aviation Administration, Flight Standards Service. FAA-H-8083-11A. 2008. Chapter 5-4. http://www.faa.gov/regulations_policies/handbooks_manuals/aircraft/media/aa-h-8083-11.pdf. Accessed 11/30/14.
- ¹² Airport Search. <http://airnav.com/airports/search.html>. Access 11/30/14.
- ¹³ Balloon Clubs, <http://www.hotairballooning.com/clubs.php>, Accessed 11/30/14.
- ¹⁴ FAA Airport Cooperative Research Program Report 28 “Marketing Guidebook for Small Airports” 2010 http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_028.pdf
- ¹⁵ “A Bumpy Take Off”, The Economist. <http://www.economist.com/news/21631834-drones-may-take-skieseventually-bumpy-take?zid=303&ah=27090cf03414b8c5065d64ed0dad813d>. Web site. Created 11/24/2014. Accessed 11/25/2014.
- ¹⁶ Unmanned Aircraft Systems, <http://www.faa.gov/uas/>. Web site. Accessed 11/25/2014.
- ¹⁷ Current Performance in the Unmanned Aerial Vehicle Manufacturing Industry, IBIS World. <http://clients1.ibisworld.com.proxy-um.researchport.umd.edu/reports/us/industry/currentperformance.aspx?indid=4424>. Web site. Accessed 11/28/2014.
- ¹⁸ Integration of Civil Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS) Roadmap, US Department of Transportation: Federal Aviation Administration. First Edition 2013. PDF.

¹⁹ “Close Encounters with Small Drones”, Washington Post.
<http://www.washingtonpost.com/sf/investigative/2014/06/23/close-encounters-with-small-drones-on-rise/>. Web Site.
Created 6/23/14. Accessed 11/28/14.