



# Appendix A

## Case Studies

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### A.1 INTRODUCTION TO THE CASE STUDIES

#### Participating Airports

The Research Team set out to complete 10 to 12 case studies of airports with different fueling situations and management strategies. To meet this target, the team cast a wider net, knowing that not every airport would agree to participate; however, 16 airports were recruited. Table A-1 presents the case study airports, their location (state), the number of based aircraft, and total operations. The list is sorted by total operations at each airport.

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**Table A-1. Based Aircraft and Total Operations, 2016**

Airport	Code	State	Based Aircraft	Total Operations
Pine Bluffs Municipal Airport	82V	WY	16	2,244
Hulett Municipal Airport	W43	WY	10	2,500

Airport	Code	State	Based Aircraft	Total Operations
Salida Airport	ANK	CO	22	4,053
Leadville Lake County Airport	LXV	CO	5	5,000
Mesquite Municipal Airport	67L	NV	22	6,824
Eagle River Union Airport	EGV	WI	59	12,000
Huntington Tri-State Airport	HTS	WV	40	14,176
Meriden Markham Airport	MMK	CT	51	16,730
Skylark Field	ILE	TX	65	28,365
Thomas C. Russell Field	ALX	AL	34	33,312
Cheyenne Regional Airport	CYS	WY	88	43,928
Front Range Airport	FTG	CO	389	44,520
San Bernardino International Airport	SBD	CA	45	47,780
Montgomery County Airpark	GAI	MD	153	48,000
Burlington Municipal Airport	BUU	WI	18	54,900
Southern Illinois Airport	MDH	IL	75	91,202

Source: 5010 Reports, ATADS, and Individual Airport Data

Table A-2 lists the airports alphabetically and indicates notable aspects of each airport’s fueling operation.

**Table A-2. Airport Case Study—Notables**

Airport	Notable Aspects of Fueling Operations
Burlington Municipal Airport	Low-price leader, self-service only
Cheyenne Regional Airport	Diversified fuel market, EAS point, National Guard, DEN reliever,
Eagle River Union Airport	Seasonal market, competing with Chicago GA airports for fuel sales
Front Range Airport	Near DEN, high volume, many years of full airport FBO services
Hulett Municipal Airport	Very small airport in search of more fuel customers
Huntington Tri-State Airport	DOD fuel sales provide baseline fuel revenue
Leadville Lake County Airport	High altitude testing center, low-price leader
Meriden Markham Airport	Single engine/light twin specialist/low price Avgas
Mesquite Municipal Airport	Contract manager for fueling operations
Montgomery County Airpark	Customer service leader in Washington Metro Area
Pine Bluffs Municipal Airport	Low-price leader-unbranded fuel
Salida Airport	Phillips 66 mountain network for partial loads
San Bernardino Int’l Airport	Strong brand identity, excellent customer service, transparent pricing
Skylark Field	Restricted airspace, larger buying power of 2 Killeen airports.
Southern Illinois Airport	Strong local Avgas market, heavily discounted Avgas prices
Thomas C. Russell Field	Low-price leader, one-person airport operation, offering fueling and other FBO services

Source: Prepared by KRAMER aerotek inc. (2018)

Table A-3 presents fuel sales for each case study airport and what types of fuel and fuel services are offered. The airports are ranked by the amount of Avgas sold in 2016.

**Table A-3. Fuel Sales at Case Study Airports, 2016**

Airport	Gallons		Fuel Contract	Avgas		Jet A	
	Avgas	Jet A		SS <sup>1</sup>	FS <sup>2</sup>	SS	FS
Hulett Municipal Airport	1,451	3,270	No contract	✓		✓	
Huntington Tri-State Airport	5,385	171,006	Avfuel		✓		✓
Salida Airport	9,005	20,796	Phillips 66	✓		✓	✓
Pine Bluffs Municipal Airport	15,000	none	No contract	✓			
Leadville Lake County Airport	15,093	73,874	Phillips 66	✓	✓	✓	✓
Mesquite Municipal Airport (est.)	32,000	48,000	Avfuel	✓		✓	✓
Eagle River Union Airport	36,236	69,670	No contract		✓		✓
Thomas C. Russell Field	47,500	54,700	Eastern (Shell)	✓			✓
Skylark Field	55,203	21,369	Avfuel	✓		✓	✓
Cheyenne Regional Airport	58,000	570,000	Avfuel		✓		✓
San Bernardino International Airport	69,824	1,726,778	Epic Aviation	✓	✓		✓
Meriden Markham Airport	84,000	none	World Fuel	✓			
Burlington Municipal Airport	125,153	48,689	No contract	✓		✓	
Front Range Airport	130,205	244,350	World Fuel	✓	✓		✓
Southern Illinois Airport	135,326	58,054	Avfuel	✓	✓		✓
Montgomery County Airpark	150,000	175,000	World Fuel	✓	✓		✓

Source: Individual Airport Data

Based on these sample airports, it became evident that neither based aircraft nor level of operations correlate strongly with fuel sales. Each airport operates in its own niche market. For example, at Southern Illinois Airport, the Southern Illinois University's (SIU) aviation program is integral to airport operations and fuel sales. There are a large number of local operations at this airport because of flight instruction. Two-thirds of fuel purchases are made by SIU at a discounted rate of 65 cents over cost. While fuel volumes are high, margins for Avgas are on average, low.

From the detailed look at 16 small airports, it became evident that to fully understand the particular nuances of each airport's fueling business, it is important to examine all the factors that support activity at an airport.

### Methodology

The case studies involved data collection about each airport from information available online, a 29-question survey designed to record basic information about an airport's fueling operations, and an extensive telephone interview that followed up open-ended questions from the survey and explored in

<sup>1</sup> SS = Commercial self-service

<sup>2</sup> FS = Full-service

greater depth pricing strategies, the characteristics of an airport's fuel market, fuel suppliers, selection processes, and outlook.

### **Key Findings**

The case study approach offered many insights about:

- how airports price their fuel
- competitive strategies to attract local and transient fuel purchases
- use of branded or unbranded products
- how airports staff fueling operations and cross utilize personnel
- use of inventory and point of sale (POS) software
- how contract rates and tankering practices are eroding margins
- how indirect costs of fueling operations are incorporated into the price of fuel
- how inventory management and monthly reconciliation are completed

Some of the notable takeaways from the case studies are highlighted in the next sections.

#### **CONCENTRATED NATURE OF THE FUEL SUPPLY BUSINESS**

There are only a handful of fuel distributors. Airports tend to stick with their existing suppliers. Now that suppliers are providing point-of-sale software, fueling truck leases, and financing for fuel farm improvements, the relationships appear more enduring.

- If an aviation fuel market is large enough, the Request for Proposal (RFP) process can deliver fuel supplier bids from all of the major companies and make it possible for an airport to negotiate a favorable package.

#### **PARTIAL VS. FULL LOADS**

- Not all suppliers will make partial deliveries. Usually the airport that makes the request for a partial load pays the full delivery cost of the load. If an airport arranges the second partial load sale, delivery costs can be negotiated and prorated.
- It is advantageous to have at a minimum, a 12,000-gallon tank. Average maximum fill level is 9,600 to account for fuel expansion and capacity for unusable fuel at the bottom of the storage tank. The minimum size of a full tanker is between 7,500 and 9,000 gallons. A full load of fuel has a much better delivered price point than a partial load.
- There are mixed opinions about whether it is better to purchase partial loads frequently to average out price volatility or purchase full loads and risk potential losses if fuel prices fall below the cost of purchase.
- The added cost of partial loads appears variable.
  - Salida noted that partial loads cost an average of 20 cents per gallon more.
  - According to San Bernardino's Airport Director, paying a premium of 10 to 40 cents per gallon for partial loads carries its own risk of price volatility and may not be as advantageous as purchasing full loads at a lower price. "Locking in higher prices pressures margins and inventory in both the short and long terms."

#### **QUALITY CONTROL**

- Fuel lasts in storage tanks approximately six months.

- There are additives for Avgas that can extend its life.
- Documenting quality control checks and updating fuel logs is necessary to complete and have readily available in case of aircraft accidents, fuel audits, or even lawsuits.

#### **BRANDED VS. UNBRANDED FUEL**

- There are mixed views about whether a brand helps in fuel sales.
- In today's market, most pilots view all fuel as high quality. (Branded and unbranded fuel actually comes from the same refineries. Branded fuel offers fuel supplier quality control until delivery at the airport is accomplished.
- Unbranded fuel requires extra quality checks at the time of delivery.
- Fuel trucks for unbranded fuel operate independently of the fuel supplier. It is very important to make sure that the truck is cleaned before it delivers fuel.

#### **DOD FUEL CONTRACTS**

- Department of Defense (DOD) contract fuel can provide a baseline of fuel revenue for an airport, but DOD requires fuel at a low contract price. Margins to the airport for DOD sales are low.
- A downside to DOD contracts are the occasional times when large military aircraft will occupy the ramp.

#### **PRICING**

- Avgas is largely a retail market; Jet A is a heavily discounted market.
- The Avgas market is highly sensitive to price.
- Fuel is a commodity, and consequently, it pays to watch fuel prices and order deliveries, if possible, when wholesale prices are lower. Every small marginal advantage is helpful to stay competitive and maintain margins.
- It is important to be vigilant about monitoring fuel prices on a daily or weekly basis.
- While the cost of wholesale fuel may have gone down, the same may not be true of the cost of providing the service. Airports that use a standard markup over the wholesale price of fuel, that does not vary over time, will probably have their margins erode over time as labor, insurance, and fuel farm equipment costs continue to rise.
- The actual cost of providing fuel service can get lost at airports striving to be the low-price leader. Some of these costs include fuel trucks, labor, storage tanks, pumping equipment, credit card readers and transaction fees, self-service units, etc. These costs can add significantly to the cost of providing fuel.
- Weekend or special event fuel sales either in the form of price discounts or double reward points can attract aircraft to an airport.
- Nearby airports are not the only competition. For transcontinental trips, airports competing for fuel customers could be far apart.
- For the corporate and business jet segment, many more flight departments are employing tankering strategies and negotiating contract rates or discounts with multiple fuel suppliers.

#### **FUEL SUPPLIER MARKETING SERVICES**

- It is important to continually monitor marketing initiatives offered by the fuel supplier and verify effectiveness of these efforts on the airport's fuel sales.
- Keeping fuel price postings current on online fuel price platforms is critical. Many pilots purchasing Avgas, plan their route and fueling stops based on internet fuel prices.

#### **FUELING BUSINESS STRATEGIES**

- Three requirements for successful fueling operations include:
  - responsive customer service
  - adequate demand
  - an airport manager attentive to fuel pricing and operations.
- Transparency for pricing is good for customer relationships and eliminates keeping track of individual pricing arrangements.
- It is critical to make a plan and stick with it.
- Grow incrementally.
- Employee retention is very important. If possible, pay living wages; opt for increases in wages in favor of one-time bonuses.
- Customer confidence is inspired by a zero-accident record on the ramp.

#### **GOVERNANCE**

- Airport interviewees reported that the political support of airport boards and commissions greatly assists an airport operator to manage the airport and provide fueling services. When appointees to airport commissions have agendas that are in conflict with the airport – these conflicts can have a direct impact on the successful operation of the FBO.
- An airport-operated Fixed-Base Operator (FBO) must stay compliant with Federal Grant Assurances. That is a number-one priority.

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## A.2 BURLINGTON MUNICIPAL AIRPORT, BURLINGTON, WISCONSIN

*Based on research and an interview with Gary Meisner, Airport Manager*

### Airport Overview

Burlington Municipal Airport (BUU) is publicly owned by the City of Burlington and is located one mile northwest of Burlington, WI and 37 road miles from Milwaukee. BUU is a general aviation airport with two runways (Runway 11/29 is 4300' x 75' and Runway 1/19 is 2410' x 130'). In 2016, the airport delivered approximately 125,000 gallons of Avgas and 49,000 gallons of Jet A. There are 18 based aircraft at BUU: 16 are single-engine and 2 are multi-engine. Table A-4 displays the 2016 based aircraft and operations information for BUU updated as of March 30, 2017. The information provided is based off the most updated 5010 form.

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**Table A-4. BUU Based Aircraft and Operations**

<b>Based Aircraft (2016)</b>	
Single Engine (SE):	16
Multi Engine (ME):	2
Jet (J):	0
Total Fixed Wing (SE + ME + J):	18
Helicopters:	0
Gliders:	0
Military:	0
Ultra-Light:	0
<b>Operations (2016)</b>	
Air Carrier:	0
Air Taxi:	400
General Aviation Local:	30,000
General Aviation Itinerant:	24,000
Military:	500
Total Operations:	54,900

Source: Airport IQ 5010 (2016)

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### Key Findings

Burlington Municipal Airport stands out in the case studies because it is a self-supporting airport that sells a large volume of unbranded, self-service fuel to fund airport operations and projects. Its market strategy is to be a low-price leader. BUU funds a majority of its airport operations and projects through fuel sales. This heavily trafficked airport sells fuel to a wide customer base. Every year, the fuel facility generates roughly \$40,000 to \$50,000 in surplus revenue, and the airport maintains \$300,000 to \$400,000 in the airport account. According to the airport manager, the airport has experienced interest by the City to deploy fuel revenues for off-airport projects; however, fuel revenues have remained on airport.

### **Managing a Transition to Airport Owned Service**

Burlington Municipal Airport took over ownership of the fuel facility in 2001 after the FBO at the airport decided to no longer continue conducting business. When faced with the costs of replacing the fuel tanks and other large maintenance fees, the FBO opted to not continue business and the City took over the fuel facility with federal grants and municipal funding. Before the City of Burlington took over the airport, the fuel facility had been operational under the FBO for at least 20 years.

### **Description of Current Fuel Facilities**

BUU's fuel facility is a 24-hour self-service pump station that is connected to the airport's fuel farm. It is equipped with one 12,000-gallon Avgas self-service tank and one 12,000-gallon Jet A fuel self-service tank. The self-service pumps are located 200 feet away from the terminal.

In 2007, BUU upgraded their 10,000-gallon tanks to 12,000-gallon tanks for both Jet A and Avgas. The upgrade allowed the airport to take full loads comfortably rather than running the tanks down to nearly empty before refilling. The fuel facility does not offer any full-service fueling option and no full-time or part-time employees are dedicated to the fuel facility.

Airport staff dedicate time to the fuel facility for weekly inspections of the fuel tank, weekly tests for fuel quality, and updates to the fuel logs. BUU follows quality control guidelines outlined by the state. Both World Fuel Services and the State of Wisconsin occasionally check the fuel quality and ensure that the facility meets requirements.

BUU's fuel facility has double walled tanks and an emergency shut off switch. Spill cleanup kits are available to protect spilled fuel from impacting the surrounding environment.

### **Description of the Local Market for Aviation Fuel**

Most fuel sales for BUU are accounted for through Avgas sales; however, there is also a large market for Jet A fuel in Burlington. As shown in Table A-5, over the last five years, Avgas sales have averaged around 130,000 gallons per year and Jet A sales have averaged around 50,000 gallons per year. Although Jet A sales are significantly lower than Avgas, BUU is not actively trying to market and increase Jet A sales.

No clear yearly trends in fuel sales are evident, but monthly and seasonal trends are very evident in the fuel sale reports from BUU. Sales significantly increase during the summer months because the warmer months are a more popular time to fly. The discrepancy between summer and winter sales is very noticeable up in Wisconsin, as Burlington experiences a wide range of weather patterns throughout the year.

As only 18 aircraft are based at Burlington, the airport relies heavily on transient traffic to support the fuel facility. BUU is a busy general aviation airport and naturally brings in a lot of traffic, and the airport capitalizes on this heavy traffic with a very lucrative fuel facility.



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**Table A-5. Avgas (100LL) and Jet A Fuel Sales, 2012-2016**

<b>Avgas (100LL)</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	125,153
2015	146,646
2014	124,385
2013	129,863
2012	134,079
<b>Jet A</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	48,689
2015	48,905
2014	58,003
2013	58,142
2012	45,962

Source: Burlington Municipal Airport

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### **Choosing a fuel supplier**

The current fuel supplier for Burlington Municipal airport is Ascent Aviation Services, which is owned by World Fuel Services. The airport originally purchased fuel from Sierra Petroleum without a contract. After Sierra Petroleum was bought out by World Fuel Services, BUU continued to purchase from World Fuel. The airport's fuel supplier provides only fuel deliveries and occasional quality control tests. The other aspects of fuel facility management including insurance, the fuel management system, training, advertising, and credit card payment devices are all provided by the airport. No equipment is leased or financed by the fuel supplier.

Although BUU purchases fuel from World Fuel, the fuel is sold as unbranded fuel. Airport Manager Gary Meisner states that the kind of people who come to this airport are not concerned with brand names such as Phillips 66 or British Petroleum, but rather, they are concerned with the price of the fuel. BUU does not place importance on a brand name and believes that their customers are also not concerned. The high volumes of fuel sales at this airport confirm that the brand name of the fuel is not essential this airport's success.

The selection of World Fuel was based on a simple transition between fuel suppliers. BUU had always been selling through Sierra Petroleum even while the FBO ran the fuel facility. Since World Fuel offered the similar prices and the same service, the decision to stay with what was working was an easy one. Burlington Municipal has always had a constant stream of heavy traffic who purchase fuel regardless of the brand or name.

BUU does not have a contract with World Fuel Services and does not intend on going onto contract. The airport staff is very happy with the price of fuel and service they receive from World Fuel, and they have never purchased fuel from any other supplier and do not intend to change. BUU requests fuel from their

supplier on an as-needed basis and will receive fuel within a few days of the order being placed. An Avgas delivery occurs around twice a month, and Jet A is delivered usually once per month. The fuel deliveries are funded by the airport operating revenues.

### How the Airport Sets Prices

BUU prices their fuel, on average, about 63 cents above the cost they received the fuel from their supplier. This markup includes credit card fees, taxes, fuel management systems, and insurance of the fuel farm. They typically will reset the prices with every load delivered, but for some stretches, the price remains constant as the price from World Fuel sometimes does not fluctuate over several months. The airport receives a slightly higher profit margin for Jet A fuel than Avgas fuel. Table A-6 shows the average yearly cost per gallon for the airport, the average retail price, the average markup, and the average profit margin from throughout the year.

**Table A-6. Avgas (100LL) and Jet A Fuel Pricing, 2012-2016**

Avgas (100LL)				
Year	Purchase Price per Gallon	Selling Price per Gallon	Markup	Profit Margin
2016	\$2.91	\$3.54	\$0.63	22%
2015	\$3.71	\$4.05	\$0.67	20%
2014	\$4.24	\$4.90	\$0.66	16%
2013	\$4.37	\$5.05	\$0.58	13%
2012	\$4.33	\$4.97	\$0.64	15%
Jet A				
Year	Cost per Gallon	Price per Gallon	Markup	Profit Margin
2016	\$1.70	\$2.50	\$0.80	47%
2015	\$2.17	\$2.99	\$0.82	38%
2014	\$3.32	\$3.97	\$0.64	19%
2013	\$3.42	\$4.05	\$0.63	18%
2012	\$3.59	\$4.22	\$0.63	18%

Source: Burlington Municipal Airport

Over the two most recent years, the purchase price of fuel has dropped significantly for both Jet A and Avgas. This drop has allowed the airport to increase their markup while keeping prices lower than in previous years. Most notably, the Jet A markup for the most recent two years reached at least an average of \$0.80. Profit margins for both Jet A and Avgas have increased significantly in the last two years.

BUU offers no discounts or sales to promote their fuel, and they do not accept World Fuel contract rates. The same price of the fuel is offered to every customer.

### Efforts to Increase Fuel Sales (advertising, marketing efforts)

Aside from posting fuel prices on several online sources, BUU does not engage in any marketing efforts for their fuel facility. The airport staff is confident that they will continue to sell large amount of fuel and don't see much of a need to market or to advertise. They know their prices are reasonable and that the

fuel will sell. BUU lists fuel prices in FlightPlan, 100LL, AOPA GO, FlyQ EFB, Garman Pilot App, ForeFlight, FlightAware, and AirNav.

In discussions about offering a full-service fuel option, the airport has opted to remain a self-service station. Most customers who frequent this airport are not concerned with brand name or ease of refueling; rather, they are concerned with the price. To avoid the cost markup of full-service fuel and all the associated expenses, the airport will remain a self-service station.

Burlington Municipal Airport competes with East Troy airport for fuel sales, but the airport staff does not compare prices. They are confident in their pricing system as it has worked since the city took over the facility several years ago. There are no plans to expand the fueling services in the near future.

### **Challenges and Lessons Learned**

Gary Meisner offers that a fuel facility can be a very lucrative source of revenue for an airport. If in a position to take over a fuel facility from an FBO, an airport and municipality should consider the benefits of operating one; however, each airport has a unique situation, and the decision to operate a fuel facility should take into consideration all aspects of the airport.

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## **A.3 CHEYENNE REGIONAL AIRPORT/JERRY OLSON FIELD, CHEYENNE, WYOMING**

*Based on research and an interview with Mike Miller, FBO Manager*

### **Airport Overview**

Cheyenne Regional Airport/Jerry Olson Field (CYS) is owned by the Cheyenne Airport Board and is located one mile north of Cheyenne, Wyoming. CYS is a commercial service airport with two runways (Runway 9/27 is 9270' x 150' and Runway 13/31 is 6690' x 150'). In 2016, the airport delivered 58,000 gallons of Avgas and 570,000 gallons of Jet A. There are 75 based aircraft at CYS: two are jets, 33 are single-engine, 40 are multi-engine, and 2 are helicopters (5010 Report 2016).

Cheyenne Regional Airport/Jerry Olson Field stands out in the case studies because it successfully transferred FBO ownership in 2012 from a private company to the Cheyenne Airport Board and now operates under the name Legend AeroServe. Currently, FBO operations are integrated with regular airport operations; however, the airport administration is moving toward greater separation between the FBO and the airport.

### **FBO History**

Cheyenne Regional Airport/Jerry Olson Field has a history of full-service FBOs dating back to the post-WWII era. CYS had served as an intermediate stop during the flying of mail and later the flying of checks. During 2011, the Airport Board began the process of acquiring the FBO from a private company. The current FBO began operations in 2012 and pumped 53,500 gallons of Avgas and 350,000 gallons of Jet A that year.

### **Airport Fuel Facility**

The airport fuel system consists of a 12,000-gallon Avgas bulk storage tank and a 36,000 gallons of Jet A storage, one Avgas truck, two Jet A trucks, and seven full-time line service employees. In the future, plans

include the addition of a 2,000-gallon freestanding Avgas self-serve system. The fuel farm’s meters and valves were upgraded in 2012 along with the Jet A tanks. In 2014 the Avgas tanks were updated. The FBO uses the ATA 103 system for quality control. Operating revenues finance fuel purchases and system upgrades. Two of CYS’s tenants, the State of Wyoming Department of Transportation (WYDOT), and the Great Lakes Airlines maintenance facility, self fuel. The Wyoming Air National Guard base co-located at CYS also has its own fuel facility for the 153<sup>rd</sup> Airlift Wing.

**Description of the Local Market for Aviation Fuel**

The FBO provides full-service Avgas and full-service Jet A. Jet A delivered to local aircraft accounts for 5% of the total sales and transient aircraft make up the remaining 95%. CYS is a destination for flights diverted from Denver International Airport (DEN), which account for 50,000 to 100,000 gallons of Jet A annually (approximately 1,000 per flight). Weather diversions from DEN result in an estimated 20% of annual Jet A sales. Transient military aircraft account for 30 to 35% of Jet A sales, and the remainder goes to business jets and local airline service. CYS is a joint civil-military airport, but transient military aircraft do not stop in at the 153<sup>rd</sup> Airlift Wing for fuel and instead fuel at the FBO.

Competing airports for fuel services include Ft. Collins, Greeley, and Pueblo in Colorado; Scotts Bluff and North Platte in Nebraska; and close by Laramie in Wyoming. The airports that compete from afar are each trying to attract coast-to-coast flights where the difference in flight-time is negligible and the cost of fuel can be a decision point in terms of routing.

Avgas sales are split between piston aircraft on cross-country flights (65%) and local aircraft (35%). The local flight school, Wings of Wyoming, also purchases fuel from the FBO.

Table A-7 shows approximate gallons of Avgas and Jet A sold from 2012 to 2016. The FBO orders full loads (8,000 gallons) of Avgas every six weeks and Jet A once or twice per week.

**Table A-7. Avgas (100LL) and Jet A Fuel Sales, 2012-2016**

<b>Avgas (100LL)</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	58,000
2015	49,000
2014	49,000
2013	48,500
2012	53,500
<b>Jet A</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	570,000
2015	496,000
2014	488,000
2013	475,000
2012	350,000

Source: Cheyenne Regional Airport

Legend AeroServe’s fuel supplier is Avfuel. Avfuel has been serving Cheyenne’s FBOs since at least 2000, and they currently provide fuel facility insurance, fuel management systems, authorization and transaction systems, quality control program, training, advertising, and marketing.

The two biggest challenges in the first year of the airport operated FBO were regaining the Defense Logistics Agency (DLA) contract and implementing a billing system.

### **Avgas and Jet A Pricing**

The FBO is part of the Avfuel network and offers Jet A contract programs through Avfuel in addition to the AvTrip card. CYS also offers U.S. Government contract fuel and accepts the U.S. Government Air Card.

For Avgas, the FBO offers discounts on full-service to local pilots, higher-volume purchases, and purchases made on the weekend as shown in Table A-8. Plans for a prefabrication self-service unit is in the works as a joint Avfuel and airport project.

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**Table A-8. Avgas Discounts at Cheyenne Regional Airport**

<b>Type of Discount</b>	<b>Discount</b>
300-499 gallons	\$0.10 per gal
500-699 gallons	\$0.15 per gal
700-899 gallons	\$0.20 per gal
Over 900 gallons	\$0.25 per gal
Local Pilot Discount	\$0.25 per gal
Weekend Special	\$0.25 per gal

Source: Cheyenne Regional Airport, 2016

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### **How the Airport Sets Fuel Prices**

Legend AeroServe has a weekly schedule for setting retail pricing. Through a financial cost-of-service analysis, they determined a basis for all the direct and indirect costs associated with fuel delivery; however, fuel prices are not set based on this analysis. Instead, the FBO manager watches the retail prices at airports that compete with CYS for fuel customers and sets the retail price at a value that covers costs and provides the best profit margin. From NATA and Avfuel classes, the manager observed that FBO’s charging less than \$1.00 over the wholesale price for Jet A struggle to survive. AeroServe margins for Jet A in 2016 were approximately \$1.60 per gallon over the wholesale delivered price. For Avgas, the margin was \$1.00 per gallon over wholesale.

For Jet A customers with Avfuel contract rates, the FBO does not know exactly what customers are paying for fuel. Instead, Avfuel reimburses the FBO for the delivered cost of the fuel plus a fee per gallon that the FBO charges for its fueling services, also known as an upload fee. Avfuel did not provide guidance about this upload fee. CYS decided on a sliding scale for upload fees based on volume of the purchase. Under 300 gallons, the upload fee is \$1.25 per gallon; for 300 to 500 gallons, the fee is \$1.15; over 500 gallons, the fee is \$1.05. These fees work out because for contract sales, there are no credit card fees assessed, so

the FBO saves 1.5 to 2.5 percent on each sale. The net margins after taxes average out to be \$1.30 per gallon for jet fuel and \$1.10 per gallon on Avgas.

### Lessons Learned

One of the lessons learned by the airport-operated FBO was to utilize the experience of the line manager and line service employees who were retained from the previous FBO company. The resources and local knowledge that current employees of a company possess can be a great source of information about what was working and what wasn't in the previous FBO's business. Aside from the everyday items like where the keys to the tug and the crew car are hidden, staff who have been involved the longest often have the most knowledge of operations.

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## A.4 EAGLE RIVER UNION AIRPORT, EAGLE RIVER, WISCONSIN

*Based on research and an interview with Rob Hom, Airport Manager*

### Airport Overview

Eagle River Union Airport (EGV) is owned by the City of Eagle River and managed by an airport commission that includes Eagle River, the Township of Lincoln, and the Township of Washington. The airport is located in the Northwoods of Wisconsin and serves as a gateway to the Eagle River and Three Lakes Chain of Lakes, a very popular vacation destination. According to Rob Hom, "This area is 'cottage country' for the Chicago metropolitan area" (and therein lies a clue to EGV's advertising and refueling market). The airport experiences heavy traffic from Memorial Day to Labor Day. If there is enough snow for snowmobiling, visitors come in the winter, but in March and April, there is hardly any traffic. The seasonality of activity poses its own challenges for fueling operations, retaining employees, and managing fuel inventories.

In the late 1990s, the airport had a small private FBO that managed the airport, fueled aircraft, and concentrated on flight training and charters. As the area began to develop rapidly, EGV attracted more based aircraft and more jet activity. As jet traffic grew, the Airport Commission wanted to step up the airport's level of customer service, so in 2000, the Commissioners decided to self-manage the airport, the fueling operation, and ground services.

EGV has two runways (Runway 04/22 is 5000' x 75' and Runway 13/31 is 3400' x 60') and a heliport. There are 45 based aircraft at EGV: 1 is a jet, 40 are single-engine, 4 are multi-engine, and 2 are helicopters (5010 Report 2014). Table A-9 summarizes based aircraft and 2014 operations.

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**Table A-9. Eagle River Union Airport Based Aircraft and Operations**

Based Aircraft (2017)	
Single Engine (SE):	40
Multi Engine (ME):	4
Jet (J):	1
Total Fixed Wing (SE + ME + J):	45
Helicopters:	2
Gliders:	0

<b>Based Aircraft (2017)</b>	
Military:	<b>0</b>
Ultra-Light:	<b>6</b>
<b>Operations (2017)</b>	
Air Carrier:	<b>88</b>
Air Taxi:	<b>1,500</b>
General Aviation Local:	<b>4,400</b>
General Aviation Itinerant:	<b>5,600</b>
Military:	<b>10</b>
Total Operations:	<b>11,598</b>

Source: Airport IQ 5010

### **Airport Fuel Facility**

The fuel farm system is comprised of a 12,000-gallon Avgas tank and a 12,000-gallon Jet A tank. The maximum fill on each one is 10,580 gallons (90%). The fuel tanks and plumbing, pipes, valves and meters were upgraded in 2005. The airport performs quality control inspections daily. EGV has two Avgas fueling trucks and two Jet A fueling trucks that provide full-service fueling. There is currently no self-service station, but EGV intends to install a kiosk attached to the fuel storage tanks in 2019 with federal, state, and municipal funding. The self-serve kiosk will sell both Avgas and Jet A and is intended to reduce staffing needs (and costs) after hours, especially during the peak season. Self-serve fuel will be offered at a 10 cent to 20 cents per gallon discount.

### **Staff and Insurance**

Airport operations are staffed by two full-time employees and two part-time employees. The main challenge is to hire, train, and retain employees. All part-time employees are limited to 30 hours. During winter, employees work on an on-call basis, so it's really part-time work at \$12 per hour with no benefits.

Municipal government liability in Wisconsin is capped at \$50,000 by state law. Coverage is through the League of Wisconsin Municipalities, a not-for-profit corporation serving municipalities in the state. The airport concentrates on safe operations and this limited liability has not yet been tested.

### **Description of the Local Market for Aviation Fuel**

Table A-10 shows Eagle River's fuel sales for both Avgas and Jet A over 10 years. EGV sold approximately 106,000 gallons of fuel in 2016, approximately 34% Avgas and 66% Jet A. Avgas fuel sales have remained stable since 2009, but at a lower level than prior to the Great Recession of 2008. Jet A fuel sales were also larger in 2008 and 2007 and sales have been drifting lower.

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**Table A-10. Eagle River Union Airport Fuel Sales, 2007-2016**

<b>Avgas (100LL)</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	36,236
2015	35,885
2014	33,076
2013	34,146
2012	40,280
2011	32,285
2010	34,212
2009	35,554
2008	44,515
2007	50,348
<b>Jet A</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	69,670
2015	72,299
2014	67,992
2013	63,669
2012	83,970
2011	89,966
2010	78,337
2009	81,144
2008	98,256
2007	99,251

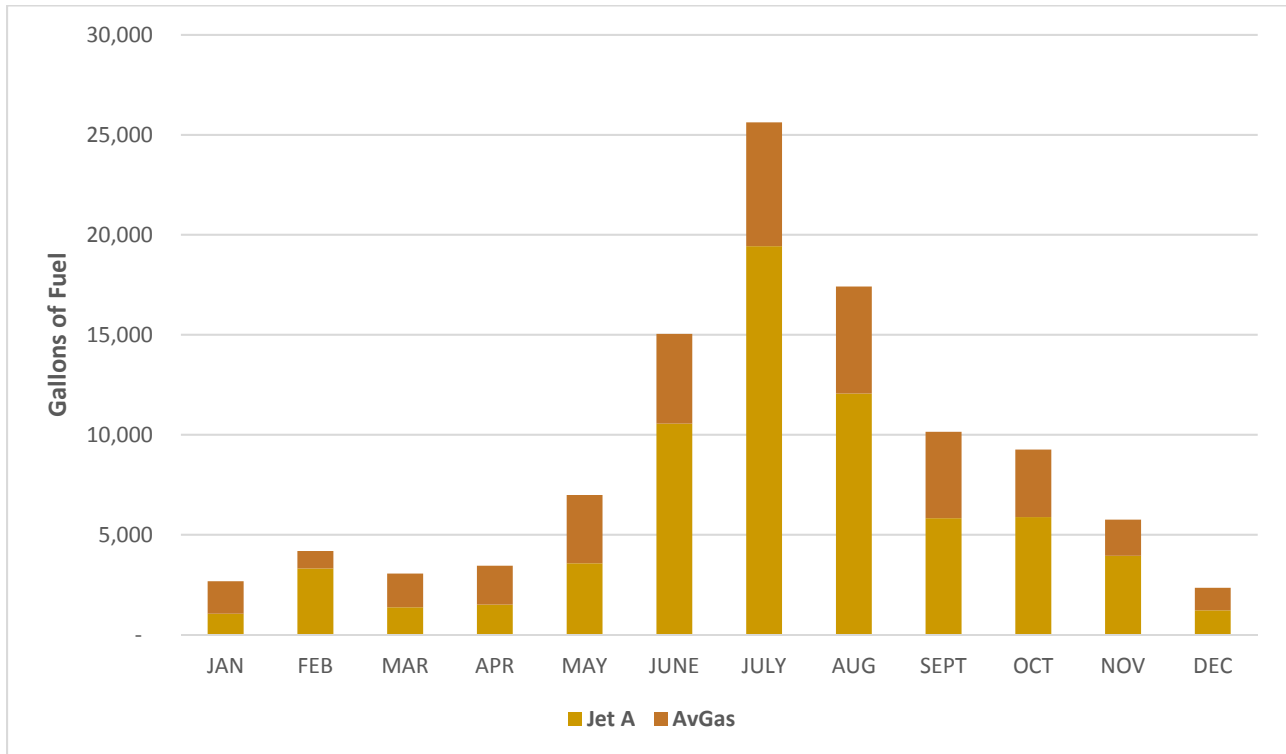
Source: Eagle River Union Airport

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The story for fueling inventories and operations is seasonality. Figure A-1 shows 2016 monthly fuel sales for Jet A and Avgas. The pattern of summer peaks repeats each year and challenges airport management to maintain high-quality inventories during the winter and endure risk of price fluctuations for fuel stored. EGV always tries to purchase full loads of Jet A. If there is a lot of price volatility with Avgas, the manager purchases partial loads to minimize price changes on existing inventory.



**Figure A-1. Monthly Fuel Sales, 2016**



Source: Eagle River Union Airport

Some tenants on the field use automobile fuel for their aircraft, but the airport does not sell auto fuel since it is a small market. There is Mogas available 25 miles north and that airport sells about 4,000 gallons per year. Sixty miles south at Wausau, the airport sells less than 10,000 gallons of Mogas. The airport manager considered Mogas and decided that EGV would divide an existing market into smaller shares and be competing with the local gas station which can probably underprice the airport. Some tenants purchase fuel at the gas station, fill up a 35-gallon tank, and bring it to their plane.

### Selection of a Fuel Supplier

EGV is an independent fuel provider and has no fuel supplier contract. When they need fuel, they get quotes from four fuel suppliers who send price sheets every Tuesday. These are spot prices and do not include delivery charges. Delivery usually adds about one cent per gallon to the price. Since the airport is purchasing unbranded fuel, it is usually delivered by trucks that are independent operators. The airport manager indicated that it is very important to visually check the fuel delivery truck before airport staff permits the unloading of fuel. Once EGV had to refuse a shipment from a truck that had previously carried red diesel and the operator had not steam-cleaned the tanks before filling the tank with a different fuel.

Not all fuel suppliers will deliver partial loads. Usually the airport that makes a partial load request pays the full delivery cost of the load. If this airport arranges for sale of the remaining load, delivery costs can be negotiated and prorated.

Fuel deliveries are paid for through airport operating revenues. EGV is 85% financially self-sufficient. The three communities subsidize the airport by each contributing approximately \$30,000 per year.

### **How the Airport Sets Prices**

#### **AVGAS**

Avgas retail price is the delivered price plus taxes plus \$1 markup per gallon. The airport manager goes online to check AirNav or 100LL to find out what Minocqua, Rhinelander, and Land o' Lakes are charging. He also tries to be 10 to 20 cents lower than the Chicago market so that visitors will refuel at EGV. He tries not to be the lowest fuel price but slightly under the average price. If prices are not low enough, airport staff see immediate reductions in the volume of each fuel sales.

EGV also offers a pre-buy program. If a pilot pre-purchases \$1,000 worth of fuel, they receive a 30 cent per gallon discount. The market seems to accept about \$1 per gallon markup.

#### **JET A**

For Jet A, the target markup is \$2 per gallon. EGV offers a 30 cent per gallon discount with a purchase of more than 300 gallons of Jet A. This discount applies to volume purchases. On very large purchases, EGV will discount further. In one instance they did offer 40 cents per gallon on a 1,200-gallon purchase.

If EGV is selling 100 gallons at a time for Jet A, they know there is a pricing problem.

The ramp fee is \$75 for charters if they don't buy fuel, but this fee is waived for more than 100-gallon purchases.

#### **TRANSACTION FEES**

EGV uses two point of sale (POS) systems. For contract rates, they use Mercury Fuel Services to settle. This is the same service that Net Jets uses. For regular retail sales, they process payments through Worldpay.

### **Lessons Learned**

- Unbranded fuel is a viable approach for airports and may result in lower delivered costs for fuel.
- That said, airport staff have extra responsibilities to ensure that delivery trucks are clean and the delivered fuel meets quality standards.
- It is entirely possible to arrange full and partial loads for fuel deliveries without a fuel contract. This approach gives the airport an opportunity to shop that best price for fuel when it is needed.
- If two airports prearrange by themselves to share a partial load, freight charges may be prorated.
- Seasonal variations at destination markets are a difficult challenge especially for maintain staff stability.

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## A.5 FRONT RANGE AIRPORT, WATKINS, COLORADO

*Based on research, material provided by Front Range Airport, and an interview with Laura Zimmerman, Customer Service Manager*

### Airport Overview

Front Range Airport (FTG) is owned by Adams County. At one time, FTG was governed by an Airport Authority; however, at the end of 2013, the County opted to manage the airport as a County department. Airport administration and the FBO function as one business unit, and staff perform multiple functions as needed. The airport is located 19 miles east of downtown Denver and 6 miles southeast of Denver International Airport. Front Range, along with Centennial Airport to the south and Rocky Mountain Metropolitan Airport to the west, serve general aviation and business aviation aircraft in the Denver metro area.

Front Range is one of the youngest airports in the Colorado system of airports. Built in 1984, the airport has two runways (Runway 8-26 is 8000' x 100' and Runway 17-35 is 8000' x 100'), three full precision instrument landing systems (ILS), and ramps on the east side and west side of the airport. In 2005, it opened the tallest general aviation air traffic control tower in North America. Airport staff and the Airport Advisory Board have engaged in an active program of cargo, intermodal transportation, and economic development. Most recently, the airport is pursuing a license to operate as a spaceport.

FTG is a larger general aviation airport with 389 based aircraft: 6 are jets, 331 are single-engine, 52 are multi-engine, and 20 are helicopters. In 2016, the airport hosted 65,685 operations. Table A-11 shows based aircraft and 2016 operations at the airport.

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**Table A-11. Based Aircraft and Operations at Front Range Airport**

<b>Based Aircraft (2016)</b>	
Single Engine (SE):	331
Multi Engine (ME):	52
Jet (J):	6
Total Fixed Wing (SE + ME + J):	389
Helicopters:	20
Gliders:	0
Military:	0
Ultra-Light:	15
<b>Operations (2016)</b>	
Air Carrier:	2
Air Taxi:	117
General Aviation Local:	35,202
General Aviation Itinerant:	27,570
Military:	2,794
Total Operations:	65,685

Source: Airport IQ 5010, ATADS, 2016

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The FBO has four operational fuel trucks - two for Jet A and two for Avgas. There is a free-standing 10,000-gallon self-service Avgas fuel tank. (There is no Jet A self-service). In addition, the fuel farm has three bulk storage tanks, one 20,000-gallon Avgas tank and two 15,000-gallon Jet A storage tanks. The fueling facilities are in good working order and are regularly maintained.

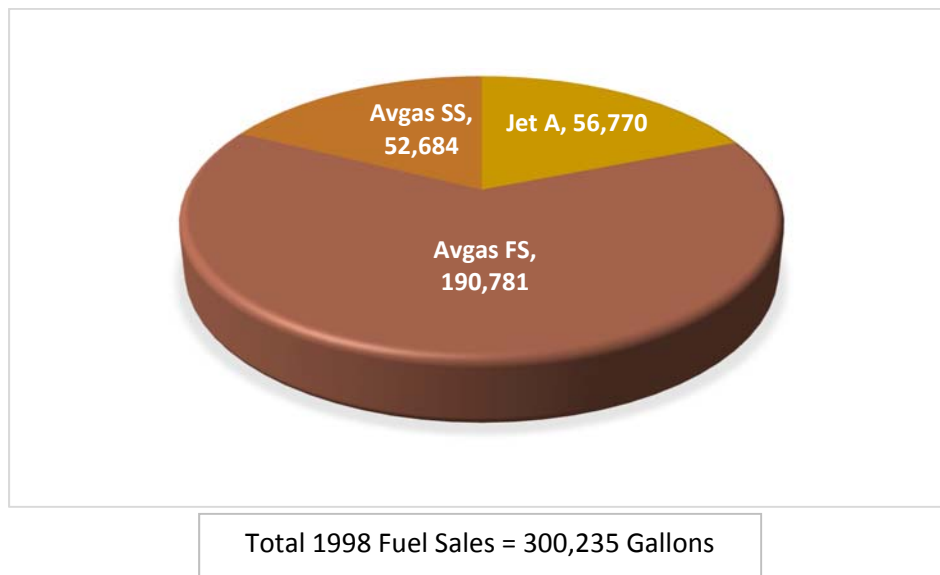
The FBO employs eight full-time employees that perform the daily operation of the FBO and numerous duties around the airport including snow removal, landscaping, and response to aircraft emergencies. World Fuel Service (World) is the fuel supplier selling under the Ascent brand. World was selected as FTG fuel supplier through an RFP process in 2015. The Customer Service Manager reports that price is more important to its customers than brand and that many Jet A customers are purchasing fuel at contract rates.

The airport maintains quality control at the point of fuel dispensing using NATA and World Fuel standards. World Quality Assurance provides quality control and programs for the airport.

### Fuel Services and Sales

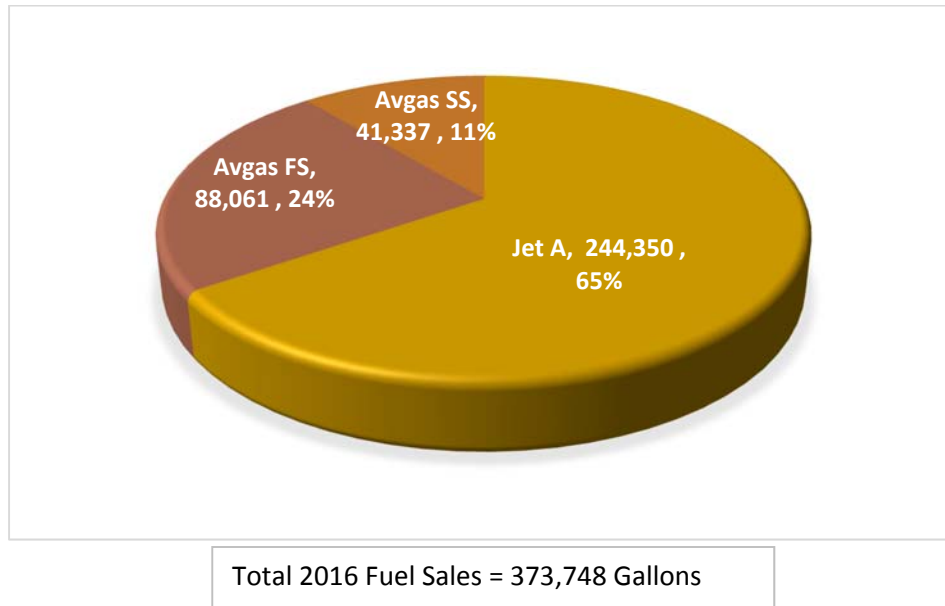
The airport has provided fueling services since 1998 when it took over from a failed FBO. At that time, the fueling operation was primarily catering to piston aircraft. Full-service (FS) Avgas was the leading fuel sold representing 64% of sales and self-service (SS) Avgas at 17.5%. Jet A was 19% of the market. After the airport's takeover of the FBO in 1998, fuel sales grew from 300,000 gallons per year to 374,000 in 2016 with the largest growth in Jet A fuel sales. Increased Jet A sales have counterbalanced declines in Avgas sales. Figure A-2 shows the relative contributions of Jet A and Avgas to fuel sales in 1998. Figure A-3 presents the same information for 2016. From 1998 to 2016, FTG fuel sales went from a predominantly Avgas market to a Jet A market. Where Avgas represented 81% of fuel sales in 1998; in 2016, Avgas was only 35% of sales.

**Figure A-2. Jet A and Avgas Fuel Sales (Gallons), 1998**



Source: Front Range Airport

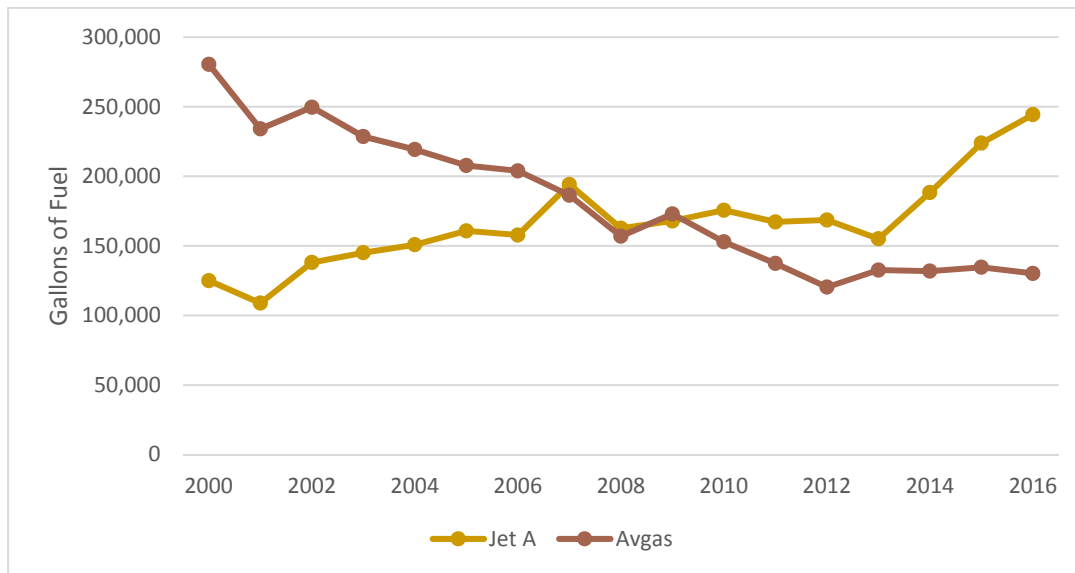
**Figure A-3. Jet A and Avgas Fuel Sales (Gallons), 2016**



Source: Front Range Airport

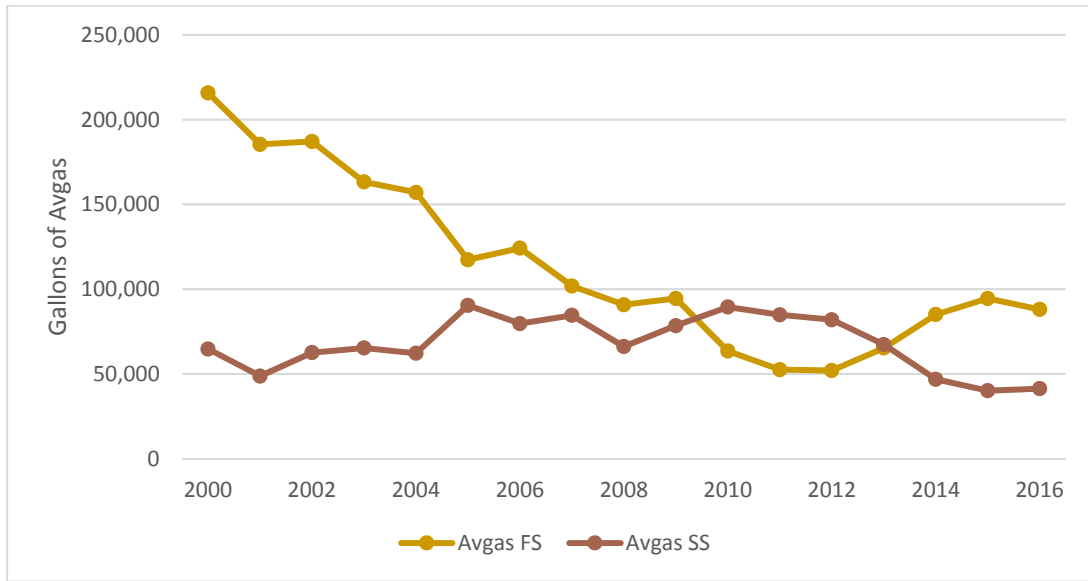
Figure A-4 tracks Avgas and Jet A fuel sales since 2000 and shows the remarkable increase in Jet A fuel sales over the 16 years. In 2016, FTG sold 130,205 gallons of Avgas and 244,350 gallons of Jet A. Avgas fuel purchases appear to have stabilized since 2012. However, the self-service segment has declined at a faster rate (see Figure A-5) suggesting either less flying by the most price-sensitive customers or use of nearby airports with lower fuel prices.

**Figure A-4. Jet A and Avgas Fuel Sales, 2000-2016**



Source: Front Range Airport

**Figure A-5. Self-Service and Full-Service Avgas Sales Trends, 2000-2016**



Source: Front Range Airport

Based aircraft owners are the main customers of FTG fuel. As shown in Table A-12, 80% of Avgas and 60% of Jet A purchases are made by owners or pilots of based aircraft.

**Table A-12. Fuel Customer Mix**

Fuel	% Transient Purchases	% Based Aircraft Purchases
Avgas (100LL)	20%	80%
Jet A	40%	60%

Source: Front Range Airport

**Fuel Deliveries**

The airport does a weekly manual inventory of fuel using a dip stick and automatic tank gauging system in the fuel tanks to determine the fuel needed to resell. When fuel is low, they call World. They complete a monthly inventory check to determine total fuel sold and total fuel delivered for the month and account for any fuel waste because of spillage or maintenance. Approximately every week, the airport orders a full load of Jet A and, every week and a half, a full load of Avgas. The airport sets prices at the time of delivery. Fuel supplies are paid from airport operating revenues.

**Selection of a Fuel Supplier**

In 2015, Adams County Purchasing Department issued an RFP for a new fuel supplier for the airport. Four fuel suppliers Avfuel, Epic, Western Petroleum, and World Fuel Services bid on the contract.

Selection criteria included the size of the supplier, corporate philosophy, and the package offered in each bid. World offered training programs, support, quality assurance, technical help, timely fuel deliveries,

and seminars. World also offered equipment and favorable finance terms. At first FTG did not exercise these options but later leased an additional fuel truck for \$500 per month. This has helped increase fuel sales at FTG but is also a cost to the airport. The airport prefers to own their own trucks. World also provides credit card servicing and equipment with their Total Fuel software.

The World contract was written for one year with a 2-year extension per the requirements of Adams County Purchasing Department.

**Fuel Pricing**

Fuel pricing at Front Range Airport is typical of today’s fuel market. The Avgas market pricing is straightforward; Jet A is far more complex. FTG participates in both discount programs and contract rate programs set by World. As in many metropolitan areas, fuel prices are highly competitive. Within a 50-mile radius, approximately five airports also offer fuel services. Each airport also has a different fuel supplier and margins to aid in the competition.

FTG’s overall pricing strategy is based on the following methods:

- Each morning, compare fuel prices at airports within a 100-mile radius.
- Review retail margins to maintain an average \$2.00 per gallon for Jet A and \$1.50 per gallon for Avgas. Try to keep the self-service margin at a minimum of \$0.50 per gallon unless other nearby airports have higher margins. (As of June 14, 2016, self-serve margins were higher at 76 cents per gallon.)
- Monitor prices weekly to meet or exceed margins (targets). Track each month for gallons spent and adjust price accordingly, based on market and nearby airports.

The margins for fuel have improved in the last five years. The previous airport administration kept the margins low to bring in more traffic. The new methodology is to make more revenue for the airport on fuel sales, by adjusting the margins.

**AVGAS DISCOUNTS**

FTG offers full-service and self-service Avgas. There are published prices for Avgas. Based aircraft owners and pilots receive a significant discount if they prepay for fuel by check. Customers who purchase more than 75 gallons of Avgas receive a 15 cent per gallon discount. Self-serve customers pay \$1.10 less per gallon. Table A-13 shows Avgas prices and margins as of June 14, 2017.

**Table A-13. Avgas (100LL) Fuel Prices (Including Taxes) & Margins**

<b>100LL Truck</b>	<b>Retail Price</b>	<b>Target Margin</b>
Published	\$5.49	\$1.86
Based Customer	\$5.39	\$1.78
75+ Gallons	\$5.34	\$1.71
<b>100LL Prepay</b>	\$4.29	\$0.66
<b>100LL Self-Serve</b>	\$4.39	\$0.76

Source: Front Range Airport, Prices Effective June 14, 2017

### JET A DISCOUNTS AND CONTRACT RATES

Jet A is sold either directly by the airport to customers or at contract rates. Contract rates are negotiated directly with World. For these customers, FTG does not actually know what price customers pay for fuel. Instead, World will reimburse the airport for the wholesale price FTG paid for the fuel plus an into-plane (upload) fee plus taxes. The into-plane fee is negotiated between World and FTG. World suggested a fee based on other airport fees, but it is FTG's decision. If their into-plane fee is too high, FTG will get a call from World or probably notice that Jet A fuel sales volumes are declining. As of March 2017, FTG's into-plane fee was approximately \$1.30 per gallon. Table A-14 shows how airport reimbursements for contract sales are calculated.

**Table A-14. Contract Settlement to FBO**

Settlement Categories	Unit	Example	Calculation
Jet A Fuel Sold	Gallons	100	
Wholesale Price	Price Per Gallon	\$2.00	\$200.00
Into-plane Fee	Per Gallon	\$1.30	\$130.00
U.S. Federal Oil Spill Tax	Per Gallon	0.00214	\$0.21
U.S. Federal Excise Tax	Per Gallon	0.244	\$24.40
State Fuel Tax	Per Gallon	0.04	\$4.00
<b>Total Reimbursed to Merchant</b>			<b>\$358.61</b>

Source: Prepared by KRAMER aerotek inc. (2017)

Customers without contract rates receive volume discounts for Jet A fuel purchases. Table A-15 shows the discounts offered in March 2017.

**Table A-15. Jet A Fuel Prices (Including Taxes) & Margins**

Jet A	Retail Price	Target Margin
Published Price	\$4.12	\$2.00
250-500 gallons	\$4.10	\$1.98
501-1,000	\$4.02	\$1.90
1,001-1,500	\$3.87	\$1.75
1,501-2,000	\$3.77	\$1.65
2,001+	\$3.72	\$1.60
2,501-3,000	\$3.60	\$1.48
3,001-3,500	\$3.55	\$1.43
3,501-4,000	\$3.50	\$1.38
4,001+	\$3.45	\$1.33

Source: Front Range Airport, Prices Effective March 14, 2017

### CREDIT CARD PROCESSING FEES

For contract sales, World does not charge any transaction fees; however, for Avgas and Jet A sales that FTG makes directly to its customers, World processes credit card transactions and charges a transaction fee for each purchase that varies from 2% to 3% depending on the credit card used. In addition, the airport pays a monthly fee for credit card processing equipment and software.



### Efforts to Increase Fuel Sales (Advertising and Marketing)

FTG is constantly looking for ways to increase fuel sales. The airport website regularly updates its fuel prices on the airport website and posts prices on AirNav, FlightAware, ForeFlight, 100LL, and FlightPlan. In addition, World provides marketing on their website and in flyers. World logos are on the airfield. FTG also markets its airport and fuel services through social media sites.

### Challenges and Lessons Learned

Front Range, like all airports, has experienced changes in the general aviation segment especially since 2008. For the corporate and business jet aviation, many more flight departments are employing tankering strategies and negotiating contract rates with fuel suppliers. Personal and recreational flying in smaller aircraft appears to have stabilized finally, but at diminished levels since its peak in 2000.

Airport staff offered a few lessons learned after years of self-operating fueling services:

- FTG prefers to oversee its fueling operations and exercise its ability to offer a high level of customer service.
- The actual cost of fuel service can get lost in translation. There are many parts and pieces that an FBO must consider, including ground support equipment, man-hours, equipment, flight training, avionics, etc. These can be factors in the total cost of fuel.
- The RFP process delivered fuel supplier bids from all of the major companies and made it possible for the airport to achieve a favorable package.
- It is important to continually monitor marketing initiatives offered by the fuel supplier and verify effectiveness of these efforts on the airport's fuel sales.
- Provision of on-airport food services is an excellent way to keep customers happy.

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## A.6 HULETT MUNICIPAL AIRPORT, HULETT, WYOMING

*Based on research and an interview with D. J. Wolfskill, Airport Manager and Board Chairman*

### Airport Overview

Hulett Municipal Airport (W43) is owned by the Town of Hulett and opened in October 2003. It is Wyoming's newest airport, located at the far northeast corner of Wyoming where the states of Montana, South Dakota, and Wyoming meet. The airport is located two miles southeast of Hulett and approximately 300 miles from Cheyenne. The airport is remote and has one runway (Runway 13/31 is 5500' x 75'). In 2016, the airport delivered 1,451 gallons of Avgas and 3,270 gallons of Jet A. There are 10 based aircraft at W43, and all 10 are single-engine aircraft. Table A-16 displays the 2017 based aircraft and operations information for W43, based on the airport's 5010 form.

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**Table A-16. Hulett Based Aircraft and Operations**

Based Aircraft (2017)	
Single Engine (SE):	10
Multi Engine (ME):	0
Jet (J):	0

<b>Based Aircraft (2017)</b>	
Total Fixed Wing (SE + ME + J):	10
Helicopters:	0
Gliders:	0
Military:	0
Ultra-Light:	0
<b>Operations (2017)</b>	
Air Carrier:	0
Air Taxi:	100
General Aviation Local:	900
General Aviation Itinerant:	1,500
Military:	0
Total Operations:	2,500

Source: Airport IQ 5010

Hulett Municipal Airport stands out in the case studies because it is an unattended airport relying heavily on transient traffic to support its fuel facility program. W43 does not have enough air traffic to merit a full-time employee and provide a full-service fuel facility.

### **Key Findings**

To establish a fuel facility, Hulett Municipal did not have the benefit of a previous fixed-base operator at the airport, but rather relied heavily on private donations for the installation of a new fuel facility. The small general aviation airport has a second disadvantage of low traffic volumes. To combat low numbers, Hulett Municipal Airport is developing strategies to market the airport, bring more traffic to the airfield, and establish consistent formulas on fuel price setting.

### **Airport Owned Fuel Service**

Hulett Municipal Airport has provided self-service Avgas since 2007 and self-service Jet A fuel since 2012. The funding for each of these fuel service facilities came from separate state grants and private donations. Installation of the Avgas fuel facility cost \$44,470, and the Jet A facility cost \$108,440. Individual state grants provided a portion of the funding, but most the funding was provided by private donors who benefited from the installation of the fuel stations. W43 purchases fuel from City Service Valcon; the fuel is sold under the Phillips 66 brand.

### **Description of Current Fuel Facilities**

Hulett Municipal Airport’s fuel facility is a pre-fabricated, free-standing, self-service unit that provides both Avgas and Jet A fuel, and it is equipped with a 2,000-gallon Avgas bulk storage tank and a 12,044-gallon Jet A self-service tank.

The self-service fueling stations are considered unattended but the airport provides one part-time staff member assigned to the fueling operation who conducts an overall inspection of the fuel facility, checks fuel gauges, and verifies that no leaks are present.

Since the fuel is sold under a brand name, the quality control program requirements and guidelines for the fuel facility are established by Phillips 66. Airport staff make daily inspections of the fuel facility to assure that the fuel meets quality control standards. Phillips 66 sends a representative to conduct an annual inspection of the facility. This annual inspection is helpful to the airport as the inspector often suggests ways to improve the facility and gives suggestions on how to operate more efficiently. City Service Valcon sends a representative three to four times a year to check in on the facility and provide any additional information to the airport.

**Description of the Local Market for Aviation Fuel**

Avgas and Jet A fuel sales for Hulett Municipal Airport are summarized in Table A-17. Avgas sales dropped by about 250 gallons from 2014 to 2016, but Jet A fuel sales have fluctuated from year to year. No clear trends for either fuel type have emerged as total volumes are small.

**Table A-17. Avgas and Jet A Fuel Sales, 2014-2016**

Avgas (100LL)	
Year	Gallons Sold
2016	1,451
2015	1,547
2014	1,810
Jet A	
Year	Gallons Sold
2016	3,270
2015	4,503
2014	1,866

Source: Hulett Municipal Airport

Transient traffic accounts for 100% of Avgas fuel sales but only accounts for 30% of Jet A fuel sales. The remaining 70% of Jet A fuel sales come from local based aircraft owners. The remainder of jet fuel sales come from transient traffic, and W43 is eagerly working on methods to reach out and attract more transient customers.

**Choosing a Fuel Supplier**

The current fuel supplier is City Service Valcon who sells aviation fuels to Hulett under the Phillips 66 brand. City Service Valcon has been supplying Avgas for 10 years and Jet A fuel for five years. Insurance for the fuel facility, annual quality control checks, and airport staff training are all provided by Phillips 66. City Service Valcon provides the credit card processing services and equipment for a small annual fee. No equipment is leased or financed by the fuel suppliers. The airport finances fuel deliveries and fuel facility maintenance through the airport operating revenues.

The airport initially selected Phillips 66 and City Service Valcon based on market value. There is no contract agreement between the fuel supplier and the airport, but rather, the fuel is purchased as needed. The airport is happy with no contract and is satisfied with level of service and quality control inspections.

Airport Manager, DJ Wolfskill states that name brand of fuel is very important to customers as it gives customers and the airport staff peace of mind knowing that the product has gone through a strict quality control process.

Due to the low amount of traffic, W43 always receives delivery of partial loads. The airport usually placed an order one month in advance and then City Service finds another airport to split the load, offsetting some of the cost of the partial load. W43 will receive an Avgas delivery two times per year and a Jet A delivery between three and four times a year.

### **How the Airport Sets Prices**

Hulett Municipal Airport sets fuel pricing based on the fuel prices of surrounding airports. The airport prices fuel at a set percentage above the delivered price and resets prices at receipt of the next delivery. No discounts or contract fuel are offered.

### **Efforts to Increase Fuel Sales**

Hulett Municipal Airport is developing a marketing program to increase fuel sales to transient aircraft. The airport manager stated that in addition to the availability of affordable fuel alone, transient traffic is looking for a quality facility and airfield, a comfortable lounge, and easy and quick access to the local town and restaurants.

The airport is considering fly-ins, airshows, and coordinating events to raise the visibility of the airport. Airport staff are working on a website and Facebook page and currently post fuel prices on AirNav and 100LL.

### **Emergency Procedures and Spills**

The local fire department and an emergency response plan cover the airport. Phone numbers and all emergency contact numbers are visibly posted multiple times throughout the facility. All the local emergency response crews are familiar with the airport and have contact information for the airport managers and other airport personnel to alert them of any emergencies.

The airport provides a small spill cleanup kit located in the lounge near the fueling stations. The self-service units are situated on a containment pad that prevents spills from flowing into other nearby areas.

### **Challenges and Lessons Learned**

Hulett's main challenge is the lack of traffic to warrant a full-time employee at the airport. Self-service fueling stations tend to not attract large aircraft seeking full-service fueling.

To combat this challenge, Hulett Municipal is currently considering having a trailer that could host an on-call employee to be available to provide full-service. This employee would be notified of incoming aircraft and would be available to pump fuel for customers on an as-needed basis. The airport is hoping that with this on-call availability a full-service fuel station will draw larger aircraft to the airport.

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## A.7 HUNTINGTON TRI-STATE AIRPORT, HUNTINGTON, WEST VIRGINIA

*Based on research and an interview with Brent Brown, Airport Manager, and Chris Hall, Airport Operations Supervisor*

### Airport Overview

Huntington Tri-State Airport (HTS) is owned by The Tri-State Airport Authority and is located three miles south of Huntington, West Virginia. HTS is a commercial airport with one runway (Runway 12/30 is 7017' x 150') and an air traffic control tower. In 2016, the airport delivered 5,385 gallons of Avgas and 153,344 gallons of Jet A. There are 36 based aircraft at HTS: 1 is a jet, 27 are single-engine, 5 are multi-engine, and there is 1 helicopter. Table A-18 displays 2018 based aircraft and operations as of February 2018.

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**Table A-18. HTS Based Aircraft and Operations**

<b>Based Aircraft (2018)</b>	
Single Engine (SE):	27
Multi Engine (ME):	5
Jet (J):	1
Total Fixed Wing (SE + ME + J):	33
Helicopters:	1
Gliders:	0
Military:	0
Ultra-Light:	2
<b>Operations (2018)</b>	
Air Carrier:	1,924
Air Taxi:	3,772
General Aviation Local:	650
General Aviation Itinerant:	4,637
Military:	614
Total Operations:	11,597

Source: Airport IQ 5010

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Huntington Tri-State Airport stands out in the case studies because it supports commercial, military, and general aviation operations. This commercial airport offers daily flights for American Airlines, Allegiant, and FedEx. The airport is also on contract with the Department of Defense and has continual military activity from the National Guard base across the river. Additionally, the airport fuel facility is a full-service, 24-hour facility. Avfuel is the fuel supplier.

### Key Findings

Tri-State Airport owns and operates all fueling activities. The airport staff effectively use discounts and Avfuel mileage points to attract transient customers. Their contract with the Department of Defense provides a small but steady stream of revenue.

### **Fixed-Base Operator**

HTS has self-operated FBO services since November 2, 1952 when the airport opened a full-service General Aviation Terminal and Avgas facility. Since that time the airport has become a commercial airport and added full-service Jet A fuel to its offerings. The Airport ran the FBO and fueling services to generate revenue but also to create an attractive environment for aircraft activity. The Airport expects to continue operating as the FBO.

While FedEx and American Airlines provide their own staff for ground handling, the Airport provides full ground handling and passenger services for Allegiant.

### **Description of Current Fuel Facilities**

Huntington Tri-State's fuel facility is equipped with two 10,000-gallon Avgas bulk storage tanks, two 18,000-gallon Jet A bulk storage tanks, one 1,500-gallon Avgas fuel truck owned by the airport, and two 3,000-gallon Jet A fuel trucks leased from the fuel supplier. The airport does not offer any self-service fuel option and has not considered this option because of airport space constraints. HTS sits on the top of a mountain and has little additional room to expand. Any expansions that the airport considers require an intensive environmental permitting process and considerable earthwork.

The Airport has eight full-time employees assigned to the fueling operation. At least one employee is available at all times to provide full-service fueling. Medical flights can arrive throughout the night and require refueling.

The fuel facility follows Avfuel's recommended quality control programs for daily and quarterly inspections and for fuel tests. Yearly audits are conducted by the Department of Defense and Avfuel to ensure that fuel product quality is maintained. Commercial airlines also conduct their own audits of the facility every 16 months. Four of the full-time staff members have participated in training provided by Avfuel at the fuel supplier's training locations.

The fuel facility is equipped with several environmental protection and emergency features including double wall tanks, containment walls around the tanks, emergency shut off valves, and fire extinguishers. Emergency procedures are posted on signs throughout the area.

### **Description of the Local Market for Aviation Fuel**

As shown in Table A-19, Jet A fuel sales account for almost all the airport's fuel sales. In recent years, Avgas sales were approximately 5,000 gallons and Jet A sales near 150,000 gallons. Fuel sales volumes remain stable and are shown in Table A-19.

Airport Deputy, Brent Brown, notes that air travel is significantly more common in the summer months than the winter months at Tri-State Airport. For example, Allegiant will have up to four flights per day operating seven days a week during the busy summer months, but the winter months will transition to one to two flights per day operating five days per week. The fuel sales in Table A-19 include sales to commercial and general aviation aircraft.

Based aircraft account for a small portion of fuel sales for the airport; most fuel sales come from transient traffic. 35% of Avgas fuel sales and 13% of Jet A sales are estimated to come from based aircraft owners. Transient, Jet A customers account for most the fuel revenue at HTS as 87% of Jet A sales are come from non-local traffic.

**Table A-19. Commercial and GA Avgas (100LL) and Jet A Fuel Sales (excluding DOD sales), 2012-2016**

<b>Avgas (100LL)</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	5,385
2015	5,410
2014	5,219
2013	4,650
2012	6,480
<b>Jet A</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	153,344
2015	149,085
2014	144,233
2013	161,805
2012	140,131

Source: Huntington Tri-State Airport

Tri-State Airport has a contract with the Department of Defense and has been offering fuel to military aircraft for several years. Table A-20 shows the Jet A fuel sales to military aircraft from 2012 through 2016. Starting in 2014, military fuel sales dropped significantly and the number of flights was reduced. Nevertheless, the airport is still happy to have the military business and to participate in the DOD quality control program.

**Table A-20. Department of Defense Fuel Sales, 2012-2016**

<b>Jet A</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	17,662
2015	8,228
2014	18,697
2013	46,331
2012	45,710

Source: Huntington Tri-State Airport

Tri-State Airport competes directly with Yeager Airport (CRW) near Charleston WV; Raleigh County Memorial Airport (BKW) near Beckley WV; Blue Grass Airport (LEX) near Lexington KY; and, Ashland

Regional Airport (DWU) near Ashland KY. The airport stays competitive with Jet A retail prices, but does not compete with nearby Ashland airport's self-service 100LL fuel prices. Airport staff cannot justify lowering their Avgas prices to that of their self-service competitor, so they concede that they will lose Avgas customers who seek the lowest price.

### **Choosing a fuel supplier**

Avfuel provides fuel to HTS. Eight years ago, HTS purchased fuel directly from Phillips 66. At the time, Avfuel reached out to the airport and proposed a more competitive fueling contract. Tri-State Airport switched its contract to Avfuel.

In addition to fuel deliveries, Avfuel provides a web-based fuel management system for the airport. The airport provides the fuel facility insurance, credit card processing, and a pump management and inventory system. Airport staff and Avfuel look after quality control checks, training, advertising, and marketing.

Avfuel delivers a full load of Avgas fuel usually once at the beginning of the summer and once at the end of the summer. Occasionally a third load is required in late winter or early spring. Jet A deliveries occur two to three times per month during the busy summer months. HTS finances fuel deliveries with airport operating revenues.

Avfuel's current contract was initially a three-year contract with an option for an extension. The airport and fuel supplier are negotiating a new 5-year contract with an extension option. In addition, Avfuel has offered favorable lease rates for two Jet A fuel trucks and funding to complete improvements to the terminal area.

### **How the Airport Sets Prices**

Until recently, the airport kept fuel prices constant for over two years. Lack of training and high turnover rates of FBO employees led to the prices not being monitored closely. Now, airport staff review fuel prices on a weekly basis to see if changes are necessary. They rely on the current cost of fuel and prices at nearby airports as principal inputs to set price.

The airport prices the fuel to ensure they are making profit, but they do not include operating costs. Brown estimates the airport receives \$2.50 per gallon of Jet A sold before expenses are accounted. For contract fuel, the airport does charge a \$1.25 per gallon into-wing fee that is incorporated into the fuel price. This upload fee is lower than the upload fee at most surrounding airports, and the staff recently raised their fee.

Tri-State's contract with the Department of Defense requires fuel to be sold at a 50% discount (after delivered costs). HTS does not generate a lot of revenue from sales through this contract because the discount is so high. Brown estimates the airport earns \$0.40 to \$0.50 per gallon sold on the DOD contract before expenses. As Tri-State continues to pass their DOD audits, they continue to renew their contract. DOD fuel is paid for through a government procurement card that is accepted by Avfuel's card processing equipment.



Tri-State Airport is very effective at promoting their fuel through discount programs. Every weekend during the year, the airport provides 50-cent-off discounts on Saturdays and Sundays to draw in the weekend travelers and promote their own base aircraft pilots to take flights on the weekends. The airport also negotiates individual discounts for their based aircrafts ranging from 25 to 50 cents off depending on the amount of fuel usually purchased and the frequency of their flights.

### Gross Profits from Fuel

Table A-21 shows Jet A and Avgas fuel sales and costs for the last five fiscal years. In FY15-16, fuel margins were at their highest, partially because heavily discounted DOD fuel sales were relatedly low and the delivered cost of fuel was also at an all-time low. Margins for Avgas are lower than Jet A margins.

**Table A-21. Fuel Revenues and Expenses, FY 2011-2015 (July 1-June 30<sup>th</sup>)**

	Fiscal Years				
	2015-2016	2014-2015	2013-2014	2012-2013	2011-2012
Jet A Fuel Sales	\$1,088,052	\$1,501,095	\$1,231,495	\$1,350,640	\$1,617,442
Jet A Fuel Cost	\$632,129	\$1,190,796	\$1,000,573	\$1,022,454	\$1,206,472
<b>Gross Profit</b>	<b>\$455,923</b>	<b>\$310,299</b>	<b>\$230,922</b>	<b>\$328,186</b>	<b>\$410,970</b>
<b>% Gross Profit of Sales</b>	<b>42%</b>	<b>21%</b>	<b>19%</b>	<b>24%</b>	<b>25%</b>
Avgas Sales	\$231,473	\$284,194	\$292,722	\$287,426	\$339,110
Avgas Cost	\$182,989	\$237,768	\$248,461	\$280,667	\$287,243
<b>Gross Profit</b>	<b>\$48,483</b>	<b>\$46,425</b>	<b>\$44,261</b>	<b>\$6,759</b>	<b>\$51,867</b>
<b>% Gross Profit of Sales</b>	<b>21%</b>	<b>16%</b>	<b>15%</b>	<b>2%</b>	<b>15%</b>

Source: Huntington Tri-State Airport

### Efforts to Increase Fuel Sales (advertising, marketing efforts)

Use of Avfuel rewards programs has been a valuable incentive to attract fuel customers. Avfuel gives the airport discretion to offer double point days to promote fuel sales. Brent Brown is confident that promotions targeted at brand loyalty work to increase traffic at HTS.

In an advertising effort, HTS posts fuel prices with FlightPlan, ForeFlight, FlightAware, and AirNav. Discounts are also advertised on these websites. The airport also promotes the Avfuel reward cards to attract transient pilots to HTS.

### Challenges and Lessons Learned

The main challenges the airport has faced include the decline in fuel demand; lower fuel prices at nearby competing airports; and the high fuel supply delivery costs. Brent Brown mentioned that the pilot population is aging and general aviation pilots are becoming less common. Demand for flights is lower in the winter and this affects the airport's fuel sales. A varying schedule by Allegiant also results in a somewhat inconsistent revenue throughout the year.

Another challenge HTS faces is aircraft tankering practices. Airport staff notice that previous fuel customers are visiting the airport, but purchasing less fuel or no fuel.

Any airport considering a fuel facility, according to Brent Brown and Chris Hall, should know to keep up with reporting and inspecting the facility. They also suggest that employees receive proper training and have up-to-date documentation readily available.

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## A.8 LAKE COUNTY AIRPORT, LEADVILLE, COLORADO

*Based on research and an interview with Brad Palmer, Public Works Director of Lake County*

### Airport Overview

Lake County Airport (LXV) is publicly owned by Lake County and is located two miles southwest of Leadville on the western slope of Colorado. LXV is the highest public airport in the U.S., located at 9,934 ft. Because of its elevation, the airport has become a well-known, high-altitude testing site for the military as well as aerospace and vehicle companies. Its picturesque location also attracts advertising companies.

The airport with one runway (Runway 16/34 is 6400' x 75'). Most of its fuel market is transient aircraft either at the airport for testing, on transcontinental flights, or arriving to fly into the highest airport. In 2016, the airport delivered 73,874 gallons of Jet A fuel, and 15,093 gallons of Avgas (100LL). There are 5 based aircraft at LXV, and all are single-engine aircraft. Table A-22 displays the 2016 based aircraft and operations information for LXV updated as of March 30, 2017.

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**Table A-22. LXV Based Aircraft and Operations**

<b>Based Aircraft (2016)</b>	
Single Engine (SE):	5
Multi Engine (ME):	0
Jet (J):	0
Total Fixed Wing (SE + ME + J):	5
Helicopters:	0
Gliders:	0
Military:	0
Ultra-Light:	0
<b>Operations (2016)</b>	
Air Carrier:	0
Air Taxi:	200
General Aviation Local:	1,800
General Aviation Itinerant:	1,000
Military:	2,000
Total Operations:	5,000

Source: Airport IQ 5010

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Lake County Airport stands out in the case studies because the airport was taken over by the County from a fixed-base operator in 2009. Employees of the County who were given the task of managing the airport had no aviation experience coming into the positions. Since 2009, the airport staff has successfully taken over management of the airport and developed its high-altitude testing business.

### **Key Findings**

Lake County Airport is proud to be the highest airport in North America. The high elevation and thin air bring many testing companies use the airport facilities. The testing companies and military operations account for almost 80% of the airport's fuel sales. This airport draws companies from all over the world to conduct tests at the high elevation, and as the companies use the airport facilities, they also purchase the airport's fuel.

### **Managing a Transition to Airport Owned Service**

Lake County took over the airport from a fixed-base operator in 2009. Public Works Director of Lake County, Brad Palmer, states that the County didn't have previous experience running the airport. In this transition period, the aviation community was extremely helpful in instructing the new airport staff in airfield management. Phillips 66, the airport's fuel supplier, provided training and assistance to LXV staff in managing the fuel facility. The fuel facilities are funded by municipal funding and federal grant funds.

### **Description of Current Fuel Facilities**

Lake County Regional Airport's fuel facility was initially built in 1960. It is a custom-built, free-standing, self-service unit that is connected to the airport's fuel farm. Self-service fuel is available 24/7, and the airport provides attendants for full-service from 8 am to 5 pm, daily. The fuel facility is equipped with one 12,000-gallon Jet A bulk storage tank and one 12,000-gallon Avgas bulk storage tank. Maximum fill level on both tanks is 90% or 10,800 gallons. The airport owns a fuel truck for each type of fuel to accommodate requests for full- or assisted- service.

In 2015, the Jet A fuel tank was pressured tested, relocated, and had all new plumbing installed. The airport's 100LL fuel tank stopped functioning in 2016, and for two months, the airport stored and sold 100LL fuel from its 2000-gallon fuel truck while a new tank was designed and specified. The 10,000-gallon tank is the newest upgrade to the fuel facility, and due to these recent upgrades, LXV does not plan on expanding fueling services.

Lake County Airport employs two full-time and one part-time staff at the airport. These employees are responsible for operating the full-service fuel station during its operating hours. Additionally, they are responsible for snow removal, operation of heavy equipment, knowledge of the airport master plan, and coordinating ground leases and contracts for testing companies.

LXV conducts weekly quality control tests on fuel quality and the airport staff are careful to update their fuel logs appropriately. Every fuel load that comes in is tested, and City Service Valcon (the fuel distributor) and Phillips 66 conduct routine quality control checks throughout the year.

### Description of the Local Market for Aviation Fuel

Peak months in fuel sales for Lake County Airport are from April to September. Summer is a more popular time of year to fly in Colorado and high-altitude testing is commonly conducted during these months. The aviation fuel market is predominantly a Jet A market. As LXV sees very little local traffic and has few based aircraft, business from transient traffic, specifically military and helicopter testing traffic, is very important to the airport. Approximately 40% of Jet A fuel sales are accounted for by military flights and another 40% from helicopter testing in 2016. Table A-23 summarizes the fuel sales for the airport in 2016.

**Table A-23. Avgas (100LL) and Jet A Fuel Sales, 2016**

Avgas (100LL)	
Year	Gallons Sold
2016	15,093
Jet A	
Year	Gallons Sold
2016	73,874

Source: Leadville-Lake County Airport

Although a large amount of fuel sales come from military aircraft, LXV loses out on some sales because the airport is not on contract with the Department of Defense. Some military divisions cannot purchase fuel unless the airport is on contract, while other divisions can purchase fuel with the Air Card. The divisions that purchase through the Air Card account for the airport's military fuel sales. Phillips 66 does not take the Air Card, so an additional credit card system is used by the airport to complete these transactions.

The remaining 20% of fuel sales come primarily for transient general aviation traffic that are flying transcontinental routes or are seeking LXV's special high-altitude pilot certificate. The high-altitude cache serves as an extra attraction that brings pilots to LXV and they often will purchase Avgas.

### Choosing a Fuel Supplier

Lake County Airport purchases fuel directly from City Service Valcon, which serves as a fuel distributor for Phillips 66. This fuel supplier has supplied LXV since the County took over the airport in 2009.

During the selection process, the airport put the fuel contract out to bid as required by County procurement. Three companies were interviewed including Shell and Phillips 66. Airport staff and management selected Phillips 66 because they provided the best presentation, service, and pricing. The company seemed to be the more popular brand of fuel in the air industry in the Colorado mountain area. Palmer confirms that fuel brand is important to customers, and he is confident in the quality product that Phillips 66 provides.

Due to County procurement requirements, the airport cannot enter a contract lasting more than one year. Since long-term and multi-contracts are not an option, the airport has renewed their annual contract with Phillips 66 every year since 2009.

Phillips 66 provides airport fuel deliveries, inspection services that ensure the fuel facility is properly maintained, real-time authorization and transaction processing, training for the airport staff, and advertising. The airport covers its own fuel facility insurance even though Phillips 66 offers insurance coverage. Palmer cited a recent situation in which the airport's Jet A fuel pump broke, and Phillips 66 allowed the airport to use an extra truck to hold the fuel. The airport continued selling the fuel out of the extra truck and didn't lose the product.

No fuel equipment is leased or financed under the airport's contract with Phillips 66, but rather, the airport purchased equipment from different airports including Denver International Airport and at auctions. Palmer suggests that commercial airports, a local fuel supplier, and even word of mouth are all valuable resources for finding fueling equipment and fuel trucks.

LXV generally receives full-load load deliveries from their fuel supplier for Jet A and Avgas. Since Jet A is used heavily by military aircraft and the helicopter testing companies, full loads are always required because the supply is used quickly. Although demand for Avgas is less, the airport can keep the fuel fresh and up to standards by treating it to maintain appropriate octane levels. LXV follows Phillips 66 recommendations and has the fuel treated on a yearly basis. Ordering fuel from Phillips 66 is very easy for LXV and can usually be delivered within two or three days of the order being placed. Jet A fuel deliveries occur between 5 and 10 times and year and Avgas deliveries occur once or twice per year.

The airport could easily purchase partial loads from their fuel supplier as well. While selling out of the 2000-gallon Avgas fuel truck during the transition period between tanks, Phillips 66 helped the airport coordinate partial loads of 100LL fuel with airports in surrounding areas.

Since Lake County Airport is operated and maintained by the County, fuel deliveries funded by the County general fund. Fueling system maintenance comes out of general county maintenance budget

### **How the Airport Sets Prices**

LXV attempts to price their fuel lower than nearby airports if it is not less than the original cost. Keeping prices at or below surrounding airports is important for fuel sales. The goal is to offer fuel at prices that are lower than Buena Vista and comparable to Salida. The retail price per gallon of fuel covers the cost of delivered fuel, fuel farm storage, maintenance, and labor, and fueling services. Retail price is generally 50 to 75 cents per gallon over the delivered wholesale price. LXV will alter fuel prices on an as-need basis. The airport recently implemented of point of sale software to effectively track fuel inventories and sales.

Lake County Airport generally keeps prices at constant rates for the Jet A fuel, as there will always be a military and helicopter testing company presence at this airport and the fuel will sell. The airport does not have a DOD contract and therefore sells fuel to military aircraft using the Air Card. In rare circumstances, the airport will be willing to negotiate with a helicopter testing company on the price of fuel and take a small percentage off the price, but for the most part, the price remains constant.

LXV offers discounted Avgas more often than Jet A discounts. Occasionally, the airport will offer a hot sale or fire sale to rotate through fuel supplies as low lead fuel is moved significantly slower than the Jet A.

Finally, the airport coordinates fuel discounts with aviation events, such as the Oshkosh airshow, by offering reduced prices for pilots heading to these events.

Some of the airport's fuel customers are members of the Phillips 66 rewards program called Wing Points, and LXV has just recently begun to promote and accept these points.

### **Efforts to Increase Fuel Sales**

LXV uses websites such as AirNav, Flight Aware, and their own website to advertise fuel prices. The airport attends some helicopter expos to recruit testing companies and market its fuel services.

### **Challenges and Lessons Learned**

The threat of fuel emergencies and spills is always a possibility at fueling stations. LXV is prepared with proper emergency training and have an ARFF station located within 100 ft. of the fuel facility. The airport also provides oil spill cleanup kits in case of minor spilling.

Lake County Airport's fuel facility program has been challenged in recent years by the decline in fuel demand and decline in the price of fuel since the airport took over the facility. Fuel revenues for LXV have been lower than anticipated, and the airport faces price competition from nearby airports.

Military fuel sales vary from year-to-year. The airport decided to not apply for a DOD fuel contract. Because of this, some military aircraft cannot purchase fuel from the airport and must go to a different airport on a military contract. Palmer states that with Fort Carson moving in more helicopters, the airport may reconsider a DOD contract.

To airports considering investing in fuel service facilities, Palmer offers several suggestions and lessons learned from Lake County Airport's transition to managing a fuel facility. Palmer recommends purchasing fuel from a quality supplier with good product and maintaining a strict protocol for fuel testing. He warns that accidents can happen in the aviation world and an airport could be held liable if there is not proper documentation of fuel logs and fuels tests readily available. Although costs are associated with fuel facility upkeep and fuel filter replacement, continual upkeep of the fuel facility ensures a quality and clean fuel product.

LXV conducts monthly trainings, either online or bringing in an outside representative, to ensure the airport staff is well equipped to manage the fuel facility. Palmer strongly supports the training program to ensure the airport staff have the necessary skills to accomplish their tasks.

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## A.9 MERIDEN MARKHAM MUNICIPAL AIRPORT, MERIDEN, CONNECTICUT

*Based on research and survey responses from Constance Castillo, Airport Manager*

### Airport Overview

Meriden Markham Municipal Airport (MMK) is owned by the city of Meriden and is located three miles SW of Meriden, Connecticut. MMK is a General Aviation airport with one runway (Runway 18/36 is 3100' x 75') with instrument approaches. In 2016, the airport delivered 84,000 gallons of Avgas. There are 54 based aircraft at MMK: 52 are single-engine, 2 are multi-engine. Table A-24 displays the 2016 based aircraft and operations information for MMK as of March 30, 2017.

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**Table A-24. MMK Based Aircraft and Operations**

<b>Based Aircraft (2016)</b>	
Single Engine (SE):	<b>52</b>
Multi Engine (ME):	<b>2</b>
Jet (J):	<b>0</b>
Total Fixed Wing (SE + ME + J):	<b>54</b>
Helicopters:	<b>0</b>
Gliders:	<b>0</b>
Military:	<b>0</b>
Ultra-Light:	<b>0</b>
<b>Operations (2016)</b>	
Air Carrier:	<b>0</b>
Air Taxi:	<b>180</b>
General Aviation Local:	<b>15,000</b>
General Aviation Itinerant:	<b>1,500</b>
Military:	<b>50</b>
Total Operations:	<b>16,730</b>

Source: Airport IQ 5010

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Meriden Markham Airport stands out in the case studies because fuel facility sales rely entirely on Avgas. No Jet A fuel is sold through this airport. The airport is used by the Silver City Flying Club, a 40-member equity ownership flying club that owns two aircraft, a 1981 Cessna C-172P and a 1979 Piper Archer PA28-181. Both aircraft rotate on a tri-monthly basis between MMK and Robertson (4B8) airports. Rotation allows club member to fly out of their preferred airport.

### Key Findings

MMK's fuel facility comprises of one 6,000-gallon tank that is not large enough to receive full loads fuel. The airport sells enough fuel to require tank refills at a rate of twice a month. The fuel facility receives partial loads and must coordinate with surrounding airports to save on the expense of receiving a partial load.

### Managing a Transition to Airport Owned Service

MMK and the municipality took over the fuel facility from an FBO in 2010. Prior to 2010, the FBO provided full-service Avgas to customers, but when the airport staff took over running the fuel facility, they opted to provide only self-service Avgas. The airport financed the transition of taking over the fuel facility through municipal funding. Costs for maintaining the fueling system comes out of the general maintenance budget for the airport.

### Description of Current Fuel Facilities

MMK's fuel facility consists of an engineer-designed, custom built, free-standing self-service unit that is attached to the airport's fuel farm. The fuel facility is located within 150 feet of the GA terminal. The facility is equipped with one 6000-gallon Avgas fuel tank, and the airport does not use any fuel trucks to operate the facility. MMK does not supply any Jet A fuel, but one based tenant self-fuels Jet A fuel from their own personal tank. In 2010, when the airport and municipality took over fuel facility, upgrades were made to the Avgas tank, plumbing, meters, valves, and the self-service option installed. Since 2010, the airport no longer provides full-service fuel options.

The airport is operated by the one full-time airport manager and three part-time employees. The fuel facility requires little attention from airport staff as it is a self-service station; however, the staff conducts weekly and monthly tests for quality control of the fuel.

### Description of the Local Market for Aviation Fuel

Table A-25 shows the volumes of Avgas fuel sold over the past five years at MMK. From 2012-2014, fuel sales have gradually increased and between 2014 and 2015 the fuel sales nearly doubled. MMK hopes to continue this positive trend in Avgas fuel sales.

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**Table A-25. Avgas Fuel Sales, 2012-2016**

Avgas (100LL)	
Year	Gallons Sold
2016	84,000
2015	79,000
2014	43,000
2013	39,000
2012	22,000

Source: Meriden Markham Municipal Airport

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Airport Manager, Constance Castillo estimates that 70% of MMK's fuel sales are accounted for by transient air traffic and consequently the airport is heavily dependent on this transient traffic for the fuel sales.

### Choosing a fuel supplier

MMK purchases fuel from World Fuel Services and sells under the Phillips 66 brand name. Constance Castillo states that the brand name of fuel is not important to customers, but rather the price is the main



concern. World Fuel provides the airport fuel deliveries on an as-needed basis, credit card processing devices, and a fuel management system. MMK provides its own insurance, training, marketing, and advertising.

MMK receives only partial loads of gas as their fuel tank is not large enough to take full loads. Depending on the time of year, the airport will receive around two partial loads per month. Fuel sales slow during the winter months, so deliveries happen less frequently during that time of year. Fuel deliveries are financed by the general fund of the municipality.

### How the Airport Sets Prices

When setting pricing, MMK considers a cost markup that incorporates cost of delivered fuel, credit card fees, and regional pricing at other airports. The fuel prices are reset as needed and usually after each delivery.

### Efforts to Increase Fuel Sales (advertising, marketing efforts)

MMK advertises fuel prices on the major website resources including AirNav, FlightAware, ForeFlight, FlyQ EFB, 100LL, FlightPlan, and Global Air.

### Challenges and Lessons Learned

One of the challenges MMK’s fuel facility faces is lower prices at nearby airports. Meridian Airport competes directly with Chester Airport (KSNC) and Robertson Field Airport (4B8). MMK has also been challenged with the high cost of fuel deliveries and lower fuel revenues than anticipated. The decline in fuel prices since purchasing of the fuel facility equipment has also challenged this airport.

## A.10 MESQUITE MUNICIPAL AIRPORT, MESQUITE, NEVADA

*Based on research and an interview with Bill Tanner, Airport Manager*

### Airport Overview

Mesquite Municipal Airport (67L) is owned by the City of Mesquite and is located two miles north of Mesquite, Nevada. Mesquite is a publicly owned general aviation airport with one runway (RW 1/19 is 5121’ by 75’). In 2016, the airport delivered an estimated 32,000 gallons of Avgas and 48,000 of Jet A<sup>3</sup>. There are 20 based aircraft at Mesquite: 1 is a jet, 19 are single-engine, none are multi-engine, and none are helicopters. Table A-26 shows the 2016 based aircraft and operations at the airport.

**Table A-26. Mesquite Municipal Airport Based Aircraft and Operations**

Based Aircraft (2016)	
Single Engine (SE):	<b>19</b>
Multi Engine (ME):	<b>0</b>
Jet (J):	<b>1</b>
Total Fixed Wing (SE + ME + J):	<b>20</b>
Helicopters:	<b>0</b>

<sup>3</sup> Estimates based on number of annual deliveries times 8,000 per full load.

<b>Based Aircraft (2016)</b>	
Gliders:	<b>0</b>
Military:	<b>0</b>
Ultra-Light:	<b>2</b>
<b>Operations (2016)</b>	
Air Carrier:	<b>0</b>
Air Taxi:	<b>0</b>
General Aviation Local:	<b>1,024</b>
General Aviation Itinerant:	<b>5,800</b>
Military:	<b>0</b>
<b>Total Operations:</b>	<b>6,824</b>

Source: Airport IQ 5010

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Mesquite Airport stands out in the case studies because it has retained a contract manager for fuel services.

### **Key Findings**

The Mesquite Airport is interesting as it is centrally located mid-way between Phoenix, Salt Lake City, Southern California and Denver, creating a convenient fuel and rest stop for long cross-country trips. It is also a destination airport for six casinos and seven golf courses nearby.

### **Managing a Transition to Airport Owned Service**

Mesquite Airport is a division of the City of Mesquite. Mesquite started fuel service when the FBO failed. The airport took over fueling services immediately. No exact determination was made as to why the FBO failed.

### **Description of Current Fuel Facilities**

Mesquite inherited the fuel farm, trucks, and other equipment when the FBO dissolved. The airport maintains and operates one 12,000-gallon Avgas fuel tank, one 10,000-gallon Jet A tank, and one Jet A fuel truck. The fuel farm consists of a free-standing, self-service unit with bulk fuel tanks and contract attendants to fuel aircraft. Fuel facilities appear to be in good working condition.

Mesquite employs two full-time contract staff who perform fueling services and other duties at the airfield, including snow removal, maintenance, and management.

Mesquite's quality control program consists of utilizing the Avfuel services. The airport provides the initial quality control of their tanks and Avfuel is responsible for checking final quality of delivery and supply.

### **Description of the Local Market for Aviation Fuel**

Jet A sales have been down based on less demand and higher fuel prices. The airport does offer Avfuel contract rates but fuel sales are relatively low. Avgas sales have grown because of an increase in based aircraft. Most of these aircraft use Avgas, specifically for flight school and sky diving operations.

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**Table A-27. Transient and Based Aircraft Fuel Purchases**

<b>Fuel</b>	<b>% Transient Purchases</b>	<b>% Based Aircraft Purchases</b>
Avgas (100LL)	50%	50%
Jet A	70%	30%

Source: Mesquite Municipal Airport

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Competition for customers in the region is high. Within a 50-mile radius, approximately four airports also offer fueling services. Each airport has a different fuel brands and pricing.

### **Choosing a Fuel Supplier**

Mesquite currently is under contract with Avfuel Services for five years with 3-year extensions. If the airport is satisfied, the contract will renew automatically.

The selection process for a fuel supplier was completed through the City of Mesquite Purchasing Department. The selection criteria were based on the size of the supplier, corporate perspective, training programs, support, quality assurance, technical help, fuel deliveries, and seminars and training. Currently these services are provided to the airport.

Lease options and fuel facilities were options in the contract with Avfuel. The current equipment leased by the fuel supplier is point-of-sale software and a credit card reader. This is necessary to maintain payment for the fuel service. If the airport owns this equipment, then it becomes a maintenance issue.

Fuel deliveries are purchased from airport operating revenues.

### **How the Airport Sets Prices**

The Airport sets the fuel price using the following steps:

- Compare fuel prices of nearby airports at the time of fuel delivery (this occurs approximately every 2 - 3 months).
- Monitor prices at the time of fuel delivery to meet or exceed margins (targets).
- Track each month for gallons sold and adjust price accordingly based on market and nearby airports.

Gross margins have increased slowly in the last five years. This appears to be linked to more transient jet and corporate traffic as well as the economic upswing. This also corresponds to Avgas sales as fuel prices have stabilized and there is more recreational flying.

Mesquite tracks fueling operations manually. The fuel is measured daily with dip sticks. They complete a monthly inventory check and adjust if needed based on sampling or spillage.

### **Efforts to Increase Fuel Sales (advertising, marketing efforts)**

Mesquite is constantly looking for ways to increase fuel sales. Mesquite has a website that is updated regularly for fuel prices. The airport staff also advertise fuel prices through other websites such as

FlightAware, ForeFlight, 100LL, GlobalAir, AOPA Go, and FlightPlan. Avfuel provides marketing on their website and through flyers. They also have Avfuel logos on the airfield.

### Challenges and Lessons Learned

Price competition for fuel has increased the airport’s efforts to monitor prices at nearby airports. Mesquite also offers full-service to aircraft requiring jet fuel as jet aircraft owners tend to prefer full-service over self-service.

## A.11 MONTGOMERY COUNTY AIRPARK, GAITHERSBURG, MARYLAND

*Based on research and interviews with Sandy Poe, Owner, DC Metro Aviation Services and Sean Montgomery, Line Manager*

### Airport Overview

Montgomery County Airpark (GAI) is owned by the Montgomery County Revenue Authority (MCRA) and is located three miles northeast of Gaithersburg, MD. GAI is a reliever airport for the Metropolitan Washington area including Dulles International, Ronald Reagan Washington National, and Baltimore Washington International Airports. The Airpark is a small aircraft specialist with one runway (Runway 14/32 is 4202’ x 75’). In 2016 the airport delivered 150,000 gallons of Avgas and 175,000 gallons of Jet A fuel. There are 146 based aircraft at GAI: 3 are jets, 127 are single-engine, 16 are multi-engine, and 1 is a helicopter (5010 Report 2016). Table A-28 shows the 2016 based aircraft and estimated operations at the airport.

**Table A-28. Montgomery County Airport Based Aircraft and Operations**

<b>Based Aircraft (2016)</b>	
Single Engine (SE):	<b>127</b>
Multi Engine (ME):	<b>16</b>
Jet (J):	<b>3</b>
Total Fixed Wing (SE + ME + J):	<b>146</b>
Helicopters:	<b>1</b>
Gliders:	<b>0</b>
Military:	<b>0</b>
Ultra-Light:	<b>0</b>
<b>Operations (2016)</b>	
Air Carrier:	<b>0</b>
Air Taxi:	<b>747</b>
General Aviation Local:	<b>45,865</b>
General Aviation Itinerant:	<b>1,356</b>
Military:	<b>32</b>
Total Operations:	<b>48,000</b>

Source: Airport IQ 5010

Montgomery County Airpark stands out in the case studies because it illustrates the importance of customer service when turning around a failing FBO around and creating a thriving FBO.

### **Key Findings**

While the majority of the case studies involve an airport-owned FBO, the tables are turned at GAI. In 1959, the FBO developed and constructed the airport from a green-field into the Montgomery County Airpark. The FBO ran all aspects of the airport from 1960 to 2007. The FBO employed the airport manager, maintained the pavements, markings, nav aids, and developed and leased hangars. In 2007, the MCRA took responsibility for airport infrastructure and hired the airport manager while the FBO runs the daily operations at GAI.

### **FBO History**

Freestate Aviation, the first FBO at the airport, began fueling operations in 1960, and there has been a full-service FBO at GAI ever since. The first FBO operated a flight school, Part 135 charter, aircraft maintenance, and radio and avionics shop. The FBO also flew the U.S. mail, rented hangars, rented tie downs, and sold fuel. Between 1978 and 2011 the FBO operation was sub-leased to Gibson Aviation, Flight Resources, and Montgomery Aviation in turn. The primary land-lease is held by Montgomery County Airpark LLC and runs for 99-years ending in 2059. In 2011 Montgomery Airpark LLC brought the FBO back in-house under the name DC Metro Aviation Services with Sandy Poe as General Manager.

### **Airport Fuel Facility**

The airport fuel system consists of a 12,000-gallon Avgas tank, a 12,000-gallon Jet A tank, one Avgas truck, one Jet A truck, and a self-serve Avgas pump with a credit card reader. There are four full-time line service employees. The fuel farm was installed in 1991; the valves and vents were replaced in 2015, and the system was painted in 2017. The fuel system is maintained using the general maintenance budget and fuel is replenished using the FBO operating budget. The FBO follows the Phillips 66 guidelines for daily, weekly, monthly, and annual quality checks. None of GAI's tenants self-fuel.

### **Description of the Local Market for Aviation Fuel**

The general trend for fuel at GAI had been increasing primarily due to the marketing and customer service efforts of the new FBO, DC Metro Aviation Services, which took over in 2011. DC Metro Aviation Services officially opened for business in January 2011, but the general manager, Sandy Poe, had begun the marketing campaign for the new FBO more than two years before opening day. Poe knew the importance of customer service and building relationships so she started building relationships with fuel suppliers, FBO software management companies, and attending conferences. Then she moved to contacting the aircraft owners who were based at the airport and the pilots who flew into GAI.

Her early outreach focused on learning what the customers wanted and letting them know that those positive changes would be coming soon. Her information gathering and marketing efforts were accomplished primarily through personal contact with potential customers as well as by word-of-mouth. Poe's efforts resulted in a 35% increase in business revenue the first year. "Before we opened for business," she shares, "DC Metro renovated the FBO office and trained our personnel in the most current practices for customer service excellence."

Fuel deliveries in 2012 (a year after the FBO transition) were 140,000 gallons of Avgas and 180,000 gallons of Jet A. The demand for Jet A peaked in 2014 at 184,000 gallons, and in 2016 volumes decline to 150,000 gallons of Avgas and 175,000 gallons of Jet A. Table A-29 shows fuel sales for the last five years.

**Table A-29. Fuel Sales at Montgomery County Airpark, 2012-2016**

<b>Avgas (100LL)</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	150,000
2015	135,000
2014	145,000
2013	150,000
2012	140,000
<b>Jet A</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	175,000
2015	180,000
2014	184,000
2013	171,000
2012	180,000

Source DC Metro Aviation Services

At GAI, the percent of fuel sold to based customers is 75% Avgas and 20% Jet A, and to transient traffic, 25% Avgas and 80% Jet A. DC Metro orders a full load (8,000 gallons) of Avgas approximately every three weeks and a full load of Jet A every other week.

DC Metro has a contract with World Fuel, who provides a point of sale (POS) system, training, advertising, marketing, and other business support services. The FBO's owner chose World Fuel after a lengthy process of investigation and attendance at multiple conventions. The primary challenge in fuel service at GAI is fuel revenues being less than expected.

**Difference between Avgas and Jet A Pricing Options**

Jet A customers typically have a contract fuel arrangement with the fuel supplier. DC Metro is a World Fuel provider and supports all the loyalty and discounts offered through World Fuel and Phillips 66 and is also a designated FBO that offers the CAA fuel discount. Customers with jets based at GAI can opt to negotiate a price with the FBO based on volume.

Fuel delivered through the self-serve Avgas pump is the only Avgas discount and it is 55 cents cheaper than full-service from the truck. Customers who have a Phillips credit card save an additional 10 cents per gallon at the self-serve pump.

### How the Airport Sets Prices

DC Metro sets the retail fuel price depending on a number of cost centers, including average overhead costs like insurance, labor, truck wear-and-tear, credit card fees, fuel flow fees, fuel farm maintenance, as well as profit. These cost centers added to the wholesale price of fuel generates a particular price. That price may need to be adjusted for local market conditions and the adjustment often comes at the expense of the profit margin. The markup for Avgas, Jet A, and contract upload fee are all derived from the same process.

### Lessons Learned

Airports located near metropolitan areas have natural markets to cultivate. DC Metro Aviation Services capitalized on its location and position to offer full FBO services in proximity to the Washington area. The market was not easily developed and required strategic marketing and high levels of customer service at competitive prices.

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## A.12 PINE BLUFFS AIRPORT, PINE BLUFFS, WYOMING

*Based on research and an interview with John Marquardt, Airport Manager*

### Airport Overview

Pine Bluffs Airport (82V) is owned by the Town of Pine Bluffs and is located three miles southwest of the Town of Pine Bluffs, WY and 44 miles east of Cheyenne, WY on the Nebraska border. 82V is a general aviation airport with one runway (Runway 08/26 is 5330' x 75'). In 2016 the airport delivered 15,000 gallons of Avgas. There are 17 based aircraft at 82V: 16 are single-engine and 1 is a helicopter (5010 Report 2014). Table A-30 summarizes the 2016 based aircraft and operations.

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**Table A-30. Pine Bluffs Airport Based Aircraft and Operations**

<b>Based Aircraft (2016)</b>	
Single Engine (SE):	16
Multi Engine (ME):	0
Jet (J):	0
Total Fixed Wing (SE + ME + J):	16
Helicopters:	1
Gliders:	0
Military:	0
Ultra-Light:	0
<b>Operations (2016)</b>	
Air Carrier:	0
Air Taxi:	52
General Aviation Local:	1,708
General Aviation Itinerant:	250
Military:	235
Total Operations:	2,244

Source: Airport IQ 5010

Pine Bluffs Airport stands out in the case studies because it has a successful self-service Avgas fueling station that is popular with locals, regional pilots, and cross-country travelers. The airport manager is a savvy fuel purchaser who carefully prices product to maintain low-price leadership in the area.

### **Key Findings**

Demand for fuel is the primary driver for supporting a fueling system. If there are a sufficient demand for fuel to cover the cost of acquiring and maintaining the system then it is sustainable. If the aircraft based at the airport do not fly on a daily basis, then fuel flow and income will be too low to cover the cost of service. At Pine Bluffs the impetus for a fuel system was driven by twin-engine aircraft that provided service in the oil fields and by pilots from nearby Cheyenne who purchase fuel at 82V. Another necessary ingredient is a person, or group of people, who want to see the airport grow.

The airport manager at Pine Bluffs keeps track of how much of the money spent in town is related to the airport. For example, when the airport is being repaired or upgraded, the manager keeps track of the money spent in hotels and restaurants (by the maintenance crews) in Pine Bluffs and makes this information known to the community. Recently a large twin-engine airplane stopped in Pine Bluffs and the pilot spent \$500 on fuel and another \$200 in the local restaurant. All of these factors drive the economic viability of the airport, the fuel system, and the local economy.

### **Airport History**

Located on the Wyoming/Nebraska border, the Town of Pine Bluffs has been a crossroads of cattle trails, railroads, highways, and oil exploration in Wyoming. 82V has been operating since at least the 1930s, and during the oil booms of the 1970s and 2000s it served as a crossroad between highway and air transportation—providing easy access to the oil and gas fields. Local aerial-application companies serving the nearby farm communities also use the airport.

The airport manager (in 2016), John Marquard, was Pine Bluffs' Mayor in 2007 when the fuel system was installed. Prior to that, he was the local Part 135 operator at 82V and flew in support of the oil industry beginning in the 1970s. When installing a fuel system at 82V was proposed, there was resistance from some town resident's due to the cost of the system. Airport manager, John Marquard said, "Everything is controversial" but in the end the town didn't incur any expense because income from hangar rentals covered the airport's share of the cost (5%).

Before the self-service Avgas pump was installed in 2007, local aviators hauled fuel from town to the airport in trucks. Since the self-serve pump was installed, pilots flying in the region have stopped at 82V because the Avgas price is typically the lowest in the area and because 82V is a quick and easy place to stop. The airport has become popular with piston-twin aircraft on cross-country flights.

### **Airport Fueling Facility**

The Pine Bluffs Airport fuel farm consists of a 12,000-gallon double-walled Avgas tank with a self-service pump and credit card reader. The fuel farm is an aboveground installation. The tank system itself is largely automated and runs self-checks twice a day, including draining the sumps, and delivering a report on the outcome of the self-checks. The \$200,000 cost of the system was largely paid for with aviation trust fund financing and the airport's investment of \$4,000 was earned back in the first five months of operation.



The airport sells between 15,000 and 16,000 gallons of Avgas each year.

### **Choosing a Fuel Supplier**

The airport manager has been in the aviation and oil & gas businesses for decades and has a professional knowledge of the ins and outs of the fuel business. The manager watches crude oil market prices daily and monitors the Avgas in the tank. When the tank has room for a full load and the price of Avgas is low, the manager arranges for a fuel delivery from the lowest-priced distributor. Over the years, that distributor has consistently been Avfuel; however, the fuel is sold as unbranded.

### **Difference between Avgas and Jet A systems**

Avgas customers are typically price-sensitive and will go a little out of their way to purchase fuel at the lowest price. Due to Pine Bluffs' low cost of delivery, they are able to price Avgas in the range that draws customers.

Very few of the aircraft in the area are powered by Jet A. The most common Jet A powered aircraft are aerial-applicators working in the farm and crop areas around Pine Bluffs. As they have become more numerous, the airport has begun looking into buying a self-serve Jet A pump system. Occasionally a business jet will fly in for business in the oil fields, and there is a full-service FBO in nearby Cheyenne with full-service Jet A.

### **Pricing Structure**

The airport manager uses a system where the retail price of fuel is not built up from the cost of service, but rather a combination of purchasing bulk Avgas at low prices and then setting the retail price lower than the area competition but as high as is reasonable to maintain customer satisfaction. This pricing system typically returns a margin of 70 cent per gallon in good years and 50 cents in lean years.

### **Discount Programs**

Because Pine Bluffs typically has the lowest self-serve Avgas prices in the region they do not offer any discount programs directly. If a pilot has a credit card from the fuel supplier (Avfuel) then they may realize some savings or loyalty program benefits from the use of that card in the system.

### **Lessons Learned**

Pine Bluffs airport was able to take advantage of state and federal airport improvement money to purchase the fueling system. The fuel supplier (Avfuel) furnishes the payment system, processes all the transactions and then remits payment to the Town of Pine Bluffs on a monthly basis. The airport has a contract with an EPA certified company that takes care of the tank inspections and the required filings with state and federal agencies. The tank system itself is largely automated and thus requires no additional personnel to operate or maintain it.

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## A.13 SALIDA AIRPORT/HARRIET ALEXANDER FIELD, SALIDA, COLORADO

*Based on research and an interview with Zechariah Papp, Airport Manager*

### Airport Overview

Salida Airport (ANK) is owned jointly by the City of Salida and Chaffee County and is located two miles west of Salida and approximately 140 miles southwest of Downtown Denver, Colorado. The airport is surveyed at 7,534 ft. elevation and has one runway (Runway 6/24 is 7531' x 75'). The extended length of the runway is necessary because of the elevation. The airport is a small general aviation airport with 21 based aircraft including 1 jet, 17 single-engine, and 3 multi-engine aircraft. Table A-31 shows 2014 operations at the airport.

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**Table A-31. Salida Airport Based Aircraft and Operations**

<b>Based Aircraft (2014)</b>	
Single Engine (SE):	17
Multi Engine (ME):	3
Jet (J):	1
Total Fixed Wing (SE + ME + J):	21
Helicopters:	0
Gliders:	0
Military:	0
Ultra-Light:	1
<b>Operations (2016)</b>	
Air Carrier:	0
Air Taxi:	0
General Aviation Local:	1,383
General Aviation Itinerant:	2,582
Military:	88
Total Operations:	4,053

Source: Airport IQ 5010

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Prior to 1990, Salida Airport did not offer fuel services. At the time, the jointly managed airport decided to introduce municipally-operated, Avgas and Jet A fuel services to retain and attract based aircraft. Initial facilities were all self-serve, but in 2016 the airport introduced full-service Jet A fueling, primarily because airport customers indicated that they would purchase more fuel with full-service. The airport recently switched fuel suppliers from Epic Aviation to Phillips 66.

### Description of Current Fuel Facilities

The airport has a fuel farm with two underground 12,000-gallon tanks, one for jet fuel and one for 100LL. A free-standing unit self-serve pump station connects to the fuel farm. Salida recently acquired a used Jet A fuel truck from Fremont County Airport and is actively looking for another truck for 100 LL.

The current fuel tanks were provided through local, state, and federal funding. Maintenance upgrades have been completed on the self-service station including new hoses, reels, labels and paint.

Salida employs one full-time staff, the airport manager, who also perform other duties at the airfield, including snow removal, maintenance, and management.

Salida’s quality control program consists of utilizing the Phillips 66 services. The airport provides the initial quality control at their tanks, and Phillips 66 is responsible for checking final quality of delivery and supply.

**Description of the Local Market for Aviation Fuel**

Salida has experienced a shift in fuel demand. Back in 2012, demand for Jet A and Avgas was roughly equal. In 2016, demand for Jet A doubled. Table A-32 shows fuel sales for 2012-2016. According to airport records for fuel, in 2016, the average fuel sale was 41 gallons at approximately \$169 per sale and gross margins averaged \$1.77 per gallon. These are relatively small fuel sales per aircraft suggesting that most sales are made to based aircraft owners operating smaller planes.

**Table A-32. Salida Airport Fuel Sales, 2012-2016**

<b>Avgas (100LL)</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	9,005
2015	8,532
2014	8,454
2013	9,287
2012	9,863
<b>Jet A</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	20,796
2015	17,366
2014	11,661
2013	13,325
2012	10,852

Source: Salida Airport

Salida is a destination location for all types of outdoor activities. Some corporate traffic stops for fuel, but many of the larger corporate aircraft can’t land or take off from Salida because of the high elevation of the airport. Several military operations also use the airport for training. Table A-33 shows the percent of fuel sales made by based aircraft owners or transient aircraft pilots.

**Table A-33. Fuel Purchases by Based or Transient Aircraft Owners/Pilots**

<b>Fuel</b>	<b>% Transient Purchases</b>	<b>% Based Aircraft Purchases</b>
Avgas (100LL)	40%	60%
Jet A	40%	60%

Source: Salida Airport

Competition for customers in the region is competitive, with the Colorado Central Regional Airport (Buena Vista) less than 20 miles away. Within a 50-mile radius, Gunnison-Crested Butte Regional Airport, Leadville-Lake County Airport, and Fremont County Airport also offer fueling services. Each of these airports (with the exception of Gunnison-Crested Butte) are low-price competitors.

### **Selection of a Fuel Supplier**

Salida’s previous fuel supplier was Epic Aviation. The contract was for five years, with automatic extensions for three years. The airport entered into a new 5-year contract with Phillips 66. Phillips 66 was selected based on meetings at conferences and recommendations by other airports. The airport sponsor did not issue an RFP.

Phillips 66 offered lower delivered prices for fuel and training programs, support, quality assurance, technical help, signage, lighting, fuel deliveries, and seminars and training.

The only equipment leased by the fuel supplier is point of sale software and a credit card reader. This is necessary to maintain payment for the fuel service. If the airport prefers this arrangement as the fuel supplier is responsible for maintenance of the system.

Fuel deliveries are purchased from airport operating revenues.

### **How the Airport Sets Prices**

Salida Airport sets the fuel price at the time of fuel delivery which could be every two to six months using the following methodology:

- Compare fuel prices of nearby airports at the time of fuel delivery.
- Review margins to maintain \$2 for Jet A and \$1 for Avgas.
- Monitor prices at the time of fuel delivery to meet or exceed margins (targets). Each month track gallons sold and adjust price if there have been noticeable changes.

The margins have increased in the last three years with the new airport manager. The previous airport administration kept margins low to attract more traffic. Today, increasing fuel revenues while remaining competitive is a priority.

Salida participates in discount sales program for based aircraft. The discount is 25 cents per gallon for both Avgas and Jet A.

The fuel is measured daily through tank level monitors and through the point of sale machine. Monthly, they complete an inventory check and adjust if needed based on sampling or spillage.

### **Efforts to Increase Fuel Sales (advertising, marketing efforts)**

Salida Airport is constantly looking for ways to increase fuel sales. The airport has a website that is updated regularly for fuel prices. Phillips 66 provides marketing on their website or through flyers, and a new airfield logo lighted sign. ANK also posts fuel prices on social media, FlightAware, ForeFlight, 100LL, AirNav, FlyQ EFB, GlobalAir, and FlightPlan.

### **Challenges and Lessons Learned**

Salida Airport, like many airports of its size experience the following challenges:

- Fuel revenues have been less than anticipated
- Nearby airports sell fuel at very low prices
- Infrequent turnover of fuel inventories has resulted in retail prices falling below ANK's cost.

The airport has also learned that deferring maintenance is not a good idea even if it saves money on the front end. They have also learned that a clean presentation, functioning equipment, and good fuel quality are necessary to serve and grow its customer base.

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## **A.14 SAN BERNARDINO INTERNATIONAL AIRPORT, SAN BERNARDINO, CALIFORNIA**

*Based on research and an interview with Mark Gibbs, Director of Aviation*

### **Airport Overview**

San Bernardino International Airport (SBD) is a relatively new public use airport, owned and operated by a joint powers authority comprised of five (5) local public jurisdictions, and is the successor to the former Norton Air Force base that closed in 1994. To rebuild the airport, approximately \$250 million was invested to replace the primary runway, bring the air traffic control tower back on line, and build new taxiways, ramp areas, fuel farm, and new domestic, international, and executive terminals. Other re-construction efforts included rewiring the airfield, new hangars and renovation of large hangars with fire suppression systems and roofs. There was also a substantial environmental cleanup completed. [Epstein, 2016]<sup>4</sup>

SBD is located approximately 60 miles east of Los Angeles and provides an alternative to avoid the congested airspace of the LA area. The Airport is owned by the San Bernardino International Airport Authority (SBIAA), and serves as a reliever airport with one runway (Runway 06/24 is 10001' x 200'). As Table A-34 shows, there are 45 based aircraft at SBD: 10 are jets, 21 are single-engine, and 3 are multi-engine. Eleven helicopters are also based at the Airport. In 2016, SBD also had five maintenance, repair, and overhaul (MRO) tenants, two of which were equipped to work on large general aviation aircraft. In May 2017, SBIAA opened 30 new general aviation hangars, so the number of new based aircraft are likely to increase. SBD had approximately 48,000 operations in 2016, up markedly from previous years.

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<sup>4</sup>Epstein, Curt, "FBO Profile: Luxivair SBD", Business Aviation, September 18, 2016

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**Table A-34. San Bernardino International Based Aircraft and Operations**

<b>Based Aircraft (2016)</b>	
Single Engine (SE):	21
Multi Engine (ME):	3
Jet (J):	10
Total Fixed Wing (SE + ME + J):	34
Helicopters:	11
Gliders:	0
Military:	0
Ultra-Light:	0
<b>Operations (2016)</b>	
Air Carrier:	398
Air Taxi:	4,706
General Aviation Local:	20,003
General Aviation Itinerant:	21,972
Military:	701
Total Operations:	47,780

Source: Airport IQ 5010 for Based Aircraft/SBD ATC Tower for Operations

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The Authority owns and operates the FBO, Luxivair SBD and all of the fueling services, taking full control in December 2012 after the Million Air franchise failed. The Airport serves as an excellent case study, of an airport-operated FBO with brand identity, transparent pricing, incremental growth, and living wages for employees.

### **San Bernardino Aviation Market**

Airport staff went about developing a multi-segment FBO business very methodically. In 2013, the Authority retained a creative branding firm to complete a branding personality analysis. The effort took 9 to 12 months. It was not a fancy study, but involved staff, stakeholders, tenants, and airport users to determine strengths, weaknesses, opportunities, and threats (SWOT). The results positioned the airport as follows:

- SBD is centrally located close to all of Southern California, offering an exceptional aviation experience to customers without the metropolitan Los Angeles congestion. The mission is to:
  - Deliver personalized, proactive service that exceeds expectations
  - Offer luxurious, leading edge facilities with many amenities
  - Provide a premier terminal, U.S. customs, and support services to meet client needs
  - Add value that contributes to client’s bottom line.
- SBD values are:
  - Put people first
  - Be supportive
  - Exceed expectations
  - Extend value

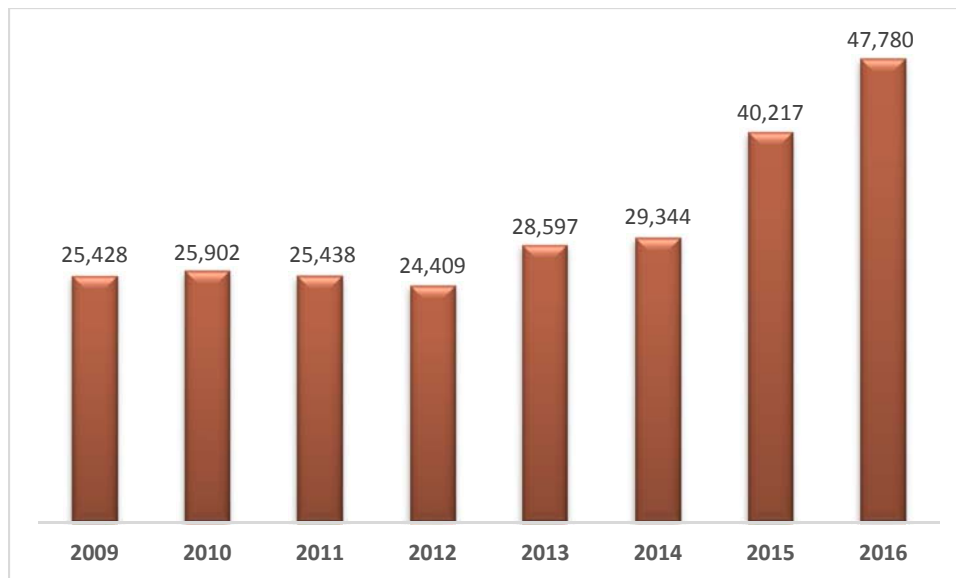
- Strengthen community
- To implement the brand:
  - Present the brand consistently so that it reaches and resonates with audiences
  - Every staff person understands the brand and the key messages behind it and serves as a brand ambassador (walk the walk)
  - Pay staff interacting with the public living wages, keep them well paid, trained and satisfied with their jobs. [Luxivair SBD – Branding the FBO]

Once the brand elements were in place, the Airport retained a marketing firm and hired an assistant FBO Manager that was also an event coordinator.

The SBD strategy was to stay competitive with the market, not necessarily as a low-price leader, but remain in the lower pricing quadrant, implement the brand, and excel with customer service.

Growth of the SBD customers took approximately two years to see real results. During the early years of airport FBO management, airport activity was supported by Boeing’s use of the field and use by the U.S. Forest Service (USFS) Fire Fighting units. In 2015, general and business aviation took off as shown in Figure A-6 when total operations jumped from 29,344 to 40,217.

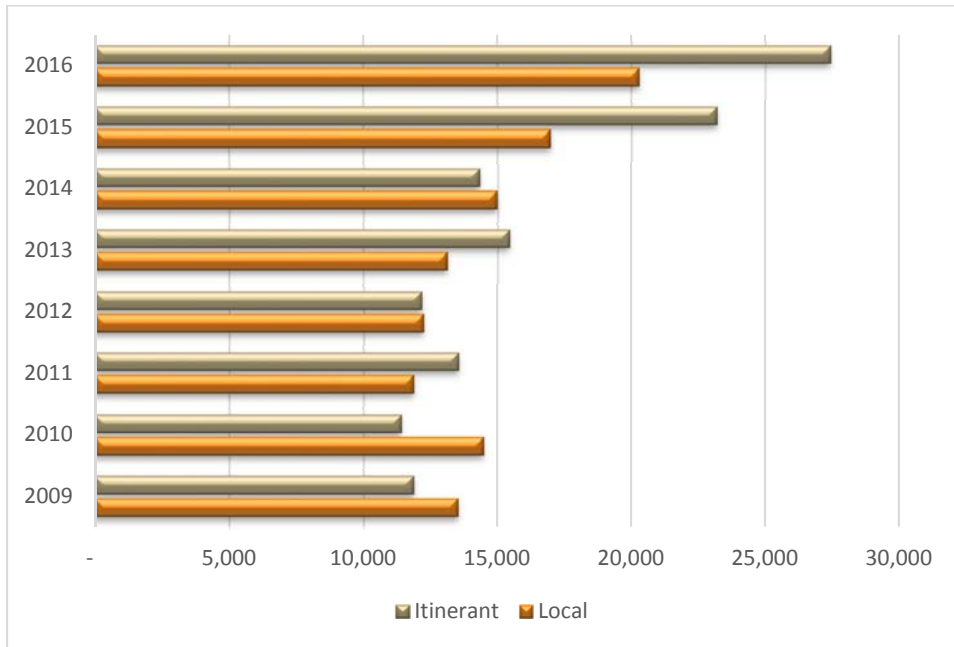
**Figure A-5. Total Operations at San Bernardino International, 2009-2016**



Source: San Bernardino International Airport

Figure A-7 shows local and itinerant operations during the same time period. Prior to 2013, SBD was an airport dominated by local operations. Today it is dominated by many more transient operations. According to the Director of Aviation, 70% of Avgas sales and 80% of Jet A sales are made to transient aircraft.

**Figure A-6. Local and Itinerant Operations, 2009-2016**



Source: San Bernardino International Airport Control Tower

### **FBO Governance and Personnel**

The FBO is operated as a division of the SBIAA—similar to the Operations Division or any other Division at SBIAA. The FBO Division is an enterprise fund with its own budget and bookkeeping system. SBIAA retained many of the line service people from the previous operator, which had retained them from the operator prior to that; these knowledgeable local employees assisted with the transition when the Authority took control of operations. There are 12 full-time personnel dedicated to the FBO and other airport employees from the Operations Department are cross trained in the FBO’s fueling systems to provide extra capacity during peak activities.

### **Airport Fuel Facility and Fuel Demand**

Fueling is a major part of FBO operations. The Airport’s fuel system was new in 2007 and updated in 2014. It consists of 24,000 gallons of Avgas storage, 174,000 gallons of Jet-A storage, 12,000-gallon self-serve Avgas system, three Avgas trucks, six Jet-A trucks, two de-fueling trucks, and one diesel-fuel truck (for ground service equipment). The self-service Avgas station is located on the opposite side of the airfield, approximately one mile away, adjacent to the general aviation hangars.

The FBO uses the NATA quality control program and orders full loads of both Avgas and Jet-A to maintain inventory. Demand for fuel fluctuates based on how busy the fire season is, how many cargo flights visit the Airport, and the time of year. None of the tenants based at SBD self-fuel as defined by FAA Grant Assurance 22(f). The co-located USFS Fire Base is sometimes home to fire-fighting helicopters; these helicopters often travel with their own fuel trucks. Some of that fuel is used to fight fires in southern California and, as such, it is critically important that the FBO maintain its supply of fuel.



Table A-35 shows Avgas and Jet A fuel sales since the Authority took over fueling operations. Avgas sold during 2015 includes fuel for extensive fire-fighting efforts. Jet A sold in 2013 represents significant Boeing test flight operations, and fuel sales in 2016 set a new high for the Airport.

**Table A-35. Fuel Sales at San Bernardino, 2013-2016**

Avgas (100LL)	
Year	Gallons Sold
2016	69,824
2015	152,764
2014	57,627
2013	69,824
Jet A	
Year	Gallons Sold
2016	1,726,778
2015	1,024,279
2014	734,750
2013	1,413,012

Source San Bernardino International Airport

### Selection of Fuel Provider

Epic Aviation had served as the fuel supplier at SBD for several years before the Authority took over the FBO. SBIAA retained Epic as an interim fuel provider and in 2016, issued a Request for Proposals (RFP) for an aviation fuel supplier. SBIAA’s minimum requirements included: product specifications for the fuels to be provided, 24/7 ordering and delivery service, technical support, marketing plans, and a pricing system based on the Platts’ LA Mean index. The proposal also requested provision of spare/back-up fuel trucks and any other *value-added* services the respondents’ thought to include. The proposals were evaluated on the following criteria:

1. Qualifications of firm and past performance - 20%
2. Services and equipment - 30%
3. Related experience - 10%
4. Reasonableness of cost and price - 40%

Epic Aviation submitted the best proposal and secured the fuel provider contract. In addition to the services specified in the RFP, Epic also provides many industry related services. For example, they help handle tax issues and provide IRS tax guidance for fuel tax on specific operations. Epic also provides a web-based fuel management system and real-time authorization and transaction processing for credit cards and other payment devices (POS).

### How SBD sets Prices

The Authority is actively engaged in managing fuel prices and maintains pricing in accordance with board policy which is transparent by design. Their goal is to stay competitive with the regional market and not

necessarily offer the lowest price fuel, rather to remain in the lower quadrant of area fuel prices. According to Mark Gibbs, “If you are not competitive, cost recovery doesn’t matter.”

The FBO sets retail fuel prices frequently depending on changes in wholesale cost and local market conditions. The pricing system is posted on their website:

- Retail Jet-A price will be based on wholesale purchase cost, tax, + \$1.75 markup with +/- 15% price discretion based on local market conditions.
- Retail Avgas price will be based on wholesale purchase cost, tax, + \$1.00 markup with +/- 15% price discretion based on local market conditions.
- Self-Serve Avgas will be discounted \$.70 per gallon below retail pricing.
- Price basis for pre-existing fuel contracts will be based on wholesale purchase cost, tax, + \$1.50 markup (upload fee).

[Source: <https://www.luxivairsbd.com/flight-planning/fees/>]

Initially, board policy set the standard fuel pricing discretion at +/- 5%, but this margin did not prove adequate for changing market conditions. The FBO also receives feedback about upload fees from fuel suppliers, flight planning departments, and schedulers and dispatchers with contract rates. This feedback keeps Luxivair SBD competitive as it is often difficult to know other airport’s upload fees.

The FBO also offers volume discounts for Jet A fuel as shown in Table A-36.

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**Table A-36. SBD Fuel Volume Discounts**

<b>Gallons</b>	<b>Discount per Gallon</b>
400	\$0.20
1,000	\$0.30
2,500	\$0.40
5,000	\$0.60
10,000	\$1.00

Source San Bernardino International Airport

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### **Lessons Learned**

The Airport Director offered suggestions for airports offering FBO and fueling services:

- FBOs are multi-segmented business that support a broad range of customers and requirements.
- An airport-operated FBO must stay compliant with Federal Grant Assurances. SBD is not a declared proprietary exclusive FBO but would argue for this designation if necessary.
- Fueling is a commodity and consequently it pays to watch fuel prices daily and order deliveries, if possible, when wholesale prices are lower. Every small marginal advantage is helpful to stay competitive and maintain margins. Paying a premium of 10 to 40 cents per

gallon for partial loads carries its own risk of price volatility and may not be as advantageous as purchase of full loads at a lower price. “Locking in higher prices pressures margins and inventory in both the short and long terms.”

- Transparency is good for customer relationships and eliminates keeping track of individual pricing arrangements.
- It is critical to make a plan and stick with it.
- Grow incrementally.
- Employee retention is very important. If possible, pay living wages; opt for increases in wages in favor of one-time bonuses.
- Customer confidence is inspired by a zero-accident record on the ramp.

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### A.15 SKYLARK FIELD AIRPORT, KILLEEN, TEXAS

*Based on research and an interview with, Jim Livingston, Assistant Director of Aviation*

#### Airport Overview

Skylark Field Airport (ILE) is owned by City of Killeen and is located three miles east of Killeen, Texas. The airport serves as the small aircraft specialist in Killeen’s two airport system. Killeen-Fort Hood Regional Airport (GRK) operates as a joint use airport with Robert Gray Army Airfield. The joint use agreement requires that all aircraft other than regularly scheduled air carriers obtain prior permission to use the facility and aircraft with maximum certified take-off weight of less than 12,500 pounds are not allowed to use the facility. Where GRK serves corporate and charter GA aircraft, Skylark Field is used primarily for smaller GA aircraft. There is no Avgas sold at GRK.

Skylark Field has one runway (Runway 1-19 is 5495’ x 100’). In 2016, the airport delivered 55,203 gallons of Avgas and 21,369 gallons of Jet A. There are 68 based aircraft at Skylark Field: 61 are single-engine, 4 are multi-engine, and 3 are helicopters. There are no jets based at the field. Table A-37 shows 2016 based aircraft and operations at the airport.

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**Table A-37. Skylark Field Airport Based Aircraft and Operations**

<b>Based Aircraft (2016)</b>	
Single Engine (SE):	61
Multi Engine (ME):	4
Jet (J):	0
Total Fixed Wing (SE + ME + J):	65
Helicopters:	3
Gliders:	0
Military:	0
Ultra-Light:	0
<b>Operations (2016)</b>	
Air Carrier:	0
Air Taxi:	0

General Aviation Local:	21,000
General Aviation Itinerant:	7,000
Military:	365
Total Operations:	28,365

Source: Airport IQ 5010 for Based Aircraft

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Skylark Field Airport stands out in the case studies because its fueling contract with AvFuel covers both city-owned airports. Most fuel purchases at ILE are local and made by Genesis Aero Flight Academy or Central Texas College both of which offer flight instruction programs on the airfield. Genesis also offers aircraft rentals. Jet fuel sales have languished as the one based jet aircraft left the airport in September 2014.

### Description of Current Fuel Facilities

The current fuel tanks were initially installed by the City in 1998 and leased to the FBO that was in place at the time. The initial construction of the tanks in 1998 included self-service Avgas as an integrated part of the Avgas fuel storage tank. (It was set up for bulk on one end and self-service on the other end with the pedestal mounted between the storage tanks on the apron side.)

Skylark Field initiated airport-operated fuel services when its FBO failed in April 2002. At the time of transition, ILE offered self-service Avgas and full-service Jet A. Self-service capability was added to the Jet A tank in 2006.

The airport has a fuel farm with two 12,000-gallon tanks, one for Jet Fuel and one for Avgas. Skylark currently has one Jet A fuel truck that it rents from Avfuel. The City staff are currently negotiating with Avfuel to eventually gain ownership of the fuel truck.

Fueling operations are handled by four employees. One accounting specialist oversees fuel accounts and billing among other duties. There are two aircraft fuel handlers, who also perform other airport duties and an airport maintenance and operations supervisor, who is also qualified to perform all of the fueling duties.

Skylark's regular quality control functions are performed by airport staff. Avfuel occasionally performs spot checks of quality control.

### Description of the Local Market for Aviation Fuel

#### FUEL SALES

Table A-38 shows fuel sales at ILE from 2012 to 2016.

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**Table A-38. Fuel Sales at Skylark Field, 2012-2016**

<b>Avgas (100LL)</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	55,203
2015	47,906
2014	45,240
2013	50,942
2012	49,903
<b>Jet A</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	21,369
2015	24,894
2014	44,760
2013	52,153
2012	70,724

Source Skylark Field Airport

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Where Avgas sales increased to 55,203 in 2016 because of a new flight school, the sales trend has been generally flat over the last few years. Sales of Jet A are low and have declined because the one based medical helicopter at the airport relocated to a different field. The airport typically orders an Avgas delivery once every two months and a Jet A delivery once every four months.

**PARTIAL VERSUS FULL LOADS OF FUEL**

For Jet A, the airport always orders full loads (approximately 8,000 gallons). It is normal airport procedure to also order full loads of Avgas as well, but supplies of Avgas are sometimes unpredictable. For example, in 2016, the Texas refinery closed for approximately one month. Fuel distributors had to ration supplies across many airports. In these situations, Avfuel does not charge extra for partial loads and Skylark staff accept partial loads of Avgas so they do not run out. This approach gives the fuel supplier more flexibility to distribute fuel when it is available and also helps them to supply the smaller capacity airports and to serve Skylark at the same time. When the fuel supplier initiates the partial loads, ILE does not get charged extra for a partial load. This approach also tends to keep fuel prices lower and avoids the need for Avfuel to truck Avgas from refineries outside of Texas at a much higher cost. If Skylark specifically orders a partial load, then the airport does have to pay an extra delivery charge.

Fuel deliveries are funded from airport operating revenues.

**TRANSIENT VERSUS LOCAL FUEL SALES**

Transient customer traffic is mostly small general aviation traffic. Some corporate traffic stops for fuel, but some of the larger aircraft cannot land and take off from Skylark because of a short runway. Skylark Field typically does not get any business from aircraft that are simply needing to make a fuel stop on a long cross-country flight because of nearby airspace restrictions at Robert Gray Army Airfield. Almost 100% of the transit aircraft that use Skylark Field do so because they have business in the Killeen area.

Approximately 95% of fuel sales is from local based aircraft on 100LL, and 100% of Jet A fuel sales are currently from transient traffic.

### Choosing a Fuel Supplier

AvFuel enjoys a long history with the Killen airports. It was the initial fuel supplier in 2002 when the City took over fueling operations at Skylark. In 2005, the City Procurement Department issued an RFP for a fuel supplier and received five responses. As part of their bid, Avfuel offered one year of free rent on a Jet A fueling truck and an Avgas fueling truck. Upon re-selecting AvFuel as the supplier, the Airport accepted the free rent Avgas truck on a trial basis as a few tenants had requested full-service Avgas. During the one-year trial period, there were very few requests for full-service Avgas; therefore, the City decided not to lease the Avgas fuel truck after the free rental period.

The Avfuel contract was effective for five years starting in 2005. The contract has an automatic 3-year extension that self-renews unless the airport notifies Avfuel that it did not want to allow another extension. ILE is currently on the third automatic extension through 2019.

AvFuel services include the following:

- Rental of Jet A fuel trucks
- Options to facilitate rent-to-buy trucks
- Temporary tanker truck as needed to supplement fuel storage or special requirements.
- Credit card or point of sale machine handled by Avfuel Corp
- Product liability insurance coverage of \$5 million up to \$40 million

### How the Airport Sets Prices

#### RETAIL PRICES AND MARGINS

Skylark sets the retail fuel price based on the following:

- AvFuel sends a weekly price sheet for fuel. This price is valid from Tuesday to Monday.
- Added to the wholesale prices for Avgas and Jet A are:
  - Freight surcharge – 2.68 cents per gallon on Jet; 4.33 cents per gallon Avgas
  - Airport usage fee – 5.5 cents per gallon (goes into airport operating fund)
  - Spill fee - 0.19 cents per gallon
  - 38 cents a gallon target Avgas – gross profit target for City budget
  - 65 cents a gallon target Jet A – gross profit for City budget
- ILE monitors prices weekly to meet or exceed margins (targets) and adjust price accordingly based on the market and nearby airports. If the wholesale goes up to the point that reduces margins below targets, ILE will adjust retail prices upward. Each month staff also track fuel revenues against the cost of fuel.

#### VOLUME DISCOUNTS

ILE offers a discount of 10 cents per gallon for 500 gallons purchased and paid within 15 days. The airport also had a pre-pay discount plan (10 cents per gallon) that required each customer to buy at least 200

gallons at a time to qualify for this discount. However, because the airport was storing a large amount of pre-sold, but unused fuel for customers, the airport suspended the program partially because it was taking a significant amount of administrative time to track remaining balances of each pre-pay customer and because too large a percentage of the total available storage capacity was being used for customer-owned fuel.

### **Inventory Control**

Skylark manages its fueling operations through manual operations. The fuel is measured daily with dip sticks. Monthly they complete an inventory check and adjust if needed to take into account any inventory adjustments because of meter differences, expansion, contraction, or evaporation of fuel.

Each fuel tank (12,000 gallons) can be filled approximately 90% or 10,500 gallons. When inventory falls below 5,000 or 6,000 gallons the airport starts to watch prices and plan for a fuel buy. If the tank drops to 2,000 gallons, there is no flexibility to wait for a good price and they must order immediately.

### **Efforts to Increase Fuel Sales**

Skylark has been working with Avfuel to increase marketing by providing a lighted AvFuel sign, logo windsocks, and use some advertising on the AirNav website. Currently, AvFuel doesn't charge for advertising, and there isn't a sale threshold, since they are locked into a current contract. Word of mouth has also been a successful way of marketing.

### **Challenges and Lessons Learned**

Skylark, like all airports, has gone through some growing pains. Some of the lesson learned include the following:

- Skylark recommends the purchase of a fuel truck instead of renting or leasing a vehicle. Aviation fuel suppliers will usually lease fueling trucks to their customers, but leasing or renting a vehicle from the supplier may not be the lowest cost long-term option.
- It is useful for staff to attend supervisor training seminars sponsored by the fuel supplier. The training sessions help with Part 139 certification and raises staff awareness on many fuel handling issues and are usually provided at no cost to the airport other than travel to the training site.
- If an airport operates a self-service pedestal, it is advisable to have a yearly maintenance agreement on equipment so that the operator can obtain parts at a reduced price and most software upgrades and technical support at no cost.

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## A.16 SOUTHERN ILLINOIS AIRPORT, CARBONDALE, ILLINOIS

*Based on research and an interview with Gary Shafer, Airport and FBO Manager*

### Airport Overview

Southern Illinois Airport (MDH) is owned by the Southern Illinois Airport Authority and is located three miles northwest of Carbondale, Illinois. MDH is also the location of the Southern Illinois University (SIU) aviation program. The airport ranks as the fourth busiest facility in Illinois and has three all-weather runways (Runway 18L/36R is 6506' x 100'; Runway 18R/36L is 3498' x 60'; and Runway 6/24 is 4163' x 100'), 27 buildings and more than 200 employees working for 11 tenants.

In 2016, the airport delivered 135,326 gallons of Avgas and 58,054 gallons of Jet A. There are 67 based aircraft at MDH: 1 is a jet, 60 are single-engine, 6 are multi-engine, and 1 is a helicopter (5010 Report 2017). Table A-39 summarizes based aircraft and 2017 operations reported by the contract air traffic control tower.

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**Table A-39. Southern Illinois Airport Based Aircraft and Operations**

<b>Based Aircraft (2017)</b>	
Single Engine (SE):	60
Multi Engine (ME):	6
Jet (J):	1
Total Fixed Wing (SE + ME + J):	67
Helicopters:	1
Gliders:	0
Military:	0
Ultra-Light:	1
<b>Operations (2017)</b>	
Air Carrier:	12
Air Taxi:	803
General Aviation Local:	59,378
General Aviation Itinerant:	30,896
Military:	107
Total Operations:	91,202

Source: Airport IQ 5010 for Based Aircraft/ATADS for Operations

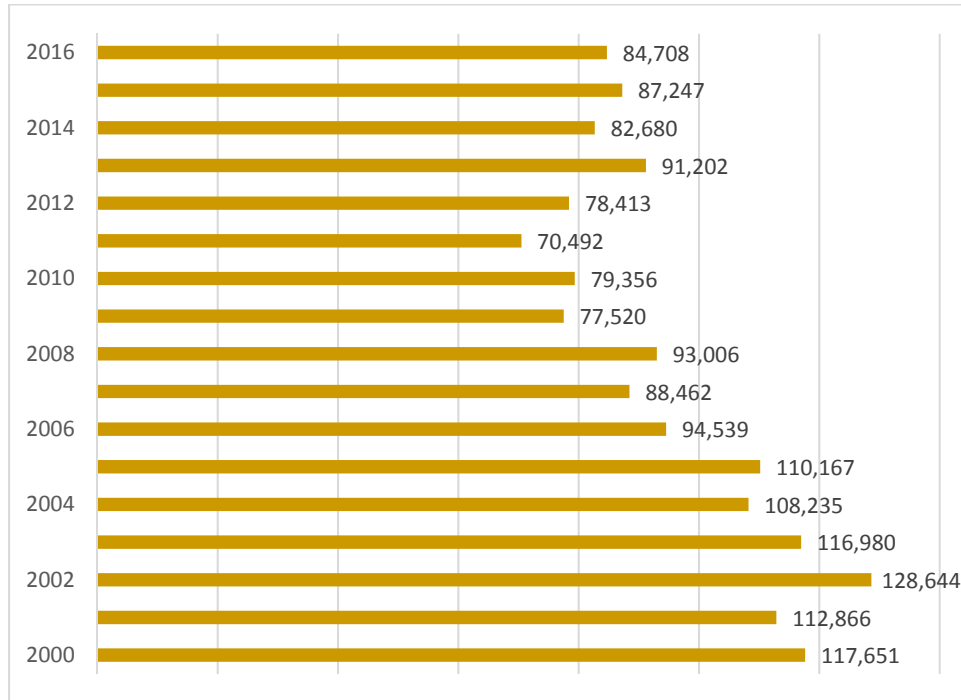
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Southern Illinois Airport stands out in the case studies because it has a steady source of local airport activity (SIU), yet has experienced multiple turnovers of the FBO from private operators back to the Airport Authority. Twice since 1980 a private FBO failed. Both times, the Authority resumed control of FBO and fueling operations. During this storied past, both the private and public sectors experimented with decentralized and concentrated solutions for FBO services. Even at its peak period of operations in the early 2000s, the market for fuel sales (under 300,000 gallons) was insufficient to support multiple FBO providers. An important contributor to aviation activity is SIU who has historically either self-fueled or



negotiated deep discounts on fueling purchases. Figure A-8 shows total operations since 2000, indicating remarkable stability since the Great Recession of 2008 with greater numbers of operations leading up to 2008.

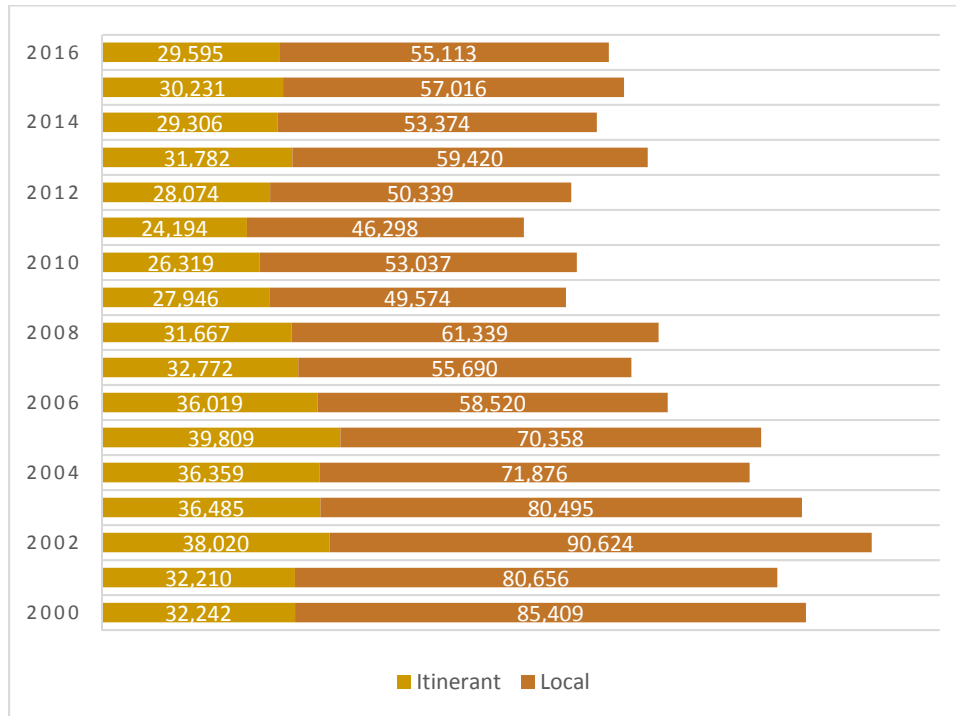
**Figure A-7. Southern Illinois Total Operations, 2009-2016**



Source: ATADS

A closer look at itinerant and local operations shows the true dominance of the SIU aviation program with 75 percent of airport operations being local in 2000. Itinerant operations have remained stable over the last 15 years, but local operations have declined by 25 to 35,000 annual operations as Figure A-9 shows. Today local operations represent about 65% of total operations.

**Figure A-8. Southern Illinois Airport Itinerant and Local Operations, 2000-2016**



Source: ATADS

### FBO History

The history of FBOs and fueling on the field tells a story of decentralized operations when SIU and smaller FBOs sold fuel and aviation services. Beginning in about 1960, Southern Illinois University (SIU) operated the sole FBO in support of its aviation program and the broader aviation community. The SIU FBO owned a 40,000-gallon underground fuel farm, leased airport-owned hangars, maintenance space, and office space located in a prime area of the airport.

By 1980 Woodruff Aviation and other service providers had entered the airport market with flight schools, Avgas fuel service, and aircraft sales. In cooperation with the airport, Woodruff Aviation installed a 10,000-gallon fuel farm. Woodruff provided fuel sales, flight instruction, Part 135 charter, and rental aircraft out of leased office space. Woodruff did not have hangar or maintenance space, and they competed with the SIU operation on fuel sales. However, the area on the airport where Woodruff was located was not as convenient as the SIU location and pilots' habits of taxiing to a certain place were hard to change. In 1983, Woodruff Aviation left the airport and the only option for fuel or services was with the SIU operation.

In 1987 the Authority negotiated with Lyon Aviation (then a current tenant) to build a new 10,000 square-foot hangar. Once built, Lyon Aviation began offering FBO services out of the hangar. They also assumed the previously installed 10,000-gallon Avgas fuel tank. Lyon Aviation operated from a remote location on the airport with a Part 61 flight school, a Part 135 charter operation, and maintenance services. They competed with the SIU operation.

In 1990 the FBO was sold to P & R Air. In 1992 the Authority renegotiated the SIU lease and exchanged the remote FBO space for the more favorable facilities SIU had occupied with their FBO operation. SIU also agreed to exit the FBO business and focus on supporting their flight program with their own fuel truck and line maintenance system. The airport installed a new 20,000-gallon underground fuel farm for both Jet A and Avgas, and SIU then removed their fuel farm (because it was at the end of its operational life) and remediated the site. SIU began purchasing bulk fuel from the FBO out of the airport's fuel farm. P & R Air relocated to the prime space previously occupied by the SIU FBO operation.

Later in 1993 (six months after moving) the P & R Air FBO opted to leave the business and the Authority decided to enter the business rather than search for another private enterprise FBO. The Authority established an enterprise fund to operate the FBO and bought the ground service equipment (GSE) from P & R Air.

From 1993 to 2002 the Authority operated the FBO. During the same period, the Authority repaired and updated the FBO facility and invested in fuel trucks, GSE, and airplanes. The FBO expanded its services to include a Part 61 flight school, aircraft rental, and aircraft maintenance.

In 2001 the airport released a request for proposals (RFP) for the FBO operation and in 2002 Hale Aviation was selected from two respondents. Hale Aviation ran the FBO from June 2002 until June 2007. In 2007 Hale Aviation sold the lease to Tate Aviation, which ran the FBO until the lease expired in 2011.

In 2011 the airport established another enterprise fund FBO named Flightline, and bought the business assets of Tate Aviation. In addition to traditional FBO services such as fuel and ground services, the Airport Authority also engages in flight training and rental services, aircraft/engine maintenance, and avionics installs and repairs. The Authority brokers charter services rather than owning and operating this service. However, they do own two of the four aircraft used in the flight training operation, which in 2016 had six certified flight instructors and 31 students.

FBO staff and airport staff are separate with two exceptions: the Airport Manager and FBO manager are the same, as is the financial manager. The FBO (and all other businesses on the airport) can hire SIU aviation students and thus open jobs are never unfilled. Students can receive school credit for working in the FBO operation at the airport.

Operating the FBO as an enterprise fund allows the Authority to conduct the FBO business on the private enterprise model, pay rent and flowage fees to the Authority, and provide a possible successor with the information necessary to take over the business.

The Authority is always on the lookout for the right party to contract with for the FBO. Since the Authority owns all the FBO equipment and facilities, it would most likely be a contract management arrangement.

### **Airport Fuel Facility**

The fuel farm system is now comprised of a 15,000-gallon Avgas AGT, a 15,000-gallon Jet A AGT, and a 1,000-gallon self-serve AGT with a credit card reader located in the T-hangar area. The fuel farms were installed in 2011 and the old underground system was removed. One Avgas truck, one Jet truck, and four

line-service staff provide full-service fueling. The airport performs quality control inspections. A combination of Authority funding and federal funding financed the installation of the current fuel farm system. None of the tenants based at MDH have a self-fueling program as defined by FAA Grant Assurance 22(f).

**Description of the Local Market for Aviation Fuel**

Table A-40 shows fuel sales for both Avgas and Jet A from the time that the Airport resumed management of the FBO.

**Table A-40. Southern Illinois Airport Fuel Sales, 2011-2016**

Avgas (100LL)	
Year	Gallons Sold
2016	135,326
2015	125,353
2014	119,417
2013	124,242
2012	118,658
2011	120,000
Jet A	
Year	Gallons Sold
2016	58,054
2015	48,310
2014	62,827
2013	77,616
2012	73,373
2011	75,800

Source: Southern Illinois Airport

Southern Illinois University (SIU) is the airport’s largest fuel customer and they purchase about 95,000 gallons annually. The remaining volume is delivered to based aircraft customers (80%) and transient traffic (20%). In 2016, 62% of Avgas sales occurred at the self-serve pump. MDH purchases fuel supplies from their FBO operating account.

**Selection of a Fuel Supplier and Benefits**

When MDH served as the FBO from 1993 to 2002, their fuel supplier was Triton. Triton was purchased by Avfuel in 1995. When the airport resumed FBO operations in 2011, competing airports nearby were served by Texaco and AirBP. That left Phillips and Avfuel as contenders and after a lengthy research and investigation, MDH entered into an agreement with Avfuel because of the combination of price and services offered by that supplier. Selection was done by research rather than by RFP. The principal difference between Phillips and Avfuel was the local sales representative and delivery staff. Avfuel provides direct support from their company whereas Phillips would send a jobber.

In 2011, MDH entered into a contract with Avfuel for five years. MDH participates in the Avfuel contract fuel program. Avfuel provides point of sale (POS) software that keeps track of discounts, real time sales and card authorizations. The system handles Avfuel contract cards, government air cards and most other fuel discount and credit cards. Avfuel offers a free quality control class and other training. Based on fuel volumes sold, Avfuel will share advertising costs, and subsidize uniforms with the Avfuel patch on the sleeves. In general, Avfuel points (gallons sold) will pay for half the cost of marketing and cash is required for the rest. Avfuel does provide free signage and interior design services.

### **How the Airport Sets Prices**

Each Monday and Tuesday, Avfuel sends the cost of wholesale fuel to each of its customers for Jet and Avgas, respectively. The MDH retail fuel price depends on a number of cost factors including: overhead costs for insurance, direct labor, truck wear-and-tear, credit card fees, fuel flow fees, fuel farm maintenance as well as profit. These costs are added to the wholesale price to arrive at a retail price. That price may need to be adjusted for local market conditions and the adjustment often comes at the expense of the profit margin. Generally, MDH tries to achieve a \$1.25 markup on the wholesale price of Avgas and \$1.75 on Jet A. However, with most fuel sold at discount, the average fuel markup is more typically 75 cents for Avgas and \$1.00 for Jet A.

#### **FUEL PRICING**

MDH offers different price categories for its customers. Based aircraft customers can run a monthly fuel tab on both Avgas and Jet A purchases.

#### **AVGAS**

- Full-service – cost plus \$1.25
- SIU (the largest customer) - cost plus \$0.65
- Self-service discount - \$0.30 off full-serve retail price
- Based aircraft discounts on full-service fuel are per year and they reset each July 1:
  - 0-200 gallons – 10 cent per gallon
  - 201-401 gallons – 15 cent per gallon
  - > 401 – 20 cents per gallon

#### **JET FUEL**

- Full Serve – cost plus \$1.75
- Transient aircraft volume discounts are:
  - 150 + - \$0.10 per gallon
  - 300 + - \$0.20 per gallon.
- Based aircraft discounts on jet fuel are per year and they reset each July 1 – negotiated individually, based on annual fuel purchases. For example, 30,000 gallons per year purchase by a based customer can receive a 35-40 cent discount.
- The majority of jet customers flying into MDH have enrolled in Avfuel’s contract rate program. These customers pay Avfuel directly based on into-wing rates set by MDH. The into-wing rates decrease with higher volumes.

## TRANSACTION FEES

All credit card purchases are processed through the Avfuel POS. MDH is charged a transaction fee for each sale with fees in the 0-3% range. Contract fuel purchases do not have credit card fees.

### Lessons Learned

- While the cost of wholesale fuel goes up and down, the same is not true for the cost of providing the service. Airports that don't adjust their markup on the wholesale price of fuel will have their margins erode over time as labor, insurance, and fuel farm equipment costs continue to rise.
- Because most customers expect discounts, there is a lot of pressure to reduce margins. The fact that SIU is MDH's biggest customer and their discount is substantial, average fuel margins on Avgas are much lower.
- Keeping fuel price postings current online is critical as many pilots purchasing Avgas plan their route and fueling stops based on internet fuel prices.

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## A.17 THOMAS C. RUSSELL FIELD, ALEXANDER CITY, ALABAMA

*Based on research and an interview with Mike Smith, Airport Manager*

### Airport Overview

Thomas C Russell Field (ALX) is owned by the City of Alexander City and is located two miles southwest of Alexander City, Alabama. ALX is a general aviation airport with one runway (Runway 18/36 is 5422' x 96'). In 2016, the airport, 47,500 gallons of Avgas and 54,700 gallons of Jet A. There are 34 based aircraft at ALX: 1 is a jet, 28 are single-engine, and 5 are multi-engine. Table A-41 displays the 2016 based aircraft and operations for ALX updated as of July, 2017.

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**Table A-41. Thomas C. Russell Field Based Aircraft and Operations**

Based Aircraft	
Single Engine (SE):	28
Multi Engine (ME):	5
Jet (J):	1
Total Fixed Wing (SE + ME + J):	34
Helicopters:	0
Gliders:	0
Military:	0
Ultra-Light:	0
Operations	
Air Carrier:	0
Air Taxi:	0
General Aviation Local:	4,032
General Aviation Itinerant:	26,280
Military:	3,000

Total Operations:	33,312
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Source: Airport IQ 5010

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ALX stands out in the case studies because it is operated by a single employee who carefully monitors fuel costs and profit margins to ensure the fuel facility is a profitable business. ALX sells an almost equal amount of Jet A and Avgas fuel.

### **Key Findings**

This case study demonstrates that an airport can sell fuel at a lower price than competitors and still generate a profit. Careful price monitoring and adjustments of profit margins is essential in setting fuel prices. Watching trends in the supplier's prices, purchasing at the optimal time, and monitoring the surrounding market are all important steps to ensure that fuel prices remain competitive. The airport manager believes that low-priced fuel is one of the main driving factors in attracting transient traffic to general aviation airports and serves as a core business strategy. "For transient pilots, saving money can speak louder than any attraction or services an airport can offer. In order to remain a successful business, an airport must have a consistent customer base and provide revenue for the airport."

### **Making a Transition to Airport Owned Service**

The City of Alexander City took over operation of the fuel facility in January of 2010. In the previous 45 years, five different FBOs operated at the airfield, and most recently, the flight department of Russell Corporation ran the FBO until 2010 when Russell Corporation was acquired by Berkshire Hathaway. The flight department was shut down and the acquiring company saw no need to operate an FBO.

Alexander City solicited proposals for a new FBO and received three. Two were from companies that could not meet the financial expectations of the Airport Advisory Board, and the third could not guarantee any income to the city. Alexander City rejected all three proposals and chose instead to take over fuel facility operations by hiring an airport manager. Mike Smith had worked at the airport previously under the Russell Corporation and easily transitioned into the airport manager position. Alexander City funds one full-time employee to manage the airport.

### **Description of Current Fuel Facilities**

ALX began providing full-service Avgas in 1960 and added full-service Jet A in 1972. In 2000, Russell Corporation funded a self-service Avgas unit to remove the cost of full-service Avgas and provide more competitive pricing. When Alexander City took over the FBO, they inherited the self-service facility. Smith opted to discontinue the Avgas full-service at that time.

ALX's fuel facility is a 24-hour self-service pump station that is connected to the airport's fuel farm. The airport provides full-service Jet A from 7:30 am to 5:00 pm on weekdays and on an as-needed basis outside of regular business hours. The fuel facility is equipped with one 12,000-gallon Avgas bulk-storage tank and one 12,000-gallon Jet A bulk-storage tank which are located on the far side of the ramp and away from the terminal. The airport uses a Jet A fuel truck to provide full-service.

Aside from the addition of the self-service facility in 2000, the most recent improvement to the fuel facility included an upgrade to the fuel farm tanks, plumbing, pipes, and valves in 1990.

Smith’s fuel facility responsibilities include ordering fuel, conducting quality checks on the fuel, full-service Jet A fueling, record keeping, and general maintenance of the fueling equipment.

ALX follows their fuel supplier’s quality control program by conducting daily, monthly, quarterly, and annual tests of the fuel and equipment. ALX’s fuel supplier, Eastern Aviation Fuels, provides annual trainings in fuel facility operation. The program discusses hazardous material shipping, spill management, and general maintenance and quality checks that are necessary when operating a fuel facility. Maintenance for the fueling system comes out of a general maintenance budget for the airport. ALX has emergency contact numbers posted around the fuel farm and is equipped for fuel spills.

**Description of Local Market for Aviation Fuel**

Table A-42 shows the last five years of fuel sales at Thomas C Russell Field’s fuel facility. Fuel sales increased from 2012 to 2015 for both Jet A and Avgas but declined in 2016. In recent years, ALX has sold significantly more Jet A fuel than Avgas; however, the fuel sales were nearly equivalent in 2016. The Jet A sales declined significantly in 2016 when two based aircraft were sold and not replaced with aircraft requiring jet fuel. Smith estimates that fuel sales will continue to decline and that increases in the price of Avgas may have contributed to a recent decrease in sales.

Fuel sales fluctuate with the time of year as pilots are more apt to travel in the summer as opposed to the winter. Pilots are also more likely to fly during optimal weather conditions. The airport can see daily fluctuations in traffic volume because of weather.

**Table A-42. Thomas C. Russel Field Fuel Sales, 2012-2016**

<b>Avgas (100LL)</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	47,500
2015	59,000
2014	42,800
2013	45,200
2012	43,100
<b>Jet A</b>	
<b>Year</b>	<b>Gallons Sold</b>
2016	54,700
2015	73,250
2014	71,375
2013	68,965
2012	63,918

Source: Thomas C. Russel Field



ALX relies heavily on the transient traffic for fuel sales as an estimated 79% of Avgas fuel sales and 90% of Jet A fuel sales come from transient pilots. Based aircraft owners account for the remaining 21% of Avgas sales and 10% of Jet A sales.

Smith acknowledges there is heavy competition for customers in the Alabama and Georgia area. ALX directly competes with Sylacauga (SCD), Auburn/Opelika (AUO), Wetumpka (08A), and Harris County (PIM). ALX has low overhead costs and is able to offer the lowest prices in the area except for Harris County Airport. The primary mechanism Smith has for bringing in customers is offering this competitive fuel price. In describing the challenging game of fuel pricing, he states, "Pilots owe you no allegiance." Pilots are willing to change course a few degrees and fly a few more minutes to save a few dollars in fuel, and some are even willing to travel 50 miles for the cheaper price.

### **Choosing a Fuel Supplier**

The current fuel supplier for ALX is Eastern Aviation Fuels, a national marketer of Shell Aviation Fuels. Eastern has provided fuel for this airport since the mid-1980s when Russell operated the FBO. Through the transition from the FBO to the city operation of the airport, Eastern has remained the fuel supplier of choice.

Eastern was selected during the proposal process as they were the best in price and services provided. Smith states that price cannot be the only factor when considering a fuel supplier. Fuel availability, the guarantee of receiving fuel on time, fees added for credit cards, a fuel supplier's markup, the acceptance of government cards, and many more factors must be considered when looking at the big picture of the services a supplier provides.

Two additional companies, Ascent Aviation and Perry Brothers, also bid for the contract, but the airport has continually reselected Eastern. The contract duration is a 3-year deal with the right to renew in the third year for an additional 2-year extension with agreement by both parties. At the end of five years, a complete rebidding of the contract is conducted.

Eastern delivers 8,000-gallon full loads of fuel on an as-needed basis and provides credit card transaction processing, fuel facility insurance, annual quality control checks, annual training in fuel facility operation, and marketing for the airport. During the quality checks, Eastern provides fuel tank filters and other parts for purchase at a reasonable price and the labor to install the product.

The airport currently leases a Jet A truck from Eastern. The price for using this truck is seven cents per gallon of Jet A purchased. No monthly fee or leasing fee is added, so during slower months when ALX doesn't sell as much Jet A fuel, the airport does not lose money on a truck lease. ALX provides the consumables such as parts and fuel to keep the truck operational.

ALX finances fuel deliveries with airport operating revenues as well as the general fund of Alexander City. The airport moves through fuel quickly enough to receive full loads of Jet A and Avgas rather than partial loads. He estimates that ALX receives an Avgas delivery every eight weeks and a Jet A delivery every four weeks, but these estimates vary depending on the time of year and fluctuations in traffic. For example, the month of July is always low for Jet A sales.

### How the Airport Sets Prices

Smith works carefully to order fuel at the optimal lowest price. When the 12,000-gallon tanks run down to 3,000 gallons, he begins to look at weekly fuel price reports. Eastern resets the prices every Monday night, and Smith watches the trends and buys when the prices are lower. After his tanks reach 3,000 gallons, he has a few weeks buffer period to analyze price trends and discuss with his sales representative before he must purchase fuel. Some weeks he waits for the prices to reset if he expects a decline, but other weeks, he purchases the fuel before the price resets if an increase is anticipated.

Although this careful management takes time, the efforts help to reduce the retail price of fuel and to maintain a lower price than most surrounding airports. Once the tanks drop below 1,000 gallons of fuel, Smith is forced to purchase at the current price as it is essential for the airport always have fuel available.

The airport resets fuel prices after every fuel delivery. ALX has established a minimum profit margin goal of 30 cents per gallon for Avgas and one-dollar margin for Jet A. The City of Alexander requires the airport to avoid sustaining losses, so in developing these margins, Smith considered a reasonable profit that would cover the other airport costs. Smith holds to these minimum margins as he must make a profit.

When developing pricing, Smith takes the wholesale cost of fuel and adds 30 to 50 cents for Avgas and adds \$1.00 to \$1.50 to Jet A depending on the surrounding market and current demand. All the charges associated with the wholesale costs for Jet A and Avgas are provided in the Table A-43. He then accounts for the 3.35% fee that is added for most credit card transactions and subtracts that from his price. Smith does not account for labor associated with the full-service Jet A.

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**Table A-43. Wholesale Costs for Avgas and Jet A**

<b>Costs</b>	<b>Avgas</b>	<b>Jet A</b>
Federal Tax	19.4¢/gal	24.3¢/gal
Underground storage Tax (LUST fee)	1¢/gal	1¢/gal
Additional LUST tax	NA	0.1¢/gal
Truck Rental	NA	7¢/gal
Price per gallon	Varies	Varies
Transportation and pumping fees	Varies	Varies

Source: Thomas C. Russel Field

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At the time of the interview, margins are at \$0.47 for Avgas and \$1.25 for Jet A, but these fluctuate depending on the market. In recent years, the pricing has remained mostly consistent, and ALX would like to remain a reliable and low-priced fuel supplier.

ALX does not offer any contract rates or discount programs. Because of the low overhead costs, ALX can offer very competitive prices below almost all surrounding airports. Smith states that the cost is a fair and reasonable price and a discount would only cut into the airport's profit. ALX accepts Shell Aviation reward

points only if the pilot uses a Shell credit card. The customer receives ten reward points per gallon instead of one point per gallon, and the airport avoids the 3.35% fee. Pilots seldom use the reward points at ALX.

### **Efforts to Increase Fuel Sales (advertising, marketing efforts)**

The primary marketing tool at ALX is low fuel prices and updating prices every week on the websites. ALX posts fuel prices on ForeFlight, 100LL, FlightPlan, FlightAware, and AirNav. No additional marketing efforts are conducted.

The location of the airport markets itself as it is a common stop for spring break and summer trips to Florida. Avgas sales increase during the annual Sun 'n Fun and Oshkosh air shows that draw many pilots.

### **Challenges and Lessons Learned**

The greatest challenge at ALX is the airport manager's large portfolio of responsibilities. The Avgas self-service unit is a great addition for providing 24/7 fuel to small aircraft.

The other challenge ALX faces is charter jets and fractional owners of jets have negotiated contract rates at other airports. Pilots sometimes land and take off from ALX without purchasing fuel. ALX is currently considering a ramp fee and a fee for after-hours services. Smith hopes these fees will offset operating costs for services other than fuel.

Smith suggests that an airport contemplating installation of a fuel facility should double check with state regulations and learn the expectations and requirements imposed by environmental organizations. The time investment and effort to ensure compliance is beyond what most would expect.

Finally, Smith states that in today's aviation world, an airport must supply Jet A fuel to stay in business. Most of the profit generated from ALX's fuel facility is from the sale of Jet A and this profit can help to offset lower margins on the sale of Avgas.