VOLAIRE AVIATION

STRATEGIC INITIATIVES

HUMBOLDT COUNTY AIRPORTS DIVISION

VOLAIRE AVIATION CONSULTING

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REPORT CONTENTS

PURPOSE OF STUDY

The goal of this report is the lay the groundwork for the final strategic business plan for Humboldt County's Airport System. The final strategic plan will include the best strategic business options from this report, along with previous governance recommendations, financial analysis recommendations, and the strategic marketing plan report.

"THE GOAL OF THIS REPORT IS THE LAY THE GROUNDWORK FOR THE FINAL STRATEGIC BUSINESS PLAN FOR HUMBOLDT COUNTY'S AIRPORT SYSTEM."

The first goal of this report is to develop options for a new mission and vision statements for the Airport System along with core values to support both the mission and vision. This report also seeks to review the current state of the system's business, with a particular focus on current scheduled airline service. This report will not deeply delve into non-airline-related business, but rather review the findings of the previous financial analysis that detailed the performance of all sectors of the system's business portfolio.

Finally, this report will develop lists of strengths, weaknesses, opportunities, and threats (a SWOT analysis) for the Airport System as a whole and for many of the potential strategic business options for the airport's future. These analyses will provide insight into the potential for each business option and the challenges each option might face. This report will not recommend any strategic business option over another, but lay out each option as a standalone business idea. This report will be vetted by system stakeholders, leading to a final strategic plan with a clear list of priorities culled from the options included herein.

MISSION, VISION, AND CORE VALUES

It is important, in beginning the strategic planning process, to begin by developing a defined mission and vision for what the Airport System should become. Key airport stakeholders were gathered, on site, at the Humboldt County Courthouse to work through the mission and vision of the Airport system and to develop a set of core values that would drive the system's future. In this session, the mission and vision were not written, but both were fully defined. The goal of this document is to take these definitions and develop several written mission and vision statement options from which County leadership will choose.

AIRPORT SYSTEM MISSION OPTIONS

The mission statement of an organization is its reason for being. It defines how that organization will aim to serve all of its diverse stakeholders. In other words, the mission must define who the Airport System is today and what the Airport System values.

The current mission statement seeks to do this, but it lacks a focus on what should be a business or enterprise mentality of the Airport System. While it is true the system is a public service, first and foremost, it is also designed to run as a breakeven enterprise. The current mission reads:

> "The aviation division is responsible for managing six county airports in a manner that ensures aeronautical safety, safety of the traveling public, continued air service, and complies with federal, state and/or local aviation rules, regulations and advisories."

The stakeholder group felt the mission was too much a statement of system tasks and not aspirational enough. The group also felt the mission statement should cover those in the County who have little day-to-day interaction with the airports in a way that would help them understand the importance of the airports. The group suggested a number of ideas for inclusion in a new mission statement, including:

- "More than just an airport"
- Financially viable, self-sustaining, business-like
- Community partner/leader
- Integral part of the community/region
- Safe
- Financially innovative
- Ambitious/relentless
- Foster economic development
- Looking to the future

With these ideas in mind, the following three mission statement options are offered from which the County can choose the one it feels best states the ongoing objectives of the Airport System. Each is designed to be clear, concise, and easy to remember, while incorporating as many of the stakeholder group's ideas as possible.

Option One:

The Humboldt County Airport System leads regional economic development driven by worldwide connectivity and a relentless passion for safety and innovation.

Option Two:

We are relentlessly driven to be a leading regional transportation system, focused on connecting our community to global opportunity.

Option Three:

We are more than just a system of airports. We are an economic driver for all of northern California. We foster development through innovation and dedication to our community.

AIRPORT SYSTEM VISION OPTIONS

The vision statement of an organization is its statement of what that organization wants to become. Vision statements are future-looking declarations of an organization's purpose for existing and aspirations. In addition to goals for the system's mission, the Airport System stakeholder group also developed ideas as to what should be included in the system's vision statement. It should be noted, the system has no current vision statement, so the County is starting from scratch.

The group suggested several ideas for inclusion in a vision statement, including:

- An economic driver that improves the health and safety of the region
- Easy to work with
- Safe
- Economic growth
- Easy to get from A to B
- Gateway to possibility
- Access point in emergencies

A set of three vision statement options for the Airport System has been developed with these ideas in mind. The vision statement is designed to be concise, much like the mission statement, but also to set a forward-looking tone.

Option One:

We bring the heart of the Redwood Coast to the world.

Option Two:

The people of the Humboldt County Airport System work tirelessly to ensure its position as the gateway to possibility for an entire region.

Option Three:

It is our promise to make things easy, reflecting the culture of the Redwood Coast.

AIRPORT SYSTEM CORE VALUES

Core values are designed to be the elements that support both the mission and vision of an organization. Core values are the beliefs of the organization in which the organization is emotionally invested. Core values are also designed to lay out how an organization treats people – both employees and customers – and how an organization does business. The Airport System stakeholder group chose the following core values for the system and its employees:

- Striving for excellence
- Future-focused
- Safe
- Secure
- Compliant
- Convenient
- Working for the public benefit
- Ethical
- Community partner
- Customer-focused
- Responsive
- Accessible
- Pro-active
- Community leaders

Optional Value Statement:

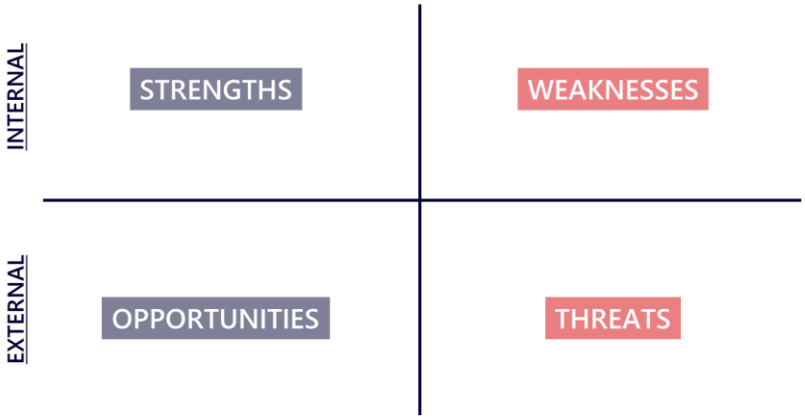
The people of the Humboldt County Airport System strive for excellence in safety, security, and convenience, with their ethical, responsive, and future-focused spirit, as they work to lead the community through a customer-focused approach.

Together, the mission, vision, and core values of the Humboldt County Airport System will help to set expectations and guide thinking about future strategic business options. They also provide a clear indication to employees of expectations.

SWOT ANALYSIS

The first step in developing strategic business options is to understand the market position of the Airport System. This is done through a "SWOT analysis" – a process that identifies the strengths, weaknesses, opportunities and threats (refer to chart 1). Specifically, a SWOT analysis provides a basic outline of potential opportunities and threats. The purpose of the analysis is aimed at ensuring the best utilization for future Airport business while also understanding the potential cost.

CHART 1: SWOT ANALYSIS STRUCTURE
SOURCE: VOLAIRE AVIATION CONSULTING



In a SWOT analysis, strengths and weaknesses are internal – they are factors that exist within the Airport System and that are caused by the Airport System or County, itself (refer to chart 1). Opportunities and threats are external and exist outside the Airport System or the County. These items are caused by factors the Airport System will not be able to control.

Each of the four pieces of the SWOT analysis are taken one-at-a-time to ask important questions about all four aspects of the system. Specifically, for strengths (internal), the following questions were analyzed:

- What advantages do we have?
- What do we do better than anyone else?
- What unique or lowest-cost resources can we draw upon that others can't?

- What do people in our market see as our strengths?

For weaknesses (internal), each of the following questions was explored:

- What could we improve?
- What should we avoid?
- What are people in our market likely to see as weaknesses?
- What factors cause us to lose business?

In the category of opportunities (external), each of the following questions was asked:

- What interesting trends could change our business?
- Are there changes in technology to leverage?
- Are there changes in government policy to leverage?
- What changes in social patterns, population profiles, lifestyle changes, etc. can we spot?

Finally, in the category of threats (external), the following questions were analyzed:

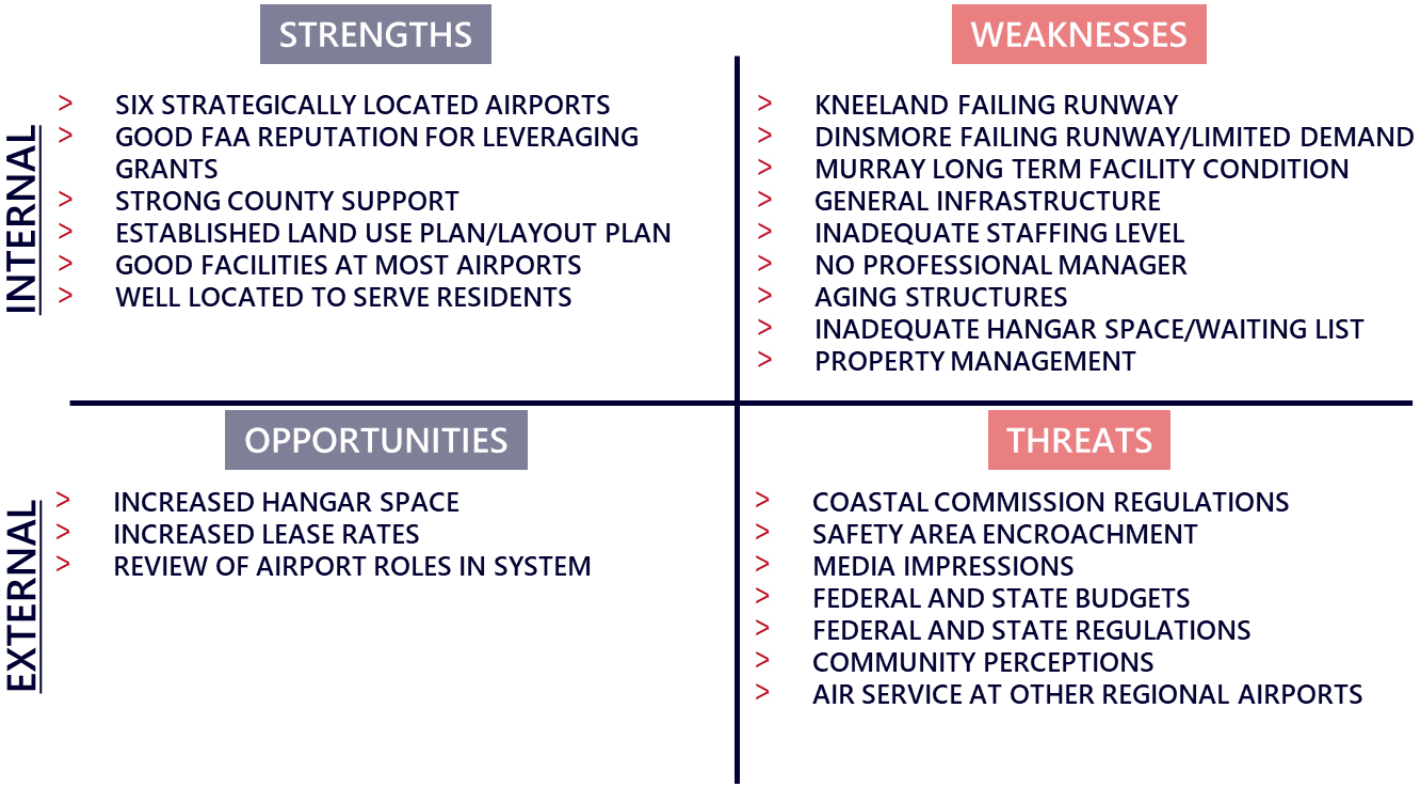
- What obstacles do we face?
- Who are our competitors?
- What are our competitors doing?
- Are products or services changing?
- Is changing technology threatening our position?

The Airport System stakeholder group developed the SWOT analysis included in this report during a day-long session at the Humboldt County Courthouse in Eureka. SWOT analyses were completed for several different

strategic business options, and these will be detailed throughout the report. The SWOT analysis included in this section of the report focuses on the Airport System, as a whole.

The Airport System SWOT found that the County is fortunate to have six strategically located airports with strong employees, a good reputation with the Federal Aviation Administration (FAA), and that the airports are well positioned to serve the County's residents (refer to chart 2). At the same time, several of the County's airports have major facilities challenges, the system has inadequate staffing, and factors in the County's control, such as property management, are not always kept up to date.

CHART 2: AIRPORT SYSTEM SWOT ANALYSIS
SOURCE: VOLAIRE AVIATION CONSULTING



The Airport System as a whole has several opportunities, including the ability to potentially generate revenue through new lease rates, through new and expanded facilities, and through a review of the role of each airport within the system (refer to chart 2). The system also faces a number of external threats including Coastal

Commission regulations on and near some airports, development encroaching near airports, community impressions, outside budgets, and service at other airports in the region.

It will be important to keep these strengths, weaknesses, opportunities, and threats in mind in the analysis of future strategic options. The options more likely to be successful will leverage the Airport System's strengths while avoiding external threats. Upcoming sections of this report will walk through strategic options, one-by-one, developing an outline of each idea and an individual picture of the SWOT factors for each option. The final strategic business plan will build off the intelligence gathered for each strategic option in this report, laying out a path for the options believed to meet with the most success.

CURRENT BUSINESS REVIEW

The Humboldt County Airport System relies upon scheduled airline service, and the passengers it generates, for a large portion of its operating revenue. While the Airport System and its six airports mean many things to different stakeholders, airline service is the single most important piece of current business, and will be the focus of this section of this report.

That is not to disregard other business within the system's airports. The land leases provided to other County agencies and to private companies are critical to both the County and the movement of people, goods, and services throughout the region. Air cargo service provided at Murray Field is equally as important in ensuring the County's businesses are connected to customers around the world. But changes and potential growth in these lines of business will be explored in more detail in the strategic options section of this report.

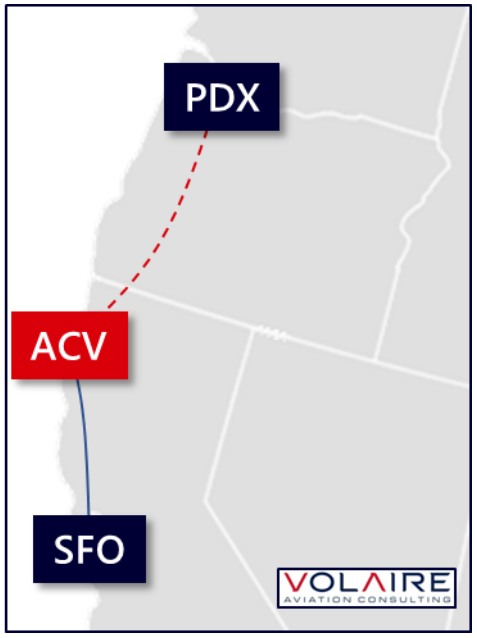
AIR SERVICE

The passengers using airline service at Arcata-Eureka Airport (ACV) generate more than $1 million in annual operating revenue to the Airport System, or about half of the revenue required to operate the entire six airport system. It is not an overstatement to say the Airport System would have difficulty operating were it not for airline passengers using ACV.

Just as this report was being prepared, the Airport System lost one of the two airlines serving the Arcata-Eureka market. On August 4, 2017, PenAir announced it would terminate service between ACV and Portland, Oregon

(PDX) effective August 8. Arcata-Eureka's airport was not alone in the loss of PenAir service, as the airline ended service between Portland and North Bend/Coos Bay, Redding, and Klamath Falls on the same date. PenAir continues to fly between Portland and Crescent City, it's only remaining route in the Pacific Northwest, but only due to a continuing multi-million-dollar annual subsidy provided by the federal Department of Transportation's Essential Air Service (EAS) program.

MAP 1: ACV AIRLINE SERVICE
SOURCE: VOLAIRE CONSULTING



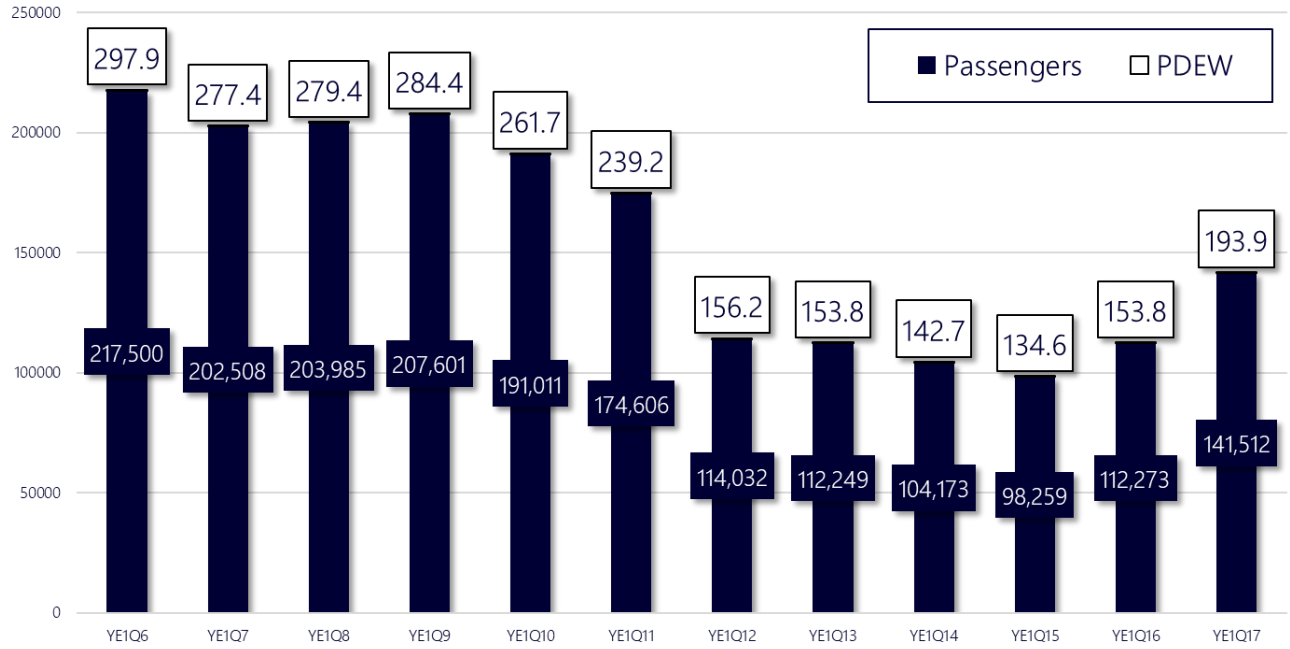
PenAir's abrupt cancellation of four markets indicates financial stress. It also leaves ACV with service on just one airline to one hub – United Express flights (operated by SkyWest Airlines) to San Francisco (SFO) (refer to map 1). This coming October, ACV available airline seats will be down almost 28% from the previous October (refer to chart 3). In October of 2016, Arcata-Eureka Airport (ACV) enjoyed an average of 344 daily departing airline seats. In October of 2017, it will have just 249 daily departing seats, limiting the number of passengers that can use the Airport. This will also have an impact on Airport System revenue.

CHART 3: SCHEDULED AIRLINE SERVICE AT ACV
OCTOBER 2017 VS. OCTOBER 2016; SOURCE: OAG AIRLINE SCHEDULE FILINGS

		Oct-16		Oct-17		
Carrier	Non-Stop Destination	Departures Per Day	Seats Per Day	Departures Per Day	Seats Per Day	Capacity Change
PenAir	PDX	1	30	0	0	-100.0%
	RDD	2	60	0	0	-100.0%
PenAir Total		3	90	0	0	-100.0%
United	SFO	4.1	254	4	249	-2.0%
United Total		4.1	254	4	249	-2.0%
ACV Total		**7.1**	**344**	**4**	**249**	**-27.6%**

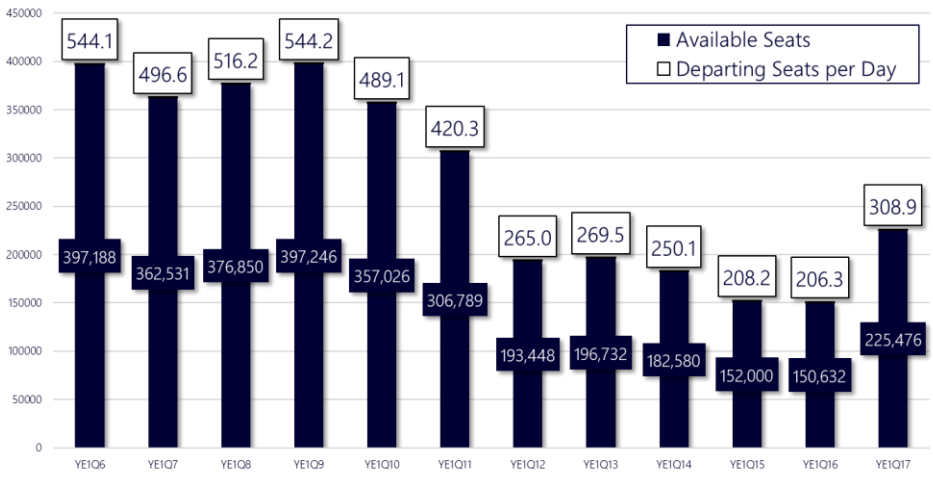
The bright spot for ACV is the fact that, even with fewer seats, the Airport has not generated enough passengers to fill the reduced number of seats since 2010, so the ultimate impact might be planes with more passengers on each flight, and only marginal passenger loss. As of the year ended first quarter 2017, ACV captured an average of 194 passengers per day each day (PDEW), or more than 141,000 total passengers (refer to chart 4). This is still fewer than the 249 daily departing seats scheduled for October.

CHART 4: PASSENGERS AT ARCATA-EUREKA AIRPORT (ACV)
YE1Q06 – YE1Q17; SOURCE: US DOT DATABASE OD1A



Arcata-Eureka passengers have declined 35% since the previous peak in 2006 (refer to chart 4). As of the year ended first quarter 2006, the Airport generated an average of 298 passengers per day each day (PDEW), or a total of 217,500 passengers. The reason for the decline was the loss of service. In 2010, Delta ended non-stop service to Salt Lake City (SLC). In 2011, Alaska Airlines ended its non-stops to both Los Angeles (LAX) and Seattle/Tacoma (SEA). United was the only carrier in the market until 2016, when PenAir launched its short-lived service to Portland.

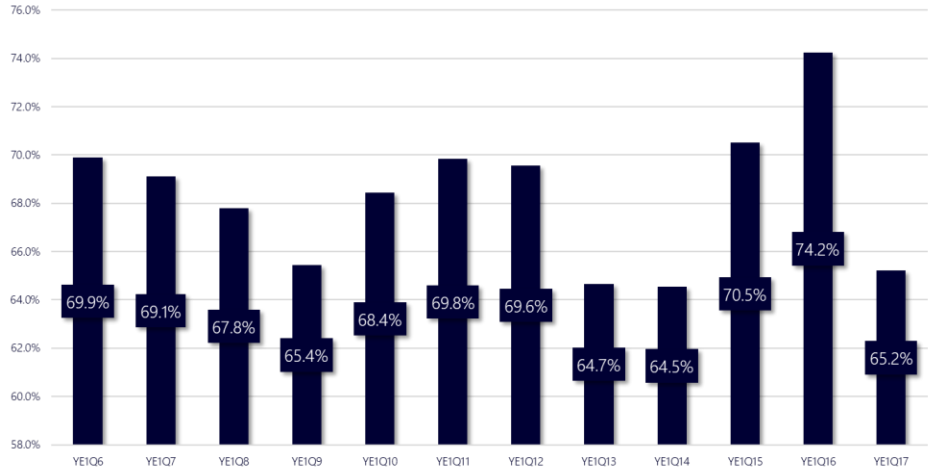
CHART 5: AVAILABLE AIRLINE SEATS AT ARCATA-EUREKA AIRPORT (ACV)
YE1Q06 – YE1Q17; SOURCE: US DOT DATABASE OD1A



The market's airline capacity peaked as of the year ended first quarter 2009, with an average of 544 daily departing seats (refer to chart 5).

October 2017 capacity is scheduled at 249 departing seats per day. October's capacity at ACV, offered entirely by United, represents a loss of an average of 295 departing seats per day or 54% of airline capacity in the market.

CHART 6: LOAD FACTOR AT ARCATA-EUREKA AIRPORT (ACV)
YE1Q06 – YE1Q17; SOURCE: US DOT DATABASE OD1A



Even with capacity fluctuations, the Arcata-Eureka market fills roughly the same number of seats. Going back to 2006, all but two years saw the average number of seats filled by paying passengers, otherwise termed the "load factor," between 64% and 70% (refer to chart 6). Both the year ended first quarter 2015 and the year ended first quarter had load factors above 70% - the only two such years since 1990. With additional capacity on PenAir, the load factor at ACV in the year ended first quarter 2017 dropped to 65%. For comparison purposes, the average national load factor for the year ended first quarter 2017 was 84% - ACV lagged the national average by almost 20 points.

When compared directly to the United (UA) regional markets from San Francisco (SFO) operated by SkyWest Airlines, Arcata-Eureka lags the average load factor by 11-points (refer to chart 7 on next page). United service at ACV filled an average of 71% of its seats as of the year ended April 2017, the most recent data available. Just ten SFO markets ranked below Arcata-Eureka, one of which (SMX – Santa Maria) has been discontinued. The average load factor for regional service on United at SFO was 82% for the period.

In the PenAir (KS) Portland (PDX) network, ACV generated the highest percentage of seats filled of any market. As of the year ended April 2017, ACV filled almost 57% of PenAir seats, which was almost eight points higher than the hub average of 49% (refer to chart 8). Nearby Crescent City filled just 40% of available seats, but its service has a federal subsidy to cover its cost.

CHART 7: LOAD FACTOR UA AT SFO
YE1Q17; SOURCE: DOT OD1A

Airport	Load Factor
AUS	89.6%
RDM	89.5%
RNO	86.4%
MFR	86.4%
PSC	85.4%
PSP	84.3%
ABQ	82.4%
FAT	82.2%
BZN	81.4%
EUG	81.1%
BOI	80.8%
TUS	77.8%
SBP	77.8%
MSO	77.3%
RDD	74.4%
JAC	73.0%
OTH	72.3%
OKC	72.2%
ACV	**71.3%**
OMA	70.9%
ASE	68.0%
SBA	68.0%
XNA	64.4%
SUN	62.0%
FCA	61.5%
MRY	61.3%
SMX	59.5%
MMH	56.1%
BFL	52.3%
Totals	82.3%

CHART 8: LOAD FACTOR KS AT PDX
YE1Q17; SOURCE: DOT OD1A

Airport	Load Factor
ACV	56.6%
LMT	55.5%
OTH	46.8%
RDD	44.5%
CEC	40.4%
Totals	49.0%

Despite ACV having the highest load factor in the Portland system, PenAir performed poorly in all markets. It's target load factor for all markets would have been greater than 70%, a mark it was unable to achieve in any market since the inception of service. The airline most definitely lost money serving the Arcata-Eureka market.

The poor performance of service between ACV and Portland cannot be blamed on the Arcata-Eureka market. An analysis of the operational performance of service shows that, as of the year ended April 2017, PenAir has cancelled 79 scheduled flights on the route, or 5.4% of all scheduled flights (refer to chart 9 on next page). ACV's PenAir performance was actually better than the hub average, which saw 7.8% of all flights cancelled. But the national average for cancelled flights hovers around 1.0%. With so many flights cancelled, and many more severely delayed, Arcata-Eureka passengers could not rely upon the service to get them where they

needed to go, so they used other carriers and sometimes other airports. This resulted in low load factors. Poor operational reliability is the main reason PenAir service from the Portland hub was not successful.

San Francisco is infamous for fog and that fog creates havoc with airline schedules. ACV's United service to SFO had a 5.0% cancellation rate as of the year ended April 2017, which was 1.4 points above the hub average of 3.6% of flights cancelled (refer to chart 10). ACV had the seventh-highest cancellation percentage for the period, which indicates some of the cancellations were caused by fog at ACV, itself. Only one market served by SkyWest as United from SFO had more cancelled flights than Arcata-Eureka's 134 – Santa Barbara with 200. Higher than average cancellations at ACV result in a slightly lower load factor than similarly-situated markets. But cancellations will always be a problem from the SFO hub and there is not much the airlines or the airports can do about it without building a new San Francisco runway in the Bay.

CHART 9: CANCELS/KS AT PDX
YE1Q17; SOURCE: DOT OD1A

Airport	Canceled	Cancel %
OTH	67	10.8%
RDD	73	9.4%
CEC	123	8.4%
LMT	56	7.2%
ACV	79	5.4%
Totals	398	7.8%

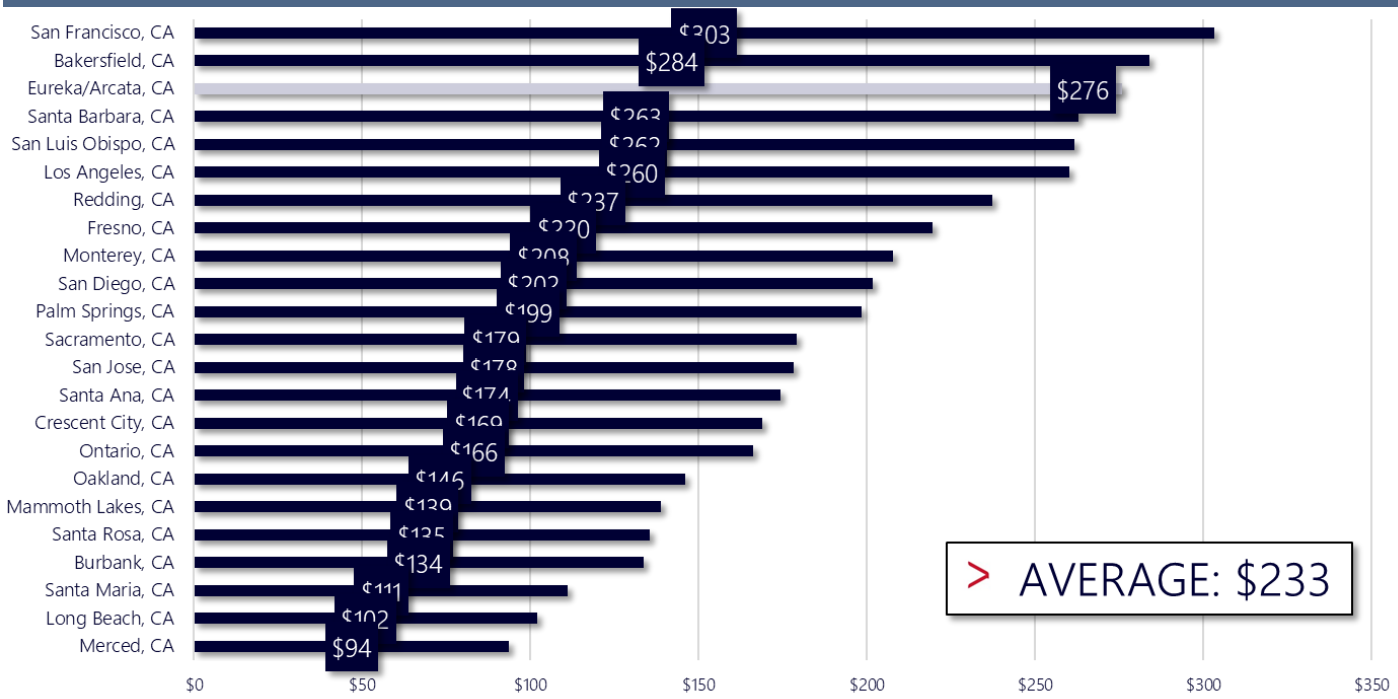
CHART 10: CANCELS/UA AT SFO
YE1Q17; SOURCE: DOT OD1A

Airport	Canceled	Cancel %
MMH	64	29.2%
MRY	108	7.6%
ASE	36	7.4%
OTH	34	6.4%
SUN	18	6.0%
JAC	17	5.1%
ACV	**134**	**5.0%**
RNO	115	4.7%
RDD	101	4.7%
PSC	36	4.5%
SBA	200	4.4%
TUS	72	4.2%
RDM	97	4.2%
SBP	95	4.1%
BZN	16	3.8%
MFR	112	3.7%
PSP	104	3.6%
FAT	71	3.0%
BFL	35	3.0%
EUG	22	2.4%
XNA	16	2.3%
BOI	57	2.0%
OKC	13	1.8%
OMA	7	1.5%
SMX	9	1.4%
AUS	9	1.1%
ABQ	6	0.8%
MSO	0	0.0%
FCA	0	0.0%
Totals	2,796	3.6%

Despite lower load factors in Arcata-Eureka, United is still highly profitable in the market. The key is the market generates higher than average fares, which make up for fewer passengers on each flight. As of the

year ended first quarter 2017, the average one-way fare, before taxes and fees, in the ACV market was $276 (refer to chart 11). This ranks as the third highest in California, behind only San Francisco (SFO) and Bakersfield.

CHART 11: AVERAGE ONE WAY FARE AT CALIFORNIA AIRPORTS
YE1Q17; SOURCE: US DOT DATABASE OD1A



The overall average fare for all passengers flying into and out of California airports was $233 one way, again net of taxes and fees, for the year ended first quarter 2017 (refer to chart 11). The fare for passengers using ACV was 19% above the average for the State. While this can be frustrating for local travelers, it is important that ACV generate a higher fare to support service on regional jet aircraft, which are more expensive to operate on a per seat basis than larger jets.

Still, high local fares cause many Humboldt County passengers to drive to other airports to catch flights. This is a problem that is common in regional markets around the world – not just in California or the United States.

It is referred to as "drive diversion" or "passenger leakage" as passengers from the local area "leak" to other airports for service.

The most recent ACV passenger retention and leakage study was completed using zip coded ticket data for calendar year 2016. It shows that just 50% of passengers traveling to and from Humboldt County via scheduled airline service used Arcata-Eureka Airport (refer to chart 12). Almost 73,000 total passengers, or an average of 199 per day, drove to San Francisco for flights – 27% of all passenger demand in the market. Another 32,500 passengers, or an average of 89 per day, drove to Sacramento for flights, representing another 12% of local passenger demand. If ACV retained just 10% more passengers traveling to and from Humboldt County it could support another daily jet flight. If ACV retained just 15% more passengers it could support a new, daily non-stop destination.

CHART 12: HUMBOLDT COUNTY PASSENGERS BY AIRPORT
CALENDAR YEAR 2016; SOURCE: ARC TICKET DATA

RANK	ORIGIN AIRPORT	YE 4Q 2016	
		PAX	%
1	ACV	132,411	50
2	SFO	72,558	27
3	SMF	32,504	12
4	OAK	14,992	6
5	OTHER	13,904	5
Total		266,370	100

Each day, 367 airline passengers who travel to and from Humboldt County use other airports, aside from ACV, to access the area. In 2016, 133,959 total passengers traveled to and from Humboldt County through airports in the San Francisco Bay Area and the Sacramento area. With so many available passengers, there is high confidence additional service at ACV could be successful. But with lower than average load factors, prospective carriers likely believe the market has more capacity than it can fill today, not understanding the unique factors that work against full flights.

To overcome this perception the community will have to aggressively incentivize additional air service through fee use waivers at the airport, marketing cash, and larger revenue guarantees under which the community takes the commercial risk on new flights instead of putting that risk entirely on the carrier beginning service. Other communities use the financial levels to recruit additional service under similar circumstances.

Further air service development strategy will be explained later in this report. In on-site interviews with regional airport stakeholders, the importance of airline service to the community was made clear. Stakeholders said they need additional air service for doctor recruitment. Beyond that specific situation, stakeholders believe additional service is the key to attracting new and expanded business to the County. Moreover, air service is critical to both the regional economy and the airport system budget.

ON-FIELD BUSINESS

The majority of Humboldt County Airport System operating revenue that is not related to scheduled airline service comes through land and facilities leases at the County's airports. These leases were detailed in the Airport System Financial Analysis document, completed in June of 2017. This report is not designed to go back through the leases in detail, but it is important to provide an overview of lease revenue since it is such a large portion of the system's operating revenue.

Together, land leases and building leases on the County's airports generate $250,000 per year, according to an analysis of internal County revenue statements for fiscal year 2016. Building leases, rented by square foot, generate a little more than $171,000 per year while land leases, also by square foot, generate almost $77,000 per year in revenue.

Lease rates, however, vary greatly, and not just by airport. They vary greatly at each airport by tenant. The current County lease rate for new leases on space in existing buildings is 79-cents per square foot per month. The current County land lease rate is 35-cents per square foot per year. Many tenants' leases remain from agreements that were signed a number of years ago, with much lower rates than current. It would benefit the airport system to develop a set of standard lease rates based on the quality of the land being leased and in the interest of maximizing land lease revenue without discouraging use of the land.

FUTURE STRATEGIC OPTIONS

Before a formal strategic plan can be developed, a wide range of potential strategic options must be analyzed, and then compared to each other in terms of potential success. Due to the number of airports in the Humboldt County system – six throughout the County – there is no shortage of potential business development options. Some options are strong for the short-term while others are better suited for long-term planning.

This report is designed to lay out each option for future development, before determining which options should be included in the final strategic plan. Instead, in this report, each option's strengths, weaknesses, opportunities, and the threats will be analyzed, in order to give a clear picture of the steps ahead should the option be chosen as a strategic goal in the future. This report is the foundation on which the final strategic plan for the Airport System will be built.

"THIS REPORT IS THE FOUNDATION ON WHICH THE FINAL STRATEGIC PLAN FOR THE AIRPORT SYSTEM WILL BE BUILT."

The options included in this report come from a combination of sources, including independent analysis by consultants at Volaire Aviation, input from the airport division and Public Works, input from elected officials, suggestions from airport stakeholders, and experience and expertise from other airport systems. Some options must be included in the strategic plan for the Airport System, such as air service development. Other options may not be developed beyond this document. But the goal of this document is to lay out all potential business and strategic options so Airport System leadership can determine the best path forward.

SWOT: AIR SERVICE DEVELOPMENT

While the Humboldt County market has a lot of attractive attributes for airlines analyzing where to allocate additional capacity, it is not without its weaknesses and threats. In an on-site meeting, Airport System stakeholders developed a SWOT (strengths, weaknesses, opportunities, and threats) analysis for air service development – the expansion of airline service at Arcata-Eureka Airport (ACV) (refer to chart 13).

CHART 13: ARCATA-EUREKA AIRPORT (ACV) AIR SERVICE DEVELOPMENT SWOT
SOURCE: VOLAIRE AVIATION CONSULTING

	STRENGTHS	WEAKNESSES
INTERNAL	> FLY HUMBOLDT/AIR SERVICE COALITION > QUALITY OF CAR PARKING AT ACV > MEDIA SUPPORT > SPACE FOR GROWTH IN PASSENGER TERMINAL > WEATHER MONITORING SYSTEM/AWOS > LOW AIRLINE COSTS > CURRENTLY SUCCESSFUL/PROFITABLE SERVICE > CURRENT SCASD GRANT FUNDING	> RUNWAY LENGTH AT ACV/AIRCRAFT SIZE > WEB PRESENCE > MARKETING AND BRAND AWARENESS > DECISION-MAKING TIME WITH COUNTY GOVERNANCE
	OPPORTUNITIES	**THREATS**

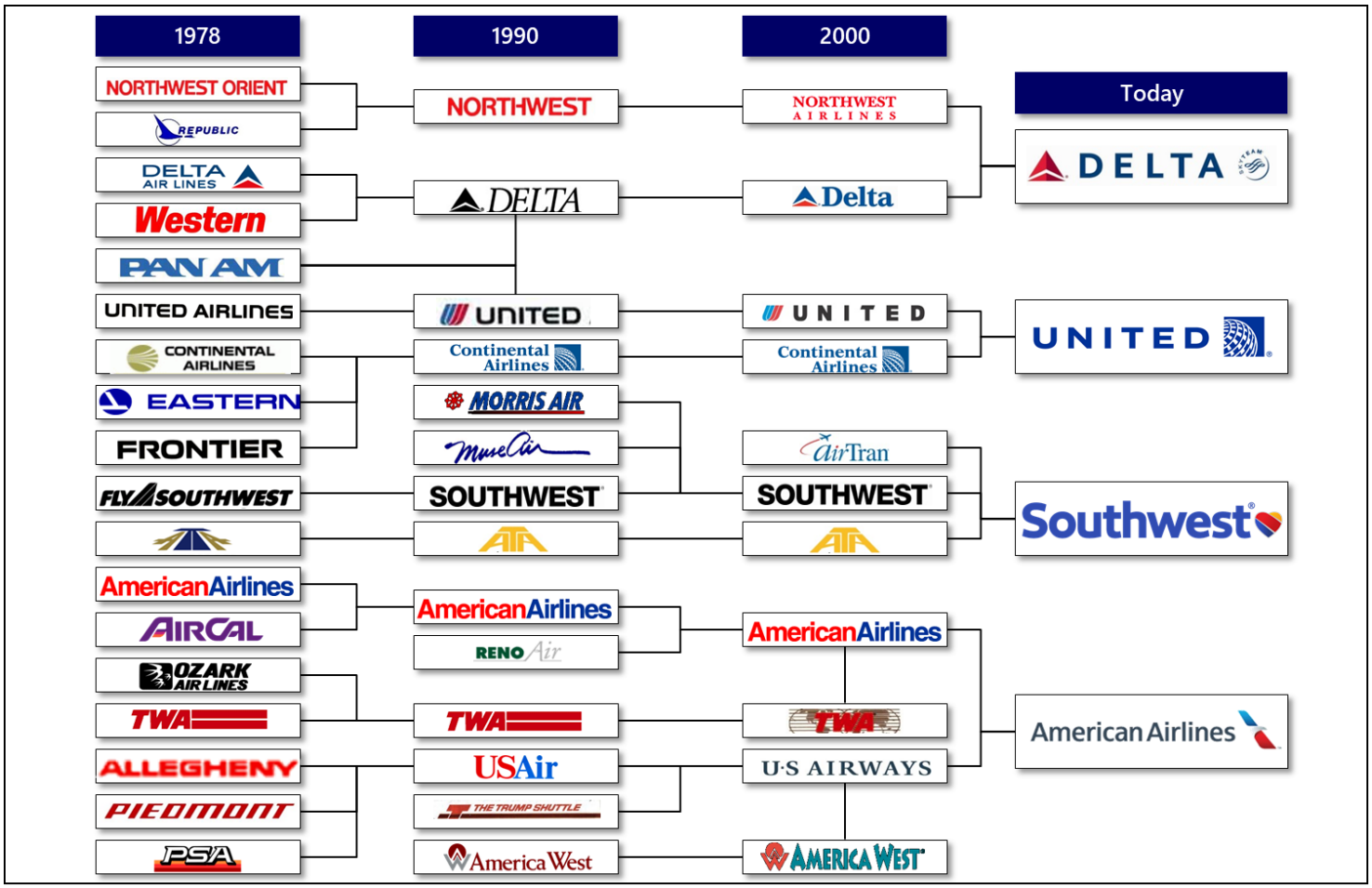
EXTERNAL	> INCREASED INBOUND TOURISM
	> RNAV APPROACHES
	> LOBBYING FOR CHANGE IN PILOT REGULATIONS
	> TARGETED NEW SERVICE:
	  > LOS ANGELES
	  > SEATTLE
	  > SALT LAKE CITY
	  > DENVER
	> INCREASING SIZE OF MARKET/POPULATION
		> SAFETY AREA ENCROACHMENT
		> WEATHER
		> PILOT SHORTAGE
		> FLEET MIX/RETIREMENT OF SMALLER AIRCRAFT
		> LIMITED TOURISM MARKETING
		> CHANGING REGULATIONS
		> COMMUNITY PERCEPTIONS
		> OPERATIONAL PERFORMANCE
		> DRONES
		> COMPETITION WITH OTHER AIRPORTS

This SWOT analysis guides the process of determining which air service development efforts might lead to successful service and which are likely to fail. There is strong local support for air service, and a strong local coalition that wants to do whatever it can to recruit and support new service. At the same time, ACV is limited by its runway length in the types of aircraft it will be able to host.

There are several external threats, outside the County's control, that will determine future success in air service development. These include a growing pilot shortage, a decreasing number of airlines, a shrinking fleet of aircraft in commercial service, and a general impression among many airline executives that smaller markets are not worth the financial risk as compared to larger markets.

Airline mergers have set in motion a huge reduction in both competition and the number of cities with scheduled service. Since 2001, 94 cities in the US have lost all scheduled airline service. The airline industry was de-regulated in 1978, allowing airlines to fly wherever they want without applying for government approval. In 1978 there were 18 major airlines in the country (refer to chart 14). Today, those 18 have been merged into four mega-carriers that carry 89% of all passengers.

CHART 14: NETWORK AIRLINE MERGERS SINCE DEREGULATION
1978 – PRESENT; SOURCE: VOLAIRE AVIATION CONSULTING

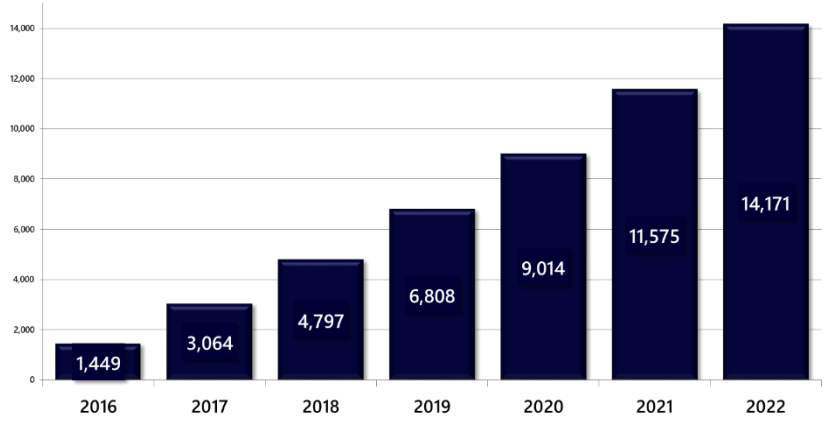


Smaller carriers still exist, but they have been pushed to the margins of the industry. Combined, airlines such as Alaska, JetBlue, Virgin America (now owned by Alaska, and soon to be merged into Alaska), Frontier, and Spirit carry less than 10% of US passengers. Outside of Alaska, none of these carriers serve smaller communities like Arcata-Eureka.

ACV's airline targets are subsequently limited. The only carriers serving cities like Arcata-Eureka are United (which already serves ACV), American, Alaska, and Delta. Delta has cut service to 44 smaller cities in the last decade, including ACV. That means the only real targets for service expansion, outside of smaller regional carriers, are American, Alaska, and United. These three airlines must weigh potential expansion at ACV against their entire networks, which collectively serve more than 500 cities. It is easy to see that the competition is not from nearby cities in California – competition for aircraft and crew time is worldwide, meaning the ACV business case has to be better than dozens, if not hundreds, of other routes.

The competition for crew time has never been more intense. In 2012, the Federal Aviation Administration (FAA) increased the number of hours of pilot experience required to fly a commercial aircraft from 250 to 1,500. At the same time, new crew rest requirements reduced crew productivity by 25%. These changes have results in a profound pilot shortage nationwide.

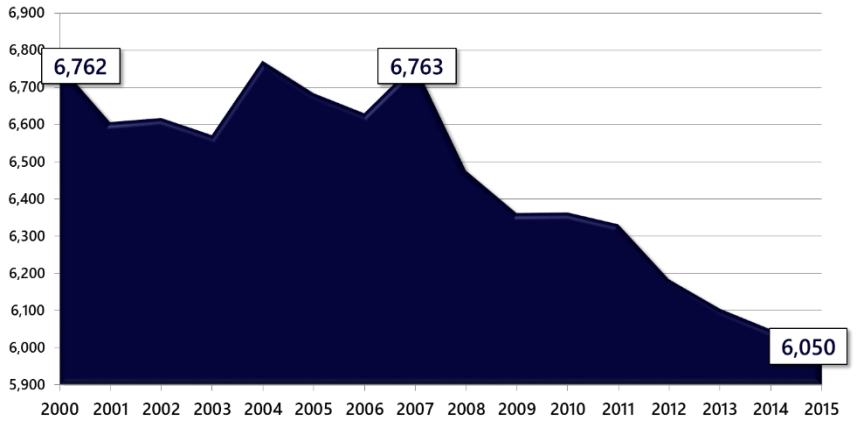
CHART 15: CUMULATIVE PILOT RETIREMENTS IN THE US
2016 – 2022; SOURCE: REGIONAL AIRLINE ASSOCIATION



Additionally, pilots are required to retire at the age of 65. By 2022, more than 14,000 pilots in the US face mandatory retirement (refer to chart 15). Today, all regional airlines in the country collectivity employ 17,000 pilots. By 2022, 82% of regional pilots will be absorbed by major carriers. Meanwhile, only 1,000 new pilots are being certified each year. By 2022, there will be just 6,000 new pilots to fill at least 14,000 open jobs. More

communities will lose service because airlines will not be able to fly as many regional aircraft as they do today. The pilot shortage likely contributed to PenAir's decision to end service at ACV.

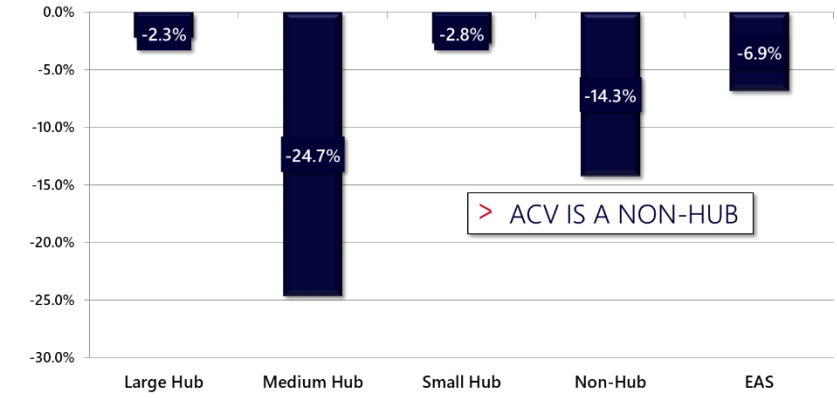
CHART 16: US AIRLINE TOTAL FLEET SIZE
2000 – 2015; SOURCE: AIRLINES FOR AMERICA



With airlines finding it more difficult to hire qualified pilots, they have been rapidly reducing the size of their fleets of aircraft. Since the middle of 2007, airlines in the US have retired 11% of their fleet, removing more than 700 aircraft from service (refer to chart 16). They have also moved away from smaller aircraft, like the 30-seat turboprops that United used to use in the Arcata-Eureka market, to larger jets, like the 76-seat jets United now uses on some ACV flights. Only markets that can support larger jets with sufficient passenger demand will retain service.

Fleet retirement has caused each size airport in the US to lose capacity. ACV is classified as a non-hub. Airports in that classification have lost an average of 14% of available airline seats since 2005 (refer to chart 17). ACV, itself, has lost 54% of capacity since 2005 – almost four times the average in airports of its size. Only medium hub airports, which generate about 20-times the passengers of ACV, have lost more seats than non-hubs.

CHART 17: CHANGE IN SCHEDULED AIRLINE DEPARTING SEATS
2005 – 2015; SOURCE: OAG AIRLINE SCHEDULE DATA



Despite these factors, it is clear ACV can support additional flights, and new destinations. As previously mentioned, Arcata-Eureka Airport retains just 50% of passengers traveling to and from Humboldt County, with many driving to San Francisco and Sacramento to catch flights.

When all Humboldt County airline passengers are considered – not just those that fly in and out of ACV – it is clear there are a number of large markets that could support non-stop service. For example, the Los Angeles Basin airports (Los Angeles, Orange County, Burbank, and Ontario) generate a total of 50.5 passengers per day each way (PDEW) to and from Humboldt County, with less than 50% flying in and out of ACV (refer to chart 18).

CHART 18: HUMBOLDT COUNTY'S TOP 25 TRUE PASSENGER MARKETS
CALENDAR YEAR 2016; SOURCE: ARC TICKET DATA

RANK	DESTINATION	ACV O&D PAX	DIVERTED PAX	TRUE MARKET PAX	TRUE MARKET PDEW
1	Los Angeles, CA	8,149	9,189	17,338	23.8
2	Portland, OR	10,956	3,118	14,075	19.3
3	San Diego, CA	7,290	6,733	14,023	19.2
4	San Francisco, CA	13,037	296	13,333	18.3
5	Las Vegas, NV	3,988	8,037	12,025	16.5
6	Phoenix, AZ (PHX)	2,902	7,172	10,074	13.8
7	Denver, CO	4,615	4,520	9,134	12.5
8	Orange County, CA	4,992	3,905	8,897	12.2
9	Newark, NJ	3,544	2,365	5,909	8.1
10	Burbank, CA	2,713	2,947	5,660	7.8
11	Chicago, IL (ORD)	3,023	2,170	5,193	7.1
12	Washington, DC (IAD)	2,588	2,583	5,171	7.1
13	Ontario, CA	2,981	1,922	4,903	6.7
14	Boston, MA	2,551	2,069	4,620	6.3
15	Minneapolis, MN	2,053	2,531	4,584	6.3
16	Honolulu, HI	1,399	2,982	4,381	6.0
17	Seattle, WA	2,040	2,240	4,280	5.9
18	New Orleans, LA	748	2,619	3,367	4.6
19	Salt Lake City, UT	1,463	1,642	3,105	4.3
20	Houston, TX (IAH)	1,905	965	2,870	3.9
21	Orlando, FL (MCO)	1,256	1,351	2,608	3.6
22	Dallas, TX (DFW)	1,320	1,259	2,579	3.5
23	Detroit, MI	873	1,639	2,511	3.4
24	Kona, HI	611	1,851	2,462	3.4
25	Philadelphia, PA	1,662	777	2,439	3.3
Top 25 Domestic		**88,658**	**76,882**	**165,540**	**226.8**
Total Domestic		**123,963**	**111,662**	**235,625**	**322.8**

While Los Angeles is Humboldt County's top unserved market, Portland now ranks second with the loss of service on PenAir (refer to chart 18). The Portland market generates an average of 19.3 local passengers per day each way (PDEW) – not including passengers who connect to other flights at PDX.

The markets of Phoenix, Denver, Seattle/Tacoma, and Salt Lake City could all provide good connection opportunities for Humboldt County passengers, but they also have relatively strong local passenger demand. Phoenix generates an average of 13.8 passengers per day each way (PDEW) locally, while Denver generates 12.5 PDEW, Seattle generates 5.9 PDEW, and Salt Lake City generates an average of 4.3 PDEW (refer to chart 18).

A list of air service development targets will constantly change, as it must be built around airline strategy, and no airport can control strategy. It is the job of the airport to tailor its targets to an established airline business plan. The most successful airports can do this nimbly, changing the focus of their air service development programs based on airline feedback.

In on-site interviews in Eureka, Airport System stakeholders were clear in their priorities for service – and Los Angeles was their number one target. Regional chambers of commerce, hospitals, and other businesses ranked LA service as their #1 priority. Humboldt State University also needs access to Southern California as 40% of its students come from that area.

With non-stop service provided only to San Francisco, there are many potential target routes for airline expansion at Arcata-Eureka Airport. Among the targets are Los Angeles, Portland, Phoenix, Denver, Seattle/Tacoma, and Salt Lake City (refer to map 2). Each market has at least one airline with a hub, which is critical for the connectivity required to make small community air service successful.

MAP 2: AIR SERVICE DEVELOPMENT TARGET MARKETS
SOURCE: VOLAIRE AVIATION CONSULTING

Los Angeles service would likely be operated to LAX. Several potential target airlines operate hubs at LAX, including Alaska, American, and United. In Portland, Alaska would be the main target for service, as it is the only hub carrier at PDX. American operates the only major airline hub at Phoenix, so it would be the natural target for service. In Denver, United has a huge hub that would be the main target for service, but Frontier also operates a small hub and has recently added limited service to smaller communities. Both Alaska and Delta operate hubs at Seattle/Tacoma, although Alaska is much more aggressive in its expansion in small communities than Delta. Delta hubs at Salt Lake City, and it used to serve the ACV – Salt Lake City route, but it has shied away from small community expansion in recent years.

While a strong business case can be made for service on any of these routes, Humboldt County will be competing against communities all over North America for the aircraft and crew time. For it to move to the top of the list of potential new routes, it will not only have to aggressively court target airlines, but offer best-in-class incentives to reduce airline risk in starting a new market. It is highly unlikely ACV will win additional service on the business case alone. The County has an opportunity to leverage a rejuvenated Fly Humboldt air service development organization to build an enhanced incentive program and land additional flights.

ROLE OF FLY HUMBOLDT

Fly Humboldt supports and promotes air service at Arcata-Eureka Airport. It was created by volunteers to both promote service and recruit new service and it is not affiliated directly with the County of Humboldt. However, it is known and the group is dedicated to improving air service in the community. And while it has no funding or other support, it could be formalized into a non-profit or foundation with a board and mission of promoting and expanding air service at ACV.

"MOST COMMUNITIES THAT SEEK TO INCENTIVIZE AIR SERVICE DO SO THROUGH OUTSIDE THIRD PARTIES BECAUSE OF LIMITATIONS ON AIRPORT INCENTIVES IMPOSED BY FEDERAL LAW."

Many communities use similar formal organizations for air service development. Most communities that seek to incentivize air service (which includes virtually all non-hub airports in the country) do so through outside third parties because of limitations on airport incentives imposed by federal law.

The Federal Aviation Administration (FAA) puts many restrictions on the use of airport revenue to ensure fair treatment to all airport users. The key to determining legal uses of airport revenue lies in the definition of different types of income generated by an airport and the source of that income. In general, airport revenue cannot be used for air service incentives outside of fee waivers and marketing support, and only for a limited

period of time. However, the FAA does not lump all airport income into the definition of "airport revenue," making it legal for airports to use some other income sources to support air service beyond waivers and marketing incentives.

The critical factor in determining the legal use of airport income is the definition of "airport revenue." The FAA currently defines "airport revenue" as:

> "Airport revenue generally includes those revenues paid to or due to the airport sponsor for use of airport property by the aeronautical and nonaeronautical users of the airport. It also includes revenue from the sale of airport property and resources and revenue from state and local taxes on aviation fuel.
>
> "Revenue generated by the airport for the aeronautical and nonaeronautical use of the airport includes, but is not limited to, the fees, charges, rents, or other payments received by or accruing to the sponsor from air carriers, tenants, concessionaires, lessees, purchasers of airport properties, airport permit holders making use of the airport property and services, etc."

The FAA does not allow airport revenue, in any form, to be used for certain incentives to develop or support airline service. Specifically, FAA policy reads:

> "The direct subsidy of air carrier operations is a prohibited use of airport revenue. Prohibited direct subsidies do not include support for airline advertising or marketing of new services to the airport."

Airports are allowed to use "airport revenue" to market their service and to provide fee waivers under current FAA regulations – with one caveat. Airports may not place a burden on incumbent carriers, in the form of increased airport fees, in order to raise money for incentives for new carriers or new service.

There is no comprehensive research available to determine the number of airport authorities and districts leveraging their tax income to support airline service. Limited research has been done on the topic, and because of the often-confidential nature of airline negotiations and agreements, it can be difficult to find detail on how the programs are structured.

However, a number of destinations have been open in discussing how they have leveraged tax income to support new service. Two major ski resort destinations in Colorado use sales taxes to support service (refer to chart 19). A ski resort in California has been open about its use of a hotel tax to guarantee airline revenue on new routes. The City of Bismarck, North Dakota used general fund tax revenue for new service. While the State of Wyoming continually subsidizes service to its remote airport through tax income.

CHART 19: AIRPORTS LEVERAGING TAX REVENUE FOR AIRLINE SERVICE
SOURCE: VOLAIRE AVIATION ANALYSIS

Market	Type of Tax	Annual Amount	Service Supported	Type of Program
Gunnison, CO	Sales (1%)	$3,500,000	Alaska Airlines, Los Angeles	Revenue Guarantee
			American Airlines, Chicago and Dallas/Ft. Worth	Revenue Guarantee
			United Airlines, Houston	Revenue Guarantee
Steamboat Springs, CO	Sales (0.25%)	$4,000,000	Alaska Airlines, Seattle/Tacoma, San Diego	Revenue Guarantee
			United Airlines, Houston	Revenue Guarantee
Mammoth Lakes, CA	Hotel Tax	$1,500,000	Alaska Airlines, Seattle, San Diego, Orange County	Revenue Guarantee
			United Airlines, Los Angeles, San Francisco	Revenue Guarantee
Bismarck, ND	City Gen. Fund	$200,000	Frontier Airlines, Denver	Revenue Guarantee
State of Wyoming	Income Tax	$6,400,000	Multiple Services to Multiple Airports	Direct Subsidy

The county in which Gunnison, Colorado's airport sits collects a 1% sales tax on behalf of the airport (refer to chart 19). That funding, which totals roughly $3.5 million per year, is used exclusively for developing new and enhanced air service. In the last five years, the funding has led to new service from three airlines on four new

routes, illustrating its success. It is important to note; the funding never touches the airport. While the airport works on airline recruitment, all of the air service agreements are signed directly between the county and the air carrier, so as to avoid airport non-discrimination FAA rules.

The same arrangement is used in Steamboat Springs, Colorado, where Hayden County collects the sales tax and negotiates revenue guarantee agreements with airlines independently. The tax in Steamboat generates roughly $4 million per year and has been used in the last three years to leverage service on two carriers to three new markets (refer to chart 19 on previous page).

"...ALL OF THE AIR SERVICE AGREEMENTS ARE SIGNED DIRECTLY BETWEEN THE COUNTY AND THE AIR CARRIER, SO AS TO AVOID AIRPORT NON-DISCRIMINATION FAA RULES."

In Mammoth Lakes, California, the airport receives funding from hotel taxes and a Tourism Business Improvement District (TBID), put into effect in September 2013, with a five-year life. The funds from the TBID are collected by the town of Mammoth Lakes and then distributed by Mammoth Lakes Tourism, a 501(c)6 nonprofit. The TBID money is used to provide minimum revenue guarantees to the airlines, but again, the guarantee comes from the non-profit and the tax never touches the airport, itself.

In Bismarck, North Dakota, the City owns and operates the airport. The City used general fund revenue, from property taxes, to fund a revenue guarantee for Frontier Airlines service (refer to chart 19 on previous page). Again, because the tax revenue was not collected by the airport, itself, it did not have to abide by FAA non-discrimination rules. The Frontier service, in fact, was launched on a route where an incumbent already provided daily service (United to Denver).

In all of these cases, the tax funding is provided a revenue guarantee to a carrier – and not a direct subsidy. A revenue guarantee agreement includes a negotiated target-revenue amount for the carrier to earn. If the carrier earns less than the targeted amount, the community makes-up the difference. If the airline earns more than

the targeted amount, the community owes nothing. These agreements reduce community risk and still provide an airline with its targeted margin on a new route.

The State of Wyoming's airport system uses a straight subsidy methodology on its airline-support projects. Wyoming subsidizes service to four of its airports. The Air Service Enhancement Program subsidizes flights to the Yellowstone Regional Airport in Cody, the Jackson Hole Airport, the Gillette-Campbell County Airport, and the Rock Springs airport. The direct subsidy is paid to the airline regardless of the number of passengers it carriers or the revenue it earns.

CHART 20: AIRPORTS WITH OTHER ANNUAL PROGRAMS TO SUPPORT AIRLINE SERVICE
SOURCE: VOLAIRE AVIATION ANALYSIS

Market	Type of Support	Annual Amount	Service Supported	Type of Program
Eagle/Vail, CO	Business Guarantee	$500,000	Air Canada, Toronto	Revenue Guarantee
			American Airlines, New York Kennedy	Revenue Guarantee
Telluride, CO	Business Guarantee	Varies	American Airlines, Dallas/Ft. Worth	Revenue Guarantee

Other resort destinations lean on local businesses (primarily the resorts, themselves) to develop airline service. Research shows both Eagle/Vail and Telluride, Colorado have business coalitions that collect funding from resorts and associated companies to be used for airline revenue guarantees in the support of new service (refer to chart 20).

Humboldt County lacks a large resort or a single large business that could fund guarantees for new service. Fly Humboldt has done a good job getting airline attention by developing non-financial support from many local stakeholders. But to truly be able to compete with the airports listed above, a permanent air service development fund, independent of the Airport System, must be developed. Funding for this could come from many sources, but it will likely need some kind of government component.

In on-site interviews, many stakeholders were supportive of an additional room tax option with the Humboldt Lodging Alliance, with all funds dedicated to an air service development fund that could either be administered by the County or by an independent non-profit in the form of Fly Humboldt. This could provide a continuous flow of funding for the development of airline service, putting ACV in position to compete with other airports for the precious resource of aircraft and crew time.

PARKING CHANGES

As mentioned in the previous financial analysis document, airline passenger vehicle parking is one of the main sources of revenue for the system. The County outsources the management of its parking operation to Republic Parking on a 20-year contract that will expire in 2021. Under this contract, Republic collects all gross receipts for parking fees and pays the County rent based on its share of those receipts. Republic is responsible for staffing the kiosk, but the County is still responsible for all maintenance and upkeep of the parking lots.

In 2015, Arcata-Eureka Airport (ACV) passenger vehicle parking generated more than $400,000 in total gross receipts (refer to chart 21). Based on the agreement with Republic, the County only retained 56% of the gross receipts, or $223,000, with the rest going to Republic. In 2016, parking gross receipts increased by 30%, to almost $519,000. But the County only retained 59% of the revenue – a total of just over $305,000.

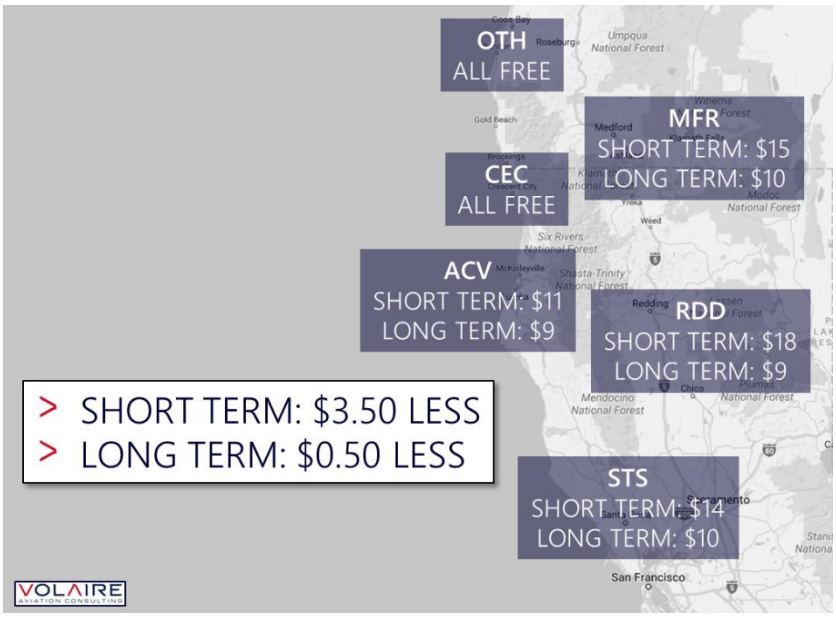
CHART 21: BREAKDOWN OF ACV PARKING RECEIPTS
SOURCE: REPUBLIC PARKING REPORTING

Year	Gross Parking Fees	County Share	Republic Share	County %
2015	$400,306	$223,007	$177,299	55.7%
2016	$518,721	$305,327	$213,394	58.9%
Total	$919,027	$528,334	$390,693	57.5%

Over the two-year period from 2015 to 2016, Republic Parking generated almost $391,000 in total revenue from managing the parking lots at ACV (refer to chart 21). Republic, based on its agreement with the County, retained 42.5% of all parking revenue for the two-year period.

It is recommended, at the conclusion of the Republic Parking contract, the County take over the management of the ACV parking operation. Parking automation, including all equipment and technology required, costs between $250,000 and $450,000 to install, based on which system an airport chooses. The County can cover the expense of installing the system in just two years through the re-patriation of revenue currently being spent on Republic management. Beyond the two-year payoff phase, an automated system would allow the County to access at least $200,000 per year in additional parking revenue based on recent financial results.

MAP 3: REGIONAL PASSENGER VEHICLE PARKING RATES
SOURCE: VOLAIRE AVIATION CONSULTING



Arcata-Eureka Airport also has the cheapest parking rates among peers with similar levels of airline service. ACV's short-term rate caps at $11 per day while its long-term rate caps at $9 per day (refer to map 3). Medford, Redding, and Santa Rosa all have higher short-term rates, and two of the three have higher long-term parking rates. The average short-term rate in the region is $3.50 more than ACV's rate and the average long-term rate is 50-cents more.

Based on this disparity, it is recommended that the County raise the cap on the short-term passenger parking rate to $14 per day. It is also recommended that the cap on the long-term parking rate be raised to $10 per day. It is forecasted that this will increase total parking receipts by $25,000 to $50,000 per year, with about half that amount going directly to the Airport System after its payment to Republic Parking.

One other current challenge with passenger vehicle parking at ACV is the ability of passengers to avoid parking in the actual lot. Airport employees report people park illegally on the streets surrounding the airport to avoid

paying for parking. It is recommended that the County and Airport System work together to begin to crack down on this practice, which will likely raise revenue by pushing people to parking lots and legal parking.

RENTAL CAR FACILITY

The current service facility for rental cars at Arcata-Eureka Airport is inadequate for the tenants' needs. The service center is not the area where the cars are rented and dropped off and it is entirely outdoors next to an aging building. This makes the work of preparing cars for their next rental difficult, at best, and in many cases impossible in inclement weather.

Planning for the development of a permanent rental car service facility has already started. The facility could, additionally, include an automatic car wash, which is not present on the field. This could be used to provide an additional service to those who park their cars at the airport while traveling, generating additional Airport System revenue. High traffic automated car washes report earnings between $750,000 and $850,000 per year.

"THE FACILITY COULD, ADDITIONALLY, INCLUDE AN AUTOMATIC CAR WASH... USED TO PROVIDE AN ADDITIONAL SERVICE TO THOSE WHO PARK THEIR CARS AT THE AIRPORT..."

The facility has not yet been designed, so the Airport System has no solid cost estimate. In research for this section of the report, no other similar project could be found through open records. However, in research of other automated cash wash construction projects, which mirror this project, the cost estimate ranges from $600,000 on the low end to $1 million on the high end.

The cost of the facility would be paid through rental car fees, passed on to consumers who rent cars at ACV. Current rental car tenant companies are supportive of the concept. The potential challenge from this funding source would be the potential loss of air service. While deemed unlikely, a loss of air service would likely cause

rental car companies to pull service from the airport. This would leave the airport's owner on the hook for any additional debt owed on the facility.

PET CARE FACILITY

There is no large animal boarding and pet care facility near Arcata-Eureka Airport. Many travelers seek to board their pets while they travel, so it is possible a pet care facility could be well-used if located near ACV. The County has plenty of land on which to develop a facility, but the question would be who operates the facility, and is it built with County funds and leased, or does the County recruit a company to start the business and build it themselves?

CHART 22: COST OF PET CARE FACILITY AT ACV
SOURCE: VOLAIRE AVIATION CONSULTING

Item	Average Start-Up Cost	Average Monthly Cost	Average Annual Cost
Facility Construction	$813,000		
Facility Build-Out	$50,000		
Insurance	$800	$650	$7,800
Basic Equipment	$5,000		
Grooming Equipment	$3,750		
Signage	$3,500		
Computer Systems	$5,000	$50	$600
Advertising		$500	$6,000
Permits and Licenses	$1,200	$100	$1,200
Utilities	$600	$150	$1,800
Web Site Design	$850	$10	$120
Staffing		$18,000	$216,000
Total	$883,700	$19,460	$233,520

A recent study of veterinary clinics and boarding facilities designed to benchmark the cost of building new locations showed the median square footage of a facility was 6,775. The average cost to build a facility was $120 per square foot, or a total of $813,000 (refer to chart 22). This estimate does not include the cost of purchasing all the equipment that would be needed to operate the facility, including actual kennels, computer systems for record keeping, and other creature comforts. Facilities are often more expensive in California due to strict animal treatment regulations. The costs of these "extras" is estimated at $71,000.

A pet care and boarding facility has many on-going costs, but the largest of them is labor. It is estimated it would cost $18,000 per month, or $216,000 per year to staff a limited facility (refer to chart 22). Total ongoing annual costs are estimated at $233,520 per year. The total first year investment would be almost $1.2 million.

In order for a pet care facility to break even based on the estimates provided, but not including the one-time building and start-up costs, it would need to welcome 6,672 overnight pets per year at a nightly cost of $35 per pet. This averages to 18 pets per night. This estimate does not include grooming income. In order to reach this number, 19% of all local airline passengers would have to house pets at the facility. It is difficult to imagine that demand for the facility would be that high. But if the facility could also leverage other customers, it could potentially be viable outside the start-up cost.

ACV TERMINAL RESTAURANT

While smaller, regional airports with less than half million annual passengers typically have difficulty generating sufficient business to support in-terminal restaurants, ACV had a successful restaurant for many years and has an ideal space, on the second floor of the terminal, for a new restaurant. Those regional airports, such as San Luis Obispo, that are able to support on-field restaurants, mainly because they are located in areas near local population with few dining options. This is certainly the case at ACV with nearby McKinleyville.

This project has been stalled for a number of months, despite the fact that the County and the Airport System have dedicated up to $250,000 to build out the space. According to Airport System stakeholders interviewed on-site, the planning for the restaurant has been slow, mainly because the Public Works Department has many higher-priority jobs in the queue ahead of the restaurant. Still, many believe the Airport System is losing revenue by not working expeditiously to find a tenant and get the restaurant open.

Airline representatives were clear in on-site interviews that they believe passengers will make a habit of using the restaurant. They said they often get requests for a full-service restaurant and have no options to which to send passengers. Additionally, when flights are delayed, airlines report their passengers would often like a restaurant in which to pass the time, especially if Wi-Fi is offered for free.

Local businesses interviewed for this report said they would use the restaurant at ACV for business meetings. Many businesses, such as the hospitals, would like to conduct new employee interviews right at the airport to make trips much quicker.

It is recommended the Airport System and the County fast-track the development of the airport terminal space at ACV for a restaurant. It is then recommended that the Airport System begin an expedited recruitment of a restaurant operator for the space.

SWOT: AIR CARGO

More than 3,400 pounds of air cargo is shipped through Humboldt County airports, on average, each day. Cargo is critical to the isolated regions within Humboldt County. Typically, the main cargo airport in a community is the same airport that hosts scheduled passenger airline flights. That is not the case in Humboldt County, where Murray Field, near Eureka, is the main cargo airport while Arcata-Eureka Airport captures only cargo transported on passenger airline flights.

The Airport System stakeholder group completed a SWOT (strengths, weaknesses, opportunities, and threats) analysis with cargo service in mind. It found that there are many high value goods from the region that most often should be transported by air including fish, high-value agricultural products, and blood from the Northern California Blood Bank (refer to chart 23 on next page). These items are currently transported on service provided by feeders for FedEx and UPS from Murray Field and on airline flights at ACV.

While most cargo goes in and out of Murray Field, Arcata-Eureka Airport has a foreign trade zone designation, which could help with international shipments (refer to chart 23). The challenge at ACV is that the runway is likely too short for flights to international destinations aside from Canada. The real opportunity might be to grow the size of current cargo aircraft serving the market by increasing demand, and then to have those aircraft move to ACV from Murray Field.

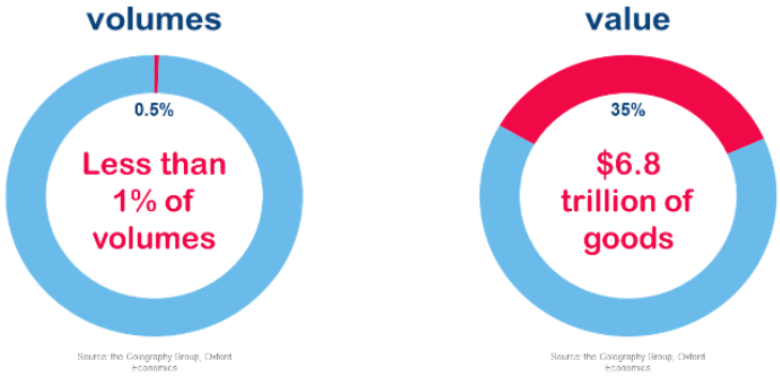
CHART 23: SWOT OF AIR CARGO SERVICE IN HUMBOLDT COUNTY
SOURCE: VOLAIRE AVIATION CONSULTING

	STRENGTHS	WEAKNESSES
INTERNAL	> FOREIGN TRADE ZONE AT ACV > WEATHER MONITORING SYSTEM/AWOS > LOW COSTS > HIGH VALUE GOODS TO TRANSPORT > BLOOD, FISH, AGRICULTURE > CURRENTLY SUCCESSFUL CARGO SERVICE	> LENGTH OF RUNWAYS AT MURRAY AND ACV > CONDITION OF MURRAY AIRPORT/LONG TERM CONDITION OF RUNWAY > ACV LOCATION RELATIVE TO MARKETS > NO CARGO SORT FACILITY
	OPPORTUNITIES	**THREATS**
EXTERNAL	> RNAV APPROACHES > GROW AIRCRAFT SIZE ON CURRENT SERVICE > GROW FREQUENCY ON CURRENT SERVICE	> SAFETY AREA ENCROACHMENT > WEATHER > PILOT SHORTAGE > FLEET MIX/RETIREMENT OF SMALLER AIRCRAFT > CHANGING REGULATIONS > COMMUNITY PERCEPTIONS > DRONES

Murray's long-term position is a weakness, as its infrastructure is much weaker than ACV with a shorter and narrower runway and narrow taxiways (refer to chart 23). Murray is also built on sinking wetlands and within the zone of the Coastal Commission, which will make long-term improvements to the field difficult. It has no indoor cargo sort facility, which is a challenge for its air cargo users, but building a facility at Murray could be a poor investment with a deteriorating runway and taxiways.

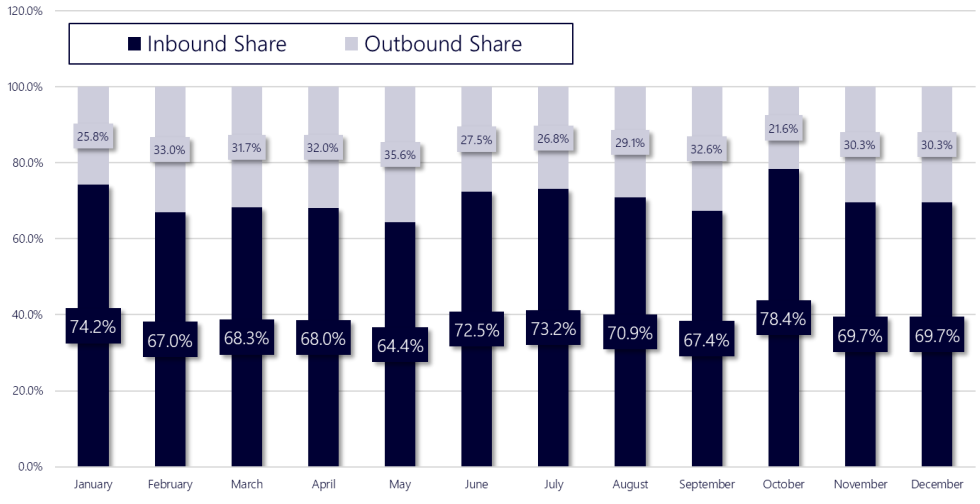
Over the longer term it will likely be in the best interest of the Airport System to work to move cargo carriers to ACV, which has better facilities, a better approach system in poor weather, and room for a sort facility. But the carriers, themselves, currently prefer Murray Field because it is closer to their markets in Eureka and in towns to the south.

CHART 24: VALUE OF AIR CARGO
SOURCE: VOLAIRE AVIATION CONSULTING



It is important to understand that air cargo is a niche product and it does not work as a shipment method for most cargo. A recent study shows air cargo accounts for just half-a-percent of all worldwide shipments (refer to chart 24). At the same time, cargo shipped by air represented $6.8 trillion in value, or 35% of the value of all shipments. Only high value, expensive items go by air. The question must be how much high value cargo is generated in Humboldt County?

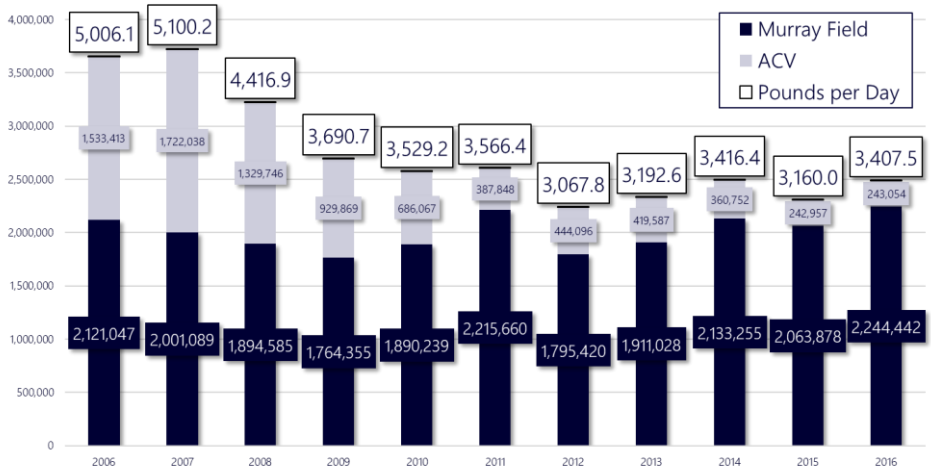
CHART 25: INBOUND/OUTBOUND SPLIT OF AIR CARGO AT EKA AND ACV
2016; SOURCE: HUMBOLDT COUNTY



An analysis of air cargo data from 2016 shows that most of the air cargo handled at Humboldt County airports is inbound to the market (refer to chart 25). Only a smaller share of cargo is actually generated in the County. Usually, for a larger cargo operation to work, air cargo operators would like to see a balance between inbound and outbound cargo.

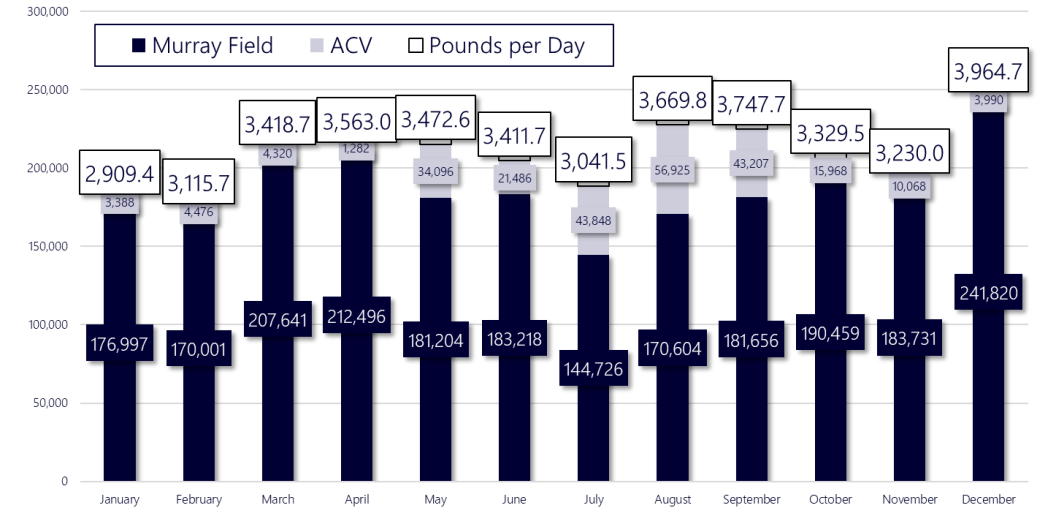
Overall, 70% of air cargo handled at ACV and Murray Field (EKA) is inbound to Humboldt County, while 30% of the cargo is generated in the region (refer to chart 25 on previous page). The share of outbound cargo peaks in May, when it represents 36% of all shipments by air. Inbound cargo peaks in October, when it represents 78% of all air shipments.

CHART 26: HUMBOLDT COUNTY AIRPORTS' AIR CARGO
2006 – 2016; SOURCE: HUMBOLDT COUNTY



Total air cargo handled at Murray Field and Arcata-Eureka Airport is down by 32% in the last decade – a loss of an average of 1,599 pounds of cargo a day (refer to chart 26). Air cargo at the airports peaked in 2007, with an average of 5,100 pounds per day. By 2016 that number had fallen to an average of 3,400 pounds per day.

CHART 27: HUMBOLDT COUNTY AIRPORTS' AIR CARGO
2016; SOURCE: HUMBOLDT COUNTY

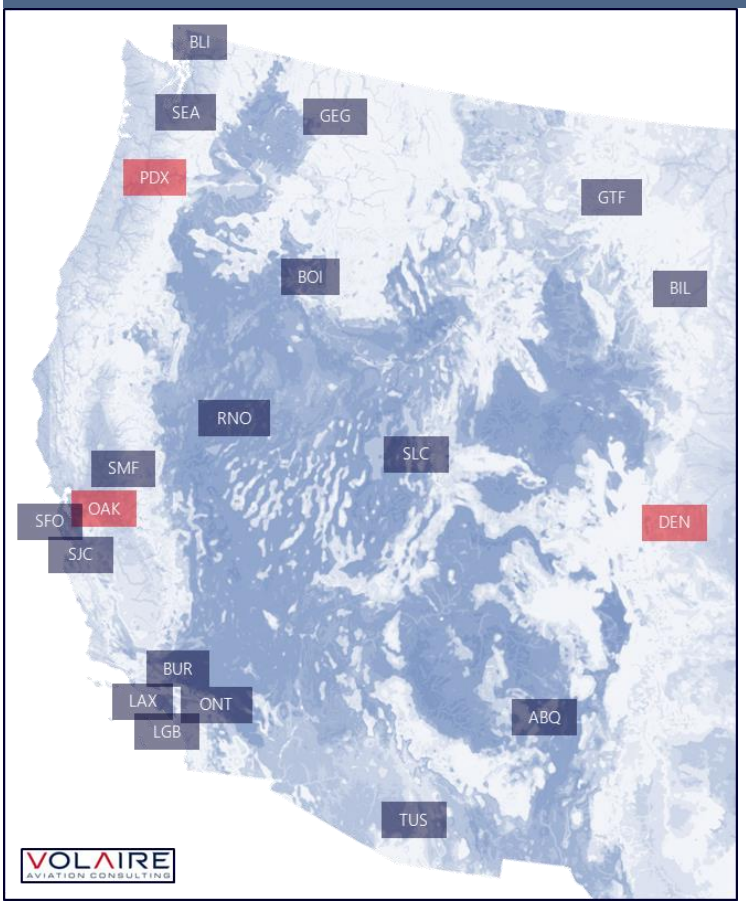


During that period, however, cargo carried by dedicated air cargo airlines at Murray Field increased by almost 6%. ACV's air cargo, carried by passenger airlines, has dropped 84% in the last decade. ACV lost Delta service in 2010 and Alaska Airlines service in 2011. The loss of those two carriers resulted in the decline in air cargo, as there were many fewer passenger flights on which cargo could travel.

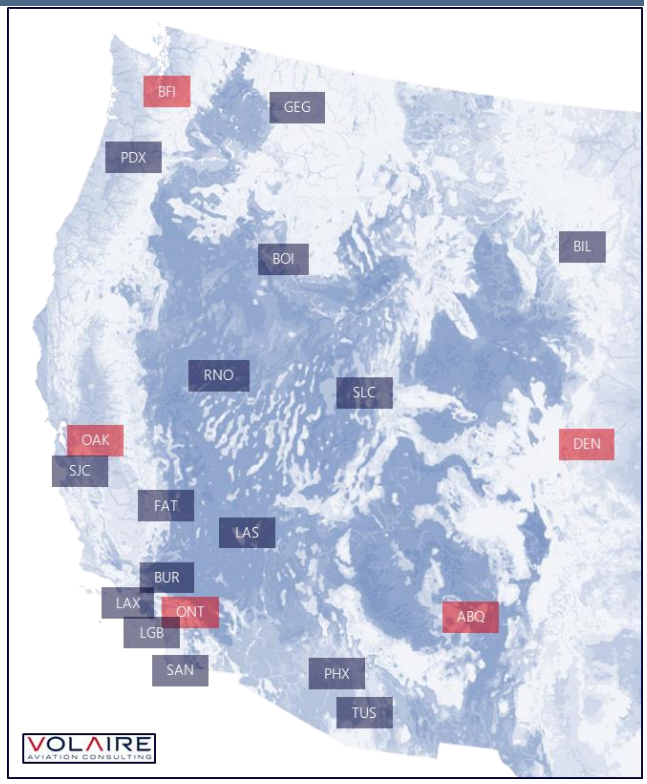
Humboldt County's air cargo peaks in December, but is not terribly seasonal. It is common for regional markets to see a cargo peak during the holiday shipping season. Otherwise cargo demand is very steady, averaging around 3,400 pounds per day (refer to chart 27 on previous page). Passenger airlines carry a large share of cargo through ACV in the summer, while they carry a small share the rest of the year.

The amount of air cargo shipped through Murray Field and ACV is consistent with the amount that is carried throughout the FedEx and UPS systems by smaller, feeder aircraft. Humboldt County would need to generate about five times its annual air cargo to support a large jet cargo flight each day, or about 12.5 million pounds of high value shipments.

MAP 4: FEDEX JET SERVICE CITIES (BLUE) AND HUBS (RED)
AS OF AUGUST 2017; SOURCE: VOLAIRE AVIATION CONSULTING



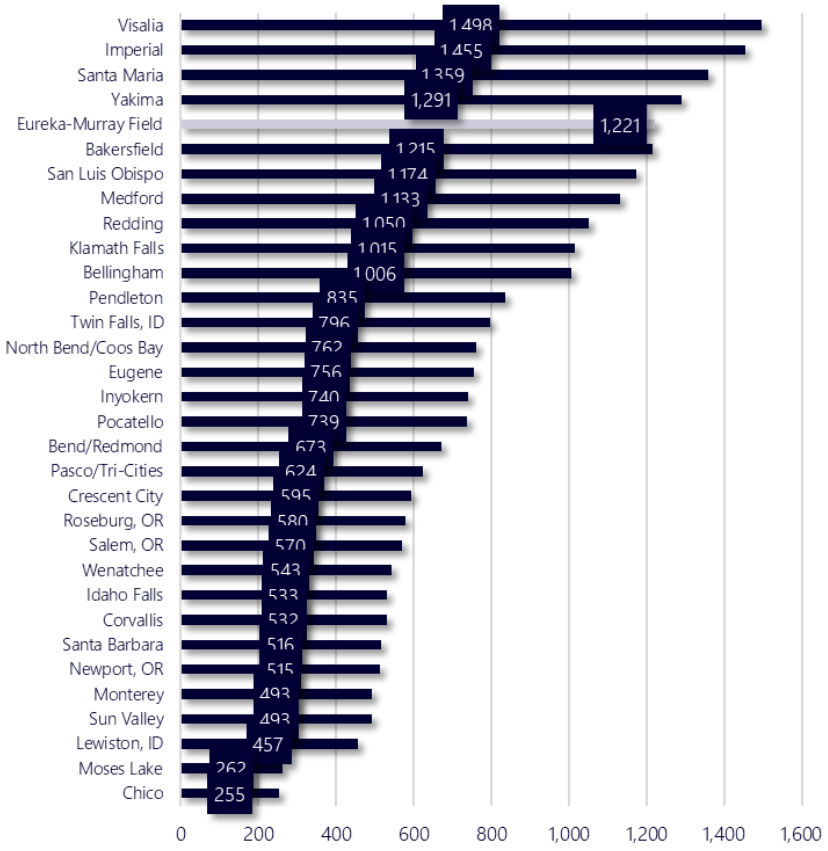
MAP 5: UPS JET SERVICE CITIES (BLUE) AND HUBS (RED)
AS OF AUGUST 2017; SOURCE: VOLAIRE AVIATION CONSULTING



Each of the FedEx markets west of the Rockies with jet service supports at least that much air cargo (refer to map 4). As is clear on the map, FedEx reserves its jet fleet for large cities, such as the LA Basin, the San Francisco Bay Area, or Denver, or places of extreme isolation and poor road and rail connections, such as Great Falls. FedEx does not serve any of Arcata-

Eureka's peer markets with jets. Even larger cities in the west do not have FedEx jet service, including Medford, Eugene, Pasco/Tri-Cities, Santa Barbara, and Bakersfield.

CHART 28: DEPARTURES IN FEDEX WESTERN REGIONAL MARKETS
YEAR ENDED APRIL 2017; SOURCE: US DOT TABLE T100



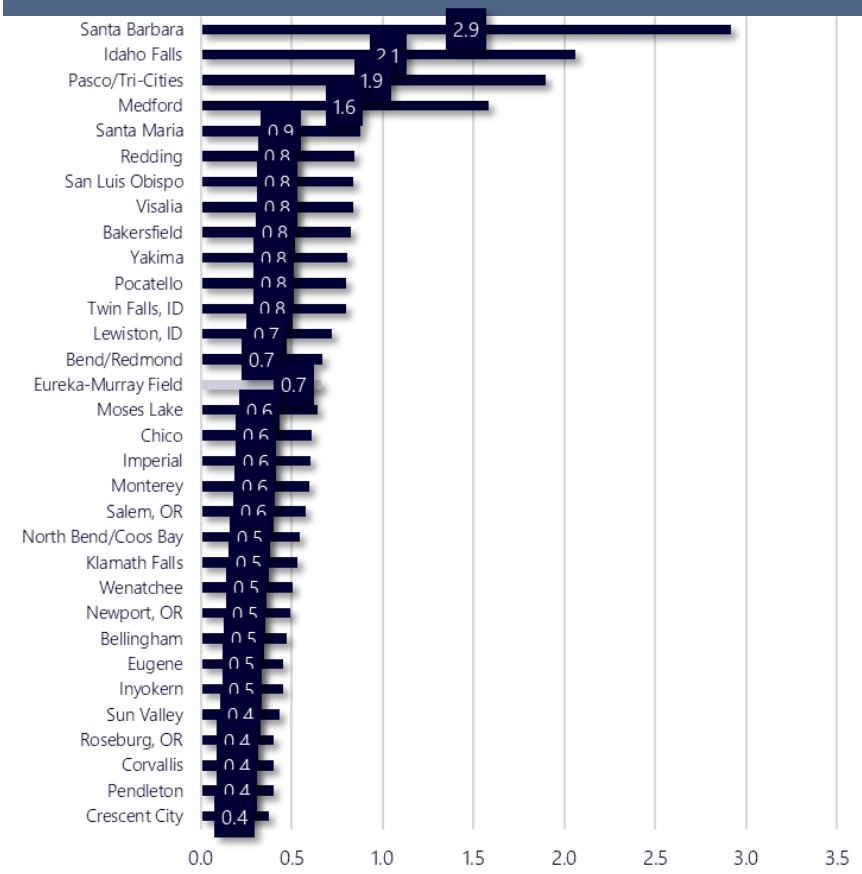
The UPS "mainline" jet system in the west is very similar to that of FedEx, although UPS serves a slightly different set of mid-sized cities (refer to map 5 on previous page). Again, the UPS network is built around very large cities, with only limited jet service to cities such as Fresno – which has a population four times the population of Humboldt County.

FedEx is the only air cargo carrier operating in Humboldt County that files its cargo tonnage with the Department of Transportation. The data allows a comparison of the Humboldt County market against the other cities to which FedEx flies regional, feeder aircraft. As of the year ended April 2017, Murray Field had 1,221 total FedEx flight operations, ranking it the fifth most flown market in the west (refer to chart 28). Murray Field has 52% more departures than the average regional western market, which had 803 in the 12-month period.

Despite the relatively large number of FedEx departures, each Murray Field FedEx flight carried less cargo than most other markets. In other words, Humboldt County FedEx flights operate with more empty space than peer market flights. The average western regional FedEx market generated 0.8 tons of air cargo per flight as of the year ended April 2017 (refer to chart 29 on next page). Murray Field flights had 17% less cargo per departure.

The fact that Humboldt County cargo flights operate with lighter loads than peer markets is a concern. It would indicate the market has plenty of excess capacity for additional cargo on its current flights, and that there is not demand for additional flying or larger aircraft. Air cargo data over the last decade for both Murray Field and ACV shows that demand has declined significantly since 2006.

CHART 29: TONS PER DEPT., FEDEX WESTERN REGIONAL MARKETS
YEAR ENDED APRIL 2017; SOURCE: US DOT TABLE T100



It is likely much of the demand for air cargo is now being satisfied by ground cargo lines. There are a number of established trucking lines that take cargo directly to the Bay Area for shipment either by ground or air. In order to build air cargo service in Humboldt County, the Airport System will need to find a way to convince those doing the shipping by ground that there is an economic reason for them to switch to shipping by air. It is unlikely the air cargo carriers will do this on their own.

It is also unlikely Humboldt County could support a cargo hub. Each of the cargo hubs operated by major cargo airlines is located in a huge metro area such as the Bay Area, Denver, Seattle/Tacoma, or even Portland. There is not sufficient demand for local cargo for Humboldt County airports to be able to support the infrastructure for a large connecting hub.

Over the medium to long term it is recommended that the County's focus on air cargo be in building a safe and reliable sort facility for the current type of aircraft serving the air cargo market. The facility should be built so

that it can be expanded if air cargo demand increases. It is not recommended that a sort facility be built at Murray Field, as that airport will not be able to accept larger aircraft than current – even larger prop aircraft. The sort facility should be built at ACV, and cargo carriers should be encouraged to move to ACV to consolidate passenger and cargo service in the same airport.

It is not recommended that cargo development be a short-term goal for the Airport System. It should be evaluated and studied again once air cargo demand is seen to rise by at least 25%, approaching air cargo levels last seen in 2006.

SWOT: LAND DEVELOPMENT

The Humboldt County Airport System has a significant portfolio of available land for development. The biggest key will be finding airport-friendly uses for the land. Some of the more specific areas for development, such as the beachside access adjacent to Arcata-Eureka Airport (ACV) will be detailed on their own in this report. This section is designed to provide an over of the stakeholder group's on-site SWOT (strengths, weaknesses, opportunities, and threats) analysis for land development.

One of the strengths of the County's Airport System is the fact that it has well-located, marketable property, especially adjacent to its flagship airport, ACV (refer to chart 30 on next page). ACV has an updated airport land use plan that can already guide development. Most of the available land is also adjacent to road access and utilities, reducing the cost of development, although road access could be improved at secondary airports.

One of the threats to airport land development is the fact that airports are required by federal law not to sell most of their land – so they are forced to lease land for development. This can make some developers hesitate. Another specific threat to the airports in Humboldt County is the fact that portions of Murray Field and ACV are within the governance area of the Coastal Commission, which severely limits the types of developments that

will be approved. It is also important to ensure any development on airport land does not encroach upon the safety areas that extend from the end of each runway.

CHART 30: SWOT OF LAND DEVELOPMENT AT HUMBOLDT COUNTY AIRPORTS
SOURCE: VOLAIRE AVIATION CONSULTING

	STRENGTHS	WEAKNESSES
INTERNAL	> MARKETABLE, WELL-LOCATED PROPERTY > ESTABLISHED LAND USE PLAN/LAYOUT PLAN > AVAILABLE LAND ON MANY AIRPORTS > GOOD ROAD ACCESS TO MOST AIRPORTS	> DECISION-MAKING TIME WITH COUNTY GOVERNANCE > GENERAL ISOLATION OF COUNTY RELATIVE TO OTHER CALIFORNIA MARKETS
	OPPORTUNITIES	**THREATS**
EXTERNAL	> BETTER ROAD ACCESS TO SECONDARY AIRPORTS > OUTSIDE INVESTMENT/LAND LEASES	> COASTAL COMMISSION REGULATIONS > SAFETY AREA ENCROACHMENT > OTHER REGIONAL DEVELOPMENTS

Airport land development is a balancing act, ensuring the main mission of the airport – to provide aviation access to the region – is not degraded by the development. For example, many airports have developed golf courses on airport land as it would seem to be a compatible use. Golf courses are low, do not interfere with airplanes, and golfers do not generally care about a little noise from a landing plane every now and then. But golf courses also provide homes for many species of birds. Birds and airplanes do not mix. As it turns out, golf courses are a poor use of airport land.

Generally, the best uses of land near an airport are for commercial facilities, such as shops, restaurants, gas stations, hotels, and big box stores, and light industrial. With industrial development, the Federal Aviation Administration warns airports against any facility that emits a steam or smoke plume, as those can reduce visibility for aircraft in certain weather conditions.

This report will specifically review, in upcoming sections, the use of airport land for solar farms, additional beachside development of a hotel and gas station, the building of additional hangars, and the potential for outdoor advertising. Beyond these specific land development initiatives, the Airport System should work with local economic development agencies to showcase available land to potential users. Under current governance, the Airport System doesn't have much extra time to work on land development. The County could consider contracting out property management to a private firm to reduce staff time and to have an interested party working on development within the already-approved land-use plan.

ON-AIRPORT SOLAR FARMS

Airport interest in solar energy is growing rapidly as a way to reduce airport operating costs and to demonstrate a commitment to sustainable development. There are more than 15 solar airport farms in the United States. The Indianapolis International Airport is home to the largest airport-based solar farm in the world. Comprised of two phases, the IND Solar Farm creates 17.5 MW AC of power, which has the capacity to power 3,210 homes for a year. Solar is a renewable energy source that contributes to national goals of sustainability, energy independence, and air quality improvement. It is particularly well-suited to airports because of available space and unobstructed terrains. And it does not need unobstructed sunshine to generate electricity. It can work in frequently cloudy climates, like Humboldt County.

The Humboldt County Airport System has already started work on a plan to place solar on-field at Arcata-Eureka Airport (ACV). At the same time, runway lighting would be replaced with LEDs to reduce electric expense.

The Airport System has the opportunity to apply for a $5 million grant to pay for the installation of a 17-acre solar farm, the land for which is included in ACV's soon-to-be-released land use plan. The grant application is due on October 20, 2017. The cost for evaluation of the project will be between $15,000 and $20,000.

A solar farm at ACV would be owned and operated by the Redwood Coast Energy Authority, which would pay for a land lease to use the airport land, and pay the airport for the energy generated by the panels. The County's Public Works Department estimates the solar farm would save the Airport System a significant amount in energy costs per year once it is fully operational. Maintenance of the system would be the responsibility of the Redwood Coast Energy Authority.

The Airport System also has a plan in place for a new runway lighting system at ACV using LED technology instead of traditional bulbs. The runway lighting system must be replaced by 2020, and LED lighting would save at least $10,000 in annual energy costs on top of the savings generated by the solar farm.

ADDITIONAL AIRPORT HOTEL/BEACHSIDE DEVELOPMENT/GAS STATION

Arcata-Eureka Airport (ACV) has hundreds of acres of land that could be developed, including a prime piece of real estate along the Pacific Ocean, south of Clam Beach and north of McKinleyville. The land between the current passenger terminal building and the beach could be well suited for commercial development because it also features a limited access interchange with Highway 101.

During the Airport System stakeholder group's on-site SWOT (strengths, weaknesses, opportunities, and threats) session, the group identified potential demand for an additional airport hotel in this area, potential commercial development, and the potential for a self-service gas station. There has been no specific consulting work done by hotel occupancy experts, so there is no solid data on occupancy of the current airport hotel at ACV and true demand for additional rooms. Similarly, there has been no independent study of demand for an additional gas station in the McKinleyville market, but it would stand to reason there would be significant traffic from nearby Highway 101 and from users of airline service at ACV.

Volaire consultants sought to determine the likely cost of investment in building a new hotel, perhaps leveraging an oceanside location for customers, and the cost of a fully-automated self-service gas station. It is not envisioned that the County will have the financial resources to develop either option on its own. But it is important to understand the potential investment that would be required when determining the validity of the ideas as part of the strategic business plan for the Airport System.

CHART 31: COST OF BUILDING A HOTEL AT ACV
SOURCE: VOLAIRE AVIATION CONSULTING

Item	Hampton Inn-Type	Embassy Suites-Type
Design & Engineering	$220,000	$500,000
Permits and Licenses	$95,000	$125,000
Construction	$5,426,600	$8,556,000
Guestroom Furnishings	$411,000	$1,117,000
Other Furnishings	$610,000	$960,000
Signage	$15,600	$18,000
Inventories	$40,000	$50,000
Insurance	$30,000	$50,000
Total	$6,848,200	$11,376,000

Two types of hotels were studied – a Hampton Inn-style lower cost hotel and an Embassy Suites-type higher end hotel. Hilton Hotels and Resorts publishes estimates for the cost of building new hotels each year, and their estimates, as the largest builder of new hotels in the country, were used for this report. They show the total cost of building a 101-room, Hampton Inn-style hotel on ACV adjacent property would be almost $7 million (refer to chart 31).

The Embassy Suites-type hotel would be larger, with the cost estimates representing hotel with 174 rooms. For this type of development, Hilton estimates the total cost at almost $11.4 million (refer to chart 31). Neither of these options include the cost of the land. In the case of the Airport System, the land would be offered under

a long-term land lease, which could be structured with low costs to entice a developer to choose Airport owned land.

To put the cost of hotel development in perspective, the Hampton Inn-style hotel, with 101 rooms, would cost $67,800 per room to build, again before land acquisition. Amortized over a period of 15 years, the hotel would need to generate $12.38 per room in revenue per night at 100% occupancy just to cover the cost of construction.

An automated airport gas station is also an expensive proposition, but the cost could be mitigated if it was included in the construction of a new rental car service facility. If it was included, and the rental car agencies agreed to use it, it could potentially be profitable.

Estimates from a company that specializes in building gas stations show the total cost of a station adjacent to the ACV passenger terminal would be more than three-quarters of a million dollars before the land lease is taken into account (refer to chart 32). The largest expense is the underground fuel tank, which is expensive to build and certify to California code.

CHART 32: COST OF BUILDING A GAS STATION AT ACV
SOURCE: VOLAIRE AVIATION CONSULTING

Item	Unstaffed Gas Station
Design & Engineering	$50,000
Permits and Licenses	$15,300
Above Ground Structure	$250,000
Permitted Fuel Tank	$400,000
Signage	$10,000
Insurance	$30,400
Total	$755,700

Assuming a 10-cent per gallon margin to the station, the station will need to sell almost 7.6 million gallons of fuel to cover the cost of construction, again before land acquisition. The station would need to fill the equivalent of 504,000 cars and trucks with fuel just to cover the cost of construction.

While it is recommended the Airport System work with local tourism and economic development agencies to determine demand for companies looking to build hotels and gas stations, both are relatively risky ventures. It is not recommended that the County or Airport System build either option on its own.

RATES AND CHARGES CHANGES

In the previous financial analysis document completed for the Airport System it was identified that lease rates and charges vary widely by tenant and have not been fully reviewed in a number of years. It is recommended the Airport System management develop a standard lease rate methodology and that all leases be updated within the next two years.

CHART 33: AIRPORT SYSTEM BUILDING LEASE RATES
FISCAL YEAR 2016; SOURCE: HUMBOLDT COUNTY DOCUMENTS

Airport	Building Leases	Monthly Rate Per Sq Ft
ACV	Cornucopia (Airport Advertising)	$ 1.54
ACV	FAA SSC Air Freight Storage Bldg.	$ 0.70
ACV	FAA SSC Terminal Office	$ 1.31
ACV	Murphy's Markets - Building Rent	$ 0.07
ACV	Mercer, Fraser & Company - Kodia Hangar	$ 0.07
ACV	(TSA) Terminal Rent	$ 3.32
ACV	United/Skywest Airlineoffice	$ 1.00

Lease rates for the airport system vary greatly for private tenants. Some of the variation is due to the quality of the buildings leased, or the specific space requested. But it is important to point out the differences in this analysis. At Arcata-Eureka Airport (ACV), building tenants pay anywhere from 7-cents per square foot per month for hangar space to as much as $3.32 per square foot per month for office space (refer to chart 33). Only three leases are well below the current standard build lease rate of 79-cents per square foot per month, but if those three leases were brought up to County standard rates the additional revenue per year would total more than $33,000.

CHART 34: AIRPORT SYSTEM LAND LEASE RATES
FISCAL YEAR 2016; SOURCE: HUMBOLDT COUNTY DOCUMENTS

Airport	Land Leases	Annual Rate Per Sq Ft
ACV	Humboldt Trap and Skeet Club	$ 0.01
ACV	Mercer, Fraser & Company - Land Lease	$ 0.37
ACV	Mercer, Fraser & Company - Tiedowns	$ 0.39
ACV	CAL-ORE LIFE FLIGHT	$ 0.38
GAR	Hans Lange	$ 0.32
GAR	John Zulauf (Jesse Gray)	$ 0.32
GAR	Paul Hutchinson (Jesse Gray)	$ 0.36
GAR	South Cox / Ben Wilke	$ 0.42
GAR	Trent Sanders	$ 0.36
ROH	Fortuna ACE Hardware, INC	$ 0.35

Land lease rates at airports throughout the system, for private lessees, range from a penny per square foot per year to 42-cents per square foot per year (refer to chart 34). Most of these lease rates are near the current County standard of 35-cents per square foot per year. It would still benefit the airport system to develop a set

of standard lease rates based on the quality of the land being leased and in the interest of maximizing land lease revenue without discouraging use of the land.

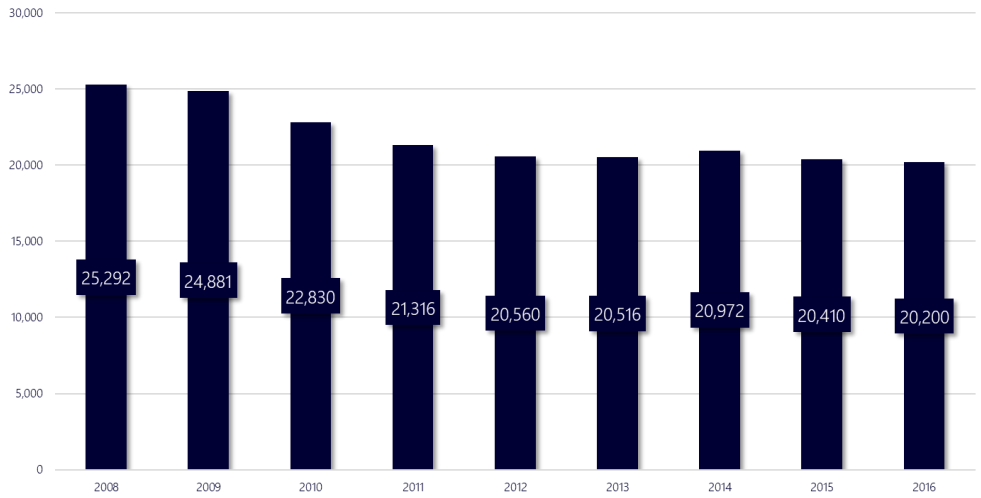
Finally, on lease rates, the airport system has not negotiated a new lease with its main Fixed Base Operator (FBO), Northern Air at Murray Field, since 2005. The lease expired in 2010, but no new lease was furnished for the analysis in this report. The lease includes Northern Air fees of just $1,355 per month which includes the concession fee ($75 per month) and the rental of two buildings, including a hangar. This fee is significantly lower than the fees charges to most other FBOs in California. While it is important to warrant low fees to encourage business expansion, it is recommended as part of the strategic business plan project, that FBO lease terms be reviewed against peer markets and adjusted accordingly in the next new lease.

INCREASE GENERAL AVIATION ACTIVITY/FUELING

During the Airport System stakeholder group's on-site SWOT (strengths, weaknesses, opportunities, and threats) session, many in the group felt the System should work to grow general aviation use of all airports. The primary purpose of the airports in Rohnerville, Garberville, Dinsmore, and Kneeland is to serve general aviation – both tenants and transient pilots who are passing through the region from other areas.

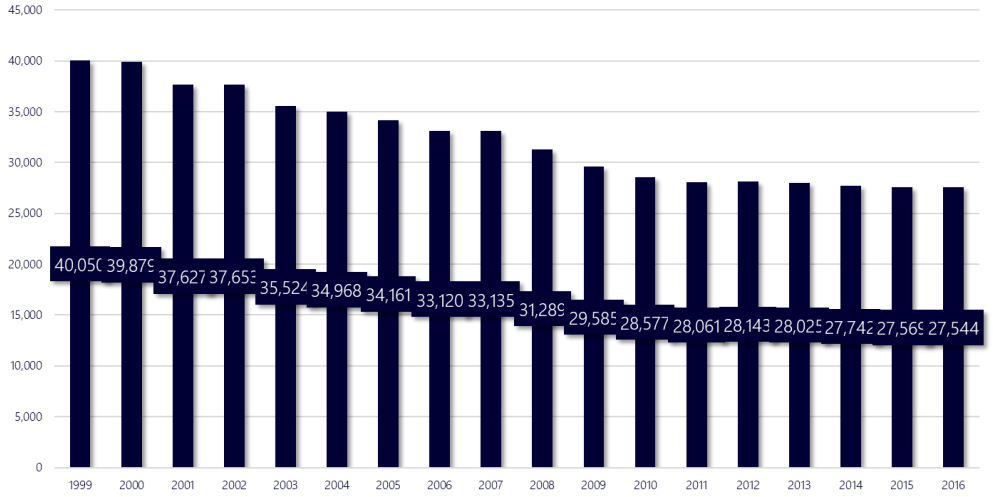
While virtually all general aviation hangars at Humboldt County's airports are currently leased, the number of general aviation aircraft in California continues to decline. In 2008, more than 25,000 general aviation aircraft were based in

CHART 35: CALIFORNIA-BASED GENERAL AVIATION AIRCRAFT
2008 – 2016 (ESTIMATED); SOURCE: FAA SURVEY



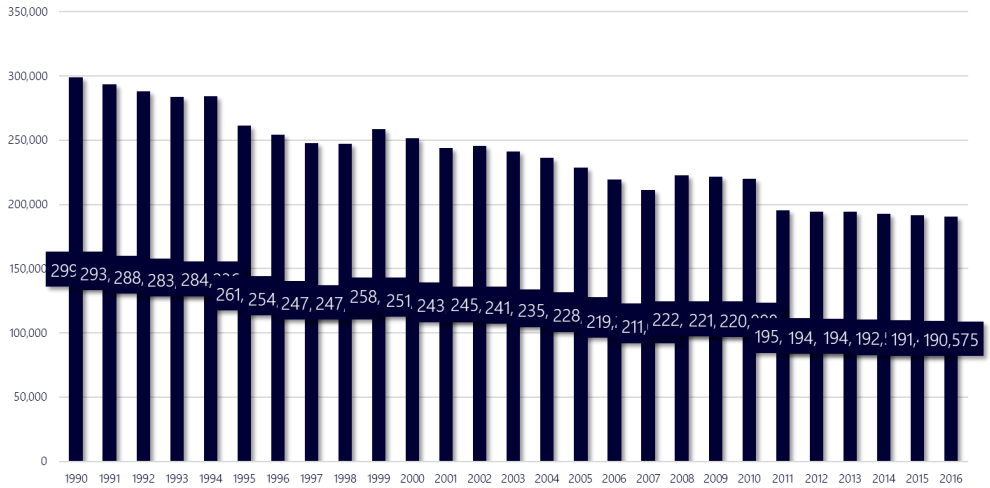
the State (refer to chart 35). In 2016, the Federal Aviation Administration (FAA) estimates just 20,000 aircraft are based in California – a decline of 20% and a loss of more than 5,000 aircraft. The decline has been steady and is a long-term trend.

CHART 36: UNITED STATES GENERAL AVIATION OPERATIONS
1999 – 2016 (ESTIMATED); SOURCE: FAA SURVEY



As the number of aircraft in the general aviation fleet declines so do total operations. An operation is defined as a landing or take-off of an aircraft. In 1999, nationwide there were more than 40,000 general aviation operations at airports that have the capability to track aircraft take offs and landings (refer to chart 36). Smaller airports, such as Rohnerville and Garberville do not have current technology to track all operations – so this chart does not include all general aviation flights. It does show a clear trend, however – the decline of general aviation operations. By 2016, the FAA reports general aviation operations have fallen by 38% since 1999.

CHART 37: PRIVATE, GENERAL AVIATION PILOTS IN THE UNITED STATES
2008 – 2016 (ESTIMATED); SOURCE: FAA SURVEY

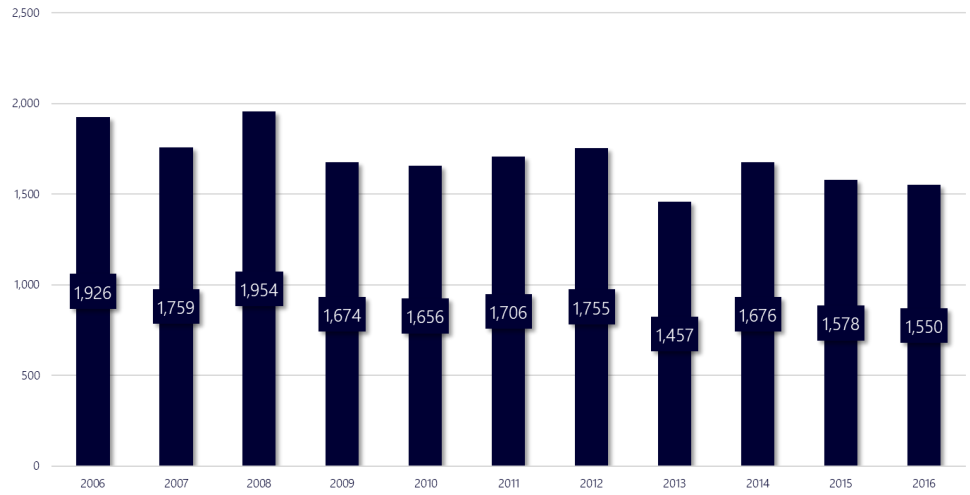


This report has previously discussed the commercial airline pilot shortage facing the country. There is also a declining number of general aviation, or private pilots. In 1990, there were almost 300,000 private, general aviation pilots in the United States (refer to chart 37). As of

2016, there were less than 200,000 such pilots. In the last 26 years, the private pilot population in the country has declined by 36% - almost the same percentage decline as general aviation flights. Fewer pilots own fewer planes that generate less traffic across the country.

One of the main reasons an increase in general aviation activity would be attractive to the Humboldt County Airport System is so it could generate additional revenue by selling more fuel. General aviation traffic does not generally pay landing fees or produce large amounts of revenue from parking fees. Fueling is typically the main source of income for an airport from general aviation.

CHART 38: GENERAL AVIATION FUEL SALES IN THE UNITED STATES
2008 – 2016 (ESTIMATED; IN THOUSANDS OF GALLONS); SOURCE: FAA SURVEY

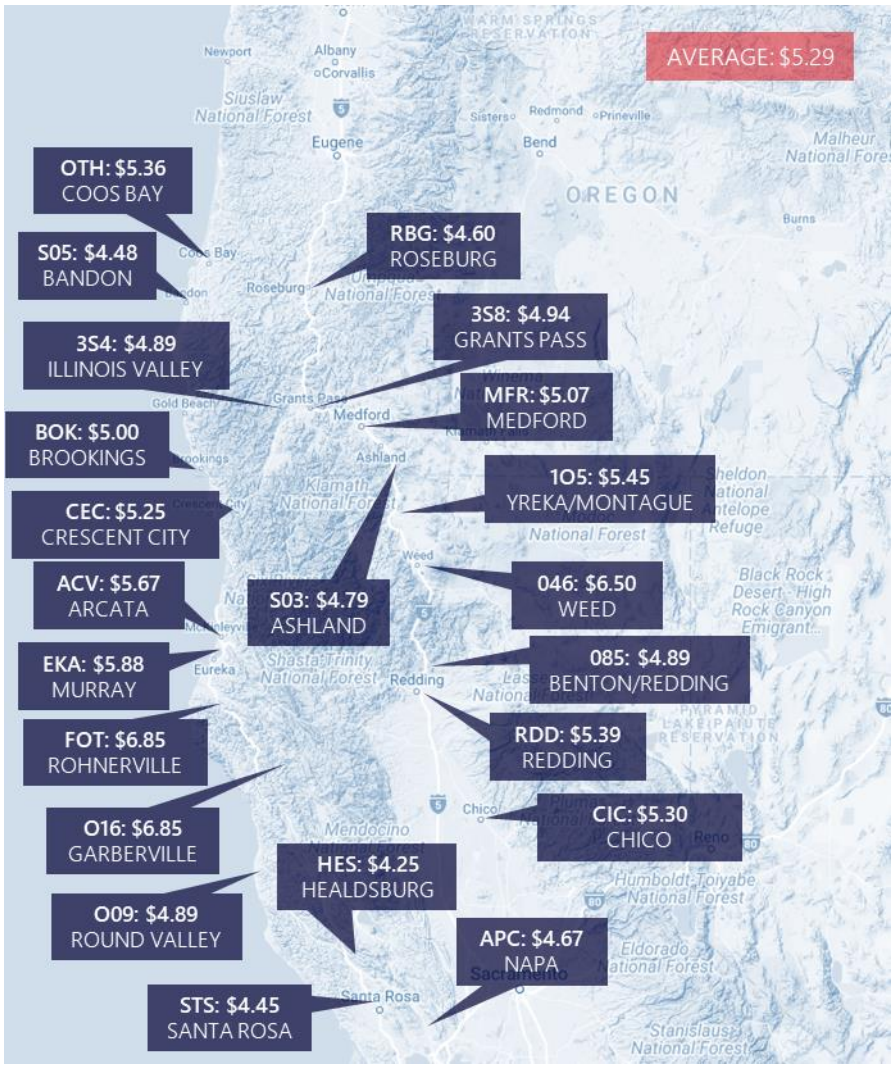


With the decline in general aviation aircraft, pilots, and flights, general aviation fuel sales are also waning. Since 2008, total general aviation fuel sales in the US have fallen by 19.5%, from almost two million gallons to less than 1.6 million gallons in 2016 (refer to chart 38). While some years have been better than others for fuel sales, the general aviation industry has not rebounded from the 2008 recession like the rest of the national economy.

It is also true that aircraft are becoming more efficient and buring less fuel per mile and flight hour. But the general aviation fleet is an exception. It is rapidly aging and general aviation aircraft sales, outside of business jets, have declined each year for the last decade. Older general aviation aircraft are flying longer, and fewer are being replaced.

More airports are working to chase the declining number of general aviation pilots and their aircraft. In the SWOT session, the Airport System stakeholder group presented the idea of capturing more transient traffic – aircraft flying past the area but not to or from the area – by offering fuel prices much lower than those at other airports in the region. Some expressed concern that most general aviation traffic goes up the valley in Northern California, and not along the coast, and would use airports in that part of the State regardless of fuel pricing in Humboldt County.

MAP 6: SPOT 100LL FUEL PRICES AT REGIONAL AIRPORTS
AS OF AUGUST 8, 2017; SOURCE: VOLAIRE AVIATION CONSULTING

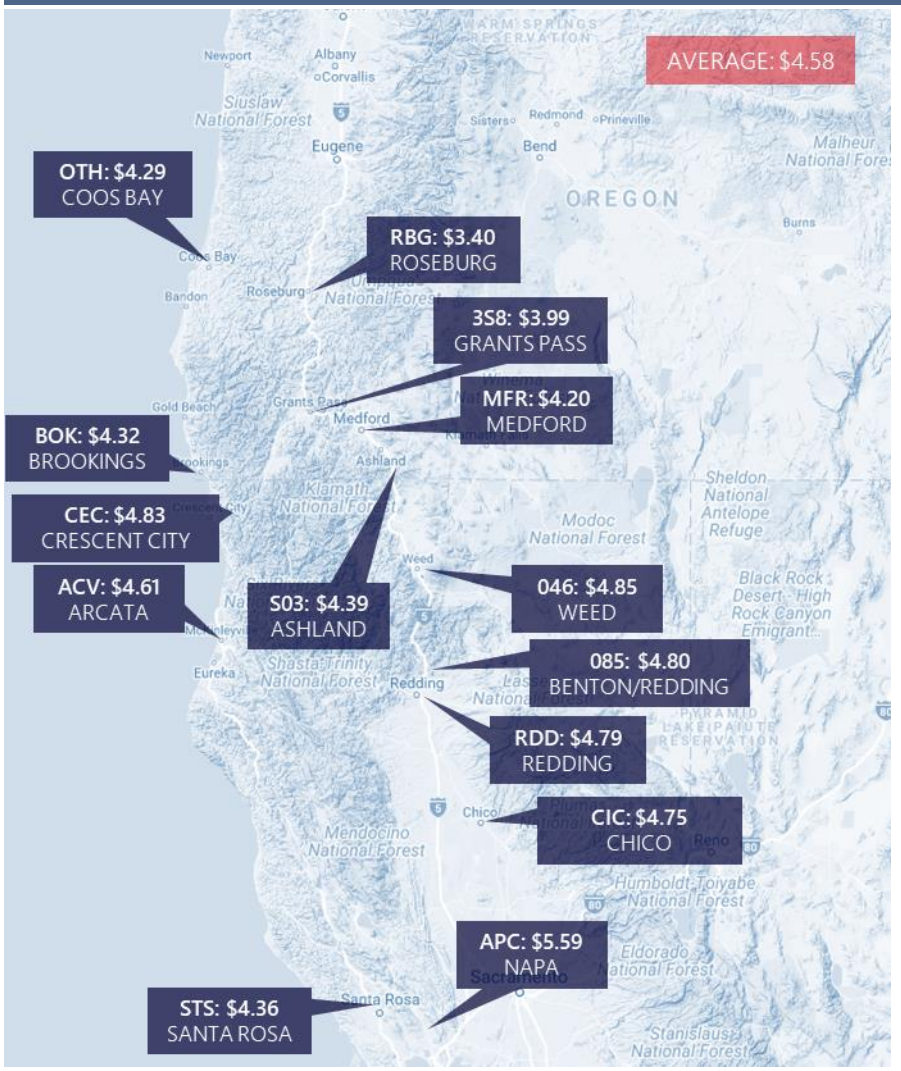


Volaire consultants benchmarked current 100LL (low lead fuel used in many general aviation aircraft) and Jet A (jet fuel) prices against all airports in the region. In general, prices for 100LL fuel are much higher in Humboldt County than at other airports in the region (refer to map 6).

The price for 100LL fuel at ACV is not exorbitant at 7.2% above the regional average (refer to map 6). It is the highest, however, of airports with major navigational aids, including Coos Bay (OTH), Roseburg (RBG), Medford (MFR), Crescent City (CEC), Redding (RDD), Chico (CIC), Napa (APC), and Santa Rosa (STS). In other words, for general aviation pilots with instrument ratings, there are other equally well-equipped airports at which to buy fuel for less.

Fuel at both Rohnerville (FOT) and Garberville (O16) is much more expensive than all other airports in the region – the highest of all 22 airports in the sample (refer to map 6). At $6.85 per gallon of 100LL, FOT and O16 have fuel prices 29.5% higher than the regional average. This is caused by the fueling system at both airports. In both cases, the fuel tank is underground. Underground tanks require much more maintenance and permitting costs due to California regulations. These extra costs must be recovered by the fuel sales, themselves. The Airport System could likely bring fuel prices down at these airports if it decommissioned the underground tanks and installed new, above ground tanks at both airports.

MAP 7: SPOT JET A FUEL PRICES AT REGIONAL AIRPORTS
AS OF AUGUST 8, 2017; SOURCE: VOLAIRE AVIATION CONSULTING



Jet A fuel prices in the region average 71-cents less than 100LL fuel prices, at $4.58 per gallon (refer to map 7). Fewer airports offer Jet A fuel in the region than 100LL fuel. The ACV price for Jet A is only three-cents above the regional average. It is also less than nearby Crescent City. Still, ACV's price is higher than Coos Bay, Medford, Redding, and Santa Rosa, giving Jet A aircraft operators other choices with lower costs.

All the Humboldt County airports have higher fuel pricing than their peers. But there are good reasons for why fuel is priced the way it is and it is difficult to make a recommendation to lower fuel prices because the current fueling revenue is important to the system.

There has been no reliable study looking at pilot behavior following an aggressive move to lower fuel prices and undercut regional competition. There is no accurate way to forecast whether or not the Airport System would actually generate more revenue by lowering fuel prices than it does today with higher fuel prices. While it would stand to reason that airports would grow their share of the transient fueling market with lower prices, there is no solid data on the size of that market or the potential number of additional customers.

Kyle Gabel, the owner and operator of Northern Air, the Fixed Base Operator (FBO) at Murray Field reported, in an on-site interview, that his transient general aviation traffic has declined steadily over the last ten years. He said ten years ago Northern Air would sell 100,000 gallons of fuel per year to transient aviation users. In 2016, he reported he sold just 30,000 gallons of fuel to transient users. Gabel's overall theory is that the transient aviation population is in decline and national data proves that. He also reported most transient traffic avoids the coast and goes up the valley.

"...THE UNDERGROUND FUEL TANKS AT ROHNERVILLE AND GARBERVILLE REQUIRE EXTRA, DIFFICULT INSPECTIONS AND ARE EXPENSIVE TO MAINTAIN..."

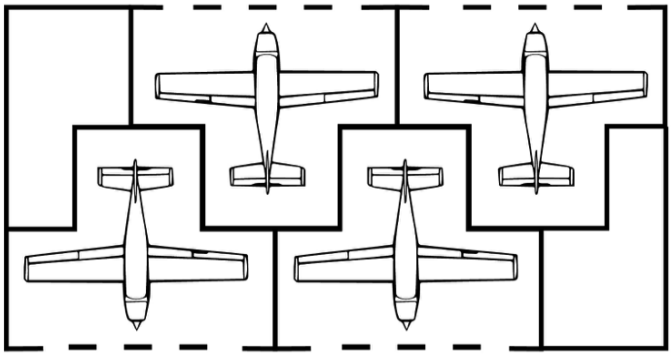
As mentioned the underground fuel tanks at Rohnerville and Garberville require extra, difficult inspections and are expensive to maintain under California regulations. It would cost an estimated $25,000 each to move the tanks above ground, reducing the expense in maintaining them, and reducing fueling costs at those two airports. It is recommended the Airport System use trust fund money that could be available to pay for these two projects to eventually reduce the cost of fueling at Rohnerville and Garberville.

The Airport System could choose to experiment with lower fuel prices to determine if it will increase demand for fuel, both from locally-based pilots and transient traffic. If this option is chosen, it is recommended the experiment coincide with the large, annual private aircraft dispatcher's conference which takes place each February. It would be easy to spread the message of low fuel among the dispatchers, who are responsible for determining where and how aircraft are routed. They would have the most control over increasing transient traffic at Humboldt County airports.

INCREASE HANGAR RENTALS

While it is true that general aviation traffic is declining, the number of private pilots has fallen, and the number of aircraft based in California is in decline, there is a waiting list for hangar space at four of the County's airports: Arcata-Eureka, Murray Field, Rohnerville, and Garberville. The most recent list has 43 people waiting for hangar space, some with very specific requests.

CHART 39: T-HANGAR CONFIGURATION
SOURCE: VOLAIRE AVIATION CONSULTING



The Garberville Pilots' Association reported, in an on-site interview, there is a lack of hangar space across the system and all airports have demand. But the group says there is a particular need for smaller T-hangars (refer to chart 39) and not for large commercial hangars. This matches demand in the current hangar waiting list for all Humboldt County airports. T-hangars are less expensive to build than large hangars that are typically in a rectangular shape, but no hangar configuration is inexpensive to construct.

In reviewing the hangar waiting list, it is important to note that only eight people have been added to the list in the last two years. Just 19% of those on the list were added in 2016 or 2017. Many of the requests are significantly older – dating back to 2003. Some of the requests have been recently verified, but not all. Before

the County were to take any action on hangar development it would need to go through the list and determine how many actual new leases would be signed.

Some on the list have requested hangars at multiple airports. With that in mind, there are more requests for Murray Field than any other airport, with 22 people on the waiting list. There are 19 people on the waiting list for hangars at Rohnerville, while there are another 12 waiting for hangar space at Arcata-Eureka (ACV). There is hangar space currently available at ACV, but it is not suited to the smaller aircraft owned by those on the waiting list. There are seven hangar requests at Garberville, but there are no requests for any type of space at either Dismore or Kneeland. Those airports are not well-suited for based aircraft.

The current Aviation Advisory Committee stated they believe "hangar squatting" is an issue – people using the hangars for storage for things other than aircraft. The Federal Aviation Administration (FAA) requires hangars be used primarily for the storage of working aircraft. It is unclear if this is a widespread problem or a smaller problem, as the Airport System is understaffed and does not have time to conduct full inspections of all hangars.

"IT IS ALSO RECOMMENDED THAT THE AIRPORT SYSTEM WORK THROUGH THE CURRENT HANGAR WAITING LIST TO DETERMINE THE VALIDITY OF THE REQUESTS."

That vast majority of hangar rent is up-to-date, so the County is generating revenue regardless of what is stored in a hangar. Nonetheless, it could be in the best interest of the County to ensure hangars are being used for their intended purpose, and it might help to start clearing the hangar waiting list without having to build new hangars.

It is therefore recommended the County consider a hangar census and inspection on all airfields where hangars are present, to ensure each hangar has a primary aviation use. In the case of hangars being used for storage of items other than aircraft and parts, the County should work to move those tenants to other storage facilities and begin to clear those on the hangar waiting list into hangars that become available.

It is also recommended the Airport System work through the current hangar waiting list to determine the validity of the requests. Once a definite and updated number of requests can be developed for each airport, the County can begin work to determine the cost/benefit of building additional hangars. The estimated cost of T-hangar development in California is $55 per square foot, with each hangar encompassing 1,200 square feet. It will cost an estimated $66,000 per hangar to build new.

FIXED BASE OPERATOR (FBO) AT ACV/AVIONICS SHOP

The only Fixed Base Operator (FBO) in the Humboldt County Airport System is at Murray Field. FBOs handle transient aircraft, providing fuel and other services as they transit the area. FBOs provide terminals for private jets that bring high-level business travelers to the area. FBOs provide aircraft maintenance services for locally-based aircraft.

It is highly unusual for a main, commercially-served airport to be without an FBO, as is the case at Arcata-Eureka Airport (ACV). It is the only airport with scheduled airline service, but without an FBO, between San Francisco and Portland. Moreover, the current FBO, Northern Air at Murray Field, operates at an airport with a short and narrow runway and limited navigational aids for poor weather.

"IT IS HIGHLY UNUSUAL FOR A MAIN, COMMERCIALLY-SERVED AIRPORT TO BE WITHOUT AN FBO, AS IS THE CASE AT ARCATA-EUREKA AIRPORT (ACV)."

Northern Air, in an on-site interview, reported that the market for an FBO's services is limited in Humboldt County. As such, they would not consider opening a second location at ACV. They do not believe a second location would be profitable. They also said their customers, who tend to fly smaller prop and jet aircraft, prefer to use Murray Field and might not use their services if they were located at ACV.

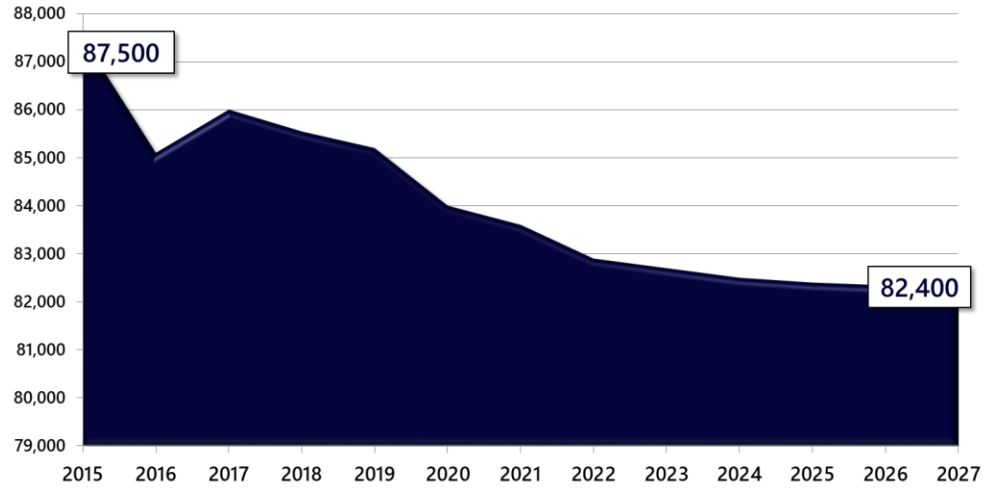
Even without an FBO, the County handles all fueling services at ACV and does service both transient aircraft and aircraft that are traveling to and from the area. The County's main building for services is the terminal building that handles passenger airline flights. The fueling operation at ACV is an important part of the revenue picture for the Airport System.

Mercer Fraser, a large tenant at ACV, would be willing to open an FBO at ACV, but in an on-site interview, representatives said the company would want the fueling franchise. That franchise would likely be required to make any FBO operation profitable at ACV. However, the County's loss of the fueling franchise would put a dent in Airport System revenue.

The only airport in the County's system with aircraft maintenance services is Murray Field. Northern Air provides maintenance at Murray, and can provide maintenance when needed at ACV, on an on-call basis. Companies such as Mercer Fraser reported they would like to have full-time maintenance services at ACV, but Northern Air is not interested in providing those services from a full-time perspective.

Northern Air performs many kinds of aircraft maintenance except for engine overhaul and avionics work. It will work at all County airports depending on demand. But it reports it has been difficult to keep maintenance technicians on staff. This challenge is not unique to Northern Air, or Humboldt County, as a mechanic shortage has developed across the aviation industry. This shortage will make it difficult for any competing maintenance company to open operations in the County.

CHART 40: WORLDWIDE CERTIFIED MAINTENANCE TECHNICIANS
2015 – 2027 (PROJECTED); SOURCE: OLIVER WYMAN TECHNICIAN MODEL



In 2015, there were 87,500 certified aircraft maintenance technicians working worldwide (refer to chart 40). By 2027, industry forecasts show the number of certified technicians dropping by 5.8% to 82,400. It will get more difficult for smaller FBOs to hire technicians as large airlines increase salaries in an attempt to stay adequately staffed. The business model for an emerging maintenance company will be difficult for the next decade. It is unlikely a company will have the ability to start a stand-alone maintenance facility at ACV or at any of the other County airports.

The County could choose to build a small FBO terminal at ACV to handle inbound general aviation and corporate traffic and give those traveling by private aircraft a private terminal experience. It is unlikely a private company will be interested in developing an FBO at ACV without the fueling contract and it is not recommended that the County give up its fueling operation at ACV.

MURRAY FIELD RESTAURANT

It has been several years since the restaurant at Murray Field closed. It was in the main building that Northern Air leases to run its Fixed Base Operation (FBO). It was open for breakfast and lunch. Many people say it had a strong following. There is no solid sales data from when it was open to determine if it made or lost money.

Restaurants at primarily general aviation airports used to be quite common. It was a fairly regular occurrence for those that owned small, private aircraft to travel around the region on weekends and have breakfast or lunch at a stop along the way. It became known as the $100 hamburger. As general aviation traffic has declined, and the number of general aviation pilots has fallen, many of these restaurants have closed.

The average start-up cost for a restaurant in California is $125,000, assuming the restaurant is moving into a space that is already built-out and ready to operate. This is a high cost for a restaurant that would likely be

busy only on weekend mornings. It is unlikely a private entrepreneur will find a sufficient customer base to make a full-service restaurant at Murray Field feasible.

OUTDOOR ADVERTISING AT ACV

As previously mentioned in this report, ACV's physical plant is large and there is significant space for development. During the Airport System stakeholder group's on-site SWOT (strengths, weaknesses, opportunities, and threats) session, the group developed an idea to place outdoor advertising along the roadways leading to and from the passenger terminal and passenger vehicle parking lot. There is significant traffic on these roads for outdoor advertising to be potentially attractive, especially if signage is sufficiently close to Highway 101 so as to be seen by passing motorists.

CHART 41: ESTIMATED BILLBOARD COST
SOURCE: VOLAIRE AVIATION CONSULTING

Type of Billboard	Size	Cost to Build
Wood. Two-Sided	14x28	$27,200
Steel, Monopole Static	14x28	$66,700
Steel, Monopole Digital	14x48	$350,000

In the grand scheme of development, the building of an outdoor billboard is not terribly expensive. A two-sided wood billboard, 14-feet high by 28-feet in width, is estimated to cost $27,200 to build (refer to chart 41). A billboard of the same size, but with a steel frame, is estimated to cost $66,700. The only seriously expensive billboard developments are the new digital boards, which can be sold to multiple customers at the same time. These billboards begin around $350,000, and tend to be much larger and wider than static displays.

CHART 42: BILLBOARD LIFE AND BREAKEVEN COST
SOURCE: VOLAIRE AVIATION CONSULTING

Type of Billboard	Useful Life	Monthly Breakeven Cost
Wood. Two-Sided	25 Years	$453.33
Steel, Monopole Static	45 Years	$1,111.67
Steel, Monopole Digital	10 Years	$5,833.33

The average wooden billboard structure will last about 25 years (refer to chart 42). The same sized steel billboard will last for 45 years, on average. Digital billboards tend to be damaged by the weather, and only typically last for ten years which may be surprising to some.

Assuming it will take five years, or 60 months, to recoup the investment in a billboard, the billboard developer would need to earn a little more than $450 per month on a wooden billboard (refer to chart 42). A steel billboard

would need to earn $1,112 per month to be paid off within five years. A digital billboard would need to earn more than $5,800 per month to be paid off within five years, but has the advantage of having multiple advertisers rotating on screen at any time.

Billboards in and around Arcata and Eureka, at roughly the same size as the ones quoted in this report, currently cost between $600 and $1,500 per month, depending on location. Freeway-adjacent billboards cost much more than those that are on city streets. It is likely ACV-adjacent billboards could be leased at the lower end of the range. There are no currently-available billboards anywhere between McKinleyville and Eureka, indicating there may be strong current demand for outdoor advertising here.

The Airport System has two choices regarding outdoor advertising. It could recruit a private company, such as Lamar or Outfront Media, to build the signs and sell the advertising, paying a land lease for the space, or a percentage of sales. Or it could build and lease the billboards itself, generating additional income. There is less risk in recruiting an outside party to build and manage the billboards, while there is likely higher reward in the Airport System building and managing billboards on its own. Moreover, if the model works at ACV it could be duplicated at Murray Field, and potentially other County airports.

ACADEMIC PARTNERSHIPS/COLLEGE AVIATION PROGRAMS

As reported in this document, there is a shortage of pilots for scheduled airline service. There is also a shortage of aircraft mechanics. The number of colleges and universities offering aviation programs continues to shrink. For example, the University of Illinois closed its pilot training and maintenance programs five years ago. Kansas State University is currently exploring options to divest its programs because of the high cost of operating, maintaining, and insuring its fleet of aircraft.

There is not sufficient infrastructure in North American for student pilot and mechanic training. There could be a niche for a college or university that wants to grow enrollment by offering these programs in the west. The challenge is that most of those students who enter programs are looking to make a career in the industry with a major airline, and major airlines require a bachelor's degree. Community college aviation training programs are not sufficient for most students.

Most university pilot and mechanic training programs use higher-end, faster aircraft with more advanced systems to better prepare students for working in an airline environment. A common training aircraft, a Beechcraft Baron, costs $1.1 million. A pilot training program would usually need at least four in operation at any one time to gain economies of scale. The investment required to start an aviation program is clearly prohibitive.

"...IN A PHONE INTERVIEW, THE UNIVERSITY SAID IT HAD LITTLE TO NO INTEREST IN WORKING ON A PROGRAM."

Perhaps an even bigger challenge is the ability to find flight instructors and mechanic instructors to teach the courses. Northern Air, the Fixed Base Operator (FBO) at Murray Field, operates a private flight training program. In an on-site interview, Northern reported they have a difficult time keeping and finding flight instructors, as they are quickly being hired to work for regional airlines. The same would be true in a university environment.

While there are two higher education institutions in Humboldt County, a two-year institution like College of the Redwoods is a poor match for two reasons. First, most students will need a bachelor's degree in order to obtain the jobs they are aspiring to. And second, a community college is unlikely to have the financial wherewithal to purchase the equipment needed to develop the program.

The best fit in Humboldt County for an aviation degree program would be through Humboldt State University. However, in a phone interview, the University said it had little to no interest in working on a program. The upfront cost is just too high for a University looking to reduce its expenses.

FUTURE ROLE OF EACH AIRPORT IN THE SYSTEM

The Humboldt County Airport System struggles with limited staff (only 12 employees for the entire system) to oversee six airports separated by as much as 82 miles. In on-site interviews, Airport System employees said they spend 90% of staff time at ACV, and that is still not enough time to keep ACV up to the standard they would like to see. Murray Field is checked somewhat regularly because it is the closest to ACV, where all the Airport System staff is based, and it is the busiest in terms of aircraft operations.

"EACH OF THE THREE OTHER AIRPORTS HAVE MAJOR ISSUES THAT WILL CAUSE THE COUNTY TO UNDERTAKE EXPENSIVE FIXES SO THAT THEY REMAIN SAFE."

Secondary airports in the system get little attention. Rohnerville and Garberville airports are only checked monthly by staff. It is at least six months between checks at Dinsmore, which has only one based aircraft. Kneeland, meanwhile, is only formally checked once per year, according to employees of the Airport System. Most issues with these airports are reported to system employees by users.

Because of their location, large number of based aircraft, mix of traffic, and the relatively good condition of their physical plants, Arcata-Eureka Airport (ACV), Rohnerville Airport, and Garberville Airport are the three best positioned airports for the future of the County. Each of the three other airports have major issues that will cause the County to undertake expensive fixes so that they remain safe.

Murray Field (EKA)

Murray Field is the busiest airport in Humboldt County, in terms of aircraft operations, with 55,500 take-offs and landings as of the most recent available FAA data (calendar year 2014). Murray Field also has more based

aircraft than any other airport in the County, with a total of 47 according to the most recent FAA aircraft census. But ACV could easily support the extra traffic if Murray were unusable.

Tenants at Murray Field report that it is sinking into the wetlands. It is below sea level. Pilots report there are berms and strange cracks throughout the runway and taxiways. These are signs of settling. The Airport System reports the airfield is getting more difficult to maintain. It is impossible to predict how long the current infrastructure will hold up, but engineers interviewed for this report said eventually the entire airfield will need to be re-built in order to provide better drainage and to stop the settling.

"...ENGINEERS INTERVIEWED FOR THIS REPORT SAID EVENTUALLY THE ENTIRE AIRFIELD WILL NEED TO BE RE-BUILT IN ORDER TO PROVIDE BETTER DRAINAGE AND TO STOP THE SETTLING."

Murray Field is located inside the jurisdiction of the California Coastal Commission, which is charged with protecting the natural coast. Engineers said that this will cause long-term improvements to be difficult. Engineers said that even if the airport could eventually be re-built in place, it would likely be cheaper to use the Murray Field land for environmental mitigation in exchange for the development of additional environmentally sensitive land at ACV. In this way, a closure at Murray could be developed as a showcase project.

Murray's Fixed Base Operator (FBO), Northern Air, the only FBO in the County, said in an on-site interview that there is little future at Murray Field due to the limited infrastructure including the short and narrow runway. The FBO reports some of the fencing is down, the field gets little attention, and many buildings are in disrepair. The FBO worries that their own facility is sinking. Northern Air would be willing to move completely to ACV if there was a similar building for lease.

This is not to say that Murray must immediately be closed. But rather to point out that the County must plan for Murray's future – either re-built or closed.

Kneeland Airport (O19)

Kneeland Airport is the smallest, physically, of all Humboldt County airports, covering just 14 acres. It has one runway, which is quite narrow, at just 50 feet in width and 2,252 feet in length. Kneeland's advantage is that it is located atop a mountain ridge at 2,700 feet in elevation (above mean sea level), keeping it out of the coastal fog. It is an alternate airport for general aviation traffic bound for the County's other airports in low visibility. But pilots interviewed for this report say it is very rarely used.

"A REPAIR WOULD BE AN ENVIRONMENTAL NIGHTMARE DUE TO A PROTECTED WEED AT THE END OF THE RUNWAY THAT IS CRUMBLING."

The Department of Forestry operates a Helitack helicopter base adjacent to the field, but does not use the actual runway. Kneeland has no based aircraft, according to the FAA's aircraft census completed before the writing of this report. Kneeland only has one significant user of its aviation facilities on a regular basis – the US Coast Guard. The Coast Guard uses the field for helicopter operations when there is low visibility at its ACV base. The Coast Guard does not, however, use the airport's runway.

The Airport System reports the end of Kneeland's runway is crumbling as a large hill slides. The length of that runway has been reduced and it is not currently published to the correct length. A repair would be an environmental nightmare due to a threatened/endangered plant at the end of the affected runway. A runway repair would require an expensive environmental mitigation study that would cost at least $20,000 according to engineers.

Kneeland, meanwhile, has been removed from the Federal Aviation Administration (FAA) funding list. This has caused the Airport's FAA funding to drop from $150,000 per year to just $10,000 per year. Kneeland, in its

current state of repair, costs the County little to keep open. But a long-term fix to the runway deterioration will likely cost several million dollars and it is unclear if the FAA would be willing to fund the fix.

Kneeland is an important piece of the County's aviation infrastructure – for helicopters. The US Coast Guard relies upon Kneeland as an alternate helibase when fog closes ACV. The Coast Guard reported, in an in-person interview for this report, that it would have to relocate out of Humboldt County if it could not use Kneeland as an alternate for its helicopters.

Kneeland's main apron would be large enough, and sufficient, for it to remain open as a helicopter base. The runway is not needed for the clear majority of the aviation users of the facility. Over the long-term the County will have to decide whether to invest in the environmental study and cost to re-build the airport's runway, or to transition it to a helicopter-only facility.

Dinsmore Airport (D63)

Dinsmore Airport is an infrequently used general aviation airport located one mile from Dinsmore. The Airport, according to the FAA survey, has just one based aircraft, which is an ultra-light. It is not frequently used by general aviation, with just 1,600 total operations per year. The Airport has one runway, which is 2,510 feet in length and only 48 feet wide, limiting its usefulness for anything larger than a single-engine aircraft. The Airport is used most frequently by helicopters, as hospitals use it as a medivac point. The runway is not needed for medivac operations.

Several Airport System stakeholders interviewed for this report said that Dinsmore is obsolete. It was built for mill traffic which no longer exists. Moreover, the runway is next to the Van Duzen River, which is encroaching upon its south edge. The Airport is also surrounded by many large trees, that continue to grow, impeding the

runway safety area. Eventually a number of the large trees will have to be removed. The County will also need to work to stop river encroachment with some type of dyke-system if the runway is to be maintained.

Hospitals in the area report they use the facility for medivac flights two to three times per week, but only using their helicopters. They never use the airport's runway. Hospitals say they will fight to keep the helipad open, but they have little use for the runway.

Much like Kneeland, the County will have a long-term decision to make about whether to slow the river's encroachment at Dinsmore and protect the runway or to make the transition to a helicopter-only facility. With only one ultra-light based on the field, the relocation of tenants will be a limited problem.

Airport Summary

This report is not designed to recommend airport closures. That is beyond the scope. But it is clear the County's leadership will face major decisions regarding Murray Field, Kneeland Airport, and Dinsmore Airport. The County must be prepared to solicit stakeholder and constituent input to consider potential airport closures as facilities deteriorate.

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