

**Contra Costa County  
Aviation Advisory Committee  
Meeting Agenda  
550 Sally Ride Drive, Concord  
Thursday, June 8, 2017 10:00 a.m.**

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*The Aviation Advisory Committee (AAC) will provide reasonable accommodations for persons with disabilities who plan to attend its scheduled meetings. Call the Director of Airports Office at (844) 359-8687 at least 24 hours in advance.*

*Any disclosable public records related to this meeting are available for public inspection at the Director of Airports Office, 550 Sally Ride Drive, Concord, during normal business hours.*

- 1. Roll Call**
- 2. Public Comment Period**
- 3. Approval of the Aviation Advisory Committee's May 11, 2017, Meeting Minutes**
- 4. Consider Consent Items**
  - a. Approval of Airport Noise Report & Statistics Report (April 2017)
  - b. Approval of Relevant Board Actions that Occurred from May 16, 2017 – June 6, 2017
- 5. Discussion/Action Items**
  - a. Items Pulled from Consent – Discussion
  - b. Recognition of Rashid Yahya for Receiving the 2016 Federal Aviation Administration's, Flight Instructor of the Year Award - Discussion
  - c. Regional Measure 3 (RM3) - Discussion of Potential 2018 Ballot Initiative for Transportation Released Projects
  - d. Tenant Appreciation Program - Discussion of Working Group Update
  - e. Construction Update Regarding the Design Analysis Options for Runway 14L/32R Reconstruction and Overlay Project as Detailed in Engineering Report
  - f. Noise Program – Discussion of Draft Program, History and Purpose
  - g. Discuss the Update Regarding the Runway Taxiway Echo/Kilo Project, Tentative Re-Start Date for Construction is Friday, June 23, 2017
- 6. Future Agenda Items**
- 7. Adjourn**

**Next AAC Meeting (Tentative): July 13, 2017 at 10:00 am  
Next Airport Committee Meeting (Tentative): June 14, 2017 at 11:00 am**

## AVIATION ADVISORY COMMITTEE

### ATTENDANCE ROSTER FOR 2017

AAC Members	Representing	Contact Information	Jan 12	Feb 09	Mar 09	Apr 13	May 11	Jun 08	Jul 13	Aug 17	Sep 14	Oct 12	Nov 09	Dec 14	Total # Abs
VACANT	District 1		Y	Y	Y	Y	----								
Mike Bruno	Airports Bus. Assoc.	michael@sterlingav.com	Y	ABS	Y	Y	Y								
VACANT	Member at Large		Y	Y	Y	Y	----								
Ronald Reagan	District 3	ron@rmsea.com	Y	Y	Y	ABS	Y								
Derek Mims	City of Pleasant Hill	derekmims@hotmail.com	Y	Y	ABS	Y	Y								
Russell Roe	District 5	russroe@pacbell.net	ABS	Y	Y	Y	Y								
Keith McMahan	City of Concord	keithcmmahan@gmail.com	Y	Y	ABS	Y	Y								
Roger Bass	District 2	twofivexray@yahoo.com	Y	Y	Y	Y	Y								
Maurice Gunderson	Member at Large	mauricegunderson@mac.com	ABS	Y	Y	Y	Y								
Tom Weber	District 4	Tr-weber@sbcglobal.net	ABS	Y	Y	Y	ABS								
Emily Barnett	Member at Large	emilyebarnett@gmail.com	Y	Y	Y	Y	Y								

Was There a Quorum? Y or N		Y	Y	Y	Y	Y									
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ABS = Absent

Y = Present

N = No

### TERM EXPIRATION AND TRAINING CERTIFICATION

AAC Members	Representing	Term Expiration Date	Brown Act Training Completion Date
VACANT	District 1	3/1/17	
Mike Bruno	Airports Bus. Assoc.	3/1/19	
VACANT	Member at Large	3/1/17	
Ronald Reagan	District 3	3/1/18	4/14/16
Derek Mims	City of Pleasant Hill	3/1/18	1/12/17
Russell Roe	District 5	5/1/20	
Keith McMahan	City of Concord	3/1/19	
Roger Bass	District 2	3/1/18	4/8/16
Maurice Gunderson	Member at Large	3/1/18	4/6/16
Tom Weber	District 4	3/1/20	4/1/16
Emily Barnett	Member at Large	3/1/19	3/10/17

DRAFT



**CONTRA COSTA COUNTY  
AVIATION ADVISORY COMMITTEE  
MINUTES OF MEETING  
May 11, 2017**

**MEETING CALLED:** Chair, Ronald Reagan called the meeting to order at 10:01 AM.

**PRESENT:** **Emily Barnett**, Member at Large  
**Roger Bass**, District II  
**Mike Bruno**, **Vice Chair**, Airport Business Association  
**Maurice Gunderson**, **Secretary**, Member at Large  
**Keith McMahon**, City of Concord  
**Derek Mims**, City of Pleasant Hill  
**Ronald Reagan**, **Chair**, District III  
**Russell Roe**, District V c

**ABSENT:** **Tom Weber**, District IV

**STAFF:** Keith Freitas, Director of Airports  
Beth Lee, Assistant Director of Airports  
Alina Zimmerman, Airport Clerk

**OPENING COMMENTS  
BY CHAIR:** Ronald Reagan welcomed the attendees.

**PUBLIC COMMENT  
PERIOD:** Update regarding possible sub-tenants at the old Sports Authority building, across from Sam's club. Reynolds & Brown is in discussions with potential sub-tenants. Airport staff will give an update once Reynolds & Brown has chosen a sub-tenant.

**APPROVAL OF  
MINUTES:** Moved by Maurice Gunderson; seconded by Mike Bruno. Approved Yes: Emily Barnett, Roger Bass, Keith McMahon, Derek Mims, Ronald Reagan, and Russell Roe. No: None. Abstained: None. Absent: Tom Weber.

**APPROVAL OF  
CONSENT ITEMS:** Moved by Maurice Gunderson; seconded by Roger Bass. Approved Yes: Emily Barnett, Mike Bruno, Keith McMahon, Derek Mims, Ronald Reagan, and Russell Roe. No: None. Abstained: None. Absent: Tom Weber.

## DISCUSSION/ACTION ITEMS:

a. Discussion of Items Pulled from Consent

b. Discuss the Next Steps and Implementation for the Strategic Planning Project

Contra Costa County Airports (the Airport) implemented a strategic plan about 10 years ago, hitting all the milestones that were set. Now, the Airport is working on the next set of milestones for the next ten years. Airport staff is currently in the last portion of the strategic plan. The anticipated outcome would be to refine priorities; set goals and benchmarks, then bring back to the AAC for guidance and suggestions.

c. Discuss Forming Working Committee for Rates and Charges, Airport Needs Two (2) Members from AAC

This is a correlation of the strategic planning process and the Economic and Development Incentive Program (EDIP). Airport staff is heavily looking into ways to be more competitive for two reasons: 1) to retain the Airport's tenant base and 2) to attract new people and businesses to our airports. Some of the items the Airport is looking into updating are the current rates and charges, more specifically, the hangar rental rates. The Airport's current rates and charges are outdated. It is time to update them, including more line items for different activities other than hangar charges. Airport staff is requesting to have two volunteers from the AAC to work with staff to discuss the various options. The makeup of the working group would consist of volunteers from the Airport's tenant base, the AAC, and Airport staff. Maurice Gunderson and Keith McMahon volunteered to be on the working group.

d. Discuss the Updated Report on the Sustainable Farm Project

Michael McGill, Board Member of the Central Contra Costa Sanitary District (CCCSD), but attending the meeting as a private citizen, gave an update on the Sustainable Farm project. The Lease was signed July 3, 2014 between AgLantis and CCCSD. The use permit from Contra Costa County Department of Conservation and Development (DCD), after processing through the Airport Land Use Commission (ALUC), was issued on December 21, 2015. There are 61 conditions attached to the land use permit, and the lessee is currently in the process of working through those conditions. They are also in the process of doing fire suppression weed control, and are using techniques that help add organics to the soil, because the soil is very sterile.

A greenhouse has been donated by Agratech. The greenhouse is about an eighth of an acre, or 6,000 square feet inside and worth about \$100K. Recently, the Contra Costa County Board of Supervisors earmarked \$50K towards the construction of the greenhouse. John F. Kennedy University donated \$10K this year, and pledged \$10K over the next two years, also towards construction of the greenhouse. Fencing, recycled asphalt, and mulch have been donated towards construction. About another \$50K is needed to install the greenhouse, and another \$50K on top of that related to equipment and replacement parts. Greenhouse construction will begin late this summer to early fall, in order to beat the rains. Official target operation date of the greenhouse is in summer of 2018, with another year until there is real-life field activity.

**e. Discuss the 2017 AAC Tenant Appreciation Program and Process**

Ronald Reagan asked for input from the AAC regarding the process of how to select candidates for the AAC Tenant Appreciation Program. In the past, there have been challenges when it came to selecting a candidate, simply because the same candidates are nominated every year. The AAC needs to figure out ways to reach out to more organizations and businesses on the Airports. It was suggested that a working group should be formed to provide input and suggestions. Mike Bruno volunteered and Tom Weber was appointed by the AAC to be on the working group. An update will be provided at the next AAC meeting.

**Moved by Ronald Reagan; seconded by Mike Bruno. Approved Yes: Emily Barnett, Roger Bass, Keith McMahon, Derek Mims, and Russell Roe. No: None. Abstained: None. Absent: Tom Weber.**

**f. Discuss the Update Regarding the Runway Taxiway Echo/Kilo Project, Tentative R-Start Date for Construction is Friday, June 23, 2017**

Because of rainy weather, the Taxiway Echo/Kilo project had to come to a halt. In late May 2017, a slurry seal will be put on the remainder of Taxiway Echo, near the approach end of the 19R Runway. Construction will then continue on Taxiway Kilo, across from the main Runway, which will be done within a two day operation. In order to keep the Runways up and running as quickly as possible, the grinding work will begin Friday, June 23, then, finishing up with the asphalt work on Saturday, June 24. Painting will be finished by the following week.

**g. Discuss the Update Regarding the Design Analysis Options for Runway 14L/32R Reconstruction and Overlay Project, Expected Construction to Start June 2018**

Buchanan Field's secondary Runway 14L/32R overlay project is currently in the design analysis process. Our consultants are doing the preliminary analysis, and have identified four pavement design options:

1. **Cold In-place Recycling (CIR) & Asphalt Concrete (AC) Overlay:** Involves cold-milling 1-inch to and performing a CIR to construct a new 2-inch overlay. The approximate value cost for this alternative is \$4.3 million and would take approximately 39 days to complete.
2. **AC Pavement Mill and Fill:** Involves grinding 3-inches of asphalt and constructing a new 4-inch overlay. The approximate value costs for this alternative is \$5.5 million and would take approximately 30 days to complete.
3. **AC Pavement Reconstruction:** Involves full depth removal of existing pavement and the construction of a 4-inch Hot Mix Asphalt (HMA) surface course. The approximate value cost for this alternative is \$7.5 million and would take approximately 82 days to complete.
4. **Portland Cement Concrete (PCC) Pavement Reconstruction:** Involves full depth removal of existing pavement and the construction of a 9.5-inch PCC pavement surface course. The approximate value cost for this alternative is \$10 million and would take approximately 82 days to complete.

The differences in all four alternatives are cost, timing and ultimately what the Federal Aviation Administration (FAA) will approve/pay for. Alternative 1 would be the most environmentally friendly. The only issue is that this alternative is not an FAA approved process. There was concern regarding the difference in longevity compared to the costs. All alternatives are designed for a 20-year lifespan. Given California weather, the lifespan of the runways would last up to 50 years if maintained properly.

**h. Discuss the AAC, At-Large, Working Group Update**

The AAC, At-Large working group has been working to address the issue of the At-Large seats on the Committee. There are currently three At-Large seats. The working group met on April 10<sup>th</sup> and consisted of four members from the AAC, 2 Airports staff, and 1 District Representative from District IV. The working group came up with the following suggestions:

1. Clarify the definition of the At-Large seats to represent the general community and to specifically exclude people who have a business relationship on the Airports
2. Change the approval process of the At-Large position, which is currently made by the Internal Operations Committee (IOC). The IOC presently does not have a Supervisor on it that has many dealings with the Airports
3. Convert one of the seats to be a City of Martinez representative

Airport Committee Vice Chair Supervisor, Karen Mitchoff reviewed the recommendations and thanked the working group for all their hard work. Supervisor Mitchoff determined that the By-Laws should remain unchanged.

**FUTURE AGENDA ITEMS/COMMENTS**

- Discuss the Tenant Appreciation Program, Working Group Update
- Construction Update Regarding the Design Analysis Options for Runway 14L/32R Reconstruction and Overlay Project, as Detailed in Engineering Report

**ADJOURNMENT:** The meeting was adjourned by the Chair at 10:58 AM.

FINAL



**CONTRA COSTA COUNTY  
AVIATION ADVISORY COMMITTEE  
MINUTES OF MEETING  
April 13, 2017**

**MEETING CALLED:** Vice Chair, Mike Bruno called the meeting to order at 10:00 AM.

**PRESENT:** **Emily Barnett**, Member at Large  
**Roger Bass**, District II  
**Mike Bruno**, **Vice Chair**, Airport Business Association  
**Maurice Gunderson**, Member at Large  
**DeWitt Hodge**, **Secretary**, Member at Large  
**Keith McMahon**, City of Concord  
**Derek Mims**, City of Pleasant Hill  
**Rudi Raab**, District I  
**Russell Roe**, District V  
**Tom Weber**, District IV

**ABSENT:** **Ronald Reagan**, **Chair**, District III

**STAFF:** Keith Freitas, Director of Airports  
Beth Lee, Assistant Director of Airports  
Alina Zimmerman, Airport Clerk

**OPENING COMMENTS  
BY CHAIR:** Mike Bruno welcomed the attendees.

**PUBLIC COMMENT  
PERIOD:** The Collings Foundation's Wings of Freedom tour (WWII vintage Boeing B-17 Flying Fortress, consolidated B-24 Liberator, B-25 Mitchell and North American P-51 Mustang) will be at the Buchanan Field Airport from June 8-11.

**APPROVAL OF  
MINUTES:** Moved by Tom Weber; seconded by Derek Mims. Approved Yes: Emily Barnett, Roger Bass, Mike Bruno, Maurice Gunderson, DeWitt Hodge, Keith McMahon, Rudi Raab, and Russell Roe. No: None. Abstained: None. Absent: Ronald Reagan.

**APPROVAL OF  
CONSENT ITEMS:**

Moved by Maurice Gunderson; seconded by Rudi Raab.  
Approved Yes: Emily Barnett, Roger Bass, Mike Bruno, DeWitt Hodge, Keith McMahon, Derek Mims, Russell Roe, and Tom Weber. No: None. Abstained: None. Absent: Ronald Reagan.

**PRESENTATIONS:**

**a. Recognition of Rudi Raab for His Years of Service on the Aviation Advisory Committee (AAC)**

Mike Bruno, on behalf of the AAC, presented a commemorative letter to Rudi Raab and thanked him for his six years of serving on the committee. Rudi Raab was grateful for the opportunity to be on the AAC.

**b. Overview of the Federal Aviation Administration (FAA) Airport Capital Improvement Plan (ACIP), FAA Process, and 10-Year ACIP Program for the Buchanan Field Airport**

Contra Costa County Airports is one of approximately 3,300 airports in the United States that receives federal funding for capital improvement projects. The ACIP serves as the primary FAA planning tool for systematically identifying, prioritizing, and assigning funds to critical airport development and associated capital needs for the National Plan of Integrated Airport Systems (NPIAS). The ACIP serves as the basis for the distribution of grant funds under the Airport Improvement Program (AIP). Each FAA regional airports office prepares a Regional ACIP from information provided by individual airports on anticipated development needs over the next three to five years. At a national level, the development plan is based on needs analysis, funds available, and anticipated current year funding. It reflects the regions compilation of the most critical needs based on evaluation of the National Plan of Integrated Airport Systems (NPIAS), state and sponsor input, and other factors that include potential funding. Some of the future ACIP projects for Buchanan Field Airport include: pavement overlay/reconstruction of Taxiway Echo and Kilo, pavement overlay/reconstruction of Runway 14L/32R, and the Airport Layout Plan (ALP).

**DISCUSSION/ACTION ITEMS:**

**a. Discussion of Items Pulled from Consent**

There was no items pulled from consent.

**b. Discuss the Upcoming Tenant Appreciation BBQ on Thursday, May 4, 2017**

The 9<sup>th</sup> Annual Tenant Appreciation BBQ is scheduled for Thursday, May 4, 2017 from 11:30 a.m. – 2:00 p.m. Please RSVP with number of attendees by Friday, April 21, 2017. Airport staff looks forward to seeing everyone at the BBQ!

c. **Discuss the Airport's Desire to Purchase a Used Aircraft Rescue and Fire Fighting (ARFF) Vehicle to Replace the 30 Year Old Existing Unit**

The ARFF vehicle is an item that is fundable by the FAA. Buchanan Field has two ARFF units, a 30 year old and 9 year old unit, while Byron has a 32 year old unit. Both ARFF vehicles cost the Airport approximately \$12,000 each year to maintain. The Airport's intent is to purchase a newer, used market ARFF vehicle to replace the 30 year old unit at Buchanan field. Once Buchanan's 30 year old ARFF unit is replaced, the 30 year old unit will then replace Byron's 32 year old unit. Russell Roe moved that the AAC supports the Airport Director and staff on the recommendation for a newer, used ARFF vehicle.

**Moved by Maurice Gunderson; seconded by Mike Bruno. Approved Yes: Emily Barnett, Roger Bass, DeWitt Hodge, Keith McMahon, Derek Mims, Rudi Raab, Russell Roe, and Tom Weber. No: None. Abstained: None. Absent: Ronald Reagan.**

d. **Conduct AAC Elections for the Chairman, Vice-Chair, and Secretary**

Mike Bruno nominated Ronald Reagan for a third term as Chairman of the AAC.

**Moved by Mike Bruno; seconded by Tom Weber. Approved Yes: Emily Barnett, Roger Bass, Maurice Gunderson, DeWitt Hodge, Keith McMahon, Derek Mims, Rudi Raab, and Russell Roe. No: None. Abstained: None. Absent: Ronald Reagan.**

Roger Bass nominated Mike Bruno for a third term as Vice-Chair of the AAC.

**Moved by Roger Bass; seconded by Tom Weber. Approved Yes: Emily Barnett, Mike Bruno, Maurice Gunderson, DeWitt Hodge, Keith McMahon, Derek Mims, Rudi Raab, and Russell Roe. No: None. Abstained: None. Absent: Ronald Reagan.**

Tom Weber nominated Maurice Gunderson as Secretary of the AAC.

**Moved by Tom Weber; seconded by Roger Bass. Approved Yes: Emily Barnett, Mike Bruno, Maurice Gunderson, DeWitt Hodge, Keith McMahon, Derek Mims, Rudi Raab, and Russell Roe. No: None. Abstained: None. Absent: Ronald Reagan.**

e. **Discuss the Business Development Project Updates**

- 3 Acre Business Park Development – located across from the Director of Airport’s office on Sally Ride Drive. Currently going through the environmental process. A draft lease has been sent to County Counsel. Airport Staff hopes the environmental process will be completed approximately four months from now.
- 4.6 Acre (Parcel C) – located across from the Lithia dealership on the northwest side of Marsh and Solano. Solara Properties met with the City of Concord and are hoping to start the entitlement process in 30-60 days.

Airport Staff will continue to provide updates throughout the process for both properties.

f. **Discuss the Proposed General Plan Amendment at the Buchanan Field Airport to:**

- **Change the land use designation for the approximately 1.8 acre parcel at the southwest corner of Willow and Center**
  - The General Plan is not consistent with the uses in the Master Plan. Airport Staff submitted a request to the Department of Conservation and Development (DCD) to change the General Plan to reflect what is on the Master Plan.
- **Change to Special Policy 5-49 to remove the reservation of space for a transient way and to provide a parameter for the class trail**
  - The extension of Diamond Blvd. was removed during The Master Plan Update but a requirement to reserve space for a non-elevated transit corridor and Class I trail was inserted. It is unknown whether there will be funding for both projects plus Airport Staff received written confirmation from Public Works that a non-elevated transient will not be necessary. Airport Staff is requesting to change the General Plan land use designation to be consistent with the Master Plan and to amend Special Policy 5-49 to remove the non-elevated transit but retain a Class I trail that has a minimum of twelve feet on either the east or west side of the property.

g. **Discuss the Buchanan Field Airport Layout Plan Update – FAA Grant Request**

The FAA wants an Airport Layout Plan updated generally every five years. The update will include adding any new development that we have had, and evaluating whether the property across from our office is needed to meet the aviation demand or, rather, if it should be changed to a non-aviation use. Seeking other revenues for a temporary period of time allows the airport some flexibility. Airport Staff is currently starting the grant process to get approval. The grant request has gone before the Board of Supervisors (Board) to receive approval to submit the grant. The next step will be to submit the grant.

**h. Discuss the AAC, At-Large, Working Group Update**

The working group included: Maurice Gunderson, Mike Bruno, Russell Roe, Emily Barnett, Keith Freitas, Beth Lee, and Dominic Aliano. Many questions were asked in which Dominic Aliano, District IV Representative, will be receiving clarification on. Once the working group receives clarification, the working group will schedule another meeting and come up with a recommendation for the resolution of the AAC At-Large position.

**FUTURE AGENDA ITEMS/COMMENTS**

- Tenant Appreciation Program
- Strategic Plan – Implementation & Next Steps
- Sustainable Farm Project Update

**ADJOURNMENT:** The meeting was adjourned by the Chair at 10:53 AM.

# Noise Abatement Statistics

## April 2017

	# Of Callers	Complaints		YTD	YTD	% CHANGE
	2017	2017	2016	2017	2016	
<b>TOTAL NUMBER OF COMPLAINTS</b>	<b>10</b>	<b>10</b>	<b>18</b>	<b>55</b>	<b>53</b>	<b>4%</b>
<b>LOCATION OF COMPLAINTS</b>						
Concord	4	4	2	12	19	-37%
Pleasant Hill	1	1	9	15	15	0%
Pacheco	0	0	1	2	4	-50%
Martinez	1	1	3	10	9	11%
Byron	0	0	0	0	0	0%
Other	4	4	3	15	6	150%
Subtotal	10	10	18	54	53	2%
Special Events	0	0	0	1	0	0%
<b>Total Number of Complaints</b>	<b>10</b>	<b>10</b>	<b>18</b>	<b>55</b>	<b>53</b>	<b>4%</b>
<b>COMPLAINTS ASSOCIATED WITH</b>						
Buchanan Field Airport		6	15	37	43	
Byron Airport		0	0	0	0	
Law Enforcement/Lifeguard Lights		3	0	5	0	
Non-associated		1	3	13	10	
<b>TIME OF INCIDENT</b>						
Day (0700 - 1700)		6	10	40	37	
Evening (1700 - 2200)		2	2	9	5	
Night (2200 - 0700)		1	5	3	8	
All Times		1	1	3	3	
<b>TYPE OF COMPLAINT</b>						
Noise		2	14	29	29	
Low Flying		3	1	7	2	
Noise and Low Flying		4	3	16	15	
Too Many Aircraft		0	0	2	6	
Other		1	0	1	1	
<b>TYPE OF AIRCRAFT</b>						
Jet		0	8	6	12	
Propeller		4	6	21	17	
Helicopter		4	0	16	3	
All Types		1	2	3	14	
Unknown		1	2	9	7	
<b>TOTAL AIRCRAFT OPERATIONS</b>						
		10,167	9203	36,185	32298	12%
<b>COMPLAINTS PER 10,000 OPERATIONS</b>						
		10	20	10	16	-40%
<b>COMPLAINTS PER 10,000 OPERATIONS - BUCHANAN ONLY</b>						
		6	16	6	13	-56%

**April**

- (1)- Other- Law Enforcement Helicopter from Bay Point
- (1)- Other- Law Enforcement Helicopter from Clayton
- (1)- Other- PGE Pipeline Helicopter from Walnut Creek
- (1)- Other- Reckless Flying from Bethel Island

**January**

- (1)- Non- Assoc. Air Traffic from Moraga
- (1)- Non- Assoc. Helicopter from Pittsburg
- (1)- Non- Assoc. Helicopter near Briones Park
- March & February**
- (7) PGE helicopter complaints
- (6) aerobatic brentwood
- (2)- Non-Assoc. low-flying from Mountain House
- Year to Date**
- (6)- Resident, Pleasant Hill

# Contra Costa County Airports Monthly Operations Report

**April 2017**

	April 2017	April 2016	YTD 2017	YTD 2016	% CHANGE 2016/2017
<b>AIRCRAFT OPERATIONS</b>					
Total Operations	10,167	9,203	36,185	32,298	12%
Local Operations	5,516	4,958	20,265	17,865	13%
Itinerant Operations	3,502	3,242	11,801	10,625	11%
Total Instrument Ops	910	754	3,354	3,011	11%
<b>FUEL FLOWAGE</b>					
100 Octane	22,342	20,760	80,708	71,136	13%
Jet Fuel	82,425	74,434	361,119	257,807	40%
Total	104,767	95,194	441,827	328,943	34%
<b>BYRON INFORMATION</b>					
Byron Fuel	16,040	7,079	41,468	24,481	69%
<b>SKYDIVERS</b>					
Number of Flights	117	82	258	285	-9%
Experienced Jumps	550	506	1,284	1,607	-20%
First Time Jumps	184	176	514	601	-14%
Student Jumps	14	20	50	59	-15%

**Contra Costa County  
Board of Supervisors  
Approved Board Orders  
Relating to County Airports**

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***The following certified Board Orders are attached:***

*May 23, 2017*

*APPROVE and AUTHORIZE the Director of Airports, or designee, to execute on behalf of the County a consent to assignment of lease between the County and the current tenant, Concord Hotel LLC, and the new tenant, Dale Village Apartment Company, LP, (Dale Village), to assign its lease of the County-owned property located at 45 John Glen Drive, Concord to Dale Village (100% Airport Enterprise Fund).*



Contra  
Costa  
County

To: Board of Supervisors  
From: Keith Freitas, Airports Director  
Date: May 23, 2017

Subject: Approval of Consent to Assignment of Lease between the County, Concord Hotel LLC and Dale Village Apartment Company, LP for Property located at Buchan

**RECOMMENDATION(S):**

APPROVE and AUTHORIZE the Director of Airports, or designee, to execute on behalf of the County a consent to assignment of lease between the County and the current tenant, Concord Hotel LLC, and the new tenant, Dale Village Apartment Company, LP, (Dale Village), to assign its lease of the County-owned property located at 45 John Glen Drive, Concord to Dale Village. (District IV)

**FISCAL IMPACT:**

There is no negative impact on the General Fund. The Airport Enterprise Fund will continue to receive lease and other revenues provided for in the Lease. The County General Fund will continue to receive property, sales and possessory interest tax revenues from the Lease.

**BACKGROUND:**

Under a ground lease dated September 21, 1971, the County leased the subject property for the purpose of providing a hotel

APPROVE  OTHER  
 RECOMMENDATION OF CNTY ADMINISTRATOR  RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: 05/23/2017  APPROVED AS RECOMMENDED  OTHER

Clerks Notes:

**VOTE OF SUPERVISORS**

- AYE: John Gioia, District I Supervisor
- Candace Andersen, District II Supervisor
- Diane Burgis, District III Supervisor
- Karen Mitchoff, District IV Supervisor
- Federal D. Glover, District V Supervisor

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: May 23, 2017

David J. Twa, County Administrator and Clerk of the Board of Supervisors

By: Stacey M. Boyd, Deputy

Contact: Beth Lee, (925)  
681-4200

cc:

BACKGROUND: (CONT'D)

at Buchanan Field Airport. On May 22, 2007, the lease was assigned from Airport Capital Group to Concord Hotel, LLC. The obligations of Concord Hotel, LLC were guaranteed by Dale Village and Villa Grande Apartment Company, Ltd. Recently Villa Grande Apartment Company, Ltd merged with Dale Village, resulting in Dale Village becoming the sole guarantor of the lease. Concord Hotel, LLC and Dale Village now desire to have the lease assigned to Dale Village, after which Concord Hotel LLC will be dissolved.

An assignment of the lease requires the prior written consent of the County. This action authorizes consent to the assignment. This action does not amend or alter the terms of the existing lease.

CONSEQUENCE OF NEGATIVE ACTION:

The County will not consent to the assignment of the lease and Concord Hotel, LLC will not be able to assign its interest in the lease.

ATTACHMENTS

Consent to Assignment

AIRPORT ADVISORY COMMITTEE (AAC)  
BUCHANAN FIELD TENANT RECOGNITION PROGRAM  
\*\*\* NOMINATION FORM \*\*\*

Nominee: Maurice Gunderson & Tom Weber

Award Category (check one):  Individual  Commercial

Award Criteria (check one or more):

Advancing the airport or aviation in general

Community service

Environmental consciousness

Noise abatement

Quality of products or services

Brief summary of reason(s) for nomination (attach supporting documentation if desired):

Please see attached

Submitted by:

 (signature) Date: 5/23/17

Daniel Wide (printed name)

for Airport staff

550 Sally Ride Drive, Concord, CA 94520-5550

## AAC Tenant Recognition Program Attachment

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Airport Division staff would like to recognize Maurice Gunderson and Tom Weber for going above and beyond their roles as Aviation Advisory Committee (AAC) members and Contra Costa County Airports stakeholders to assist communities in East Contra Costa County with aerobatic aviation noise disturbances. Maurice and Tom, as members of the AAC, were aware of aerobatic noise complaints from communities in Brentwood and independently tapped into their aviation network to ascertain information regarding aerobatic activity, potential locations and sources of the activity, and the related Federal Aviation Administration (FAA) regulations. Through multiple meetings and conversations with Airport staff and pilots, including Dale Roberts, Maurice and Tom were able to identify possible sources of the disturbance at nearby airports and confirm that Contra Costa Airports was most likely not related to the reported activity. Dale Roberts, an aerobatic pilot, was influential in dispersing information through the aerobatic pilot network notifying them of the disturbance that this type of activity is creating for nearby neighborhoods and the need to abate the disturbance by operating as far away as possible, within FAA regulations, from the growing neighborhoods. In addition, their actions provided valuable information to Airport staff that was used to assist and respond to East Contra Costa County aerobatic noise disturbances. These combined actions led to an immediate reduction in aerobatic disturbances for East Contra Costa County.

BUCHANAN  
AIRPORT

AIRPORT ADVISORY COMMITTEE (AAC)  
BUCHANAN FIELD TENANT RECOGNITION PROGRAM

\*\*\* NOMINATION FORM \*\*\* 2017 MAY -4 P 4: 24

Nominee: PSA

Award Category (check one): \_\_\_\_\_ Individual  Commercial

Award Criteria (check one or more):

Advancing the airport or aviation in general

Community service

\_\_\_\_\_ Environmental consciousness

\_\_\_\_\_ Noise abatement

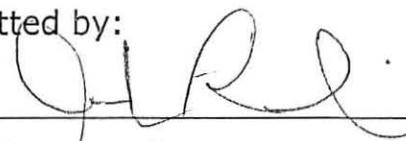
Quality of products or services

Brief summary of reason(s) for nomination (attach supporting documentation if desired):

THEY TAKE SUCH GOOD CARE  
OF ME AND MY PLANE.

THEY ELEVATE THIS AIRPORT TO BEING  
THE BEST IN THE WHOLE COUNTRY.

Submitted by:

 (signature) Date: 4 MAY 2017

JACK ROMANSKI (printed name)

550 Sally Ride Drive, Concord, CA 94520-5550

**PRELIMINARY DESIGN CONCEPT REPORT**

**BUCHANAN FIELD  
AIRPORT**

**Runway 14L-32R  
Rehabilitation**

AIP Project No. 3-06-0050-022-2016



Prepared for  
Contra Costa County  
Public Works Department – Airports Division



Prepared by  
**Mead  
& Hunt**

May 2017

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## **1. GENERAL SCOPE OF THE PROJECT**

### **1.1 INTRODUCTION**

Mead & Hunt, Inc. (Consultant or Mead & Hunt) has prepared this Preliminary Design Concept Report for the County of Contra Costa – Airports Division (County). The purpose of this report is to document the preliminary design investigation efforts used to define the project scope and recommendations for the Runway 14L-32R Rehabilitation project (Project) at the Buchanan Field Airport (Airport or CCR).

Buchanan Field Airport is a public use airport owned and operated by Contra Costa County. It is located in the County of Contra Costa west of Concord, California. The Airport has four runways with the following respective Runway Design Codes (RDC): Runway 1L-19R, B-III; Runway 1R-19L, B-I (small); Runway 14L-32R, B-III; and Runway 14R-32L, B-I (small). Runway 14L-32R is the primary crosswind runway oriented northwest to southeast and has six taxiway connections and two runway-to-runway intersections.

The Project will be funded by a combination of County funds, a grant from the California Department of Transportation Division of Aeronautics (Caltrans), and a grant from the Federal Aviation Administration (FAA).

### **1.2 SCOPE OF WORK**

The Project scope of work will consist of rehabilitating all asphalt concrete (AC) pavement, full width, on Runway 14L-32R, with the exception of the Runway 1L-19R intersection and the Portland Cement Concrete (PCC) pavement at each runway end. The AC pavement at the Runway 1L-19R intersection was rehabilitated with a cold-in-place recycling section and asphalt overlay in 2011. In addition, the first two rows of PCC slabs at the AC/PCC transition of the Runway 14L end are in very poor condition and will require full depth replacement. The purpose of this Preliminary Design Concept Report is to present the initial findings of the preliminary design effort. Included in this report is a discussion and evaluation of the following items:

- 1) FAA 150/5300-13A analysis of existing and proposed pavement, including surface gradient requirements.
- 2) Pavement design evaluation, including subgrade sampling and analysis, evaluation of pavement rehabilitation alternatives, and life cycle cost analyses.
- 3) Airfield lighting and signage analysis.
- 4) Construction safety and phasing analysis, including evaluation of construction duration, operational impacts, and safety areas.
- 5) Optional project improvement elements.

### **1.3 HISTORY OF THE EXISTING SYSTEM**

Runway 14L-32R is 4,601 feet long by 150 feet wide and was originally constructed in 1943. The runway consists of 300 foot long PCC pavement sections at each runway end and AC pavement between the runway thresholds. The pavement section on average consists of 8 inches of AC pavement on a 6-inch

soil-cement base and variable depth silty sand, lean clay, silt imported fill material. The most recent improvement to the runway was a 3/4-inch porous friction course (PFC) overlay in 1986. The first two rows of slabs in the south PCC section of the Runway 14L end are exhibiting distinct differences in pavement distress type and severity and are subsequently rated independently from the remaining PCC pavement. Table 1, Table 2, and Table 3 detail the observed PCC and AC pavement distresses. The extent and severity of cracking, weathering and raveling of the PFC overlay has created an increased potential for foreign object debris (FOD) on the runway. The PCC pavement condition is rated as Poor for the south section of PCC slabs and Fair for the remainder of the PCC slabs at the Runway 14L end and Runway 32R end. The AC pavement condition is rated as Poor for all pavement between the thresholds with the exception of the Runway 1L-19R intersection. The Runway 1L-19R intersection AC pavement is in good condition with no observable distresses.

**Table 1 - PCC Pavement Distress (Runway 14L End South Section)**

Distress Severity	Distress Type
High	Corner Break, Cracking
Medium	Joint Seal Damage, Faulting, Joint Spalling
Low	Weathering

**Table 2 - PCC Pavement Distress (Runway 32R End and Runway 14L End North Section)**

Distress Severity	Distress Type
Medium	Joint Spalling, Joint Seal Damage, Corner Break
Low	Mid-Panel Cracking, Faulting, Weathering

**Table 3 - AC Pavement Distress (Runway 14L-32R)**

Distress Severity	Distress Type
Medium to High	Longitudinal and Transverse Cracking, Weathering, Raveling
Low	Patching and Utility Trench Cutting

#### 1.4 FAA ADVISORY CIRCULAR 150/5300-13A ANALYSIS

On September 28, 2012, the FAA released an update to Advisory Circular 150/5300-13, Airport Design. This Advisory Circular contains the FAA standards and recommendations for the geometric layout and engineering design of runways, taxiways, aprons, and other facilities at civil airports. The updated Advisory Circular 150/5300-13A included significant changes to several airport design standards.

Bernard Dunkelberg & Company completed an update to the Airport Layout Plan (ALP) in September 2008. Within the updated ALP there were non-standard conditions outlined, all of which pertain to Runway 32R. Non-standard conditions outlined in the ALP, as well as their proposed dispositions, include the following:

- Condition: The Runway Safety Area (RSA) in the approach to Runway 32R does not meet length, width and gradient requirements in the southeast corner. Regrading the RSA would require modifying the perimeter fence and covering the Walnut Creek Channel.

- Disposition: Extend the Runway 32R RSA to meet standards, and request an RSA Determination from the FAA on the Walnut Creek Channel.
- Condition: The Runway Object Free Area (ROFA) in the approach to Runway 32R does not meet the length and width requirements due to the Walnut Creek Channel and perimeter fence that cuts across the southeast corner of the ROFA.
  - Disposition: The existing Runway 32R ROFA non-standard length and width is to remain the same.
- Condition: The Clearway in the approach to Runway 32R is substandard with respect to length and width due to the location of the Walnut Creek Channel and perimeter fence.
  - Disposition: The existing Runway 32R Clearway non-standard length and width is to remain the same.

The Project does not include correction or remedy of the above mentioned conditions. These dispositions are outside the scope of this Project and would require additional environmental review and coordination with the FAA.

Mead & Hunt has analyzed the existing conditions of Runway 14L-32R from survey information provided by PLS Surveys, Inc. for this Project. The following non-standard conditions were determined by this analysis. An exhibit showing the locations of the non-standard conditions is included as *Appendix A*.

#### **Non-Standard Conditions to be improved by the Project**

- Deviation: Runway Longitudinal Grade Changes
  - **Advisory Circular:** 150/5300-13A, Section 313.a.4
  - **FAA Standard:** Vertical curves for longitudinal grade changes are parabolic. The length of the vertical curve is a minimum of 300 feet for each 1.0 percent of change. A vertical curve is not necessary when the grade change is less than 0.40 percent.
  - **Existing Condition:** Runway 14L-32R has grade changes greater than 0.40 percent without a vertical curve.
  - **Disposition:** Proposed grades will meet the standard and will eliminate the non-standard grade changes.
- Deviation: Runway to Aircraft Parking Area Separation
  - **Advisory Circular:** 150/5300-13A, Section 320.a.3
  - **FAA Standard:** Runway to aircraft parking area separation is determined by the landing and takeoff flight path profiles and physical characteristics of aircraft. The runway to parking area separation standard precludes any part of a parked aircraft (tail, wingtip, nose, etc.) from being within the ROFA or penetrating the Object Free Zone (OFZ).
  - **Existing Condition:** Tie-downs on the East Ramp are within the ROFA.
  - **Disposition:** Project will include eliminating the tie-down locations within the Runway 14L-32R ROFA.

- Deviation: Runway Transverse Grades
  - **Advisory Circular:** 150/5300-13A, Section 313.a.5
  - **FAA Standard:** Present maximum and minimum transverse grades for runways and stopways (1% to 2%). Keep transverse grades to a minimum and consistent with local drainage requirements. The ideal configuration is a center crown with equal, constant transverse grades on either side.
  - **Existing Condition:** Various locations along the runway have transverse grades outside the requirements.
  - **Disposition:** Proposed grading will meet transverse grading criteria where possible within the limits of the rehabilitation project.
  
- Deviation: Runway Safety Area Transverse Grades
  - **Advisory Circular:** 150/5300-13A, Section 313.d.2
  - **FAA Standard:** Table 3-3 and Figure 3-23 show the maximum and minimum transverse grades for paved shoulders and for the RSA along the runway up to 200 feet beyond the runway end. In all cases, keep transverse grades to a minimum, consistent with local drainage requirements.
  - **Existing Condition:** Various locations along the runway have RSA and shoulder grades outside requirements.
  - **Disposition:** Proposed grading will meet transverse grading criteria where possible within the limits of the rehabilitation project.

#### **Non-Standard Conditions beyond the Scope of the Project**

- Deviation: Blast Pad Dimensions
  - **Advisory Circular:** 150/5300-13A, Section 304
  - **FAA Standard:** 140 feet wide by 200 feet in length.
  - **Existing Condition:** 32R Blast Pad is 152 feet wide by 177 feet in length.
  - **Disposition:** Beyond the scope of the Project.
  
- Deviation: Taxiway Longitudinal Grade Changes
  - **Advisory Circular:** 150/5300-13A, Section 418.b.3
  - **FAA Standard:** When longitudinal grade changes are necessary, the vertical curves are parabolic. The minimum length of the vertical curve is 100 feet for each 1.0 percent of change. A vertical curve is not necessary when the grade change is less than 0.40 percent, nor where a taxiway crosses a runway or taxiway crown. Where two taxiways intersect, flatter grades that provide adequate drainage are acceptable.
  - **Existing Condition:** Taxiway M has a grade break with a 1.80 percent change and no vertical curve is present.

- **Disposition:** Beyond the scope of the Project.
- **Deviation: RSA Transverse Grades**
  - **Advisory Circular:** 150/5300-13A, Section 313.d.2
  - **FAA Standard:** Table 3-3 and Figure 3-23 show the maximum and minimum transverse grades for paved shoulders and for the RSA along the runway up to 200 feet beyond the runway end. In all cases, keep transverse grades to a minimum, consistent with local drainage requirements.
  - **Existing Condition:** On Runway 14L-32R PCC sections and blast pads the transverse grades are below the 1.5 percent requirement.
  - **Disposition:** Beyond the scope of the Project.
- **Deviation: RSA Longitudinal Grades**
  - **Advisory Circular:** 150/5300-13A, Section 313.d.1
  - **FAA Standard:** Longitudinal grades, longitudinal grade changes, vertical curves, and distance between changes in grades for that part of the RSA between the runway ends are the same as the comparable standards for the runway and stopway. Exceptions are allowed when necessary because of taxiways or other runways within the area. In such cases, modify the longitudinal grades of the RSA by the use of smooth curves. For the first 200 feet of the RSA beyond the runway ends, the longitudinal grade is between 0 and 3.0 percent, with any slope being downward from the ends. For the remainder of the safety area (Figure 3-24), the maximum allowable positive longitudinal grade is such that no part of the RSA penetrates any applicable approach surface or clearway plane. The maximum allowable negative grade is 5.0 percent. Limitations on longitudinal grade changes are plus or minus 2.0 percent per 100 feet.
  - **Existing Condition:** Within the 200 feet beyond each end of the runway, the longitudinal grades are sloping upwards from the runway ends.
  - **Disposition:** Beyond the scope of the Project.

## 2. PHOTOGRAPHS

Mead & Hunt performed a visual inspection of all Runway 14L-32R pavement on March 2, 2017, which included an inspection of all associated runway-to-runway and runway-to-taxiway intersection pavement within the RSA. During the field investigation, the existing site conditions were observed and photographed. Site Photographs are included in *Appendix B*.

### 3. DESIGN STANDARDS

#### 3.1 APPLICABLE ADVISORY CIRCULARS

The methodologies used in evaluating project site conditions and in developing preliminary designs for the Project are in general conformance with applicable FAA standards and guidelines. The latest versions of the following Advisory Circulars have been reviewed during the preliminary design efforts of this Project and will continue to be referenced throughout the design completion:

Advisory Circular 150/5300-13A	<i>Airport Design</i>
Advisory Circular 150/5320-5D	<i>Airport Drainage Design</i>
Advisory Circular 150/5320-6F	<i>Airport Pavement Design and Evaluation</i>
Advisory Circular 150/5340-30H	<i>Design and Installation Details for Airport Visual Aids</i>
Advisory Circular 150/5340-1L	<i>Standards for Airport Markings</i>
Advisory Circular 150/5370-2F	<i>Operational Safety on Airports During Construction</i>
Advisory Circular 150/5370-10G	<i>Standards for Specifying Construction of Airports</i>

### 4. CONSIDERATIONS FOR AIRPORT OPERATIONAL SAFETY

#### 4.1 CONSTRUCTION SAFETY AND PHASING ANALYSIS

For this report, a construction safety and phasing analysis was performed that will provide the basis for the proposed Construction Safety and Phasing Plan (CSPP). The analysis included an evaluation of the safety and object free areas adjacent to construction activities during each phase and the active taxiway and runway pavement areas requiring closure. The Project was evaluated to determine the recommended phasing plan, with respect to safety, construction duration, and impact to operations. The phasing plan is based on the combination of the following three phases:

- Phase 1: Rehabilitate Runway 14L-32R pavement from Runway 14L Threshold to Runway 1L-19R intersection.
- Phase 2: Rehabilitate Runway 14L-32R pavement from Runway 32R Threshold to Runway 1L-19R intersection.
- Phase 3: Groove runway and apply final coat of pavement markings.

Phasing plan exhibits for each phase are included as *Appendix C*. Detailed summaries for each phase are shown on the following page.

**Table 4 - Phasing Plan Summary**

Phase	Operations	Duration Alt 1*	Duration Alt 2*	Duration Alt 3*
Ph. 1	RWY 14L-32R closed, RWY 1L-19R closed (nights only), TWY E closed (from TWY B to RWY 1L-19R)	15 working days	10 working days	37 working days
Ph. 2	RWY 14L-32R closed, RWY 1R-19L closed, RWY 1L-19R closed (nights only), TWY A closed (from TWY B to RWY 1L-19R)	20 working days	12 working days	41 working days
Work Suspension	All runways and taxiways open. Suspend work for curing of pavement.	30 calendar day work suspension	30 calendar day work suspension	30 calendar day work suspension
Ph. 3	RWY 14L-32R closed, RWY 1R-19L closed, RWY 1L-19R closed (nights only), TWY A & TWY E closed separately (from TWY B to RWY 1L-19R)	8 working days	8 working days	4 working days
<b>Total Project</b>		<b>43 working days (with suspension)</b>	<b>30 working days (with suspension)</b>	<b>82 working days (with suspension)</b>

\*See Section 5.3 Pavement Design Alternatives for a description of each alternative.

The goal of the phasing plan for this Project is to minimize closures of the Airport to the extent possible. During each phase, aircraft operations will be within proximity of construction activities. This requires a careful evaluation of the safety and object free areas adjacent to the work limits. The key safety areas evaluated include the Taxiway Safety Area (TSA), Taxiway Object Free Area (TOFA), and RSA. The safety area and object free area dimensions were determined for Airplane Design Group (ADG) III to account for the critical aircraft using the Airport. The safety and operational considerations for each phase are listed below:

- Phase 1: For this phase, the full length of Runway 14L-32R will be closed at all times and the full length of Runway 1L-19R will be closed only at night for work within the associated RSA. Taxiway E will be closed from Taxiway B to Runway 1L-19R. Aircraft operations will use Taxiway A for access to Runway 19R. Runway 1R-19L and Runway 14R-32L will remain open at all times. Construction activities will maintain a safe distance from taxiing operations and will not occur within the Runway 1L-19R RSA or approach/departure surfaces while it is open. Construction activities will mainly occur during the day except for work within the Runway 1L-19R RSA. Phase 1 construction access to the Aircraft Operations Area (AOA) will be through an existing access gate located off Marsh Drive at the REACH Air Medical Services facility. The construction haul route will utilize existing airport perimeter roads and Taxiway E to access the Phase 1 work area.

- Phase 2: For this phase, the full length of Runway 14L-32R and Runway 1R-19L will be closed at all times for pavement rehabilitation work. The full length of Runway 1L-19R will be closed only at night for work within the associated RSA. Taxiway A will be closed from Taxiway B to Runway 1L-19R. Aircraft operations will use Taxiway E for access to Runway 1L-19R. Runway 14R-32L will remain open at all times. Construction activities will maintain a safe distance from taxiing operations and will not occur within the Runway 1L-19R RSA or approach/departure surfaces while it is open. Construction activities will mainly occur during the day except for work within the Runway 1L-19R RSA. Phase 2 construction access to the AOA will be through an existing manual emergency access gate located off John Glenn Drive near the Air Traffic Control Tower and East Ramp. The construction haul route will traverse across Taxiway J, through the unpaved infield, and across Taxiway B to access the Phase 2 work area.
- Phase 3: This phase consists of runway pavement grooving and the final application of pavement markings. For this phase, the full length of Runway 14L-32R and Runway 1R-19L will be closed at all times. The full length of Runway 1L-19R will be closed only at night for work within the associated RSA. Taxiway E and Taxiway A will be closed from Taxiway B to Runway 1L-19R but will not be closed at the same time. Runway 14R-32L will remain open at all times. Construction activities will occur during the day except for work within the Runway 1L-19R RSA. Construction access to the work area will be at the access gates and haul routes described in Phases 1 and 2.

## 4.2 CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

A CSPP will be developed in accordance with Advisory Circular 150/5370-2F as a part of the detailed design. The CSPP will detail the proposed phasing and sequence of work, work area limits and pavement closures, haul routes and staging areas, and impacts to procedures and FAA NAVAIDS, based on the selected pavement design alternative from this report. The CSPP will also be included in the Project specification book.

## 5. PAVEMENT DESIGN EVALUATION

### 5.1 AIRCRAFT FLEET MIX

The fleet mix was derived from a previous Airport Pavement Management System (APMS) study performed by Mead & Hunt in 2015. This fleet mix is a combination of Traffic Flow Management System Counts (TFMSC) and operational statistics from AirNav.com. TFMSC reports were obtained from the FAA website for the last five years, which consist of a list of operations for aircraft that file flight plans and/or are detected by the National Airspace System (NAS). Because most flights that fly under Visual Flight Rules (VFR) are excluded from the reports, as well as some non-enroute traffic under Instrument Flight Rules (IFR), statistics from AirNav were used to make reasonable estimates of the missing operations data. Based on the current ALP, the critical aircraft for Runway 14L-32R is the British Aerospace BAe-146-200 which has a wingspan of 86 feet and a maximum takeoff weight of 93,500 pounds. The Airport also has occasional operations from heavy business jet aircraft such as the Gulfstream V, IV, III, and Fokker F28-2000, although annual departures for these aircraft are limited to less than 500 total operations. A copy of the aircraft fleet mix used for this Project is included as *Appendix D*.

## 5.2 GEOTECHNICAL INVESTIGATION

A geotechnical investigation was performed by Parikh Consultants, Inc. in April 2017 which included the evaluation of existing pavement sections and sampling of subgrade soils to determine the subsurface conditions for the Project. A total of 17 borings were taken as part of this investigation to a depth of at least 10 feet and bulk subgrade soil samples were obtained for laboratory testing. The borings from this investigation indicated an existing pavement section consisting of 7 to 11 inches of AC pavement built directly on approximately 4 to 5 feet of imported fill material of which the top 6 to 8 inches were treated with cement. Based on experience from previous engineering projects at the Airport and results from the geotechnical investigation, the cement treated layer is most likely completely deteriorated at this time. The fill material generally consists of a mixture of silty sand, lean clay, silt and fine gravel with low plasticity and California Bearing Ratio (CBR) values ranging from 15 to 33. Based on the results from the geotechnical investigation, the existing imported fill material is recommended to govern the pavement design. A CBR value of 15 was assigned for the fill material.

The native subgrade soils at the Airport are primarily soft to medium stiff lean/fat clay type soils with poor structural stability. Previous runway projects have encountered low CBR values for the native subgrade soils. Unstable soils and perched water tables are likely to be encountered during construction if full depth reconstruction is required. Groundwater was encountered in most of the borings during the field exploration at depths varying from 5 to 7 feet below existing grade. A subgrade CBR value of 5 was assigned for the native subgrade material.

The geotechnical report identified approaches for consideration to reduce the effects of the weak subgrade, all of which are expensive and time consuming:

1. Over-excavate 2 feet of the subgrade material and replace with a compacted aggregate base or aggregate subbase over a high strength geogrid.
2. Over-excavate 2 feet of the subgrade material and replace with a layer of drainage rocks completely wrapped in geotextile filter fabric.
3. Stabilize the subgrade and/or fill material with cement or lime treatment.
4. Over-excavate and replace with a Lean Concrete Base or Controlled Density Fill (controlled low-strength material).

The information presented above is more fully described within the geotechnical report, located in *Appendix E*.

## 5.3 PAVEMENT DESIGN ALTERNATIVES

Mead & Hunt considered several pavement design alternatives, based on the fleet mix and subsurface considerations described above in Sections 5.1 and 5.2. The proposed alternatives are summarized as follows:

- **Alternative 1 - Cold In-place Recycling (CIR) and AC Overlay:** This involves cold-milling to a depth of 1-inch to remove the existing 3/4-inch thick PFC and performing a CIR of the existing AC pavement to a depth of 4 inches and constructing a new 2-inch AC overlay (P-401). This alternative has a low construction cost, short construction duration, minimal material off-haul and superior mitigation of reflective cracking. This alternative is a recommended pavement design alternative. See Section 5.5 for additional considerations for a CIR pavement design alternative.

- **Alternative 2 - AC Pavement Mill and Fill:** This involves cold-milling the existing AC pavement to a depth of 3 inches and constructing a new 4-inch AC overlay (P-401). After the cold milling and prior to constructing the AC overlay, the surface shall be inspected and prepared by crack sealing the existing pavement. This alternative has a comparable construction cost when compared to the CIR and AC overlay alternative, but the mitigation of reflective cracking is not as effective and an additional 36 tons of material off-haul would be generated. In previous airport projects, paving fabrics or stress absorbing membrane interlayers (SAMI) could be considered to help mitigate reflective cracking in AC pavements. However, the recently revised Advisory Circular 150/5320-6F, Airport Pavement Design and Evaluation, does not recommend the use of pavement interlayers. This alternative has a low construction cost, short construction duration, moderate material off-haul and reasonable mitigation of reflective cracking and is a recommended pavement design alternative.
- **Alternative 3 - AC Pavement Reconstruction:** This section would consist of the full depth removal of the existing pavement structure and the construction of a new 4-inch Hot Mix Asphalt (HMA) surface course (P-401), 7-inch crushed aggregate base course (P-209), and 12-inch soil-cement base course (P-301). Due to the presence of fat clayey soils and an existing clayey silty sand subbase and high groundwater table, a cement treatment of the existing subgrade is recommended. Attempting to remove and replace the existing weak subgrade materials would be costly and time-consuming. The higher construction costs, longer construction duration, high material off-haul, and potential subgrade mitigation issues make this alternative less favorable and not recommended for design.
- **Alternative 4 - PCC Pavement Reconstruction:** This section would consist of the full depth removal of the existing pavement structure and the construction of a new 10-inch PCC pavement surface course (P-501), 6-inch crushed aggregate base course (P-209), and 12-inch soil-cement base course (P-301). The same subgrade considerations for the AC pavement reconstruction alternative would apply to this section as well. The substantially higher construction costs, longer construction duration, high material off-haul, and potential subgrade mitigation issues make this alternative the least favorable and not recommended for design.

Refer to *Appendix F* for a pavement design alternatives matrix and FAARFIELD output files, which tabulates the aforementioned alternatives and presents benefits and disadvantages for each.

## 5.4 LIFE CYCLE COST ANALYSIS

Life Cycle Cost Analysis (LCCA) is a procedure to economically compare competing design alternatives by considering all significant costs and benefits over the economic life of each alternative. LCCA equates all present and future costs (and benefits) over the life of a project by accounting for the effects of the time value of money. Because life cycle costing compares alternatives, it is necessary that each alternative is equivalently designed and provides similar performance results.

There are various ways to express the time value of money. However, present worth or present value economic analyses are considered by the FAA to be the best method for evaluating airport pavement design or rehabilitation alternatives.

The fundamental factors that should be considered in LCCA are:

- Agency costs (initial cost, rehabilitation and operation costs, and maintenance costs)
- User costs (delay-of-use, etc.)

- Discount Rate
- Rehabilitation election and service life between rehabilitations
- Comparable sections
- Analysis period

Other factors, such as construction duration, ride-ability over time, safety, and environmental friendliness can also enter into pavement type selection. However, it is difficult to relate these factors to cost or performance and put them into an economic analysis. For the purpose of this LCCA, these factors have been omitted.

For this Project, a 30-year pavement maintenance cycle was evaluated for each alternative. The cycle includes present values for the initial and maintenance costs. The total present value costs for each alternative are listed below:

**Table 5 – LCCA Summary**

Base Bid Alternatives	Total Present Value
CIR and AC Overlay	\$4,771,491.00
AC Pavement Mill and Fill	\$6,223,093.00
AC Pavement Reconstruction	\$7,903,541.00
PCC Pavement Reconstruction	\$10,911,272.00

As shown above, the CIR and AC Overlay alternative has the lowest total present value. The complete LCCA, with a breakdown of initial costs and maintenance schedules, is included as *Appendix G*.

## 5.5 ADDITIONAL CONSIDERATIONS FOR CIR AND AC OVERLAY

The CIR pavement rehabilitation method repurposes a portion of the existing asphalt pavement directly into a new base course layer. This improves the long-term performance of the pavement section by eliminating the existing crack pattern through the introduction of a more flexible recycled base course that delays reflective cracking. The existing asphalt pavement is milled, screened and crushed to a specified size, mixed with an asphalt emulsion and laid back down in place and compacted. The entire process is accomplished with a single-pass equipment train. Electronic controls measure the liquid additives and uniformly size the finished mix to ensure a high degree of quality. The CIR process saves money by reusing existing materials, reducing off haul and limiting the need for new materials on the Project.

Mead & Hunt has provided design and construction management services for a CIR project at the Airport for the Runway 1L-19R Rehabilitation, AIP No. 3-06-0050-018, in 2011. Runway 1L-19R is the main instrument runway at the Airport and is 5,001 feet long by 150 feet wide. This runway was originally constructed at the same time as Runway 14L-32R and consists of a similar pavement structure. At the time of rehabilitation in 2011, the runway pavement condition was similar to the current condition of the pavement on Runway 14L-32R. Approximately five years after the rehabilitation was performed, the pavement is in good condition with no reflective cracking. Based on these successful results, Mead & Hunt is recommending the same approach and technique for the rehabilitation of Runway 14L-32R. A specification for the CIR process, including pulverization of existing asphalt, screening and crushing of millings, mixing asphalt binder, and spreading and compacting the mixture was developed for the previous Runway 1L-19R Rehabilitation project. The technical specification was developed based on State and Local Standard Specifications, Mead & Hunt's past experience on other airport projects, and

the specific needs of the Runway 1L-19R Rehabilitation project. The specification is formatted similar to FAA standard specifications and is included as *Appendix H*.

Traditional methods for rehabilitating AC pavement are limited to either milling and overlaying or full depth reconstruction. While the mill and overlay process is effective in improving the surface of the pavement and cheaper than full depth pavement reconstruction, the onset of reflection cracking from the severely distressed underlying pavement would diminish the long-term effectiveness of this rehabilitation alternative. The CIR and AC overlay pavement design alternative has been shown at the Airport to delay the onset of reflective cracking and prolong the life of the pavement structure. The CIR process eliminates the need to disturb the subgrade and encounter unsuitable clay soils which create substantial off haul and replacement efforts with select fill or chemical stabilization for the full depth reconstruction alternatives.

## **6. ADDITIONAL PROJECT ELEMENTS**

The following additional project elements are identified for inclusion in the Project as bid alternates. An exhibit is included in *Appendix I* which shows the location of base bid and bid alternate project elements.

### **6.1 REMOVE AC AND PCC PAVEMENT AT RUNWAY 32R END AND REALIGN/RECONSTRUCT TAXIWAY J, B, RUN-UP & EAST RAMP AREA**

The 300-foot long irregularly shaped displaced threshold area at the Runway 32R end consists of PCC pavement originally constructed in the 1940s. The pavement distresses for this area were previously discussed in Section 1.3. The PCC and AC pavement conditions outside the edges of the runway are in very poor condition. This pavement has outlasted its original design life and is in need of reconstruction. The adjacent AC pavement that intersects the runway end is comprised of Taxiways J and B, a run-up area and East Ramp taxiway connection. Advisory Circular 150/5300-13A, Airport Design, places a high importance on airfield geometric designs that eliminate runway incursions. Reconfiguring the apron-to-taxiway connections and taxiway-to-runway intersections would eliminate the wide expanses of pavement, increase pilot visibility and remove direct access to the runway from the East Ramp. FAA design standards do not recommend large undefined pavement areas and aircraft taxi routes that lead directly onto the runway without a turn. A proposed reconfiguration of this area would provide a new 90 degree taxiway-runway intersection, taxiway-taxiway intersection, and taxiway-apron connection. New taxiway fillet designs would be included at all intersections. All new runway, taxiway, and taxiway pavements would be AC pavement. Abandoned Taxiway D pavement within the RSA would also be removed as a part of this effort. The reconfiguration of this area is recommended in the ALP. A preliminary cost estimate for this work is provided in Section 18.

### **6.2 REMOVE TAXIWAY C ASPHALT CEMENT PAVEMENT**

The 2008 ALP recommends the full length removal of Taxiway C pavement from Taxiway E to Taxiway D. A portion of Taxiway C pavement from Runway 14L-32R to Taxiway D is already closed to aircraft operations. Work for this bid alternate would include the removal of AC pavement on Taxiway C from Runway 14L-32R to Taxiway B and Runway 14L-32R to Taxiway D. A preliminary cost estimate for this work is provided in Section 18.

### **6.3 EXTEND RUNWAY 1R-19L, REALIGN/RECONSTRUCT TAXIWAY N AND CONSTRUCT INFIELD DRAINAGE IMPROVEMENTS**

Runway 1R-19L is a B-I visual runway parallel to the main instrument runway and is 2,770 feet long by 75 feet wide. The end of Runway 19L intersects Runway 14L-32R and creates a marking conflict for the 19L runway landing designator marking. This conflict is described in more detail in Section 11. It is recommended to extend the runway on the 19L end to provide enough space for the landing designator marking. Subsequently, Taxiway N would need to be realigned with the end of the new runway and reconstructed from Runway 1R-19L to Taxiway A. All new runway and taxiway pavements would be AC pavement. Additional considerations for this area include the design of drainage improvements for the adjacent infield area bound by Runway 14L-32R, Runway 1R-19L, Taxiway A and Taxiway N. This small infield area does not have enough capacity to hold large amounts of stormwater runoff and has created flooding issues for adjacent pavement on Runway 1R-19L and Taxiway N. With the extension of Runway 19L and the reconstruction of Taxiway N, a new storm drain culvert could be constructed under Taxiway N which could outfall to the area northeast of Taxiway A. Additional survey and a master drainage study of the Airport is needed to establish drainage characteristics for this area. A preliminary cost estimate for this work is provided in Section 18.

### **6.4 REMOVE PCC AND AC PAVEMENT AT RUNWAY 14L END AND RECONSTRUCT TAXIWAY M FILLETS**

The 300-foot long irregularly shaped displaced threshold area at the Runway 14L end consists of PCC pavement originally constructed in the 1940s. The pavement distresses for this area were previously discussed in Section 1.3. This pavement has outlasted its original design life and is in need of reconstruction. Work for this bid alternate would consist of the removal of all PCC pavement on the runway and Taxiway M and removal of AC pavement on Taxiway M. New taxiway fillet designs for Taxiway M would be included. All new runway and taxiway pavements would be AC pavement. A preliminary cost estimate for this work is provided in Section 18.

### **6.5 ROUTE AND SEAL JOINTS AND CRACKS ON RUNWAY 1L-19R PCC PAVEMENT**

The irregularly shaped displaced threshold areas at the Runway 1L and 19R ends consist of PCC pavement originally constructed in the 1940s. The PCC pavement is cracked and the joint sealant is no longer sealing the joints. Work for this bid alternate would consist of routing and sealing all cracks greater than 3/8-inch and all joints on the PCC pavement. A preliminary cost estimate for this work is provided in Section 18.

## **7. TOPOGRAPHIC SURVEY**

A topographic survey was performed on March 8 and 9, 2017, by PLS Surveys Inc. (PLS). The survey provided coordinates and elevations of the existing ground surface, as well as features within the Project limits, including drainage and electrical structures. The data was utilized to perform a surface gradient analysis and preliminary design, as well as layout electrical and marking configurations.

## **8. SURFACE GRADIENT AND DRAINAGE ANALYSIS**

### **8.1 GENERAL SURFACE GRADIENT CONSIDERATIONS**

The scope of this Project does not include grading the RSA to meet the surface gradient requirements of Advisory Circular 150/5300-13A. However, this Project will include improving the surface gradient of the runway pavement. The surface gradient requirements applicable to this Project, as well as the proposed improvements, are identified in the Advisory Circular 150/5300-13A analysis in Section 1.4. The existing runway surface is in general conformance with applicable gradient requirements with minor deviations in isolated areas which are discussed in further detail in the following sections.

### **8.2 RUNWAY 32R DISPLACED THRESHOLD AREA**

Within the Runway 32R displaced threshold area is the Taxiway J runway connector, abandoned Taxiway D runway connector, Taxiway J and East Ramp connection, and Runway 32R Blast Pad. Pavement transverse grades within the Taxiway J and D runway connector intersections have areas below specified criteria. The areas below the required range of 1 percent to 2 percent are on the existing PCC pavement section located on the southern portions of the taxiway-runway connector and are as low as 0.2 percent. Within the Taxiway J and East Ramp connection, transverse grades are well above the required range of 1 percent to 2 percent and in some cases as high as 3.3 percent. The 32R Blast Pad exhibits transverse grades below the required range of 1 percent to 2 percent and are as low as 0.2 percent. The Blast Pad also has longitudinal grades within 200 feet of the runway end outside the required range of 0 percent to 3 percent sloping downward from the runway end. The existing Blast Pad longitudinal grades have upward grades within 200 feet of the runway end that slope downward as high as 4.7 percent. The recommended solutions for the issues concerning Taxiway J, Taxiway D, and the East Ramp are described in Section 6.1. The recommended solution to correct the 32R Blast Pad transverse and longitudinal grades would be to perform a variable depth asphalt overlay rehabilitation or reconstruction of the pavement. The longitudinal grade correction would slope downward from the runway end and be within the required 0 percent to 3 percent. The increase in elevation on the crown would bring the transverse grades within compliance. The proposed improvements for the project do not affect the 32R blast pad or the 32R PCC pavement area.

### **8.3 RUNWAY 32R AND 14L THRESHOLD TRANSITIONS**

A transition pavement section will be constructed at both Runway 32R and 14L thresholds to match the new AC pavement runway profile elevation with the existing PCC pavement elevation. This section will meet the minimum longitudinal grade change requirements for the runway centerline at the runway ends. Two rows of existing PCC slabs will be removed on the 14L end and the transition will be approximately 100 feet in length from the removed PCC edge towards the runway midpoint. The maximum grade change along the runway profile without a vertical curve is 0.40 percent. The 14L transition will include grade changes at each end, consisting of 0.13 percent and 0.06 percent. The 32R transition ends at the existing PCC edge and will be 100 feet in length from the PCC edge towards the runway midpoint. The 32R transition will include grade changes at each end, consisting of 0.04 percent and 0.10 percent.

#### **8.4 TAXIWAY C / RUNWAY 14L-32R INTERSECTION**

On the east side of Runway 14L-32R at the Taxiway C intersection, the transverse grades are lower than the specified requirements and are as low as 0.65 percent in some areas. To meet transverse grade criteria in this area, it is recommended that the Project include raising the centerline profile slightly higher than the rest of the runway for the Taxiway C intersection. Raising the profile will necessitate transitioning on each side to the raised profile for a maximum transition length of 100 feet, in order to meet longitudinal grade requirements. There are also grades steeper than the specified requirements located within the TSA of Taxiway C. The recommended solution for these steeper grades is to perform the bid alternate described in Section 6.2.

#### **8.5 TAXIWAY A / RUNWAY 14L-32R INTERSECTION**

Existing transverse grades on Runway 14L-32R at the Taxiway A intersection exhibit steep grades outside of specified requirements in isolated areas. The steep grades only occur within twenty feet from the edge of the pavement towards the centerline and are as steep as 2.6%. The proposed surface will improve the isolated steep grades from the existing condition, providing flatter grades within the allowable requirements.

#### **8.6 RUNWAY 1R-19L / RUNWAY 14L-32R INTERSECTION**

At the Runway 1R-19L and Runway 14L-32R intersection, the existing centerline profile of 1R-19L gives precedence to the dominant runway grades of 14L-32R. The centerline profile of 1R-19L follows the crown of 14L-32R which gives the 1R-19L profile a grade change greater than the allowable of 0.4 percent without a vertical curve. Runway 19L exhibits steep grades at the northeast corner of the runway-to-runway intersection with transverse grades as steep as 2.9 percent. The proposed surface will not significantly change the centerline profile grades for either runway due to the nature of the proposed rehabilitation Project, but will flatten the steep transverse grades to be within the allowable criteria.

#### **8.7 RUNWAY 1L-19R / RUNWAY 14L-32R INTERSECTION**

The existing centerline profiles for both runways have longitudinal grades near 0.10 percent and transverse grades as low as 0.06 percent in some areas. The proposed surface will not affect the grades of Runway 1L-19R, but will provide steeper slopes for surface drainage within the constraints of the site for Runway 14L-32R.

#### **8.8 TAXIWAYS E AND H / RUNWAY 14L-32R INTERSECTION**

The existing centerline profile of Runway 14L-32R within the intersection area of Taxiways E and H have longitudinal grade changes without a vertical curve of more than 0.4 percent. These deviations in longitudinal grade are small isolated occurrences in the existing pavement surface. The proposed surface will create a smooth longitudinal grade which will eliminate the small isolated grade change deviations in this intersection area.

#### **8.9 RUNWAY 14L DISPLACED THRESHOLD AREA**

This area includes the 14L blast pad, existing runway PCC pavement, and the Taxiway M intersection. Existing transverse slopes are generally below criteria along the existing PCC runway pavement, the 14L blast pad, and within the PCC pavement outside the runway edge. The existing centerline profile within the runway PCC pavement has a grade change without a vertical curve of more than 0.4 percent. The

proposed surface does not impact the existing PCC pavement and the 14L blast pad. It is recommended that these areas be reconstructed or rehabilitated to achieve transverse and longitudinal grades within specified requirements. Additionally the existing Taxiway M centerline profile rises above the Runway 14L centerline, and the taxiway centerline has a longitudinal grade change greater than 0.4 percent without a vertical curve.

## **8.10 DRAINAGE CONSIDERATIONS**

There are no significant drainage concerns within the vicinity of the Project limits except for the infield area bound by Runway 14L-32R, Runway 1R-19L, Taxiway A and Taxiway N. This small infield area has been noted by Airport staff to flood adjacent pavement areas on Runway 1R-19L and Taxiway N. A solution to this issue was proposed in Section 6.3. While some of the longitudinal and transverse grades are non-standard, all water drains away from the runway centerline and into drainage swales and storm drain systems located throughout the airfield. The improvements will generally not alter the drainage characteristics of the site.

## **9. AIRFIELD LIGHTING AND SIGNAGE**

### **9.1 EXISTING RUNWAY 14L-32R LIGHTING AND SIGNAGE**

Runway 14L-32R is equipped with Medium Intensity Runway Edge Lights, Runway Threshold and End Lights, Runway End Indicator Lights (REILs) on Runway 32R, Airfield Guidance Signs, and Runway Distance Remaining Signs. A field investigation was conducted on March 2, 2017 for the purpose of evaluating the existing condition of the electrical system that serves Runway 14L-32R. The field investigation involved a multi-faceted effort conducted by Mead & Hunt personnel and Airport staff.

The assessment revealed the following existing conditions:

- 1) The underground cable appears to be installed in schedule 40 PVC conduit. The cable insulation shows considerable deterioration due to persistent high moisture conditions at the Airport and age. The cable is over 30 years old.
- 2) The L-823 splices have only a single wrap of tape over the middle connection, which is not enough to keep moisture out. The ends were not taped which allows moisture to infiltrate the splice.
- 3) The L-867 light bases are not grounded. Advisory Circular 150/5340-30H requires a safety ground be attached to the base to protect maintenance personnel and to comply with the National Electrical Code requirements.
- 4) The L-867 light bases and conduit are not equipped with a drainage system. Consequently, water that infiltrates the light bases and conduit remains in place causing deterioration of the cable and inline transformers.
- 5) The Medium Intensity Runway Lights (MIRL) are over 30 years old and utilize quartz lamps.
- 6) The Taxiway Guidance Signs were manufactured by Lumacurve™. They also utilize incandescent technology and appear to be in good condition. Records show the signs were installed around 2005. Installation included a concrete pad with an offset base can to house the inline transformer.

- 7) The existing airfield electrical vault is located at the base of the Air Traffic Control Tower (ATCT). The space is L-shaped and houses six Constant Current Regulators (CCRs). The airfield vault is fed from an 800A, 120/240V, GE switchgear with standby generator.
- 8) The Runway 14L-32R MIRL circuit is fed from a 7.5 KW, 3-step CCR and the unit is over 30 years old.

## **9.2 ADJUSTMENT OF RUNWAY EDGE LIGHTS AND AIRFIELD GUIDANCE SIGNS**

Due to the increase in elevation of the proposed runway pavement surface, and the resulting grading of the shoulders, the edge lights and sign pads within the Project limits may need to be adjusted. If replaced or adjusted, all electrical equipment will meet the requirements of Advisory Circular 150/5340-30H and 150/5340-18F. Furthermore a survey was conducted by PLS Surveys, Inc. in March 2017 and the survey encompassed runway edge light locations. Utilizing the surveyed light locations, a light spacing analysis was conducted by Mead & Hunt to determine compliance with Advisory Circular 150/5340-30H. Under this analysis, it was determined the existing light spacing does not follow the location and spacing requirements. The Advisory Circular states, "The edge lights are uniformly spaced and symmetrical about the runway centerline, such that a line between light units on opposite sides of the runway is perpendicular to the runway centerline. Longitudinal spacing between light units must not exceed 200 ft." The existing lights are not uniformly spaced and instead have different distances between lights throughout the entire runway length. Respacing of the runway edge lights should be considered as a part of the electrical improvements proposed for this Project. Existing and proposed runway lighting layouts are included as *Appendix J*.

## **9.3 AIRFIELD LIGHTING AND SIGNAGE RECOMMENDATIONS**

### **9.3.1 Relocate Runway End Lights**

Currently, the runway end lights on Runways 14L and 32R have non-standard configurations for displaced thresholds. At both runway ends, two lights are positioned inboard of the runway edge lights and two lights are positioned outboard of the runway edge lights. The first outboard runway end light should be placed in line with the runway edge lights and the remaining three end lights should be installed inboard of the edge lights on the blast pad. The runway end lights should be relocated to the required standard location.

### **9.3.2 Replace Runway Lighting Cable**

Given the very low reading of the runway circuit (0 mega ohm), it is recommended that the Airport replace the entire runway circuit including the homerun. This circuit is destined to fail; however, due to the nature of series circuitry (floating ground), it is very difficult to predict when the circuit will completely fail. Large amounts of energy are wasted when voltage leaks directly to ground. In addition and perhaps more importantly, leaks to ground lead to arcing, which subsequently leads to conductor and CCR failure, creating a potentially dangerous situation for maintenance personnel.

### **9.3.3 Replace Existing Incandescent Fixtures with New LED Runway Edge Light Fixtures**

The replacement of the existing runway system using LED fixtures should be next on the priority list. The reliability of a runway lighting system is crucial to the safety of night operations, especially during low visibility conditions. LED fixtures not only use less power but also have a life cycle of between 50,000 and 100,000 hours.

The existing elevated runway edge lights are quartz, incandescent fixtures. A typical quartz runway fixture using a 45W lamp and a 30/45W transformer imposes a load of 57W on the CCR. Conversely, a LED medium intensity runway fixture using a 10/15W transformer will only draw 16W for unidirectional fixtures and 18W for bidirectional fixtures. This represents a minimum of 60 percent reduction in power usage. More significant is the fact that a more reliable system will require very little maintenance which adds to the savings realized with a new LED lighting system.

#### **9.3.4 Retrofit Existing Incandescent Signs with LED Technology**

In spite of the fact that the existing signs are in relatively good condition, they utilize old, quartz technology. As discussed earlier regarding LED fixtures, replacing the signs with LED technology will increase reliability and reduce power consumption. A retrofit kit can be installed that will replace the inner workings of the existing incandescent signs with the new LED technology. This could be a cost effective option that would achieve the desired reliability and power savings.

#### **9.3.5 Replace Existing Constant Current Regulator**

To increase the reliability of the runway lighting system, the regulator should be replaced. The existing unit utilizes a pair of silicon control rectifiers (SCRs) to control the current output. This type of technology leads to inefficiencies when the unit is not operating at a minimum of 80 percent of its capacity. In addition, this type of technology tends to induce noise into the system because the rapid firing of the SCRs produces electromagnetic interference (EMI). Moreover, these regulators produce an output wave that is not a true sine wave and any measurements using a meter that is not true RMS produces large erroneous readings.

Replacing the CCR with a Ferroresonant regulator will increase efficiency and reduce electromagnetic interference. These units utilize a Ferroresonant network composed of a bank of capacitors and transformer to create a resonant tank circuit that accomplishes the current regulation. These type of regulators will typically produce an output wave that very closely resembles a true sine wave. Therefore, this type of architecture produces minimal EMI, it's highly efficient, and can operate at near unity power factor even at lower loads. In addition, the new CCR can be purchased with full, integral digital control and monitoring system (L-829), including meggering capabilities (IRMS) that can be fully integrated into a computer-controlled, monitoring system at a later date.

## **10. NAVAIDS AND FAA-OWNED FACILITIES**

Runway 32R is equipped with a 2-bar Visual Approach Slope Indicator (VASI). There are no approach guidance systems provided for Runway 14L. New four-box Precision Approach Path Indicators (PAPI) are programmed to replace the 2-bar VASI on Runway 32R in 2017. The VASIs and future PAPIs are owned and maintained by the FAA. During preliminary design, impacts to FAA owned equipment will be analyzed and coordinated with the FAA. The increased runway profile elevation will require the future PAPIs to be adjusted, flight checked and demonstrated reliable by the FAA as a result of this Project.

## **11. PAVEMENT MARKINGS**

FAA criteria listed in Advisory Circular 150/5340-1L provide guidance for the marking of airfield pavements. This Project will include new runway and taxiway markings which will meet current standards.

The runway approach types are non-precision for Runway 14L-32R, and visual for Runway 1R-19L. The approach type dictates what runway markings are required. Runway 14L-32R requires threshold markings and aiming point markings, while Runway 1R-19L does not. Both runways have existing threshold bars and edge markings although these markings are not required for Runway 1R-19L. Runway 14L and Runway 32R both have displaced threshold markings for 300 feet and 350 feet respectively as well as blast pads with chevron markings.

A marking conflict exists for the Runway 19L landing designator marking at the intersection with Runway 14L-32R. The "19" number extends into the Runway 14L-32R intersection which has a preferred higher precedence than Runway 1R-19L. The markings for a lesser precedence runway should not fall within the intersection of the higher precedence runway and should stop at least 10 feet from the edge of the higher precedence runway. To correct this marking conflict, Runway 19L should be extended or the threshold should be displaced.

For taxiway markings, new centerline and edge markings will be placed on all rehabilitated taxiway pavement within the Project limits. The taxiway centerline radii will be designed to meet Advisory Circular 150/5300-13A requirements. All new runway and taxiway markings will be conventional waterborne paint with reflective media.

## 12. ENVIRONMENTAL CONSIDERATIONS

Due to the nature of the improvements, the FAA has determined as of March 10, 2014 that the proposed Project is Categorically Excluded (CATEX), pursuant to FAA Order 1050.1E as it relates to the National Environmental Policy Act (NEPA) of 1969. The Project will not be disturbing any native ground areas. All construction will be performed within existing disturbed limits. Throughout the duration of construction, the Contractor will be required to follow the Best Management Practices as required by the CATEX. See *Appendix K* for the FAA Categorical Exclusion Approval Letter.

## 13. UTILITY LINES IN WORK AREA

All known utilities will be shown on the Project Plans. The Contractor must comply with California 811 - USA North 811 requirements for underground service alert of northern California. There are utilities crossing the Airport and the Contractor will be required to pothole at locations for existing utility conflicts. If in the unlikely event a utility is disrupted, the Contractor is responsible for contacting that utility company and requesting the repair. There are existing storm drain and airfield power circuits in the Project area, which will be detailed on the Plans. The Contractor shall protect all utilities in place.

## 14. SPONSOR REQUESTED MODIFICATIONS TO AIP STANDARDS

The Sponsor requested modifications to AIP standards will be prepared and submitted, if required, in a separate submittal package. If selected for design, the CIR and AC Overlay pavement design alternative will require a modification of airport AIP standards. A draft FAA Western Pacific Region Modification of Airport Standards request form is included as *Appendix L* for this alternative. Grading requirements within the RSA for Runway 32R were identified in the 2008 ALP to be in non-conformance with Advisory Circular 150/5300-13A. After review of these requirements, they were determined to be beyond the scope of the Project.

## 15. DELINEATION OF AIP ELIGIBLE AND INELIGIBLE WORK ITEMS

The Project design is being funded by FAA Airport Improvement Program (AIP) Grant No. 3-06-0050-022-2016. The Project construction will be funded by an upcoming subsequent FAA AIP grant. All Project elements are anticipated to be AIP eligible.

## 16. DBE PARTICIPATION

The FAA grant for this Project will exceed \$250,000. The County has an established DBE program with an overall three year goal of 12.28 percent. Language will be included in the bidding documents to encourage DBE participation, but it is not required.

## 17. PROJECT SCHEDULE

### 17.1 DESIGN AND BIDDING SCHEDULE

The Project Design Schedule is detailed below:

#### Design Milestones

- March 2, 2017 Project Kickoff Meeting – Complete
- March 8 - 9, 2017 Topographic Survey (PLS) – Complete
- March 9 - 10, 2017 Geotechnical Testing/Borings (Parikh) – Complete
- April 7, 2017 Draft Geotechnical Report (Parikh) – Complete
- April 24, 2017 Draft Preliminary Design Concept Report – Complete
- April 24 – May 22, 2017 Review of Draft Preliminary Design Concept Report – Complete
- May 22, 2017 Preliminary Design Concept Report Submittal
- July 25, 2017 30% Plan Submittal
- September 1, 2017 30% Plan Submittal Review Complete
- October 27, 2017 90% Bid Document Submittal
- November 3, 2017 90% Bid Document Submittal Review Complete
- December 1, 2017 Draft Final Bid Document Submittal
- December 8, 2017 Draft Final Bid Document Submittal Review Complete
- December 22, 2017 Final Bid Document Submittal
- March – April 2018 Bid Period
- May 1, 2018 Bids Received



## 19. PRELIMINARY PROJECT BUDGET

The preliminary Project budget is as follows:

Table 8 – Preliminary Project Budget

Element	Cost
Contract Administration and Coordination/Design/Bid Administration	\$276,299.00
Catex Reimbursement Cost	County to Provide
Construction Cost (Base Bid)	Selected Base Bid
Construction Management Cost	15% of Construction Cost
County Administration Cost	County to Provide
<b>Total</b>	<b>TBD</b>

## 20. CONCLUSION

This report presented the results of the pavement evaluation and design efforts for the rehabilitation of Runway 14L-32R. The 'CIR and AC Overlay' or 'AC Pavement Mill and Fill' rehabilitation methods are both recommended alternatives for construction. These alternatives allow for a reduced initial cost, reduced total present value, reduced duration of construction, and remove the need to disturb the subgrade and encounter unsuitable clay soils or excessive groundwater.

Upon County and FAA review and approval of the preliminary design recommendations, the detailed design process can begin. Mead & Hunt looks forward to your review and approval.



# Noise Program



\*CCR 1946

## Contra Costa County Airports Noise Program

Contra Costa County Airports (“Airports”) is committed to working closely with community members and the flying public to help minimize aviation noise impacts in Contra Costa County (“County”). Buchanan Field Airport (“CCR”) has



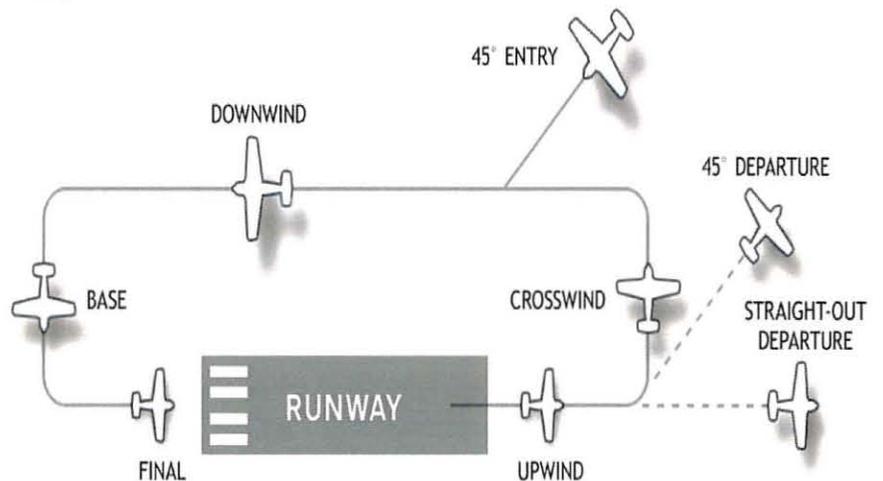
been a member of the community and a vital economic contributor to the County since 1946. As the community has grown around the Airport, Airport staff has worked diligently to address the concerns of its neighbors.

Unfortunately, noise from aircraft departing or landing at CCR can be a distraction to our neighbors. This is largely related to the orientation of the Airport’s four runways when Buchanan Field Airport was established in the 1940s. The Federal Aviation Administration (“FAA”) designated the flight paths in use for safety and standards purposes, but regrettably, there was a lack of foresight to create a larger buffer between the Airport and residential spaces. As a result, we have residential neighbors close to the edge of Airport property, which can create discomfort or conflict for all parties.



\*For safe operations aircraft must take off and land into the wind. Wind direction changes by season and even throughout the day, thus altering the runways in use.

\*Aircraft may operate at low altitudes as necessary for landing and takeoff per Federal Aviation Regulation 91.119.



\*Approximate flight pattern at CCR

# Noise Program

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For over 30 years, the County has been able to mitigate some aircraft-related noise at CCR through adoption of Airport Ordinance 87-8. The Ordinance details, among other items, noise and operations restrictions such as aircraft engine run-up, touch and go operations, preferential runway use, and allowable jet noise levels. CCR is one of the few airports in the country fortunate to have an Airport Noise Ordinance grandfathered by the FAA but unfortunately the ordinance does not encompass all aircraft noise and this where the noise abatement program (“Program”) comes in.

The Program has evolved as the environment in and around CCR has since noise mitigation efforts first started in 1965. Program advancements include:

- **1965-** Aviation Liaison Committee created and renamed Aviation Advisory Committee (“AAC”) in 1977
- **Early 80’s-** Airport traffic pattern is raised from 800’ to 1000’ above ground level for light aircraft.
- **1987-** Airport Ordinance 87-8 is enacted including noise and operations restrictions:
  - No practice landings and takeoffs, training, touch and go and/or proficiency operations shall be conducted between the hours of 10pm and 7am on weekdays. On weekends and holidays touch and go operations are prohibited from 10pm to 8am.
  - Maximum permitted takeoff noise level, as set in the FAA Advisory Circular 36-3, for jet aircraft of 78 decibels between 7am and 10pm and 75 decibels between 10pm and 7am.
  - No maintenance or test runups shall be conducted between the hours of 10pm and 7am.
  - Landing aircraft shall maintain not less than traffic pattern, 1000’, altitude until necessary to commence descent for a normal landing.
- **1988-** Airport Community Relations Officer (“CRO”) staff position established to assist and respond to community noise concerns.
- **1989-** Airport completed a FAR Part 150 Noise Compatibility Program, as part of a Master Plan update.
- **1994-** Byron Airport opens in East Contra Costa County.
- **1998-** Noise abatement signs installed at CCR entry ways and runway run-up areas to remind pilots of noise sensitive communities surrounding the Airport.

# Noise Program

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- **1999-** The Airport initiates meetings with flight schools and air traffic control to review the noise abatement program and discuss current community related noise concerns.
- **2001-** The Airport updates website to provide better information to pilots regarding noise abatement procedures and requirements.
- **2002-** Published a *Noise Management Program Guide* for pilots to insert into their flight books and quickly reference preferential noise abatement routes for flight planning purposes.
- **2003-** Airport implemented a new program in which aircraft owners were notified if their specific aircraft operation caused a noise complaint.
- **2005-** The Airport updated the Buchanan Field Airport Noise Compatibility Program, originally approved by the Board of Supervisors in 1989.
- **2006- Current-** Continuous improvement efforts which included:
  - CRO expanded program elements (beyond Noise Ordinance) to concerns and issues around the Byron Airport.
  - Instrument jet departure flight path revised on CCR Runway 19R to minimize noise impacts.
  - Created and implemented an online noise complaint process.
  - Tracked noise trends and issues to address with Airport users and highlight in the biannual Airports newsletter.
  - Revised and updated *Noise Management Program Guide* pilot guide and related website information.
  - CRO researches and responds to every noise complaint via phone, email and/or letter, as requested.

While Contra Costa County (“County”) owns and operates the airport, the FAA is the oversight authority when aircraft are flying (including taxiing to and from the runways) and all aviation safety-related concerns. In addition, federal law requires CCR to remain open to the public 24 hours per day, 7 days per week on a non-discriminatory basis. As the FAA controls the flight patterns and airspace, the Program relies on voluntary compliance by Airport users

# Noise Program

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Annual operations are rising again (122,435 operations in 2016) from a low of 78,098 in 2012 after the economic downturn, which directly affected aviation. CCR is far removed from its peak of 357,181 annual operations in 1977, the 304,868 annual operations in 1990, and the helicopter flight training school in the late 2000's, but it is imperative for the Program to evolve and the Airport to continue to be a good neighbor. Also, a recent FAA revision of the jet flight paths at Oakland, Sacramento, and San Francisco International Airports has resulted in noise impacts for residents all over the County. While improving the safety and efficiency of the national transportation system, the new flight paths have created noise impacts for communities throughout the County and many that had not been previously impacted. Airport staff will continue to take steps to benefit the community no matter where the source of disturbance originates.

The Program proactively seeks cooperation from Airport users by encouraging pilots to observe and follow voluntary noise abatement procedures, which is a recommended flight path or operational procedure, to minimize aircraft disturbances when safety, weather and/or traffic conditions permit. Airport staff created the *Noise Management Program Guide* detailing specific noise abatement procedures for Airport users at CCR. The Program and related information is posted on the County website at

[www.ContraCostaCountyAirports.org](http://www.ContraCostaCountyAirports.org) for everyone's benefit. A main tenet of the Program is directed toward continual improvement and community and pilot education.

**Buchanan Field Airport (CCR)**  
[www.ContraCostaCountyAirports.org](http://www.ContraCostaCountyAirports.org)

## Noise Management Program

Buchanan Field Airport, located in Concord, California, is a public facility owned by Contra Costa County. As such, the County has a responsibility to provide Airport users a safe, efficient facility with access to the national airspace system. By the same token, the Airport must also be sensitive to community concerns and operated in such a way as to minimize the affects of aircraft noise on the community.

The CRO uses multiple channels to educate airport users and pilots of the noise program and trends:

- Contact airport users directly in person, by phone, or in writing.
- Provide printed *Noise Management Program Guide* for pilots to insert into their flight books to quickly reference preferential noise abatement routes at CCR for flight planning purposes.
- Annual meetings with pilot clubs, flight schools, and air traffic control to review the noise abatement program and discuss current community related noise concerns.
- Discuss noise trends and issues in the biannual Airports newsletter

The Program receives additional assistance, support and time investment from the Airport Committee, Aviation Advisory Committee (AAC), and the Airport Land Use Commission (ALUC) for the benefit of the community. Together, we are committed to being a good neighbor and improving the quality of life in our community.

# Noise Program

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- Airport Committee is a subcommittee of the Board of Supervisors. Its members are typically the Supervisors that have an airport located in their district. Byron Airport is in District III and Buchanan Field is in District IV.
- AAC provides advice and recommendations to the Board of Supervisors on aviation issues related to the Contra Costa County Airports. The AAC works to advance aviation while giving those community members living and working near the Airports a chance to stay informed on Airport matters as well as voice their opinions and concerns. The AAC also provides a forum for vetting policy matters related to Buchanan Field and Byron Airports.
- ALUC works to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

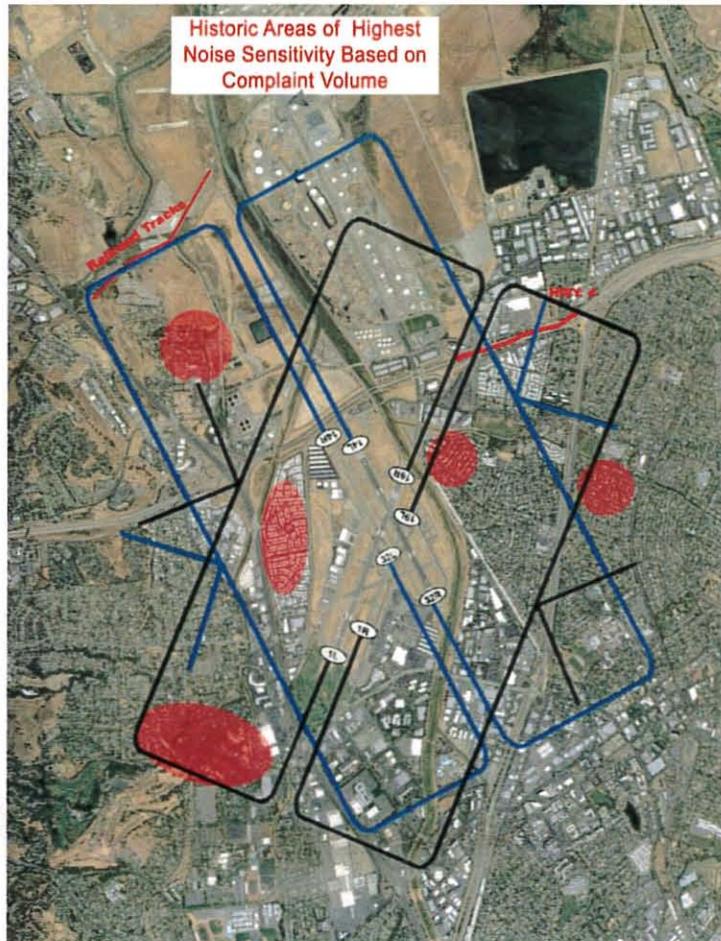
As a good neighbor, CCR is both proactive and responsive to aviation noise impacts in our community. The Program creates a direct line of communication to better understand and serve the needs of our community regardless of where the source of the concern may originate. When a complaint call is received by Airport staff, we assist and respond by:

- Contacting FAA Air Traffic Control (ATC), and if possible suggest ATC relay noise abatement procedure(s) to the pilot for noise mitigation.
- Reviewing all complaints through a comprehensive investigation process which includes ATC flight recordings, contacting ATC tower personnel, and available County resources.
- Logging complaints in a database and including in our monthly noise reports to the AAC.
- Collecting data to analyze trends and proactively coordinate with Airport users to address possible noise impacts in support of our community.

The CRO acts as a liaison, or ombudsman, for the community. When special events or new operations occur at the airfield, Airport staff will notify our neighbors and proactively coordinate with the operator to try and mitigate possible noise impacts in support of our community. We are available as a community resource for information on the Airports and aviation operations. We post community resources on the Airports website, social media (NextDoor), and news blogs (Claycord) to notify and inform our community of aviation activities and events that may create noise or concerns. Additionally, the CRO has a direct mailing list for those who have requested this type of notification of events and new operations.

# Noise Program

Airport staff continues to identify current trends at the Airports. Noise data analysis has identified areas most impacted by aviation noise based on historical complaint volume and this information is utilized in communications and meetings with Airport users to ensure everyone is aware of these areas and the need to mitigate aviation noise. Historically impacted areas identified in the figure below.



Numerous Program improvements have been made to benefit the community at large since noise mitigation efforts first started in 1965. CRO data and trend analysis has been influential in the following improvements.

- Instrument jet departure flight path revised on CCR Runway 19R away from dense residential neighborhoods and rising terrain and towards major roadways and commercial areas. Data was provided to the FAA for review, study, and implementation from the Buchanan Field Airport Noise Compatibility

# Noise Program

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Program process and collected through the Program. After years of review, the FAA enacted the new flight path.

- Reduced late night aviation noise impacts by requesting emergency helicopters at CCR alter arriving and departing flight paths by increasing altitude and overflying non-residential areas as much as possible.

Program improvements do not begin or end in the communities surrounding CCR. Byron Airport has been a part of Contra Costa County Airports since 1994 and is supported by a larger buffer between the Airport and residential spaces. Airport staff receives a small percentage of total complaints from East Contra County and most reported aviation disturbances in this area relate to aerobatic and low-flying activity. While the Airport Noise Ordinance does not apply to Byron Airport, since the Ordinance predates Byron Airport, Program components are utilized to help minimize aviation noise impacts for neighbors.

- For example, Airport staff received several noise complaints in East County due to aerobatic activity. While the activity was not related to County Airport tenants, Airport staff in coordination with AAC members and pilots, identified, located and informed the individuals associated with the aerobatic activity disturbance in order to best mitigate related noise impacts. Airport staff documented and dispersed information to tenants and nearby airports specifying the area of complaint and where aerobatic activity, allowed per FAA regulations, would minimize the impact. These combined actions had an immediate impact and an immediate reduction in noise disturbances for this community.

Airport staff will continue to strive for improvement to address continually changing circumstances at the airports and in the surrounding communities and we know that our work will ever be evolving. For more detailed information regarding Buchanan Field and Byron Airport operations, aviation, and FAA oversight authority please visit our FAQ's online at <http://www.cccounty.us/3804/Buchanan-Field-Noise-Program>.

## **Buchanan Field Noise Response**

Our neighbors turn to us for answers. When you contact us to voice your concern and objection to aircraft operations, you help us gauge and better understand what's occurring in our community. In return, we take appropriate action by verifying the source of your complaint and notifying Airport users on applicable noise mitigation procedures.

Your noise response team is listening. This is our commitment to you:

- To be a good neighbor by monitoring aircraft noise and investigating community concerns.

# Noise Program

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- To listen and respond in a timely manner to your concerns regarding aircraft operations.
- To be readily available to meet directly with concerned neighbors.
- To educate the flying public on preventative and corrective measures instituted to comply with our voluntary noise abatement program.
- To enforce maximum allowable noise limits and training operation limits at CCR per the Airport Ordinance 87-8.

We recognize the value of obtaining feedback from our community. This is a never-ending task, and your sustained input and support is key to this community-wide process. If you have a complaint regarding aircraft operations, would like our noise management team to look into an event, or have a suggestion, please contact us in the following ways:

**Noise Complaint Line:**

(844) 359-8687 then press 4

**Online:** [www.ContraCostaCountyAirports.org](http://www.ContraCostaCountyAirports.org)

**Contra County Airports Noise Program can be found online in the Community Resources section.**