ACV Instrument Procedure Enhancements

08AUG23

ACV On-Time Challenge

Arcata/Eureka California Redwood Coast-Humboldt County Airport suffers from prolonged periods of low visibility conditions

The airport was originally designed/located for the purpose of low visibility flight training for the Navy and Coast Guard

Current instrument approach procedures, with continued airfield lighting enhancements, support arrivals into ACV when the visibility is as low as ½ mile

When the visibility is lower than ½ mile, aircraft must either divert to another airport, delay their operation or cancel the flight

This persistent problem creates negative customer experiences

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Historical Weather Data

Current approach procedures, prevailing winds and cloud ceiling/visibility create prolonged periods between July and December where on-time operations are difficult to achieve

Airport Open to Operators

RNAV (GPS) Rwy 14 (VNAV) and ILS or LOC Rwy 32

Hour (Local)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0:00	**92.8%**	**94.5%**	**91.4%**	**92.5%**	**93.0%**	**89.7%**	**82.0%**	**80.4%**	**82.0%**	**80.9%**	**91.6%**	**90.0%**
1:00	**91.4%**	**92.6%**	**93.6%**	**92.0%**	**92.9%**	**89.1%**	**80.7%**	**78.3%**	**84.4%**	**81.3%**	**91.0%**	**88.8%**
2:00	**94.4%**	**92.8%**	**93.5%**	**92.9%**	**90.7%**	**89.6%**	**80.0%**	**76.1%**	**83.9%**	**80.9%**	**91.1%**	**89.1%**
3:00	**92.9%**	**93.7%**	**92.7%**	**92.6%**	**89.4%**	**87.9%**	**80.4%**	**72.8%**	**81.3%**	**80.2%**	**90.3%**	**88.1%**
4:00	**93.9%**	**92.6%**	**92.0%**	**90.6%**	**90.0%**	**85.1%**	**77.8%**	**71.4%**	**80.4%**	**82.3%**	**91.8%**	**87.0%**
5:00	**92.0%**	**92.2%**	**92.0%**	**92.9%**	**90.5%**	**86.1%**	**71.9%**	**69.1%**	**82.2%**	**81.8%**	**90.6%**	**89.1%**
6:00	**92.9%**	**93.4%**	**91.9%**	**90.7%**	88.9%	82.2%	67.4%	67.2%	**80.9%**	**81.7%**	**90.7%**	**88.6%**
7:00	**95.3%**	94.7%	91.1%	91.6%	89.0%	81.3%	64.3%	65.8%	77.7%	81.6%	90.9%	**90.1%**
8:00	94.6%	94.9%	92.1%	93.1%	89.4%	84.5%	69.4%	66.9%	76.7%	83.6%	93.1%	90.5%
9:00	94.8%	96.3%	93.6%	93.1%	91.1%	85.8%	73.0%	69.4%	80.8%	83.8%	92.2%	91.2%
10:00	95.4%	97.0%	93.3%	96.1%	93.1%	90.5%	78.7%	77.4%	83.6%	84.6%	94.0%	88.7%
11:00	96.1%	97.2%	95.5%	96.5%	95.7%	93.6%	86.5%	87.1%	89.4%	88.3%	94.0%	90.2%
12:00	95.6%	98.1%	97.1%	95.9%	97.4%	94.7%	95.8%	92.3%	91.6%	90.6%	94.0%	91.0%
13:00	95.9%	97.0%	97.3%	97.0%	97.6%	96.3%	97.8%	95.1%	93.6%	92.0%	95.6%	90.6%
14:00	96.4%	96.9%	97.0%	98.4%	98.8%	98.8%	98.5%	97.0%	94.2%	91.2%	94.2%	92.0%
15:00	96.2%	97.6%	96.9%	97.3%	98.6%	98.6%	99.0%	95.9%	95.0%	88.9%	94.7%	88.6%
16:00	95.1%	97.4%	96.3%	98.5%	98.8%	97.0%	98.2%	94.8%	94.6%	89.8%	91.7%	90.9%
17:00	**94.2%**	97.1%	95.4%	97.8%	98.4%	96.7%	96.2%	91.4%	92.1%	85.1%	**92.0%**	**91.3%**
18:00	**94.9%**	**95.4%**	94.4%	97.4%	98.2%	96.3%	95.5%	88.6%	89.1%	**85.7%**	**93.4%**	**92.3%**
19:00	**94.3%**	**96.2%**	**93.4%**	97.3%	96.9%	94.0%	90.9%	84.0%	**87.9%**	**85.2%**	**92.7%**	**90.4%**
20:00	**93.6%**	**94.5%**	**94.1%**	**96.8%**	**96.4%**	93.0%	**88.1%**	**82.2%**	**83.7%**	**85.7%**	**91.9%**	**90.6%**
21:00	**92.9%**	**95.4%**	**93.1%**	**95.4%**	**93.3%**	**91.4%**	**86.6%**	**81.2%**	**85.3%**	**83.7%**	**91.6%**	**88.3%**
22:00	**92.9%**	**95.1%**	**92.8%**	**94.8%**	**95.7%**	**91.5%**	**85.0%**	**81.1%**	**86.1%**	**83.8%**	**90.2%**	**90.4%**
23:00	**91.5%**	**94.5%**	**93.3%**	**95.2%**	**93.2%**	**88.8%**	**84.4%**	**76.4%**	**85.3%**	**85.8%**	**91.1%**	**90.1%**

Day	95.6%	96.7%	95.0%	96.1%	95.1%	92.2%	86.5%	83.8%	88.2%	87.2%	93.4%	90.4%
Night	**93.3%**	**94.1%**	**92.8%**	**93.3%**	**92.5%**	**88.8%**	**81.7%**	**76.9%**	**83.6%**	**83.0%**	**91.4%**	**89.6%**
24 Hours	94.2%	95.3%	93.9%	94.8%	94.0%	90.9%	84.5%	80.9%	85.9%	84.9%	92.3%	89.9%

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Instrument Procedure Enhancements

Identify enhancements for approach procedures to runway 32 during low visibility conditions

- Increase likelihood of safe, on-time arrivals for scheduled air carriers
- Improve existing low visibility operations for USCG Humboldt County
- Improve safety and accessibility for properly equipped general aviation and business jet operators

Meet with HCA, USCG and FAA stakeholders to identify a plan and secure AIP funding where possible to implement the plan

Develop a Benefit/Cost Analysis for the enhancements and review with HCA to determine next steps

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Enhancing Rwy 32 Approach

Improving the approach on runway 32 to standard Category II minimums would ***significantly*** improve the airport's ability to retain on-time arrivals year round

Airport Open to Operators

RNAV (GPS) Rwy 14 (VNAV) and ILS CAT II Rwy 32

Hour (Local)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0:00	**97.1%**	**99.2%**	**96.7%**	**98.8%**	**98.6%**	**98.8%**	**98.0%**	**97.9%**	**92.4%**	**95.2%**	**96.6%**	**92.2%**
1:00	**97.0%**	**98.1%**	**98.8%**	**99.5%**	**99.3%**	**99.6%**	**98.2%**	**97.8%**	**95.7%**	**95.6%**	**96.0%**	**91.9%**
2:00	**98.1%**	**96.7%**	**98.7%**	**99.8%**	**99.5%**	**99.1%**	**99.3%**	**97.9%**	**96.1%**	**94.2%**	**95.9%**	**92.2%**
3:00	**97.5%**	**97.8%**	**98.8%**	**99.7%**	**99.3%**	**98.1%**	**98.5%**	**96.4%**	**94.3%**	**95.2%**	**97.8%**	**91.1%**
4:00	**97.5%**	**98.5%**	**98.4%**	**98.9%**	**99.6%**	**99.1%**	**98.0%**	**97.6%**	**93.5%**	**94.6%**	**97.2%**	**91.8%**
5:00	**97.3%**	**97.7%**	**98.6%**	**99.6%**	**99.6%**	**99.5%**	**99.2%**	**95.0%**	**94.6%**	**95.2%**	**96.5%**	**91.9%**
6:00	**97.7%**	**98.7%**	**99.4%**	**98.3%**	98.6%	96.7%	97.2%	95.2%	**95.3%**	**92.8%**	**95.6%**	**92.7%**
7:00	**98.0%**	98.1%	98.2%	98.8%	99.3%	98.7%	97.4%	94.2%	92.7%	94.4%	95.8%	**92.6%**
8:00	97.1%	98.3%	98.3%	99.3%	99.3%	99.5%	98.9%	98.0%	95.1%	93.2%	97.2%	93.1%
9:00	98.3%	99.1%	99.6%	99.5%	99.7%	99.9%	99.7%	99.2%	98.1%	96.0%	97.3%	93.0%
10:00	98.8%	99.4%	98.9%	100.0%	99.6%	100.0%	99.4%	99.8%	98.9%	97.3%	98.0%	92.4%
11:00	99.3%	99.7%	99.8%	100.0%	99.9%	100.0%	100.0%	100.0%	99.4%	99.1%	97.9%	93.1%
12:00	99.0%	99.8%	99.3%	100.0%	100.0%	100.0%	100.0%	100.0%	99.3%	98.9%	98.2%	93.8%
13:00	98.4%	99.1%	99.5%	100.0%	99.7%	100.0%	100.0%	99.7%	99.7%	99.2%	98.5%	93.3%
14:00	99.2%	99.5%	99.7%	100.0%	100.0%	100.0%	100.0%	99.9%	99.3%	98.9%	98.5%	94.3%
15:00	98.7%	99.7%	99.1%	99.7%	100.0%	100.0%	99.9%	100.0%	99.4%	98.3%	97.3%	91.5%
16:00	98.0%	99.4%	98.2%	99.9%	100.0%	99.7%	100.0%	99.8%	99.1%	96.1%	96.7%	93.7%
17:00	**97.3%**	98.6%	98.8%	99.8%	100.0%	99.7%	100.0%	99.5%	99.0%	93.4%	**97.0%**	**93.2%**
18:00	**97.8%**	**96.9%**	97.9%	99.9%	100.0%	99.3%	99.5%	99.2%	97.0%	**93.9%**	**98.1%**	**94.6%**
19:00	**97.0%**	**99.1%**	**97.3%**	99.8%	99.2%	99.2%	98.8%	96.4%	**95.5%**	**93.7%**	**97.7%**	**93.1%**
20:00	**96.7%**	**98.4%**	**98.5%**	**99.3%**	**99.5%**	98.7%	**98.7%**	**96.2%**	**94.4%**	**95.8%**	**97.2%**	**92.9%**
21:00	**97.0%**	**98.3%**	**97.6%**	**99.1%**	**98.7%**	**99.0%**	**98.4%**	**96.4%**	**95.3%**	**95.6%**	**97.6%**	**91.4%**
22:00	**97.4%**	**99.2%**	**96.4%**	**99.7%**	**99.2%**	**99.4%**	**99.1%**	**96.9%**	**94.9%**	**95.7%**	**96.2%**	**93.3%**
23:00	**97.0%**	**98.3%**	**96.8%**	**98.8%**	**99.1%**	**98.5%**	**98.8%**	**95.5%**	**96.7%**	**95.6%**	**97.5%**	**92.3%**

Day	98.5%	99.1%	98.9%	99.7%	99.7%	99.4%	99.3%	98.6%	98.1%	96.8%	97.5%	93.1%
Night	**97.4%**	**98.2%**	**98.0%**	**99.2%**	**99.2%**	**99.0%**	**98.6%**	**96.8%**	**94.9%**	**94.8%**	**96.9%**	**92.5%**
24 Hours	97.8%	98.6%	98.5%	99.5%	99.5%	99.3%	99.0%	97.9%	96.5%	95.7%	97.2%	92.7%

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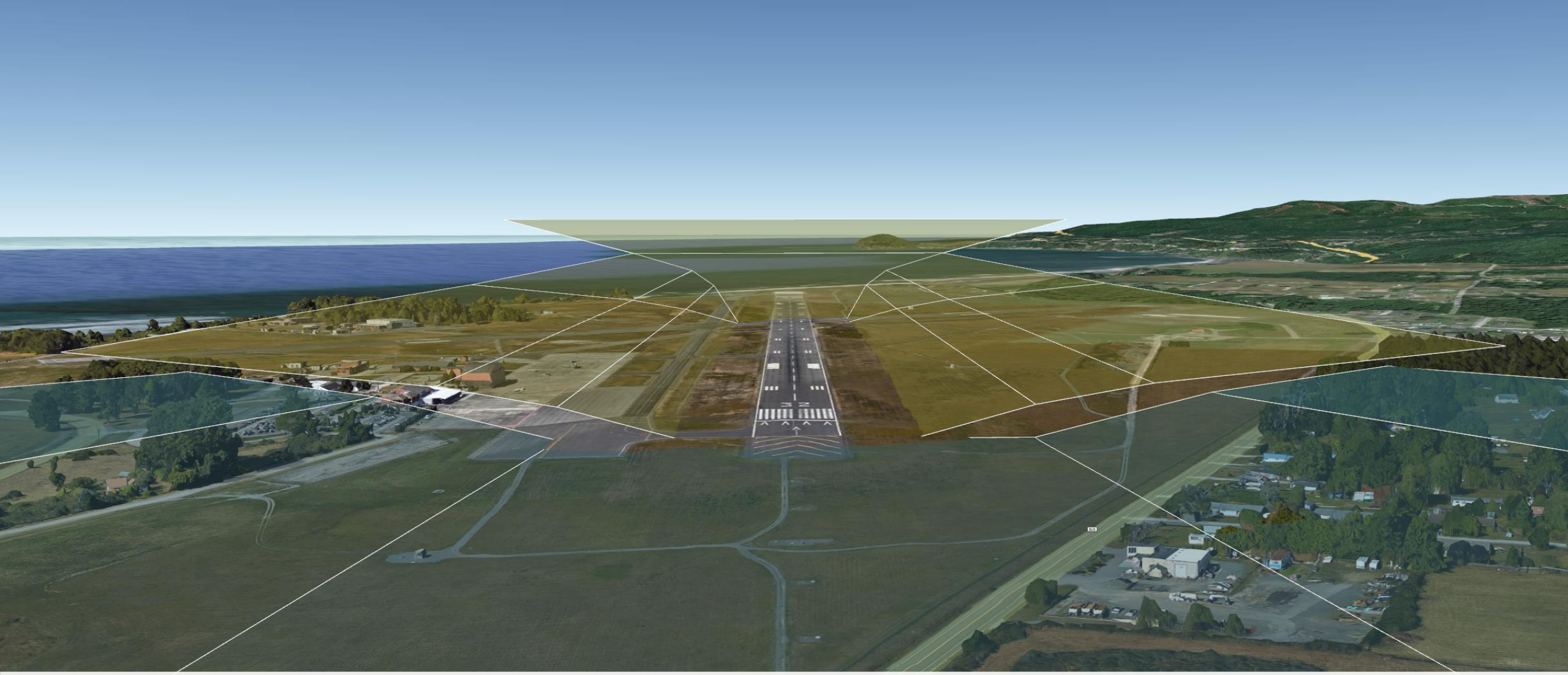
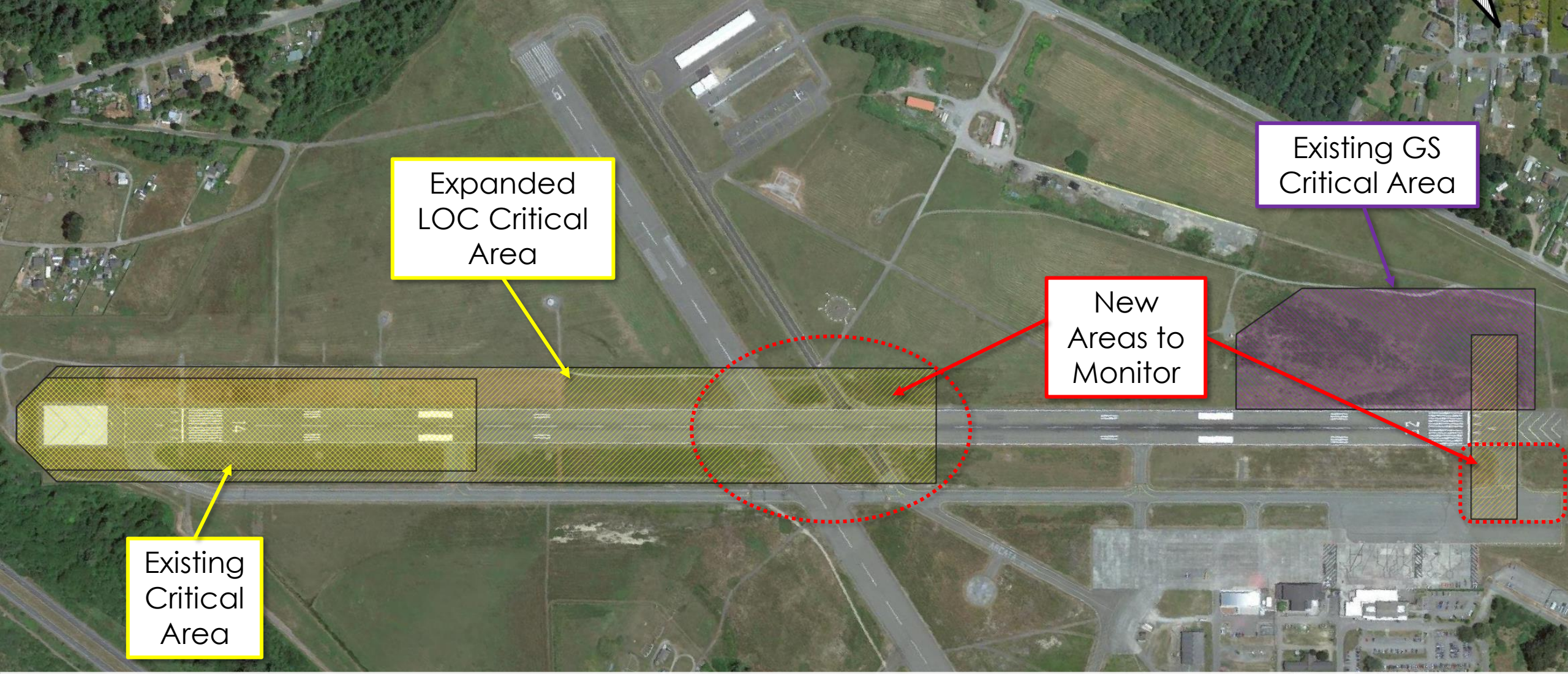


ILS CAT II Rwy 32

Final Approach (Blue) and Initial Missed Approach (Yellow)



Critical Areas to Protect During CAT II Operations

Summary of Findings (01AUG23)

Component	Existing	Enhancement	Cost*	Timeline
Historical Weather	Extremely Foggy Conditions, especially in the Fall, all appropriate weather sensors are installed (ASOS, RVRs)	-	-	-
Geospatial Deconfliction	2021 VGA Survey has small differences from FAA OAS	Work with FAA to resolve approach light and sign definitions	$	2-8 Weeks
Instrument Procedures	ILS or LOC Rwy 32 Copter ILS Rwy 32	ILS SA CAT II Rwy 32	$	24 Months
NAVAID Performance	FAA Maintains ILS Mark 1F performing at CAT I/E (Single Transmitter)	Upgrade FAA ILS to MK420 performing at CAT II/D (Dual Transmitter)	$$$	12 - 18 Months
Power/Backup Power (ILS/ALS/HIRL/RVR)	Generator backup, but no battery backup or cutover switches	Install 15min UPS in airport and FAA vault, with cutover switches, and maintain generator backup	$$	12 – 18 Months
Status Monitoring (ILS/ALS/HIRL)	FAA Performs Level 3 monitoring of ILS	FAA Performs Level 3 monitoring, airport and/or USCG monitors HIRL	$$	12 – 18 Months
Low Visibility Operations/ Airfield Controls	No existing controls, runway safety area and ILS markings	Short Term - Airport Ops/Maintenance monitoring of critical areas, consideration of RGL on Twy B, Establish ATIS	$$	6 - 12 Months
		Long Term - Establish ATCT**	$$$$	Unknown

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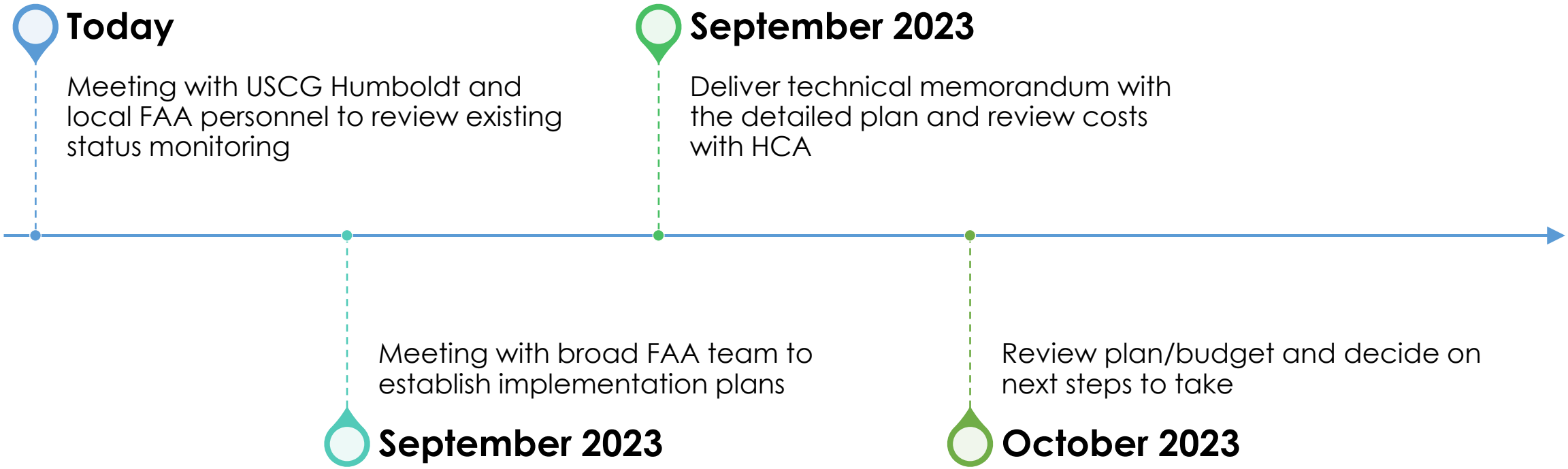
* Ongoing discussions will refine these costs
** Project Team is working with FAA/USCG to implement changes in advance of ATCT

Next Steps


Today
Meeting with USCG Humboldt and local FAA personnel to review existing status monitoring
September 2023
Deliver technical memorandum with the detailed plan and review costs with HCA
Meeting with broad FAA team to establish implementation plans
September 2023
Review plan/budget and decide on next steps to take
October 2023