

FIPC DME/DME FORM						
PROCEDURE: STAR EMZOH FOUR (RNAV) OAKLAND CA KOAK			AIRPORT NAME: SAN FRANCISCO BAY OAKLAND		AIRPORT ID: KOAK	SPECIAL CONTROL NO: SG-12-268-24
FAC ID: EMZOH4		CITY: OAKLAND			ST: CA	ORIG CHART DATE: 04/17/2025
DFL TYPE: PROC/D	THIRD PARTY: <input type="checkbox"/> YES	EST. TIME ON SITE: 1.0	REIMB. NUMBER:	PTS TASK ID: EC3944CD561C435C92E366DD0FF228A0		
PREFLIGHT NOTES						
REVIEWER: joseph r jaquish					DATE: 01/22/2025	
COMMENTS: Flight check required to assess DME/DME performance and flyability of procedure.					CHECK ONE: <input checked="" type="checkbox"/> FLT CK REQ <input type="checkbox"/> NFCR <input type="checkbox"/> REJECT <div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 2px;"> YES NO </div> <div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 2px;"> CPV COMPLETE? X </div>	
PROCEDURE RESULTS						
INSPECTION DATE: 01/22/2025	CREW #: VN571	N #: N76	INSTRUMENT PROCEDURE STATUS: <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT W/CHANGES <input type="checkbox"/> UNSAT		ARINC CODING: <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT/GOLD <input type="checkbox"/> UNSAT	
FLIGHT INSPECTOR SIGNATURE: joseph r jaquish @ 01/22/2025 20:07			PRINTED NAME: JAQUISH, JOSEPH RICHARD			NOTAM INITIATED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
FLIGHT INSPECTOR REMARKS: Sat, nothing significant to report. Procedure Satisfactory for GNSS operations, DME/ DME awaiting AFS/ WAJR approval						
DME/DME STATUS: <input checked="" type="checkbox"/> SAT <input type="checkbox"/> UNSAT	SPECIALIST SIGNATURE: mark a-ctr tellier @ 02/27/2025 11:11				PRINTED NAME: Mark Tellier	
SPECIALIST REMARKS: No new ESVs Required.						
IN-FLIGHT OBSTACLE REPORT						
OBSTRUCTION ID #:	COORDINATES OR LOCATION:	GNSS ALTITUDE (MSL):	BAROMETRIC ALTITUDE (MSL):	HEIGHT ABOVE GROUND LEVEL:		

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Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type: STAR	Estimated Chart Date: 04/17/2025	APWS Task ID: EC3944CD561C435C92E366DD0FF228A0	APWS Project ID: 476A17D0D10D4939A1F4F230ED5C6EB8
Procedure: STAR EMZOH FOUR (RNAV) OAKLAND CA KOAK		Enroute: YES	Specialist: Damron, Todd		Agreement Number:
Airport ID: KOAK			Airport City: OAKLAND		State: CA
Facility ID:	Facility Type:	Flight Inspection Remark Type: New FC Slot			
<div>Procedure Comments: PROCEDURE REDESIGNED PER PBN. AFS APPROVAL LETTER FOR LEG LENGTH REDUCTION FROM 22.87 TO 20 NM DUE TO DECELERATION. POC: ALLAN WILL (AJV-A423), 405-954-6103.</div> <div><div>12/19/2024</div><div>QUALITY 41 CHECKED</div><div>QUALITY 14 CHECKED</div></div>					

1. FLIGHT PROCEDURE IDENTIFICATION:

Oakland, CA
San Francisco Bay Oakland International Airport (KOAK)
EMZOH RNAV STAR

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

Request a waiver to use 200 KIAS design airspeed on a STAR. FAA Order 8260.58C, paragraph 1-2-5, Table 1-2-2, Indicated Airspeeds (KIAS) for a STAR reflects a minimum design speed of 210 KIAS below 10000' MSL for Category D aircraft.

3. REASON FOR WAIVER (JUSTIFICATION FOR NONSTANDARD TREATMENT):

NCT has received multiple ATSAPs concerning speeds below Bravo airspace. We have and continue to encounter variations in pilot application. Some pilots question ATC if they need to slow if the speed is not published on their route. Some pilots slow at the first fix under the Bravo, some slow as they are traversing under Bravo, while others begin slowing prior to flying underneath Bravo airspace in anticipation of encountering it. These varying applications and unpredictability cause compression issues for the controllers and pilots. Standard and predictable slowing will lead to increased safety and efficiency.

Fix: LOHGN: SPEED RESTRICTION 200K: ALTITUDE (Mandatory 6000)

Fix: MYNEE: SPEED RESTRICTION 200K: ALTITUDE (Mandatory 7000)

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

The STAR was designed with Industry input and has their endorsement based on various aircraft flight simulator results. Slowing to 200 KIAS prior to the BRAVO prevents unpredictable speed reductions that result in overtakes.

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

Alternatives were considered however none were feasible due the need for slower, and consistent airspeeds when entering the terminal environment in order for ATC to safely sequence aircraft for multiple airport and arrival runway operations.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

Flight Standards

7. SUBMITTED BY:

DATE	OFFICE IDENTIFICATION	TITLE
01/17/25	AJV A42	MGR

SIGNATURE

Digitally signed by

ALLAN WILL

Feb 18, 2025

8. AFS ACTIONS:

☐ APPROVED ☐ DISAPPROVED ☐ NOT REQUIRED

COMMENTS:

DATE	ROUTING SYMBOL	SIGNATURE
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U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Date: November 13, 2024

To: Christopher J. Hope, Acting Manager, Flight Technologies and
Procedures Division
THRU: Danny Hamilton, Manager, Flight Procedure Implementation and
Oversight Branch

From: Lonnie Everhart, Manager, Instrument Flight Procedures (IFP) Coordination
Team, AJV-5310

Subject: Approval Request: San Francisco Bay Oakland Intl (OAK), Oakland, CA.

KOAK EMZOH Standard Terminal Arrival Route (STAR):

SKIZM to MYRIB Deceleration Distance

Requesting approval for a leg length of 20.0 NM from SKIZM to MYRIB.

The requirement in Order 8260.3F, paragraph 2-2-10 states:

A deceleration evaluation is required prior to any fix with a speed restriction or when required for 14 CFR part 91.117 (a) or (c). STARs not meeting the requirements of this paragraph may be authorized with Flight Standards approval unless required for 14 CFR part 91.117 (a) or (c) (see paragraph 1-4-2).

Paragraph 2-2-10.b states:

When descent is permitted, the descent gradient leading to the fix with the speed restriction must be reduced. Apply formula 2-2-2 to determine the minimum deceleration distance required before the fix; the greater distance leads to a reduced descent gradient.

When *Formula 2-2-2. Minimum Deceleration Distance (NM)* is applied; the required distance equals 22.87 NM (Descent Gradient 328 FT/NM) from SKIZM (15000BFL190) to MYRIB (9000B10000 AT 240 KIAS). However, a total distance of 48.76 NM (Descent Gradient 267 FT/NM) is ample for deceleration from 280 KIAS at MYJAW to 240 KIAS at MYRIB.

There is an operational need to have the EMZOH STAR operate between the altitudes and speeds as designed into the procedure due to ATC separation/flow requirements. Therefore, ZOA is requesting approval for leg length of 20.0 NM from SKIXM to MYRIB.

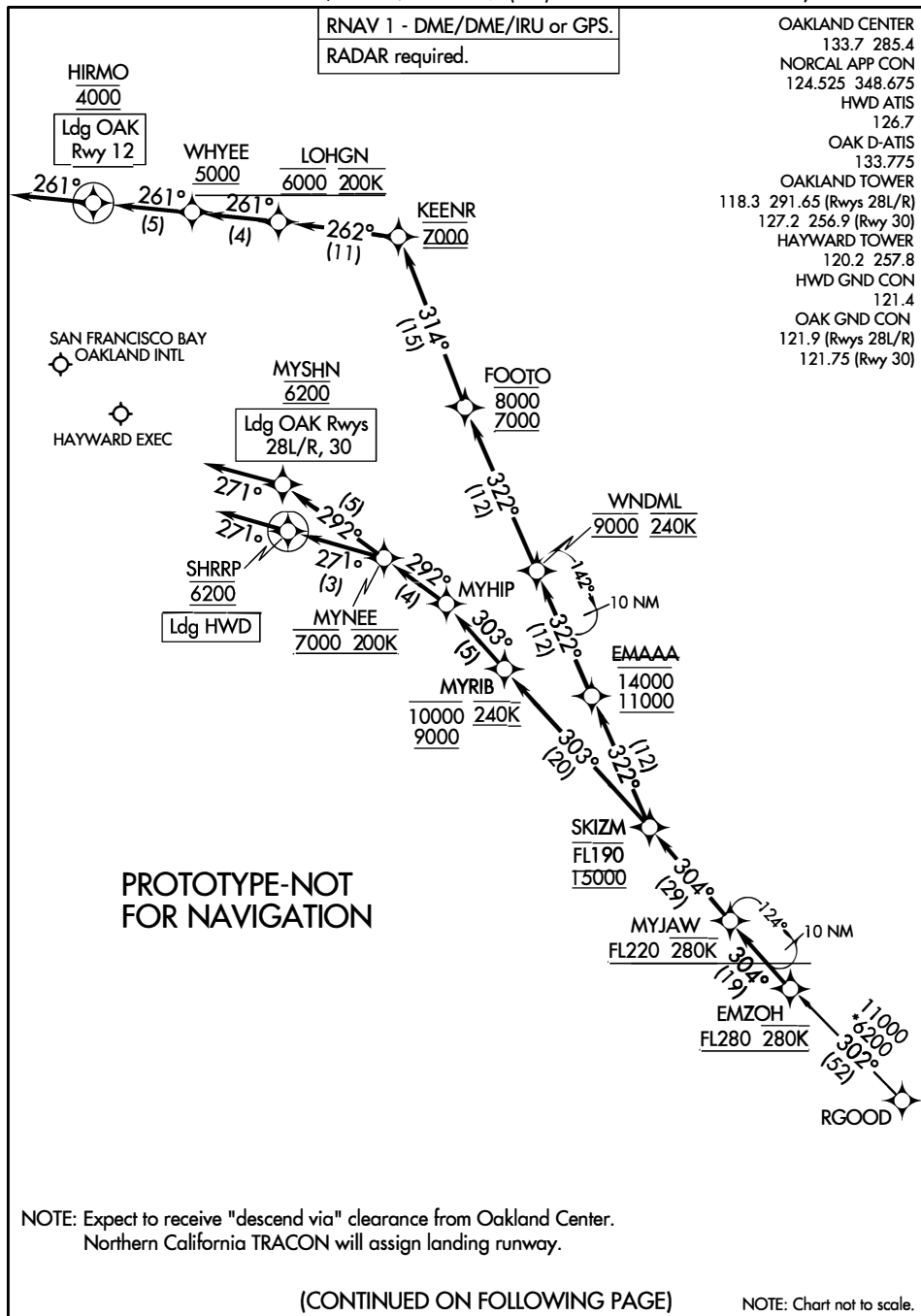
NEW

(EMZOH.EMZOH4) FIG

EMZOH FOUR ARRIVAL (RNAV)

AL-294 (FAA)

OAKLAND, CALIFORNIA



EMZOH FOUR ARRIVAL (RNAV)

(EMZOH.EMZOH4) FIG

OAKLAND, CALIFORNIA

ARRIVAL ROUTE DESCRIPTION

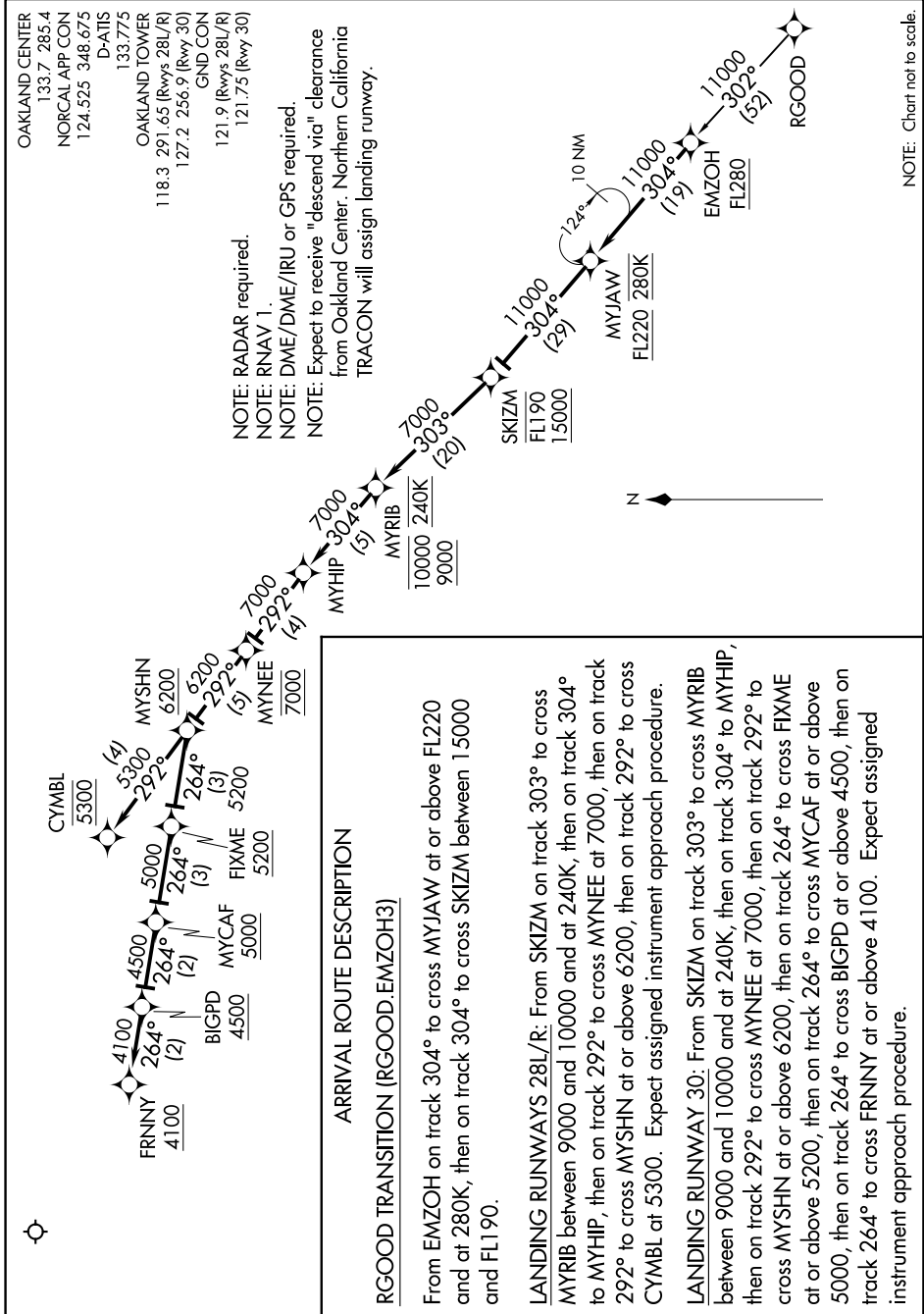
RG00D TRANSITION (RG00D.EMZOH4)

OAK: From EMZOH on track 304° to cross MYJAW at or above FL220 and at 280K, then on track 304° to cross SKIZM between 15000 and FL190.

LANDING OAK RUNWAY 12: From SKIZM on track 322° to cross EMAAA between 11000 and 14000, then on track 322° to cross WNDML at 9000 and at 240K, then on track 322° to cross FOOTO between 7000 and 8000, then on track 314° to cross KEENR at 7000, then on track 262° to cross LOHGN at 6000 and at 200K, then on track 261° to cross WHYEE at or above 5000, then on track 261° to cross HIRMO at 4000, then on track 261°. Expect RNAV (RNP) Z RWY 12 approach or RADAR vectors to final approach course.

LANDING OAK RUNWAYS 28L/R, 30: From SKIZM on track 303° to cross MYRIB between 9000 and 10000 and at 240K, then on track 304° to MYHIP, then on track 292° to cross MYNEE at 7000 and at 200K, then on track 292° to cross MYSHN at or above 6200, then on track 271°. Expect ILS or RNAV approach Rwy 28L/R, 30 approach.

LANDING HWD: From EMZOH on track 304° to cross MYJAW at or above FL220 and at 280K, then on track 304° to cross SKIZM between 15000 and FL 190, then on track 303° to cross MYRIB between 9000 and 10000 and at 240K, then on track 304° to MYHIP, then on track 292° to cross MYNEE at 7000 and at 200K, then on track 271° to cross SHRRP at or above 6200, then on track 271°. Expect RADAR vectors to final approach course.



NOTE: Chart not to scale.

SW-2, 05 SEP 2024 to 03 OCT 2024

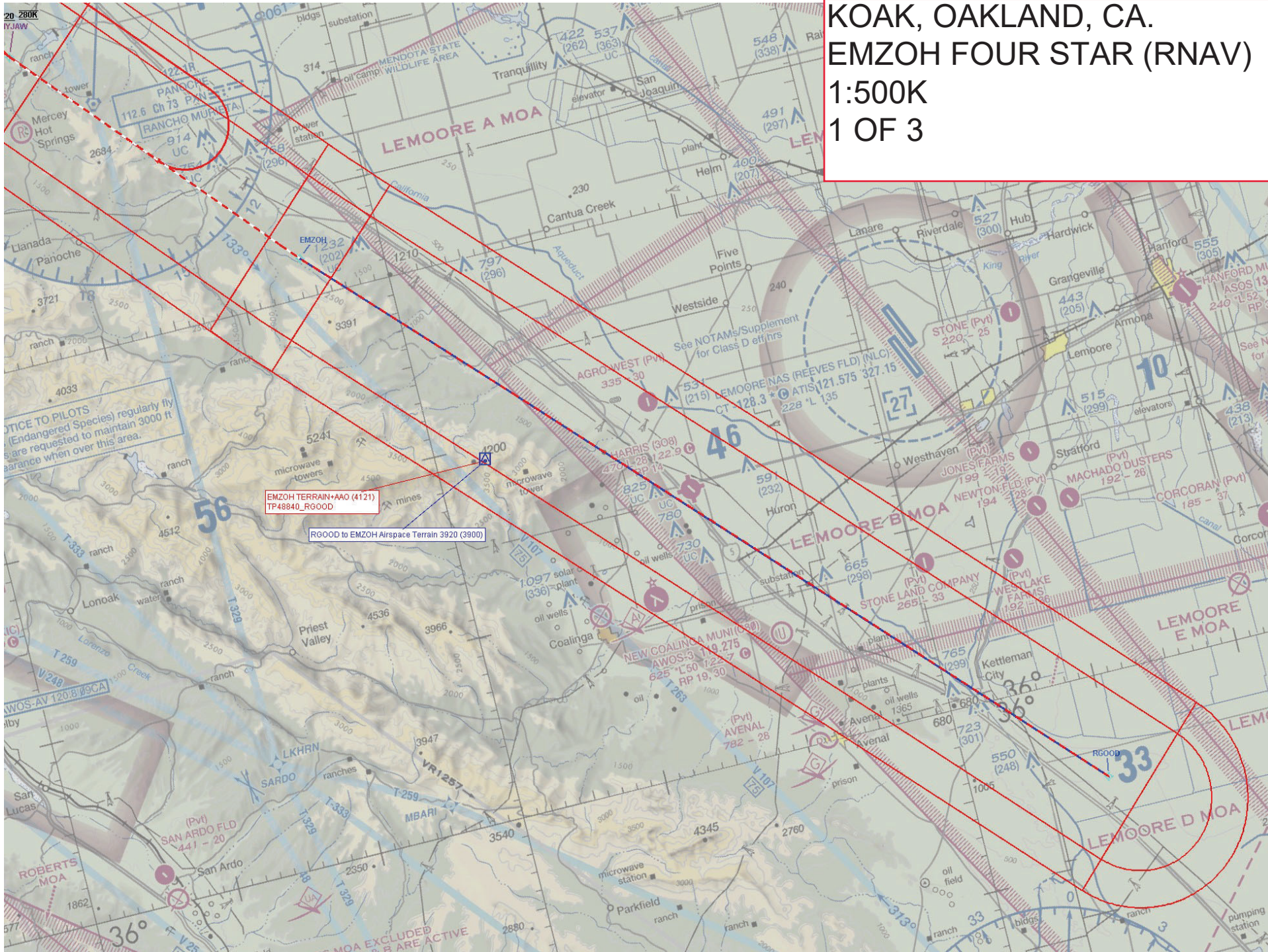
SW-2, 05 SEP 2024 to 03 OCT 2024

EMZOH THREE ARRIVAL (RNAV)

(EMZOH.EMZOH3) 10DEC15

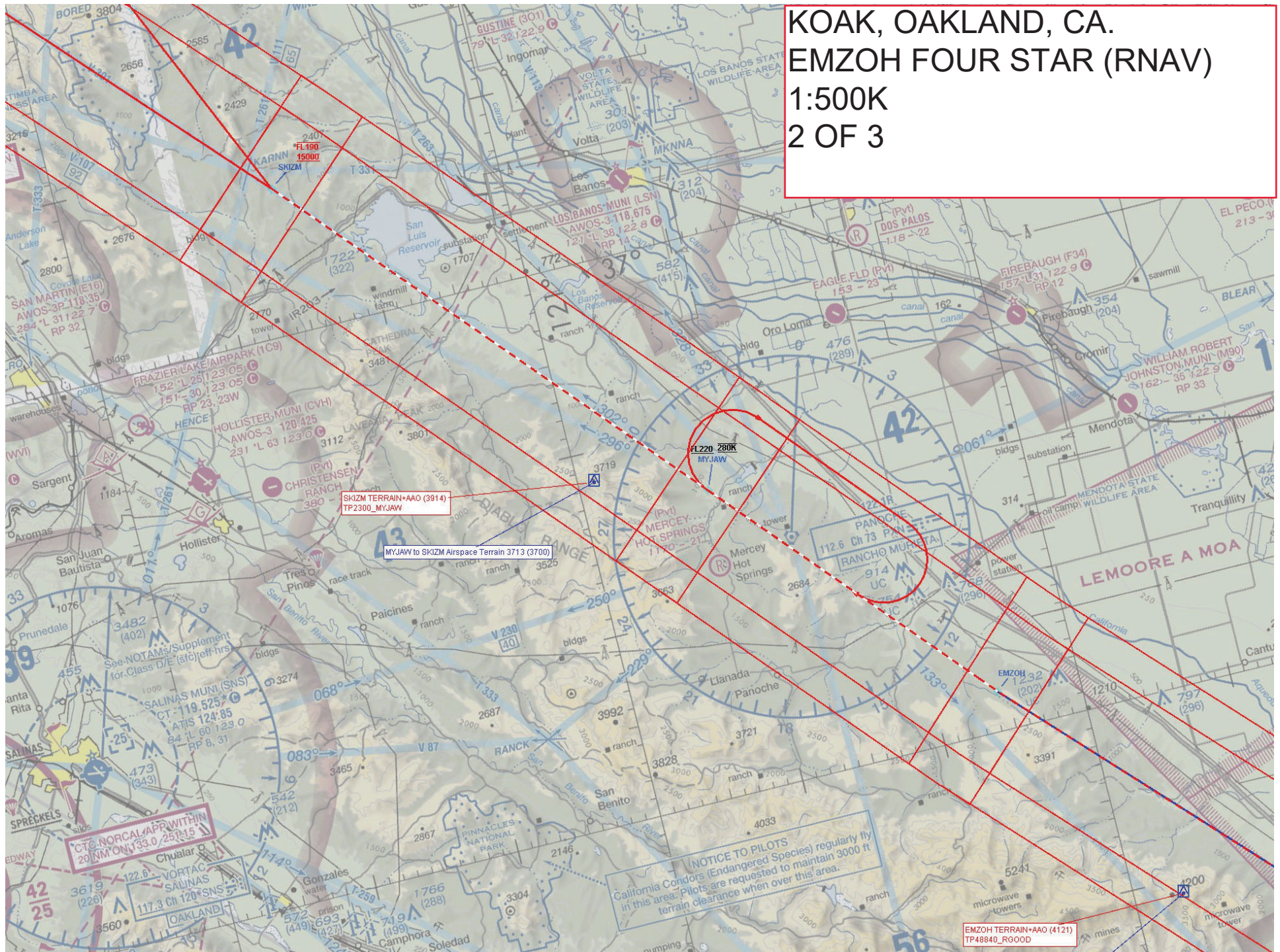
OAKLAND, CALIFORNIA

SAN FRANCISCO BAY OAKLAND INTL (OAK)



KOAK, OAKLAND, CA.
EMZOH FOUR STAR (RNAV)
1:500K
1 OF 3

KOAK, OAKLAND, CA.
EMZOH FOUR STAR (RNAV)
1:500K
2 OF 3



[illegible]