

Runway Incursion Awareness Policies, Procedures, RAAS, Training

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Policies & Procedures

- Departure Briefing
- 10-9 Airport Diagrams
- Copy & Challenge
- Critical Phases of Taxi
- Dual Acknowledgement Between Both Pilots
- Exterior Lights
- Cleared for Takeoff
- Approach Briefing
- Taxi In



Departure Briefing

- Include the probable taxi directions to the departure runway
- Brief any “Hot Spots” & unique or complex intersections



10-9 Airport Diagrams

- In view by both pilots
- Captain's primary attention devoted outside the aircraft
- First Officer monitors & verifies taxi progress with the airport diagram

Copy & Challenge

- All taxi instructions that could be misunderstood or cause confusion must be written down
- **ANY** questions about a clearance, the crew shall confirm the instructions



Critical Phases of Taxi

- Congested areas, low visibility, & unfamiliar taxi routes
- Checklists, computing takeoff data, etc not allowed



Dual Acknowledgement Between Pilots

- Runway Crossing
- Hold Short
- Position and Hold
- Cleared for Takeoff



Exterior Lights

- Crossing any active runway – illuminate all lights
- Position and Hold – illuminate all exterior lights except landing lights
- Cleared for Takeoff – turn on landing lights



Cleared for Takeoff

- Captain will align the aircraft with runway centerline
- Both pilots will verify the correct runway by crosschecking:
 - runway markings, headings, EHSI/ND MAP display
 - aircraft compass system



Approach Briefing

- Include the probable taxi directions to the gate
- Brief any “Hot Spots” & unique or complex intersections



Taxi In

- After landing procedure/checklist are delayed until clear of all runways with initial taxi clearance received & understood
 - Except for raising the flaps & stowing the speed brake



Runway Awareness and Advisory System (RAAS)



RAAS SYSTEM OVERVIEW

- Aircraft Position from **GPS**
- Runway Information from **EGPWS** Database
- Generates Aural Advisories over **CAWS**



RAAS Advisories

Routine Advisories

- Approaching Runway on the ground
- On Runway

Non-Routine Advisories

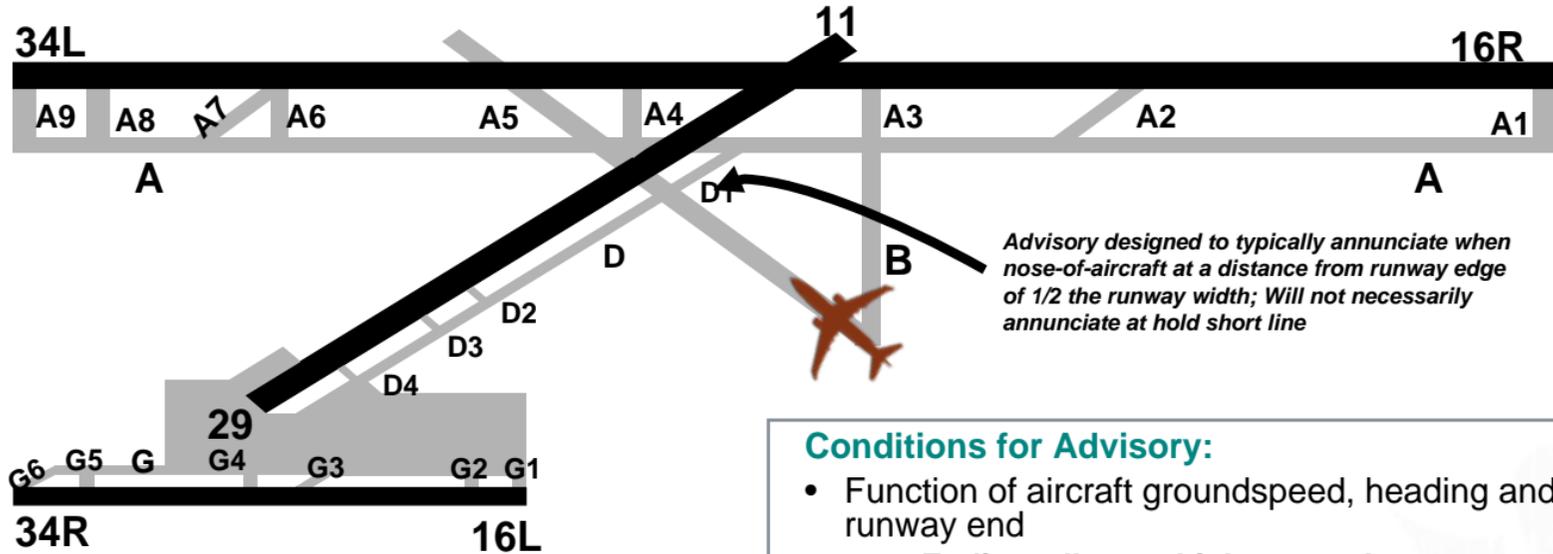
- Taxiway Takeoff
- Insufficient Runway Length on the Ground



“Approaching One-One”

ROUTINE AURAL ADVISORY

Approaching runway on the ground

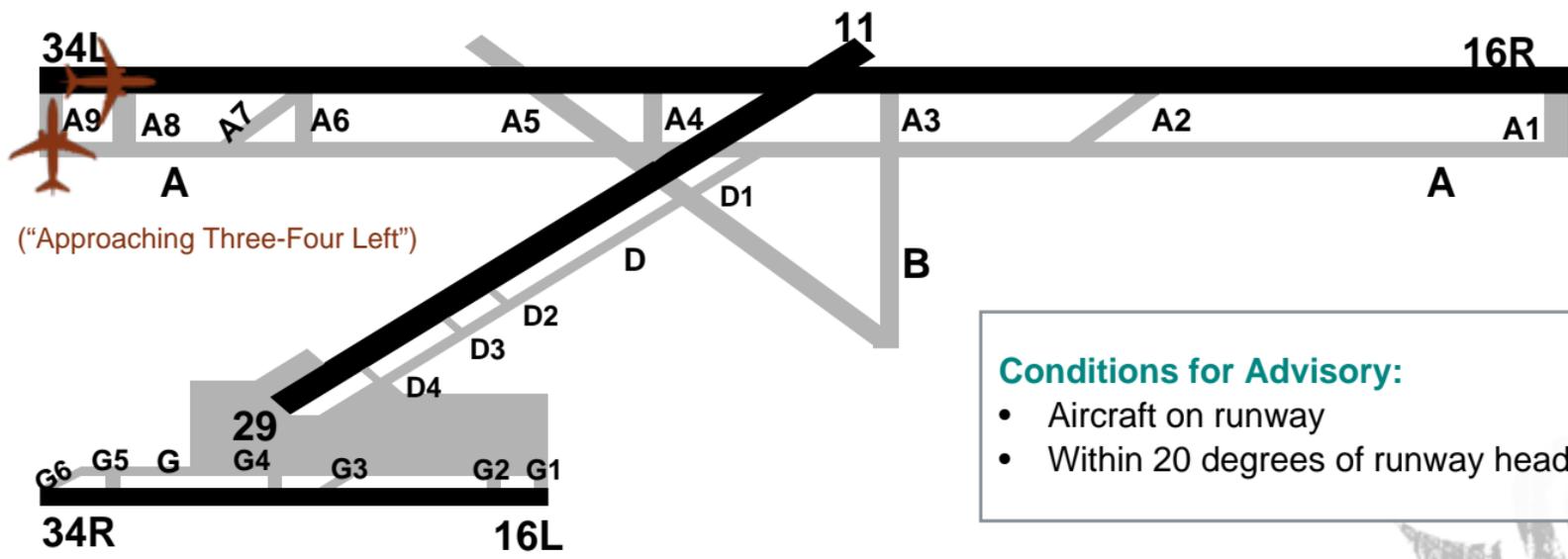


Advisory designed to typically announce when nose-of-aircraft at a distance from runway edge of 1/2 the runway width; Will not necessarily announce at hold short line

Conditions for Advisory:

- Function of aircraft groundspeed, heading and nearest runway end
 - **Earlier callout at higher speeds**
- Inhibited above 40 knots
 - **No distraction during take-off/landing ground roll**
- Does not ensure aircraft will or can be stopped before hold short line

“On Runway Three-Four Left”

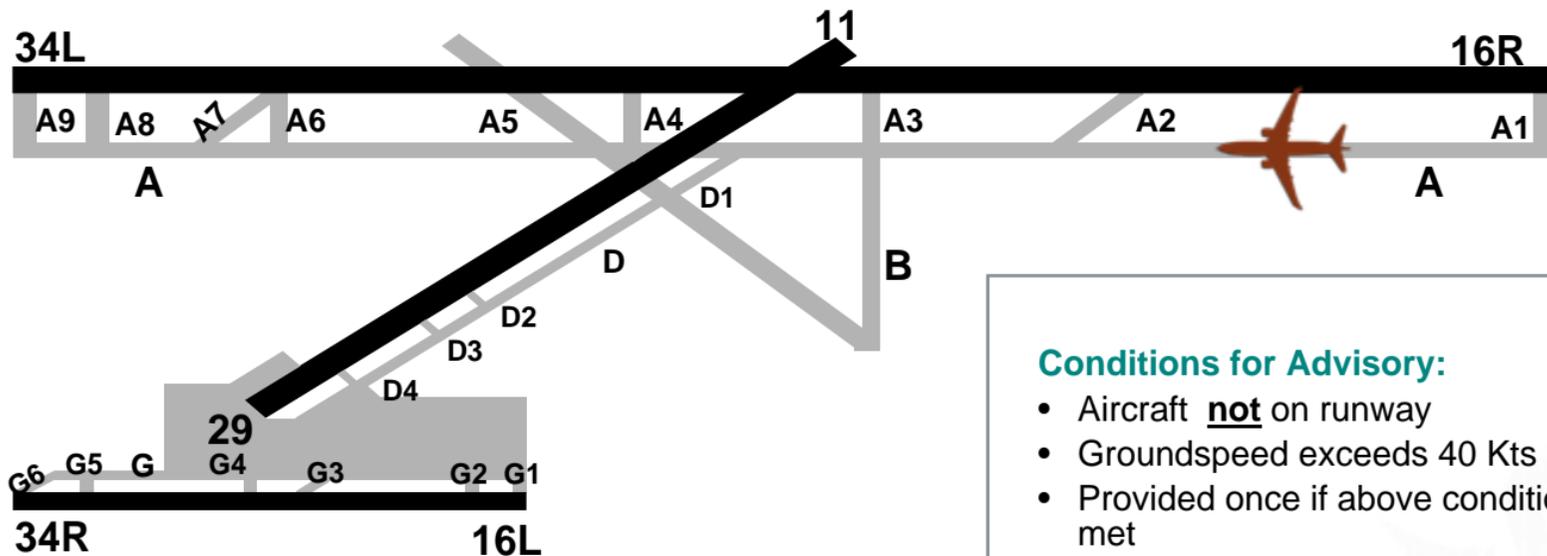


- Conditions for Advisory:**
- Aircraft on runway
 - Within 20 degrees of runway heading

“On Taxiway! On Taxiway!”

NON-ROUTINE AURAL ADVISORY

Taxiway Takeoff



Conditions for Advisory:

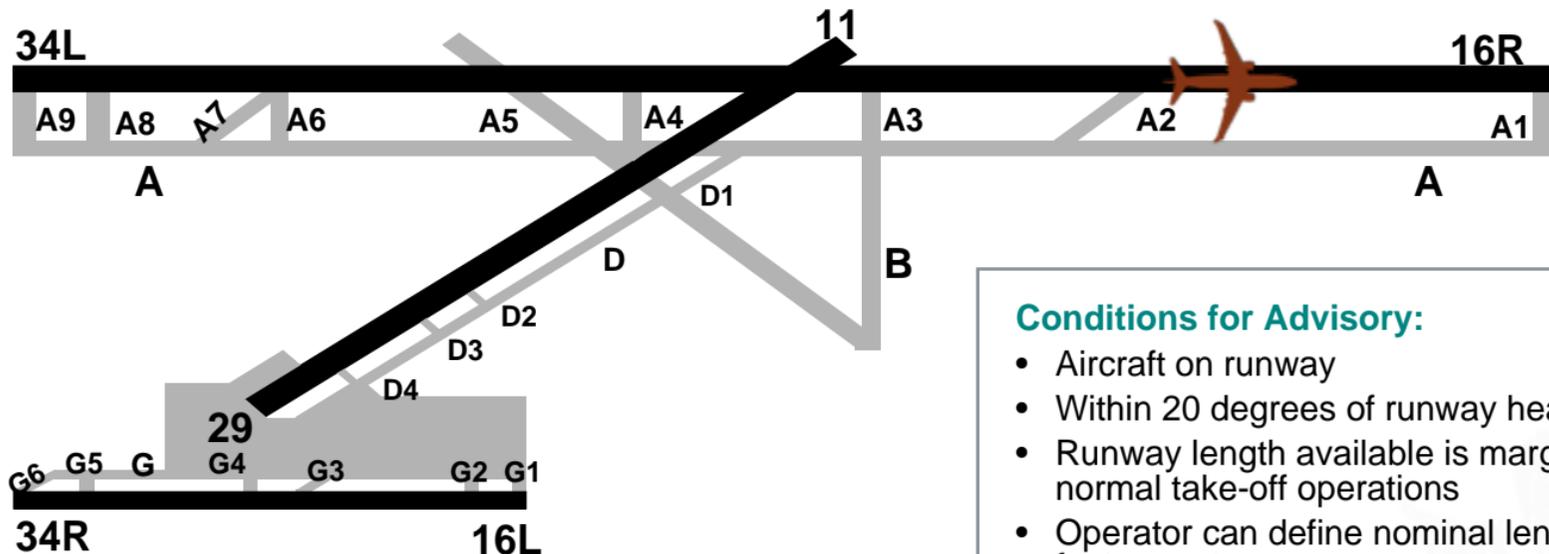
- Aircraft **not** on runway
- Groundspeed exceeds 40 Kts
- Provided once if above conditions met

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“On Runway Three-Four Left, Two-Thousand Remaining”

NON-ROUTINE AURAL ADVISORY

Insufficient Runway Length on the Ground



Conditions for Advisory:

- Aircraft on runway
- Within 20 degrees of runway heading
- Runway length available is marginal for normal take-off operations
- Operator can define nominal length in feet or meters

Note: Example in Feet

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Training- Multiple Approaches

- CRM-TEM Instructor Led Class
- Maneuver Validation (MV)
- Line Oriented Flight Training (LOFT)
- Line Oriented Evaluation (LOE)



CRM-TEM Class

- NTSB Simulations
 - LAX Southwest/Asiana “attention step”
 - ORD United/Atlas “foot-stomp”
- Alaska 61 Runway Incursion- TEM



Alaska 61 CRM-TEM Excerpts



Maneuver Training

- Training Requirements
 - HGS and Autoland Approach
 - Missed Approach
- Use Aircraft on Runway as trigger



Maneuver Validation



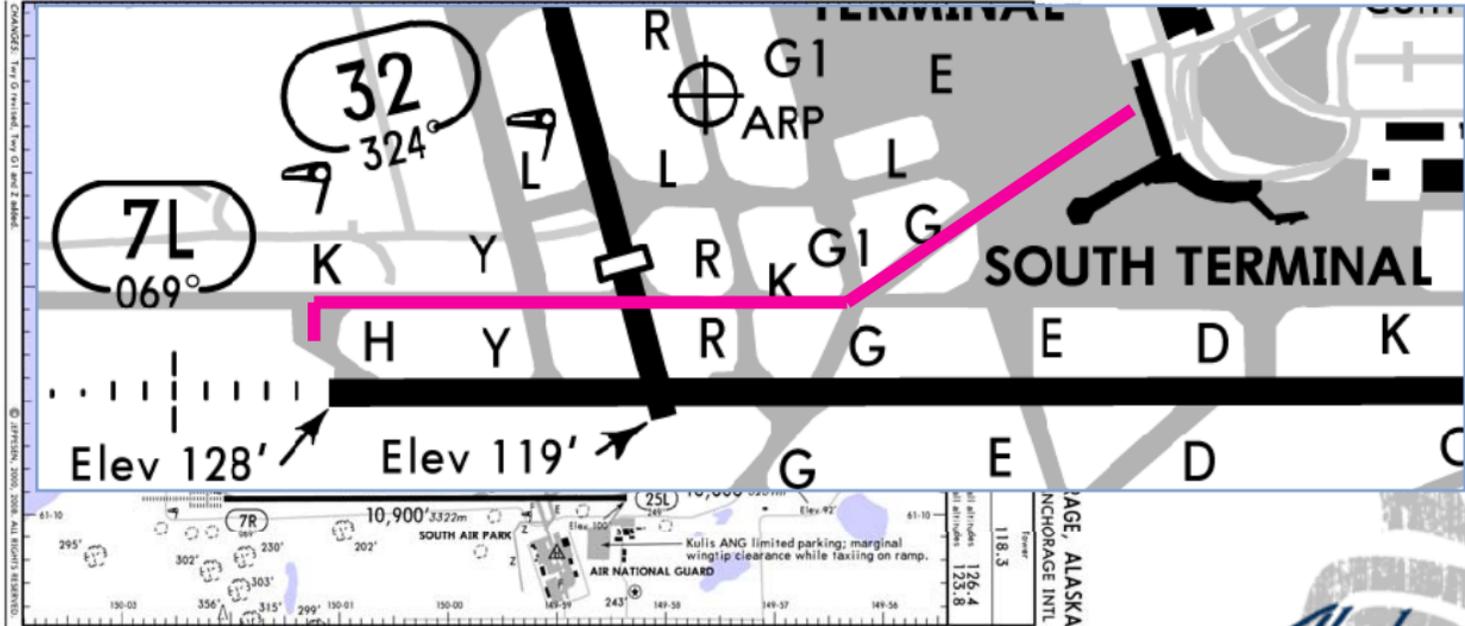
Line Oriented Flight Training (LOFT)

- Anchorage Taxi Route Change
 - Hold Short
 - Clearance Readback Confirmation
 - Multiple Taxiways
 - Routed Traffic



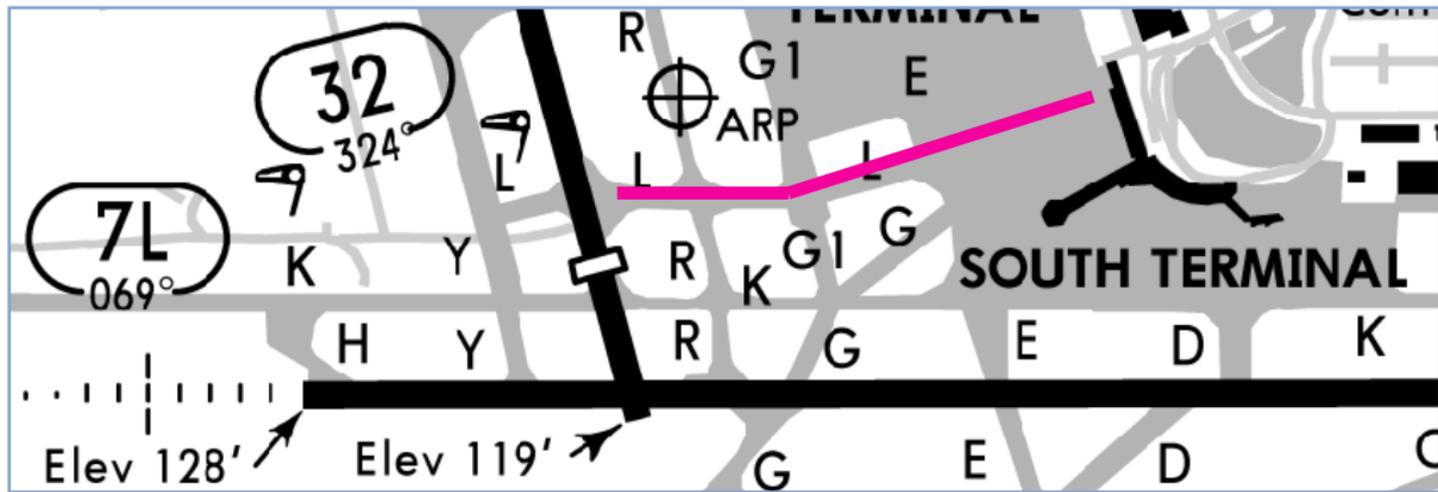
PANC

“Taxi to 7L via “G”, “K”, and “H”



“Taxi to 7L via “L”, Hold short of Rwy 14 for landing traffic”

PANC

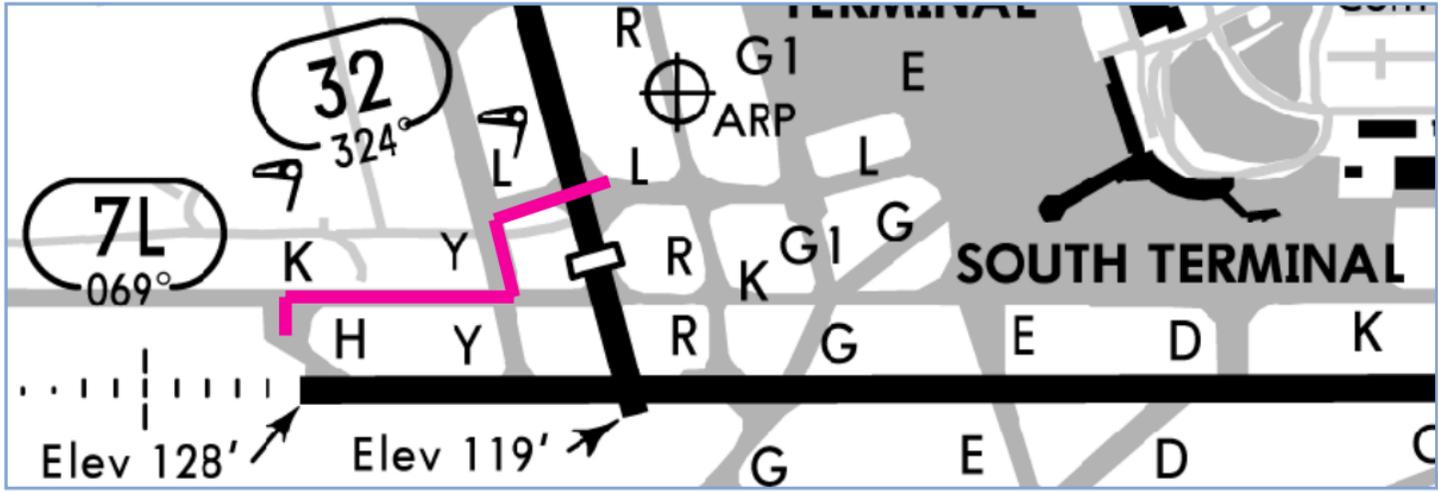


PANC LOFT Traffic Video Clips



“Cross Rwy 14, Taxi to Rwy 7L via “L”, “Y”, “K” and “H”.

PANC



Line Oriented Evaluation (LOE)

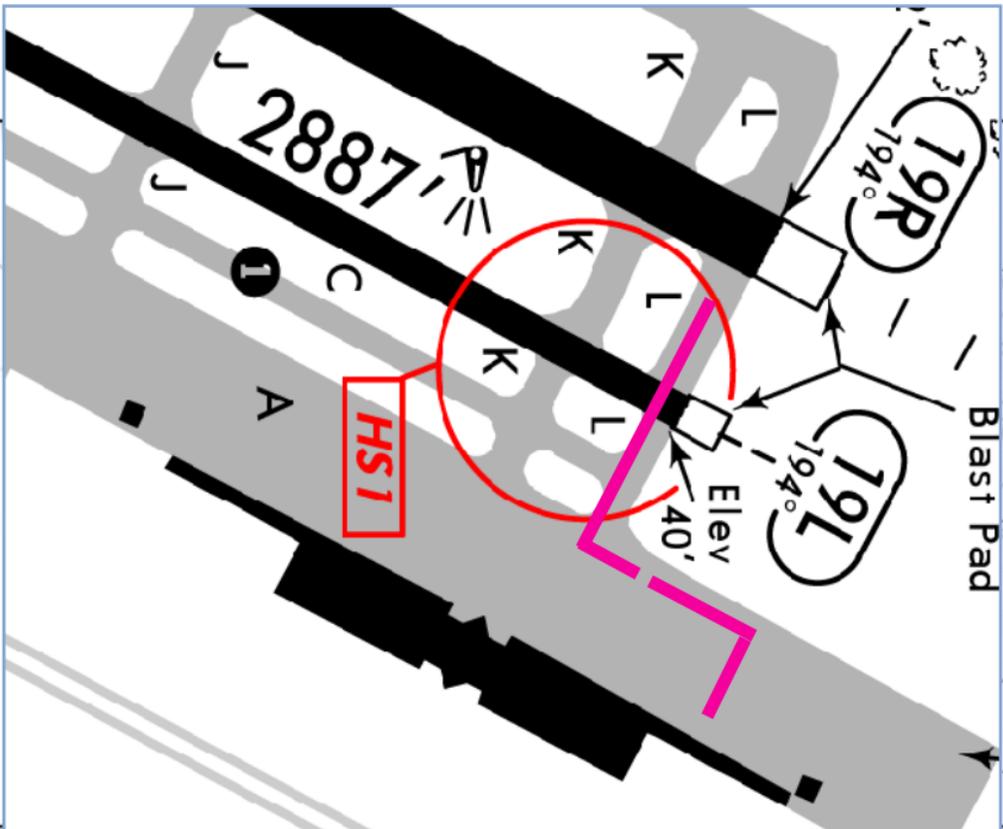
- John Wayne Hot Spot
 - Conflicting taxi traffic on “A”
 - Hold Short of Taxiway “L”
 - Crossing GA Rwy 19L



KSNA Hot Spot

“Taxi to Rwy 19R, hold short of “L”, contact Tower”

| | | | | | |
|--------------------|-------------|-----------------|-------|----------------------------|--------------|
| KSNA/SNA | | JEPPESEN | | SANTA ANA, CALIF | |
| Apr Elev: 56' | | 2 NOV 07 (10-9) | | JOHN WAYNE-ORANGE CO | |
| M3L 40.5 W11Z 59.1 | | ACARS: D-ATIS | | *JOHN WAYNE Clearance (Gr) | |
| NOT 110.0 | 126.0 | PC | 118.0 | West | *Ground East |
| ROY 11: 19R | *Tower | UNICOM 122.95 | | SOCAL Departure (R) | |
| CTAF 126.8 | ROY 18: 19L | | | 132.25 | 120.8 |
| | 119.9 | | | 128.1 | |



CHANGES: Hot Spot added. © JEPPESEN SANDERSON, INC., 1981, 2007. ALL RIGHTS RESERVED. 117-53

KSNA LOE Video Clips



Summary

- Policies & Procedures
- RAAS
- Training

