

Pilotage & Situational Awareness

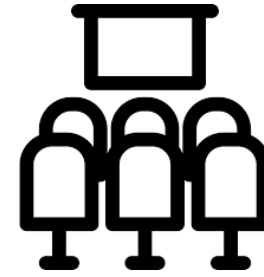
Proficiency in the Age of Electronics and GPS



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Agenda



1. Background - Navigation Methods
2. Pilotage
3. Preflight Planning & Practice Mitigate Risks
4. Putting it all Together
5. Wrap Up

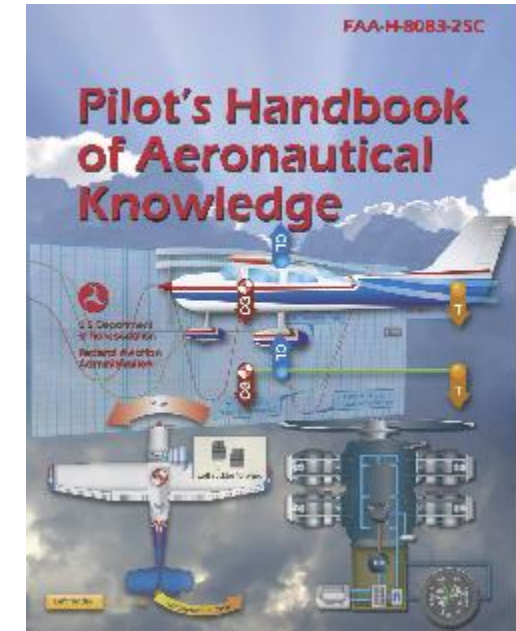
Background - Navigation Methods



Navigation

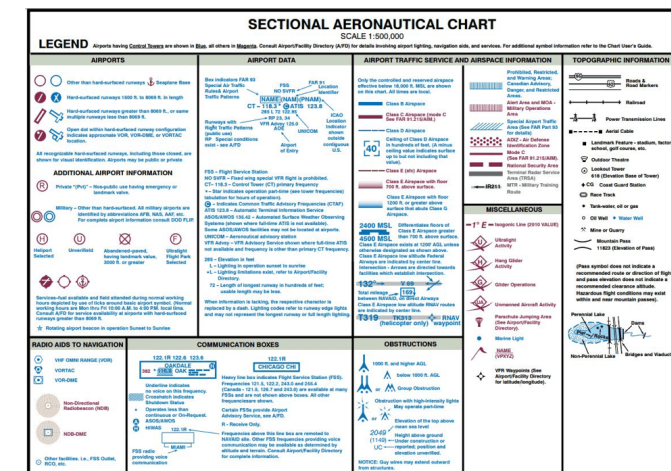
- Pilotage
- Dead Reckoning
- Ground-based Navigation
- Satellite-based Navigation

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Pilotage

Navigating by reference to visual landmarks or checkpoints.



Dead Reckoning

Navigating solely by means of computations based on time, airspeed, distance, and direction.



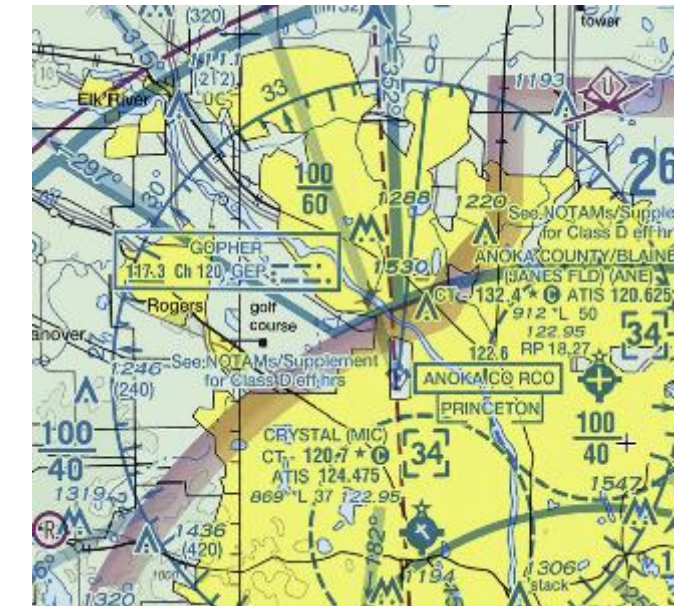
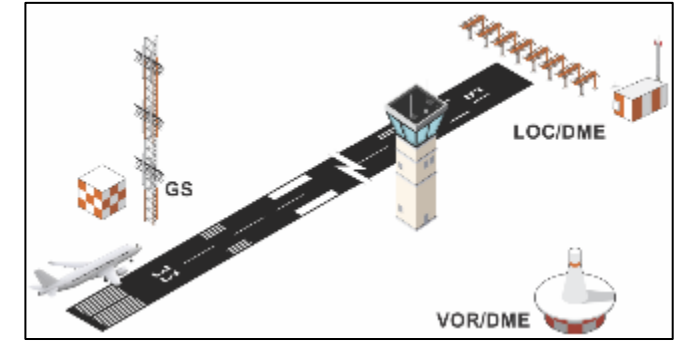
$$\begin{aligned} CH &= MH \pm D \\ &= TH \pm V \\ &= TC \pm WCA \end{aligned}$$

Pilot's Dead Reckoning									
Altitude	Time	Distance	Speed	Direction	Time	Distance	Speed	Direction	Time
10000	10	100	1000	090	10	100	1000	090	10
10000	10	100	1000	090	10	100	1000	090	10
10000	10	100	1000	090	10	100	1000	090	10
10000	10	100	1000	090	10	100	1000	090	10
10000	10	100	1000	090	10	100	1000	090	10
10000	10	100	1000	090	10	100	1000	090	10
10000	10	100	1000	090	10	100	1000	090	10
10000	10	100	1000	090	10	100	1000	090	10
10000	10	100	1000	090	10	100	1000	090	10
10000	10	100	1000	090	10	100	1000	090	10



Ground-Based Navigation

Navigating using signals from ground-based transmitters, e.g. VOR's, DME, NDB & TACAN.



Satellite-Based Navigation

Navigating using signals from satellites in some cases supplemented with ground-based equipment (GPS, WAAS).



Figure 16-40. Satellite constellation.

Situational Awareness

- Pilotage
- Dead Reckoning



With these the pilot must visually verify outside where they are on a chart or map.

- Land-Based System Navigation
- Satellite-Based System Navigation



These de-emphasize visual checks.

Pilotage is a perishable skill.

Pilotage

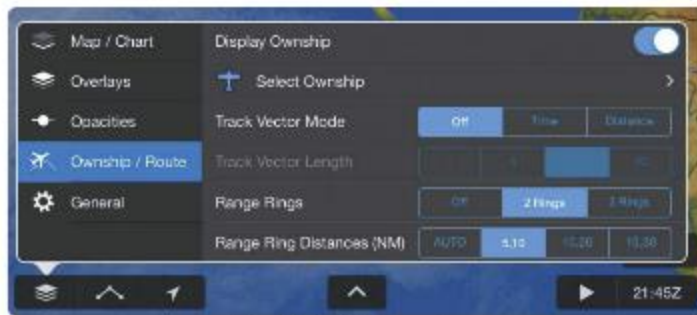
Training Aircraft

State of the art Electronic Flight Displays (EFD's) using GPS incorporate Maps with Geo-referenced Ownship overlay for increased Situational Awareness (SA).



Training with Electronic Flight Bags (EFB's)

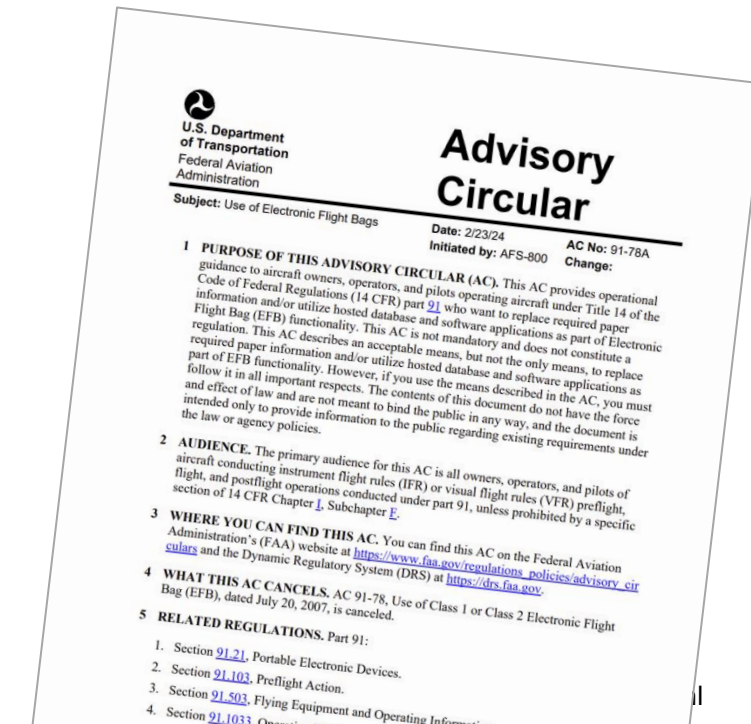
Tablet devices with EFB software are common FAA accepted navigation aids (ref AC 91-78) and can display VFR Sectional Charts overlaid with Geo-referenced Ownship.



Ownship/Route Settings Menu



Ownship/Route Settings



EFB's have Enhanced SA Features

Foreflight



Runway Extended
Centerlines

Distance Rings

Airspace
Highlights & Alerts

Garmin Pilot



Navigator's have Enhanced SA Features

Backup with an IFR Approach or Visual Guidance.



So, what's the problem?



- A - Learners are navigating from the outset with aids such as EFB's & geo-referenced ownship creating a strong dependency on them.
- B - Pilotage skills are not regularly reinforced, practiced or evaluated.

CFI's – Key Applicable Laws of Learning



Primacy



**Teach without geo-referenced
ownership navigation aid first.**

Intensity



**Learning to find an airport without
land or satellite-based navigation aids.**

Recency



**Practice visually identifying &
verifying landmarks on charts.**

Why does this Matter?

Impact is on flight safety -> **Loss of Situational Awareness:**

1. **Airspace Violations.**
2. **Wrong Airport Landings.**
3. **Wrong Surface Landings.**

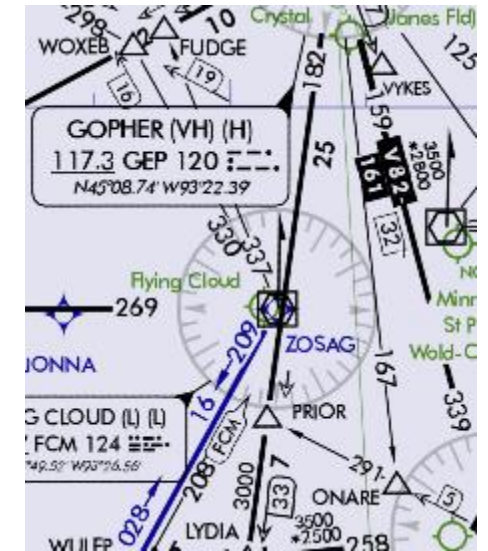
In fiscal year 2023, there were a total of 103 wrong surface operations in the United States (80 wrong surface arrivals and 23 wrong surface departures).*

Pilotage is critical in Terminal environments!

Approach & Landing



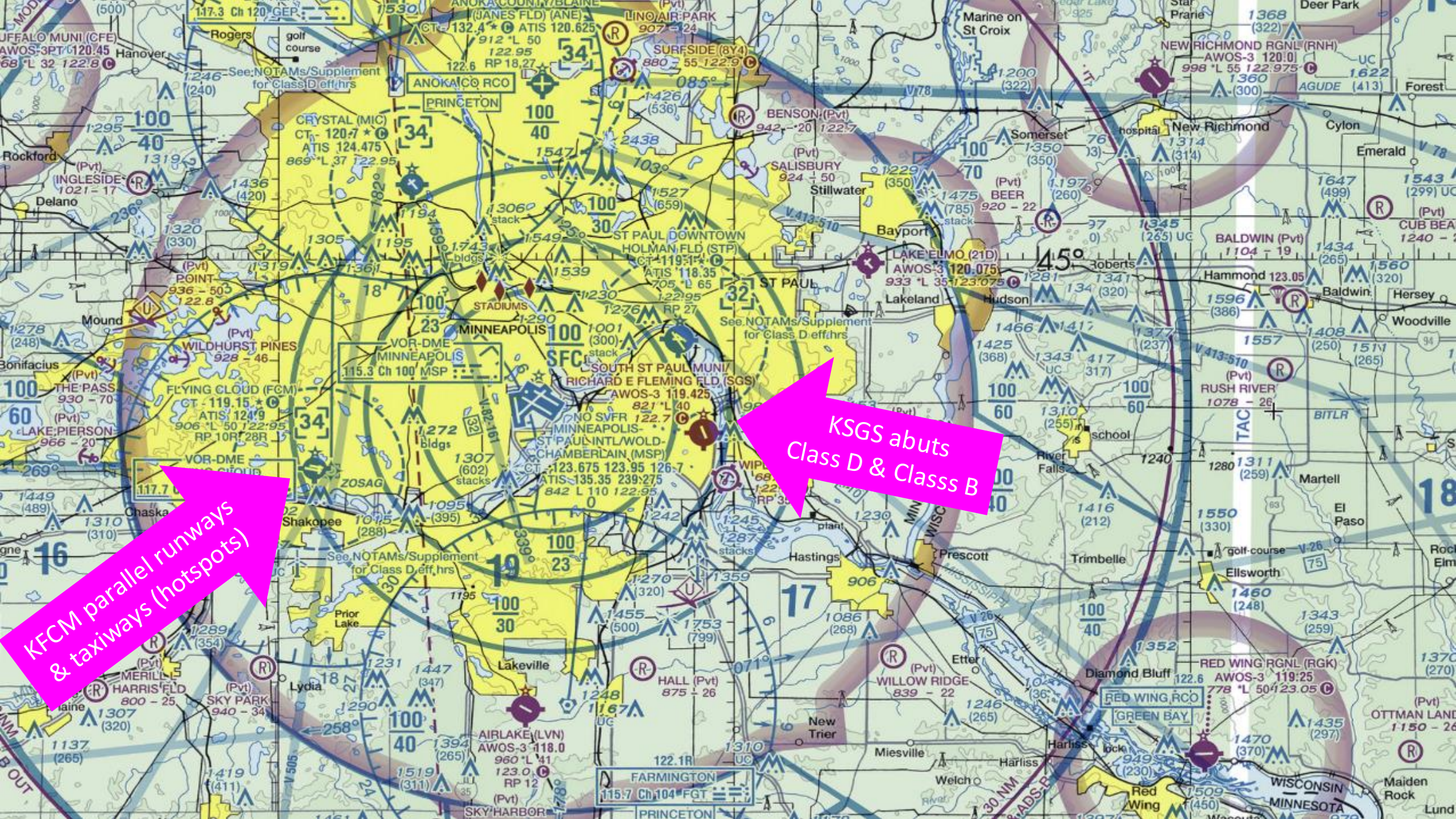
VFR or IFR



Particularly after
cancelling IFR.

Examples:

- 1) **South St Paul, MN (KSGS)** – Airspace violation risk.
- 2) **Flying Cloud, MN (KFCM)** – Wrong surface landing risk.
- 3) **Colonel James Jabara (KAAO)** – Wrong airport landing.
- 4) **Thomasville Regional (KTVI)** – Wrong airport landing.



KFCM parallel runways
& taxiways (hotspots)

KSGS abuts
Class D & Class B

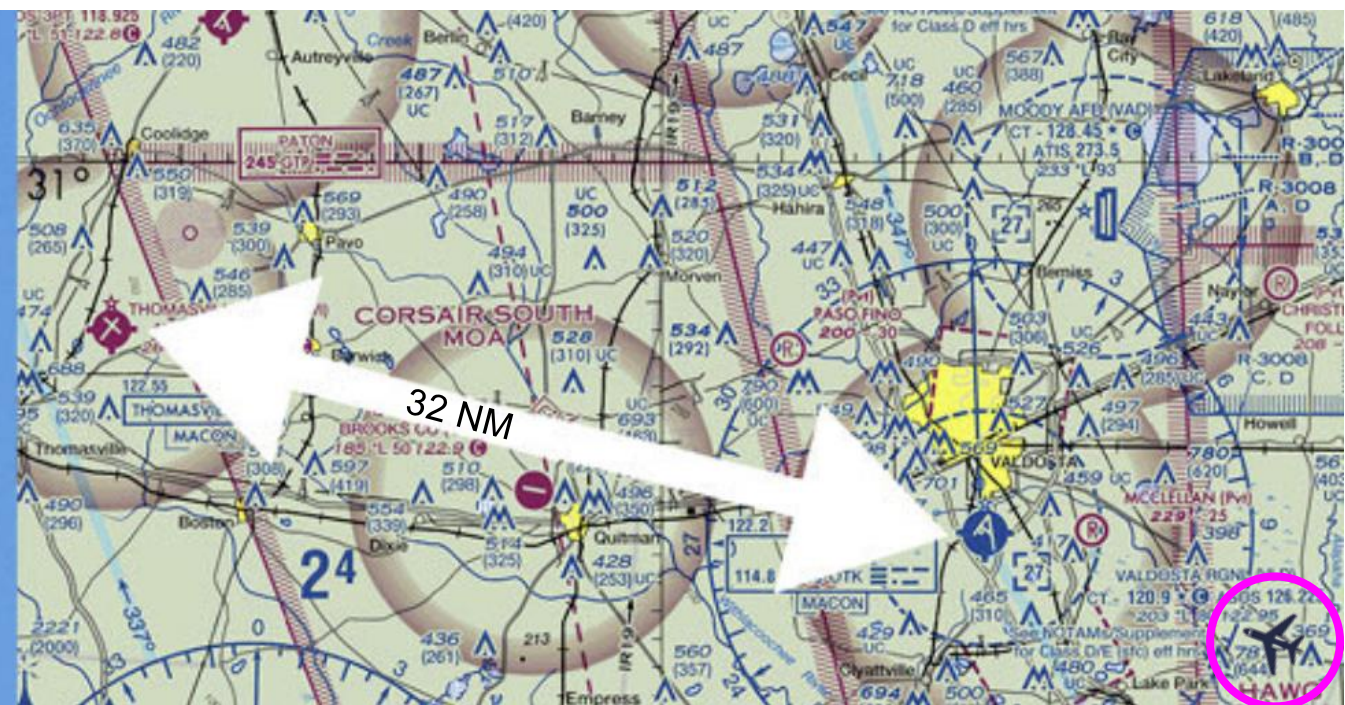
On the pilots' side, the main error was that the pair had not undertaken a briefing about other airports in the area, or regarding the 19L approach lighting system which would have helped them check they were landing in the right place.





Crew Cancels IFR And Lands At The Wrong Airport

By [Boldmethod](#) | 11/25/2025 | [Previous](#) | [Next](#)



Environmental Considerations

**Glare and landing
into the sun.**



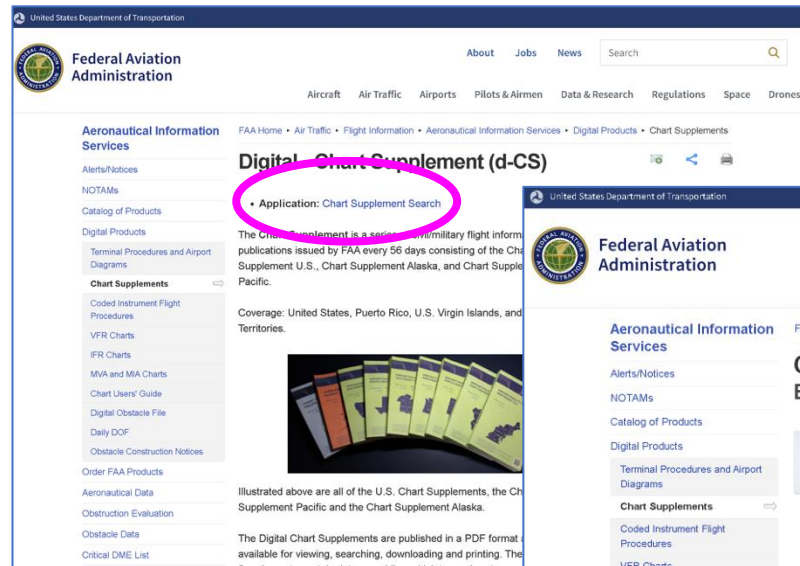
Preflight Planning & Practice Mitigate Risks

Thoroughly brief the Destination Airport BEFORE you go!

Identify Landmarks during Cross Countries even when IFR.

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https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/



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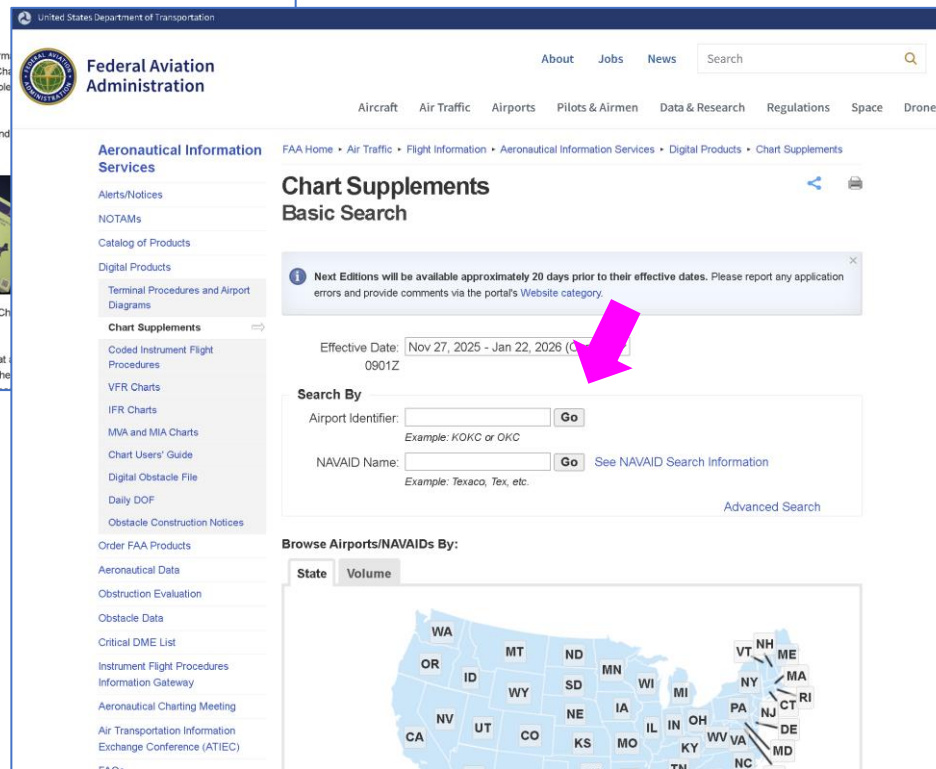
Digital Chart Supplement (d-CS)

The Chart Supplement is a series of military flight information publications issued by FAA every 56 days consisting of the Chart Supplement U.S., Chart Supplement Alaska, and Chart Supplement Pacific.

Coverage: United States, Puerto Rico, U.S. Virgin Islands, and Territories.

Illustrated above are all of the U.S. Chart Supplements, the Chart Supplement Pacific and the Chart Supplement Alaska.

The Digital Chart Supplements are published in a PDF format available for viewing, searching, downloading and printing. The



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Example: Texaco, Tex, etc.

Advanced Search

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State Volume



MINNESOTA

191

FLYING CLOUD (FCM)(KFCM) 11 SW UTC-6(-5DT) N44°49.65' W93°27.51'

906 B NOTAM FILE FCM

RWY 10R-28L: H5001X100 (ASPH-GRVD) S-30, D-60 HIRL

RWY 10R: MALSR. PAPI(P4L)—GA 3.0° TCH 42'. Tree. Rgt tfc.

RWY 28L: REIL. PAPI(P4L)—GA 3.0° TCH 44'.

RWY 10L-28R: H3901X75 (ASPH) S-12.5 MIRL

RWY 10L: REIL. PAPI(P4L)—GA 3.0° TCH 39'.

RWY 28R: REIL. PAPI(P4L)—GA 3.0° TCH 38'. Rgt tfc.

RWY 18-36: H2690X75 (ASPH) S-12.5 MIRL

RWY 18: REIL. PAPI(P4L)—GA 3.5° TCH 45'. Tank.

RWY 36: REIL. PAPI(P4L)—GA 3.0° TCH 27'. Fence.

SERVICE: S4 FUEL 100LL, JET A OX 3, 4 LGT When ATCT clsd

ACTVT or incr instst MALSR Rwy 10R; REIL Rwy 28L, 18, and 36;

PAPI Rwy 10R, 28L, 18, and 36; HIRL Rwy 10R-28L; MIRL Rwy

18-36—CTAF. Rwy 36 PAPI unusable byd 6° left of cntrl.

AIRPORT REMARKS: Attended continuously. Deer, birds, and wildlife on and

invol arpt. Jet A ldg fee, ctc FBO. Rwy 10L-28R CLOSED when twr

clsd. Arpt CLOSED to jets not meeting FAR 36, jet training and acft

with certificated MGTOW higher than 60,000 lbs. Maintenance

run-ups are prohibited between 0400-1300Z. Ultralight ops

prohibited. When twr clsd, snow removal operators monitor 119.15.

Rwy 10R is calm wind rwy when twr clsd. Twy A between Premier Jet

Ramp and Thunderbird Ramp clsd to acft wingspans 56' or greater. Twy A clsd east of Baron Lane to acft with wingspans

54' or greater. Twy D clsd from Twy D2 to apch end Rwy 36 to acft with wingspans of 66' or greater. Twy D btn D1 and

D2 clsd to acft with wingspans 48' or greater. Txl G clsd to wingspans gtr than 43 ft. Txl H clsd to wingspans gtr than 40

ft. Rwy incursion risk - pilots are reminded to review arpt Hot Spot info bfr bkg for dep & bfr ldg. See TPP Arpt Diagram

& Chart Suppl sxn on Hot Spots for addn info. Wrong rwy arr risk, closely aligned parl rwys. See TPP Arpt Diagram. Ldg

fee. NOTE: See Special Notices—Arrival Alert.

AIRPORT MANAGER: 952-944-1035

WEATHER DATA SOURCES: ASOS (952) 941-4156

COMMUNICATIONS: CTAF 119.15 ATIS 124.9 UNICOM 122.95

MINNEAPOLIS APP/DEP CON 134.7

MINNEAPOLIS CLNC DEL 121.7 (When twr closed)

TOWER 119.15 125.2 (1200-0300Z, 1st Sun in Nov-2nd Sat in Mar; 1200-0400Z, 2nd Sun in Mar-1st Sat in Nov.)

GND CON 121.7

AIRSPACE: CLASS D svc 1200-0300Z 1st Sun in Nov-2nd Sat in Mar, 1200-0400Z 2nd Sun in Mar-1st Sat in Nov; other

times CLASS E..

RADIO AIDS TO NAVIGATION: NOTAM FILE FCM.

(L) (L) VOR/DME 117.7 FCM Chan 124 N44°49.52' W93°26.56' at fld. 900/1E.

VOR unusable:

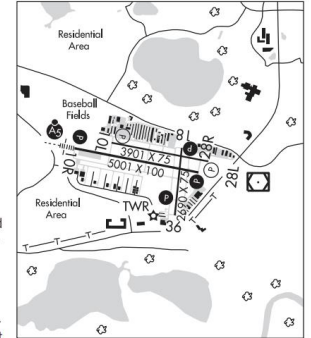
290°-305° blo 4,000'

DME unusable:

290°-305° blo 4,000'

ILS 109.7 I-FCM Rwy 10R. Class IT. Glideslope unusable byd 5° right of course. Unmonitored when ATCT clsd.

Autopilot cpd apchs NA blw 1,425' MSL.



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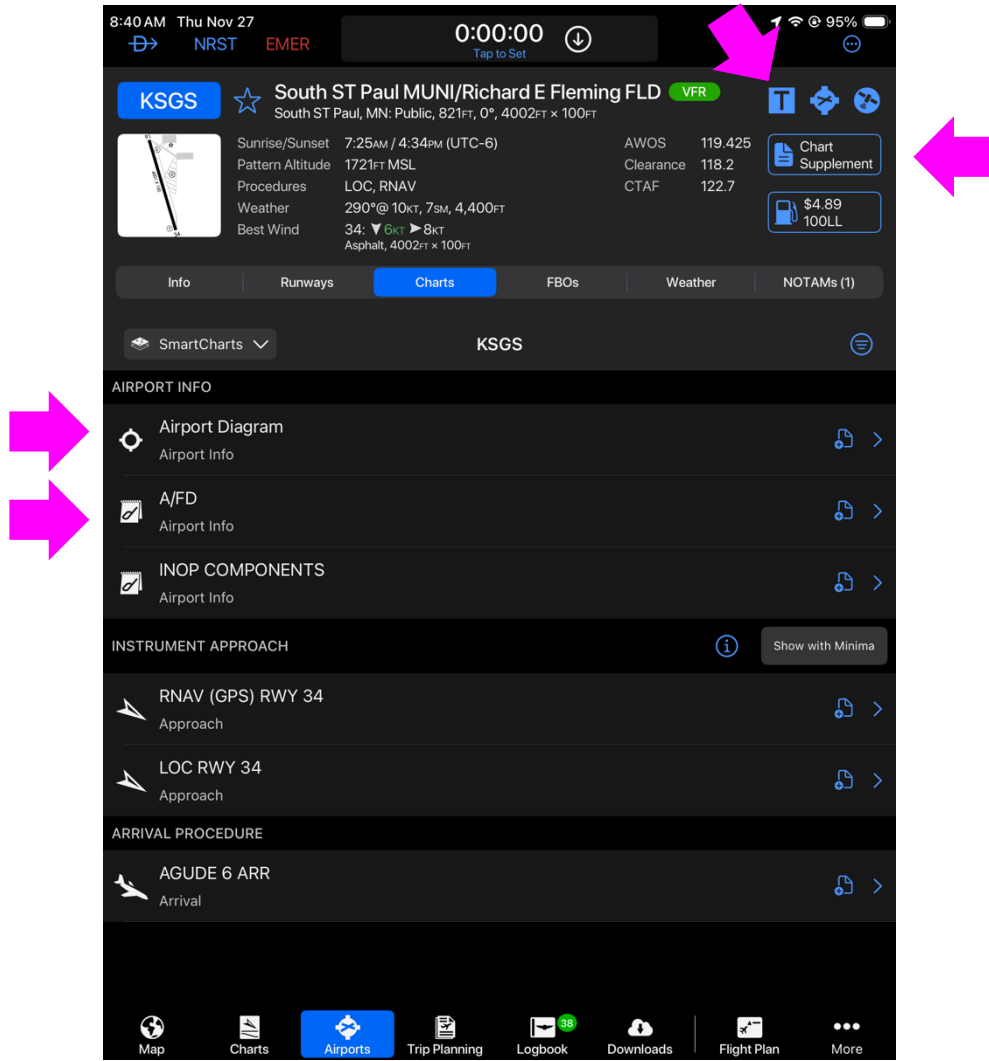
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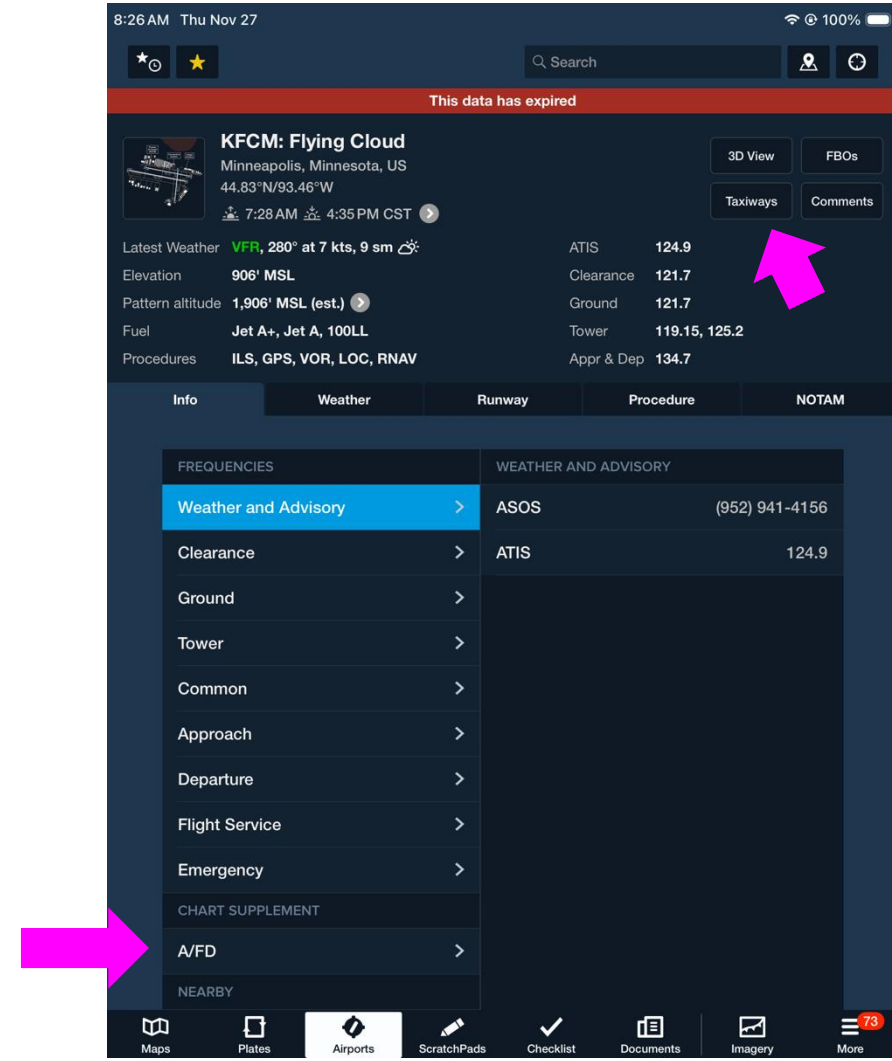
State	City	Airport	Ident (ICAO)	Vol	Flag	Type	Procedure	Compare
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1		MIN	TAKEOFF MINIMUMS (PDF)	N/A
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1		MIN	ALTERNATE MINIMUMS (PDF)	N/A
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1		HOT	HOT SPOT (PDF)	N/A
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	N/A		AHS	CS HOT SPOT (PDF)	N/A
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1	C	STAR	AGUDE SIX (PDF)	Compare (PDF)
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1		STAR	ENCEE THREE (RNAV) (PDF)	N/A
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1		STAR	GOPHER ONE (PDF)	N/A
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1		STAR	TWOLF FOUR (PDF)	N/A
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1	C	IAP	ILS OR LOC RWY 10R (PDF)	Compare (PDF)
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1	C	IAP	RNAV (GPS) RWY 10L (PDF)	Compare (PDF)
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1	C	IAP	RNAV (GPS) RWY 10R (PDF)	Compare (PDF)
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1	C	IAP	RNAV (GPS) RWY 28L (PDF)	Compare (PDF)
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1	C	IAP	RNAV (GPS) RWY 28R (PDF)	Compare (PDF)
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1	C	IAP	RNAV (GPS) RWY 36 (PDF)	Compare (PDF)
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1	C	IAP	VOR/DME RWY 36 (PDF)	Compare (PDF)
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1	C	IAP	VOR RWY 10R (PDF)	Compare (PDF)
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MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1		DP	COULT SEVEN (PDF)	N/A
MN	MINNEAPOLIS	FLYING CLOUD	FCM (KFCM)	NC-1		DP	KBREW TWO (PDF)	N/A

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Garmin Pilot



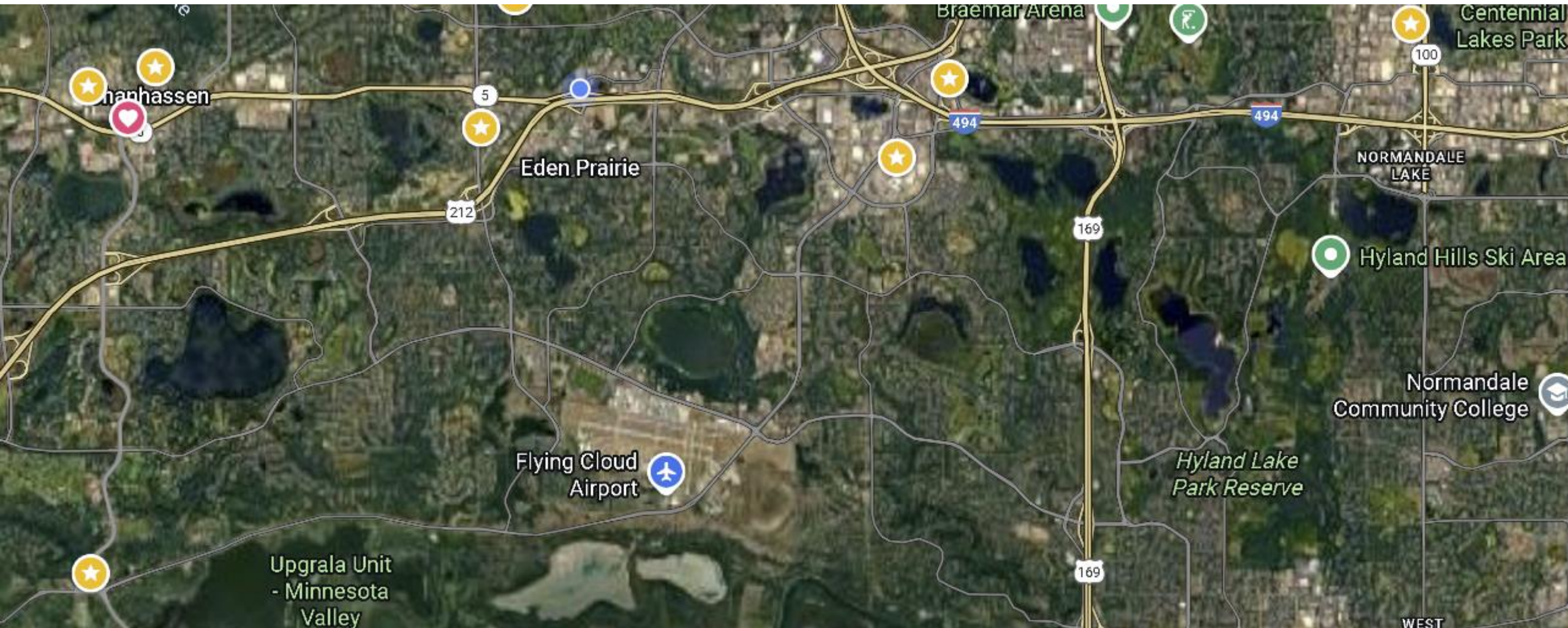
Foreflight



Satellite Imagery - Online

Maps do not give
flying perspectives.

<https://google.com/maps/>



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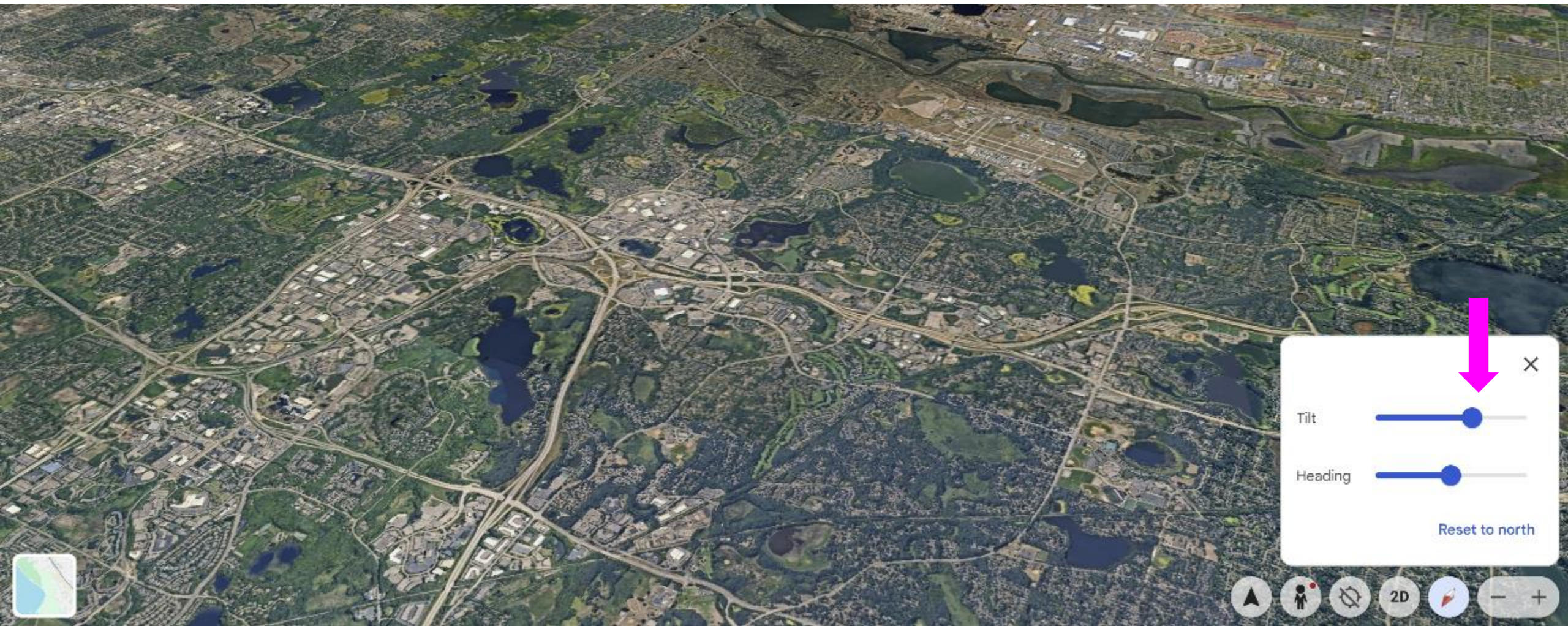
Can you spot
Flying Cloud airport?

<https://earth.google.com/>



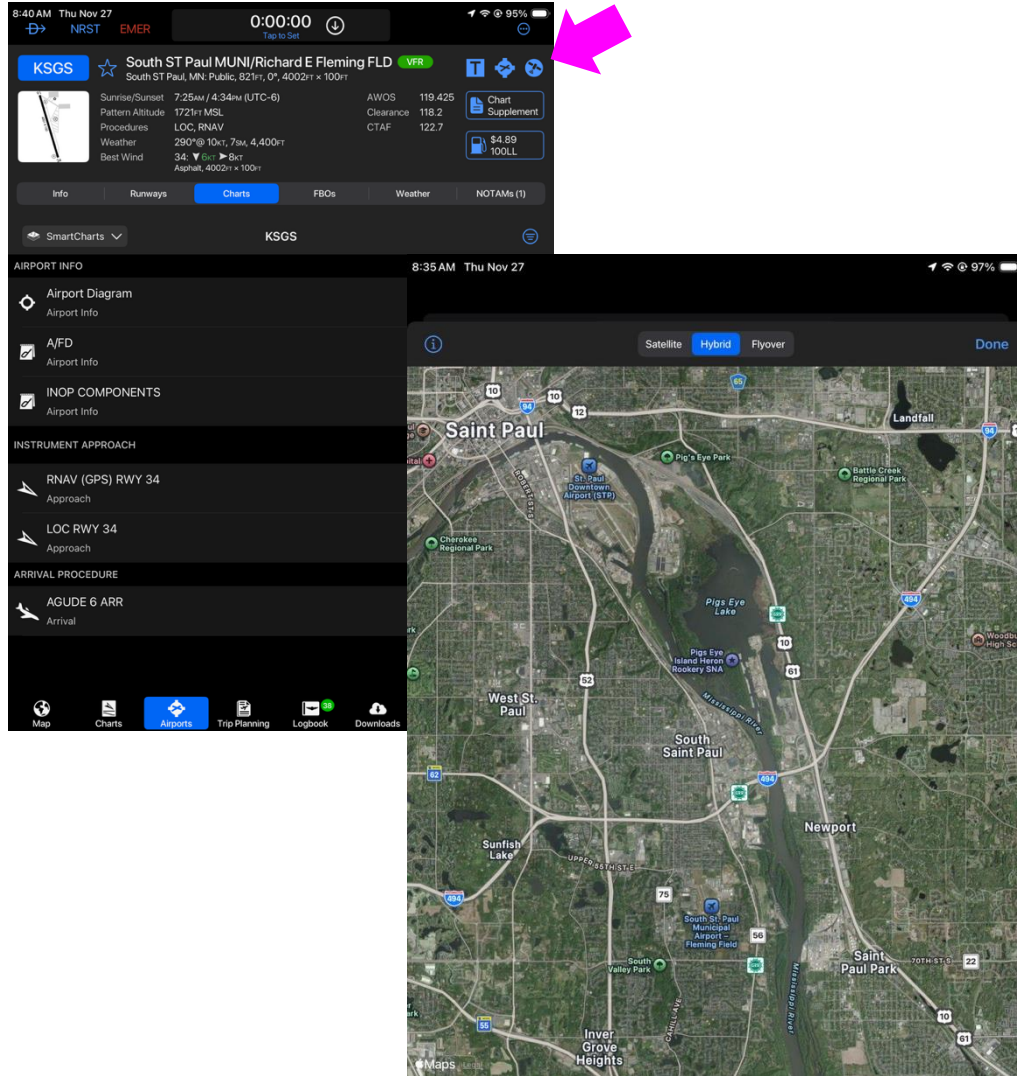
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Higher Tilt

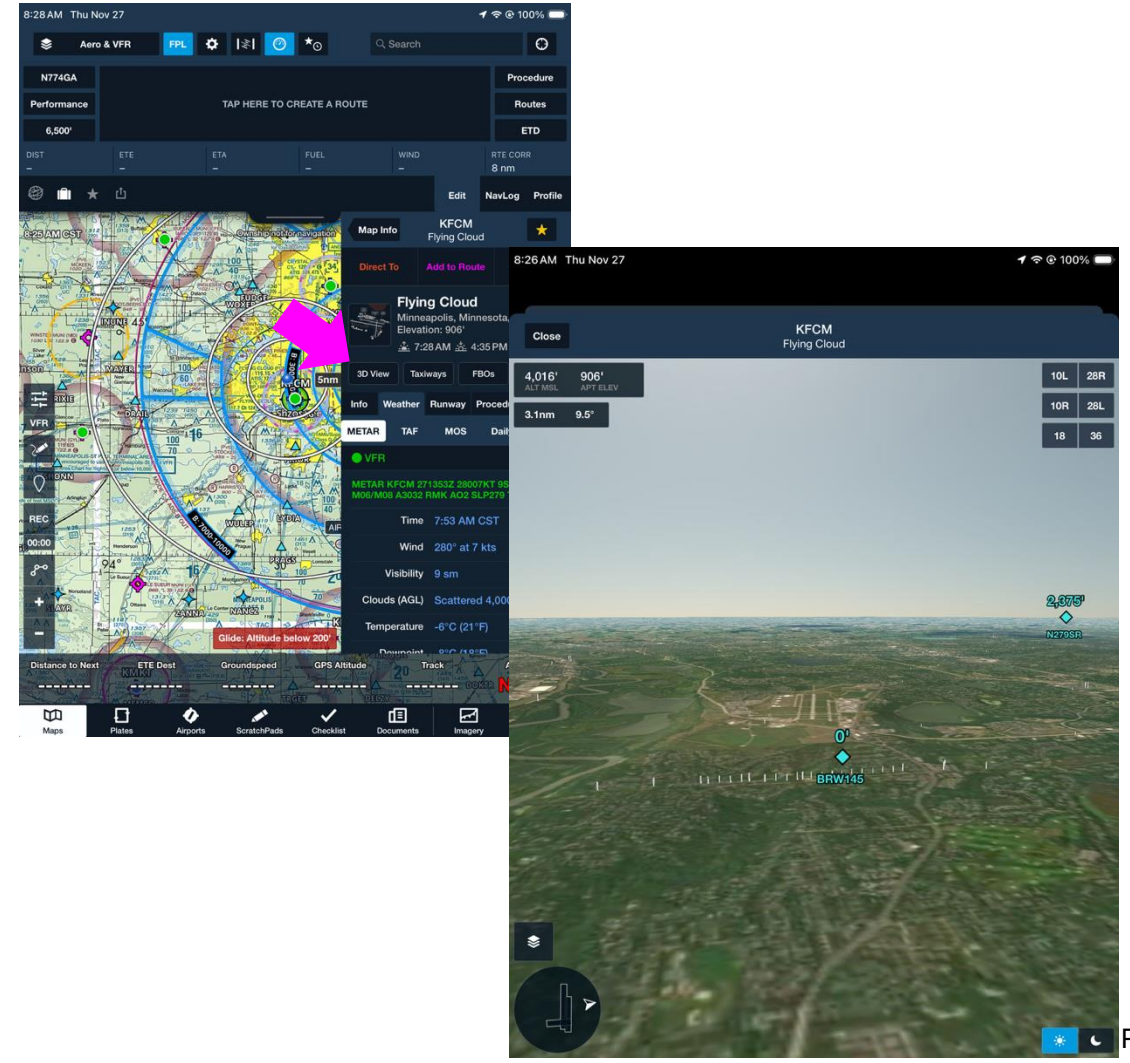


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Garmin Pilot



Foreflight



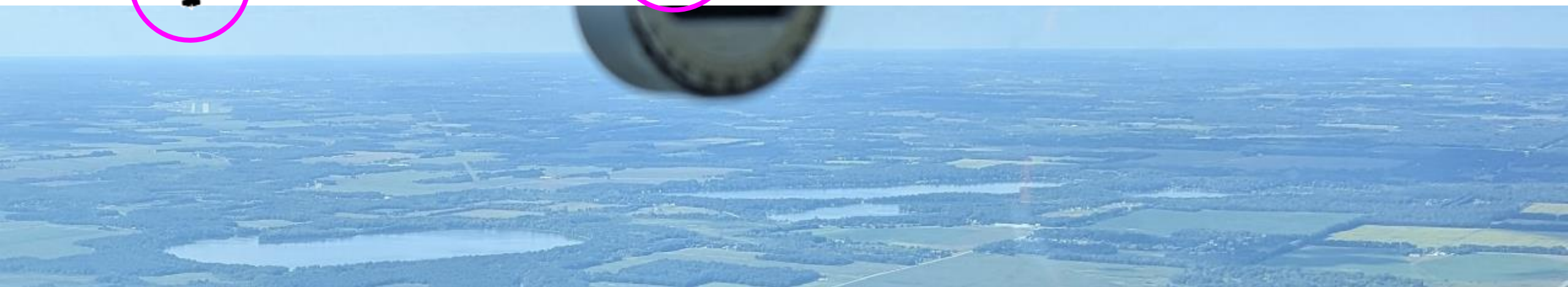
Daytime Landmarks

Good

- Airports.
- Towns w/ features.
- Lakes w/ features.
- Interesting big rivers.
- Road changes from double/single.
- Major intersections.
- Power plants.
- Wind farms (but not precise).
- VOR Radials.

Bad

- Towers.
- Railroads.
- Power lines.
- Grass runways.
- Little towns.



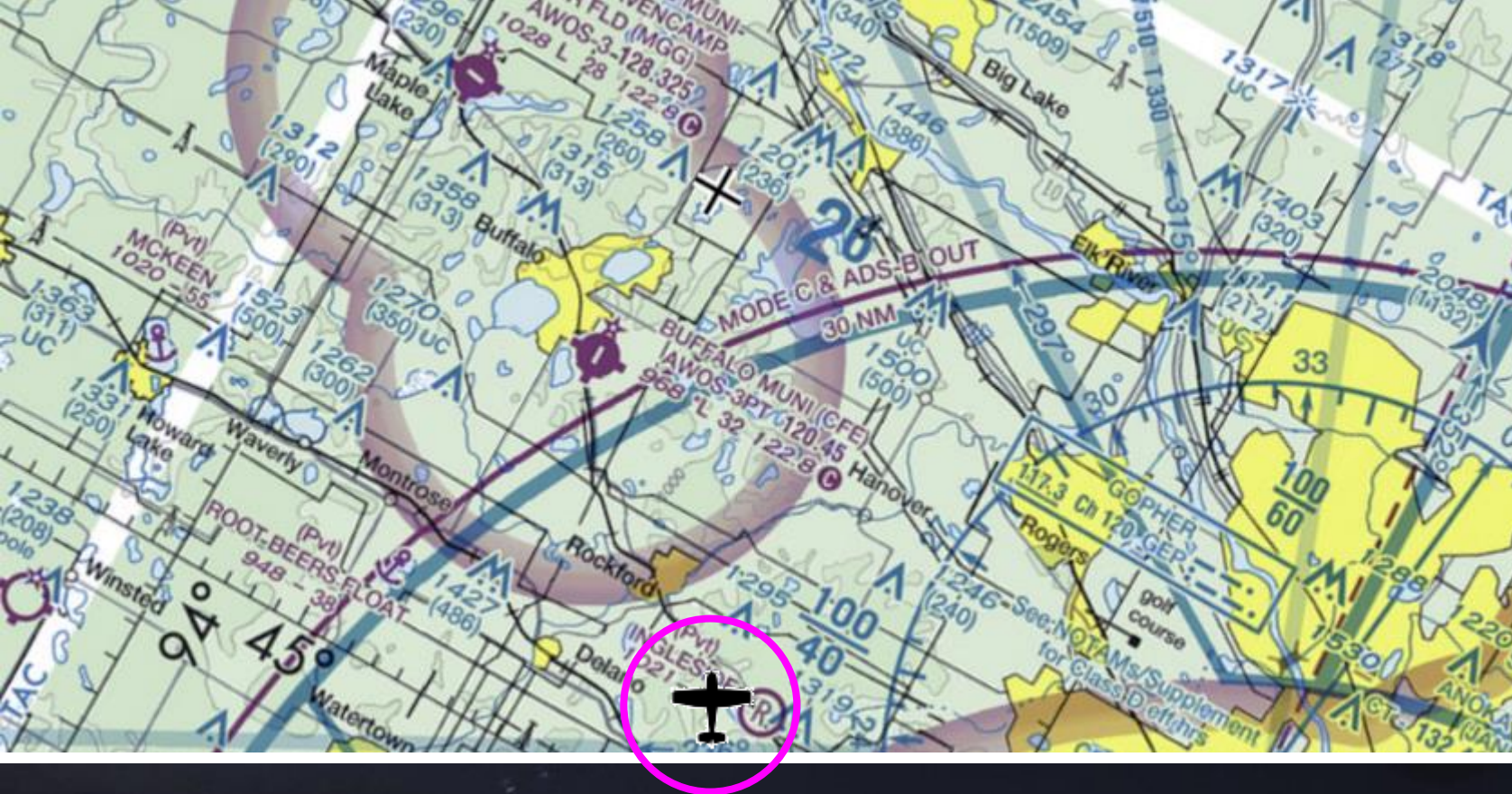
Nighttime Landmarks

Good

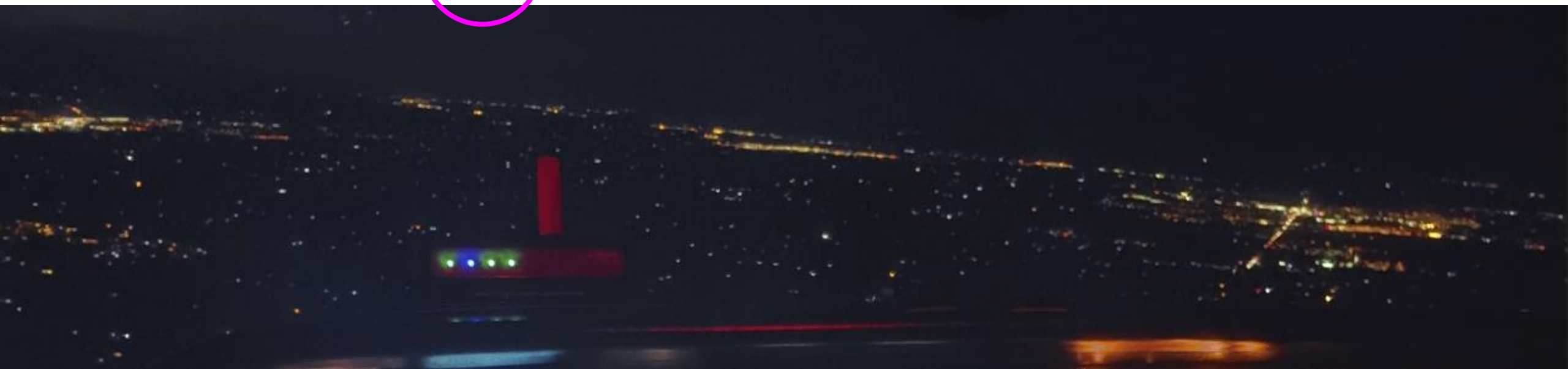
- Airports (pilot lighting).
- Towns.
- Anything with lights.

Bad

- Lakes.
- Rivers.
- Anything without lights.



**Nighttime is
always a lot
harder!**

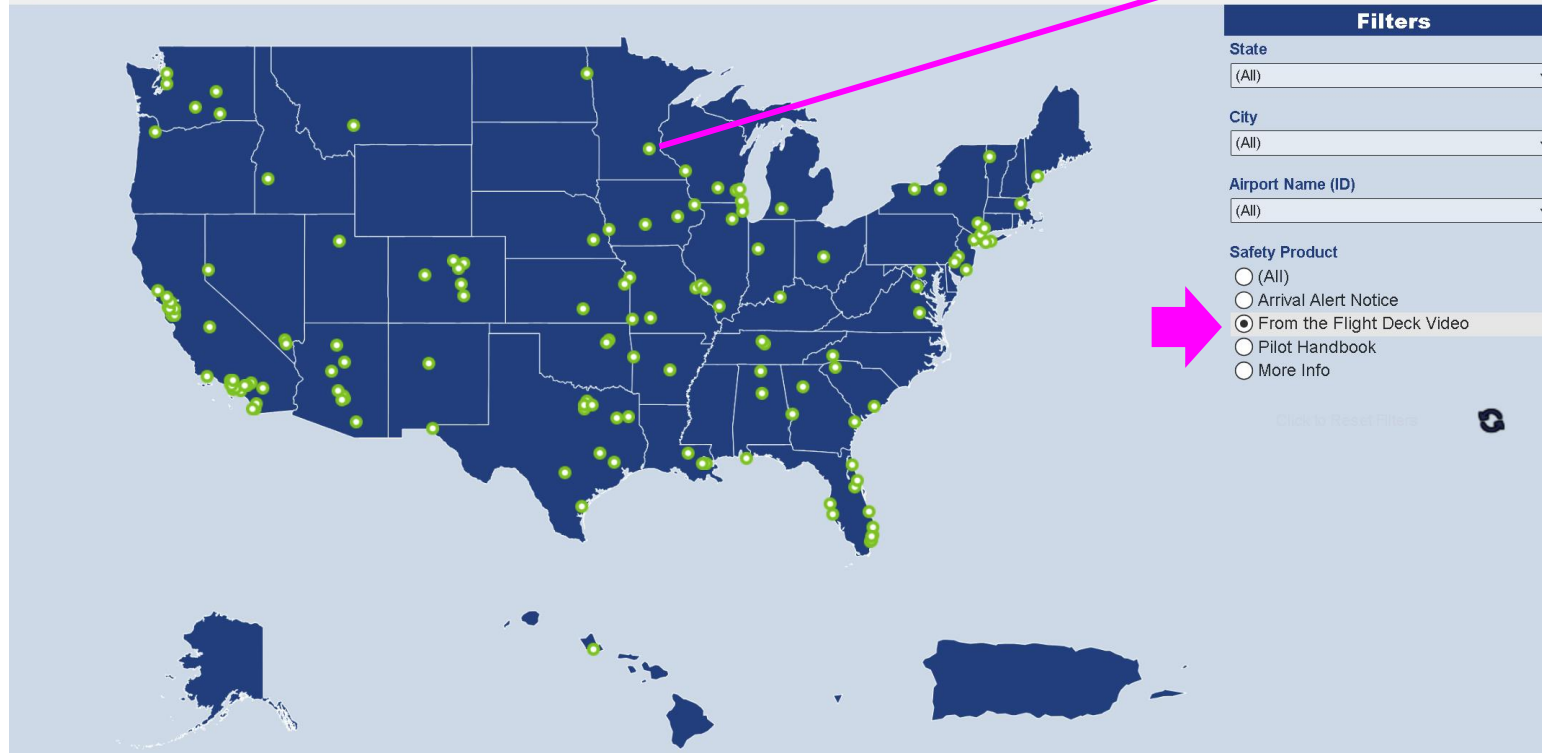


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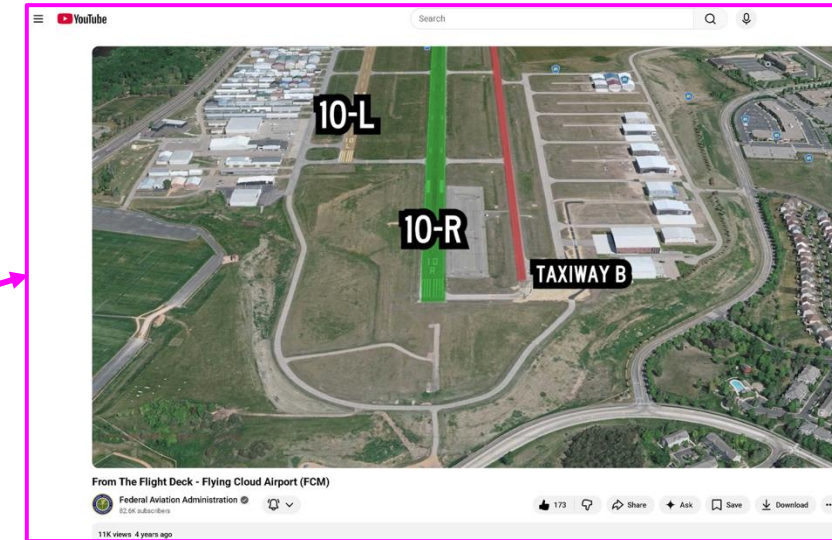
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Pilot
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St Paul Downtown Airport Holman Field (STP)

St Paul Downtown Airport Holman Field (STP) is located just across the Mississippi River from downtown Saint Paul, Minnesota. It is one of several reliever airports in the Twin Cities operated by the Metropolitan Airports Commission. The airport has three runways and serves aircraft operated by corporations in the local area, a flight training school and the Minnesota Army National Guard aviation unit, as well as transient general aviation aircraft. [View a printable Pilot Handbook of the STP information](#) found on this Web page.

STP Tower Hours of Operation: 0600L-2200L M-F/0700L-2200L S-S
Administrative Office: Open 0630L to 1500L M-F
Business Phone: 651-312-8840

The airport configuration consists of intersecting RWYs 9/27, 13/31 and 14/32.

The airspace at STP is Class D and underlies Minneapolis Class B. (Refer to Sectional Chart)



EXPAND ALL COLLAPSE ALL

STP Cautions

From the Control Tower: Local Information that Your STP TWR Controllers Want You to Know

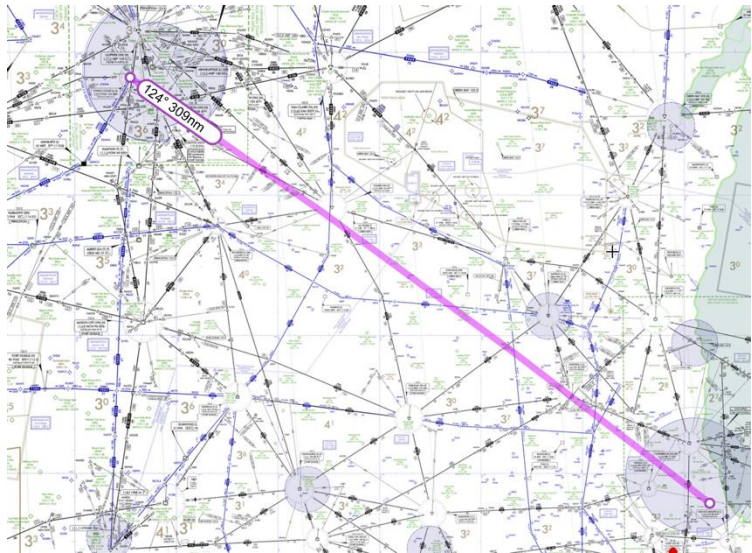
General Links

- Chart Supplement
- NOTAMS
- Runway Safety

Read: Cautions & From the Tower!

Practice Identifying Landmarks

- On an IFR flight in VMC incorporate regular checks for landmarks.
- Identifying airports along route helps with emergency readiness.



**Lots of
Airports!**



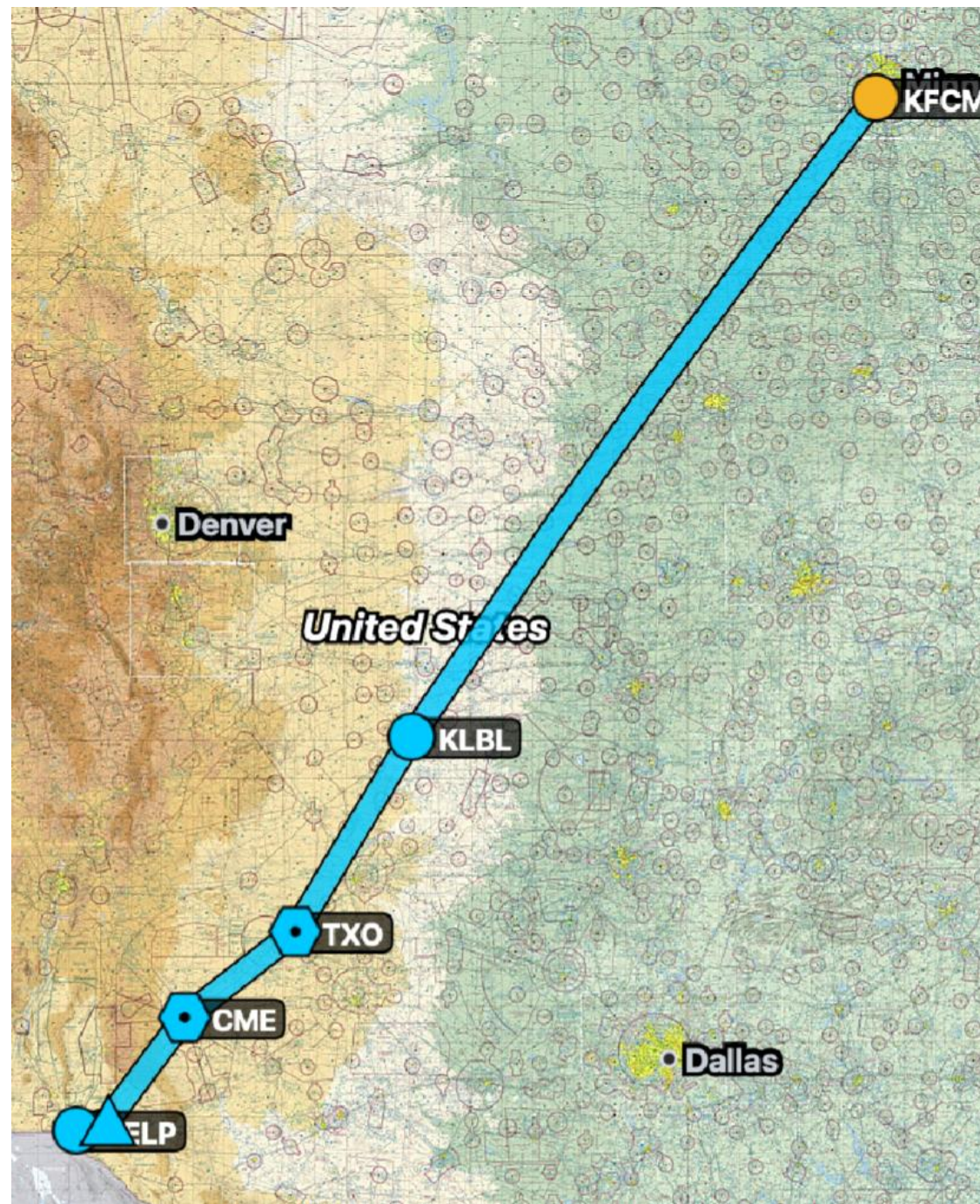
Putting it all Together

Real-World Example ➡ El Paso, Texas (KELP)



Route of Flight KFCM-KELP

KLBL (fuel stop)

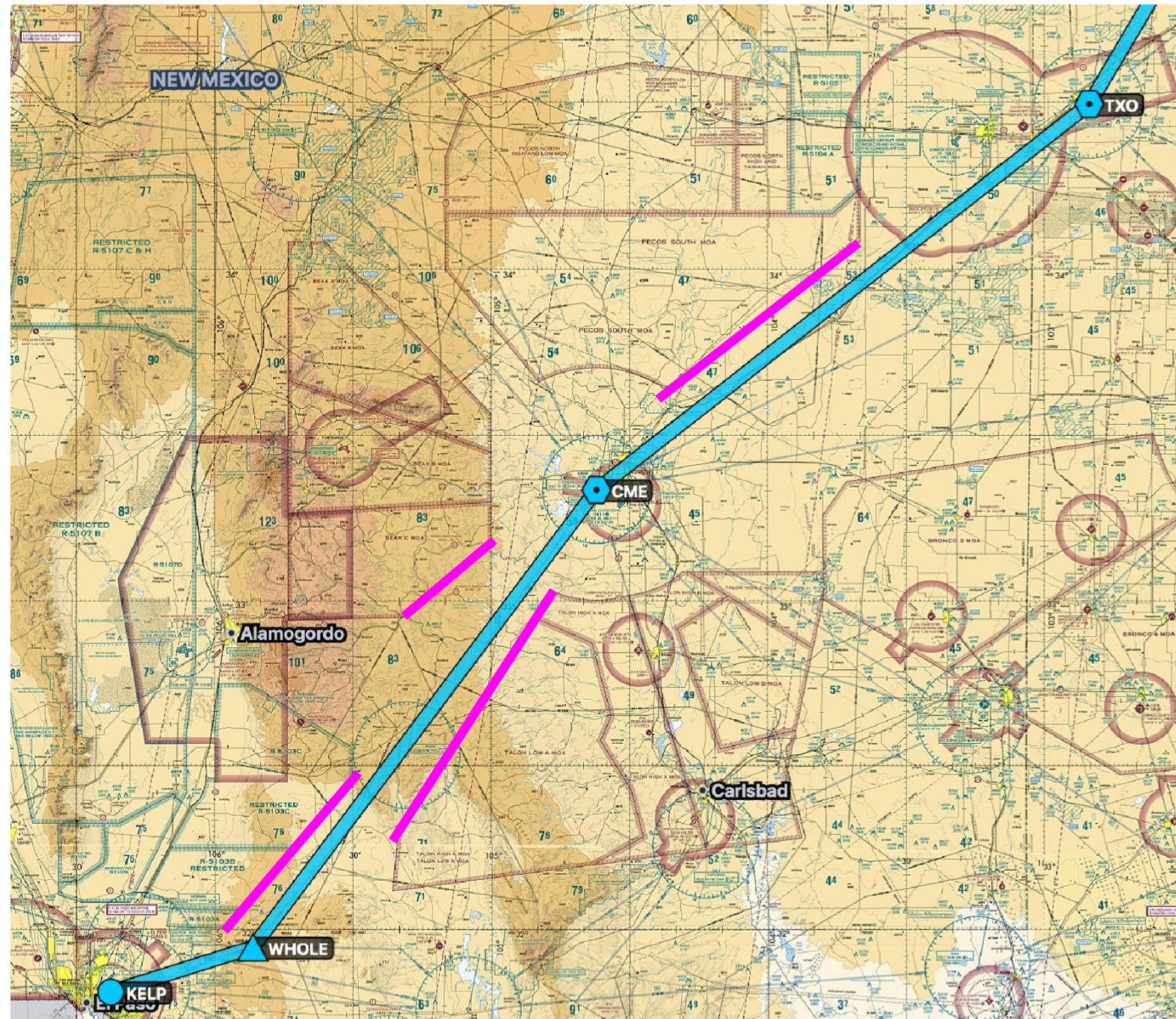


Gotchas

- MOAs
- Restricted Areas

How To Avoid

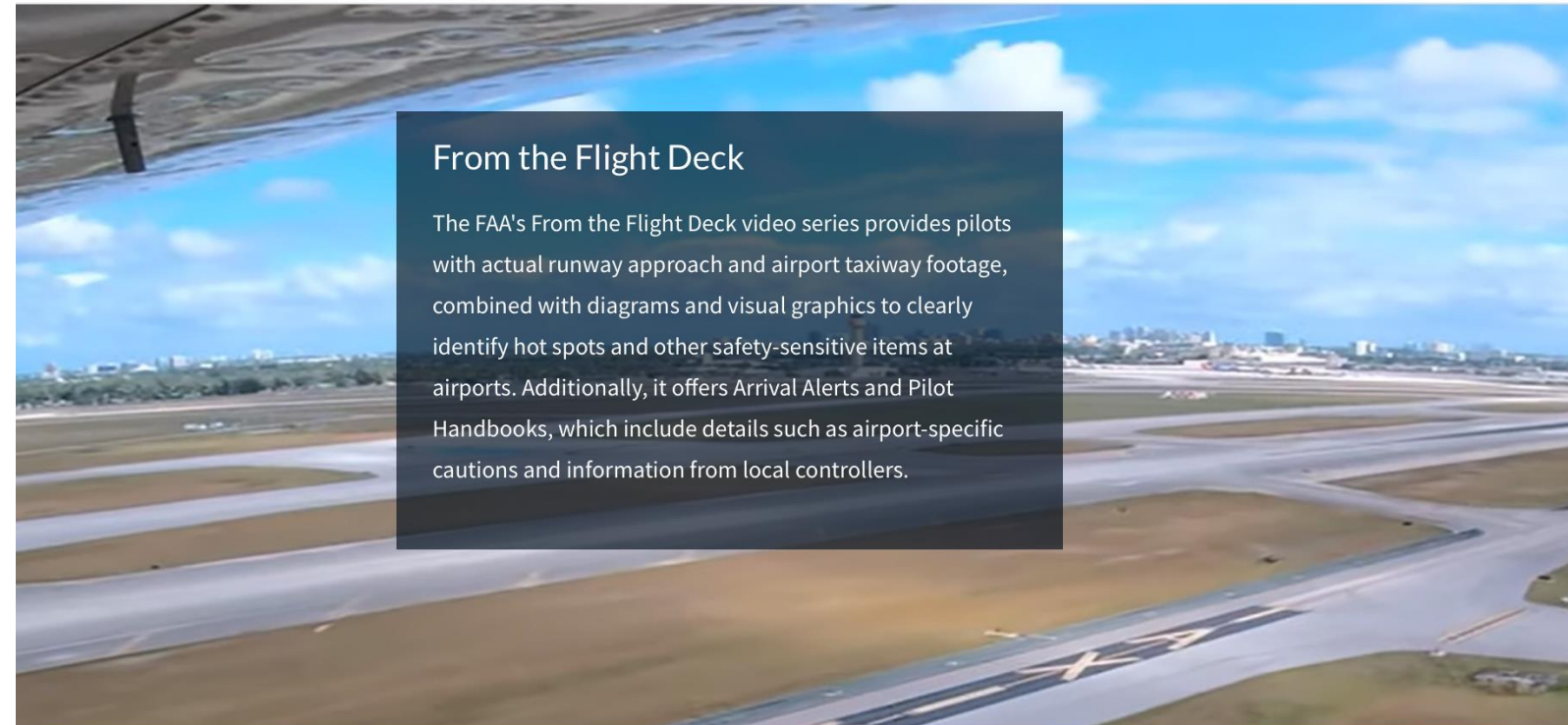
- Chart Legend
- Avoidance





From the Flight Deck

https://www.faa.gov/flight_deck



From the Flight Deck

The FAA's From the Flight Deck video series provides pilots with actual runway approach and airport taxiway footage, combined with diagrams and visual graphics to clearly identify hot spots and other safety-sensitive items at airports. Additionally, it offers Arrival Alerts and Pilot Handbooks, which include details such as airport-specific cautions and information from local controllers.



From the Flight Deck Videos

FAA's From the Flight Deck



Arrival Alert Notice

Arrival Alert Notices use
graphics and warnings to



Pilot Handbooks

Pilot Handbooks offer
airport cautions,

From the Flight Deck

To use this visualization

Select a State, City, Airport Name (ID), or Safety Product from the respective drop down to filter



From the Flight Deck

To use this visualization

Select a State, City, Airport Name (ID) or Safety Product from the respective drop down to filter your search **OR** begin typing to search in the appropriate field. For example, type the 3 letter airport identifier in the Airport ID field.



Filters

State

Texas

City

El Paso

Airport Name (ID)

(All)

Safety Product

- ☒ (All)
- ☐ Arrival Alert Notice
- ☐ From the Flight Deck Video
- ☐ Pilot Handbook
- ☐ More Info

Click to Reset Filters



El Paso International (ELP) Documents

[Arrival Alert Notice](#)

[From the Flight Deck Video](#)

[Pilot Handbook](#)

[More Info](#)

Video



From the Flight Deck - El Paso International Airport (ELP)



Federal Aviation Administration
62.5K subscribers



112



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Save



Download



...

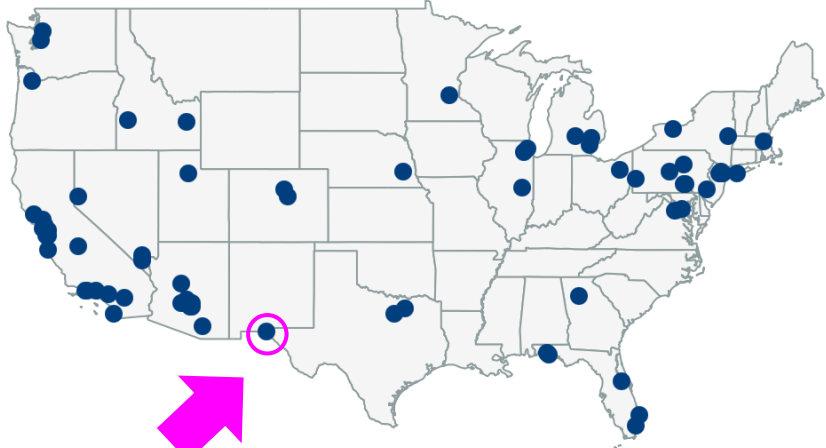
Arrival Alert Notices

Arrival Alert Notices

Select a location to view the Arrival Alert Notice files.

ALB	APA	APC
BED	BFI	BJC
BOI	CAK	CCR
CDW	CHD	CMA
CMI	CNO	CXY
DCA	DPA	DTS
DVT	ELP	EWB
FAT	FOM	FFZ
FTW	GYR	HEF
HIO	HND	HNL
IDA	IPT	ISP
IWA	LAN	LAS
LNK	LVK	MDT
MMU	MRY	MYF
OAK	OPF	OXR
PAE	PBI	PDK
PHL	PHX	PIT
PRC	PSP	PTK
PWK	RHV	RNO
ROC	SFB	SJC
SLC	STS	TEB
TKI	TUS	UNV
VGJ	VNY	VPS
YIP		

Continental U.S.



Alaska



Hawaii



Puerto Rico



Filters

State
(All) ▼

City
(All) ▼

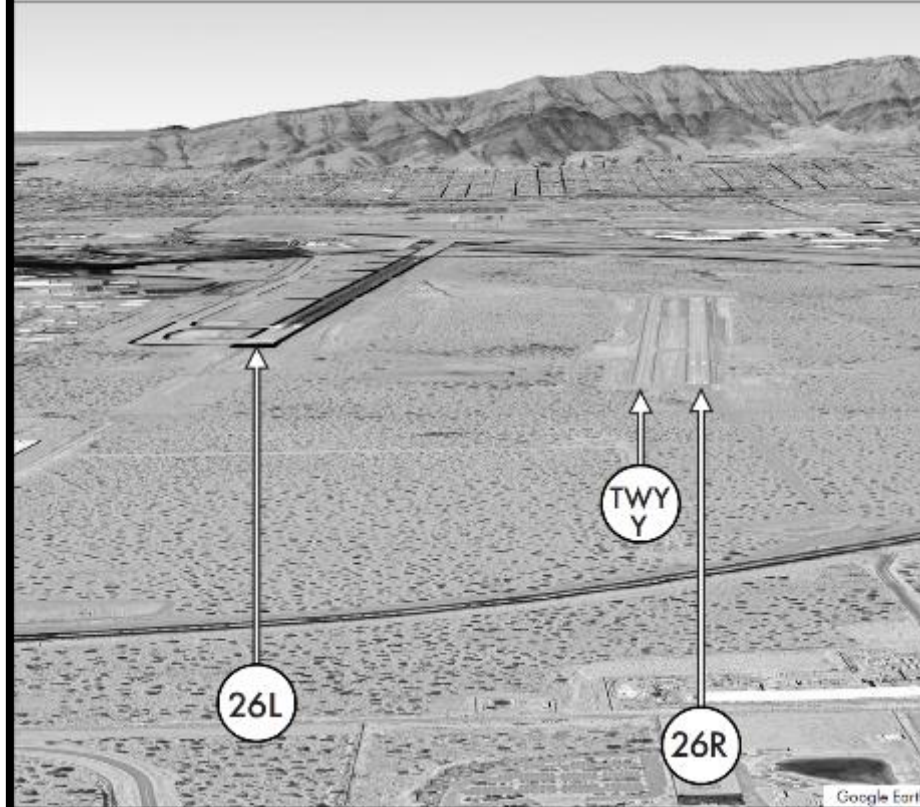
Airport
(All) ▼

[Click to Reset](#)

Arrival Alert Notice KELP

EL PASO INTERNATIONAL AIRPORT (ELP)
ARRIVAL ALERT

Landing West
RWY 26R and RWY 26L and TWY Y



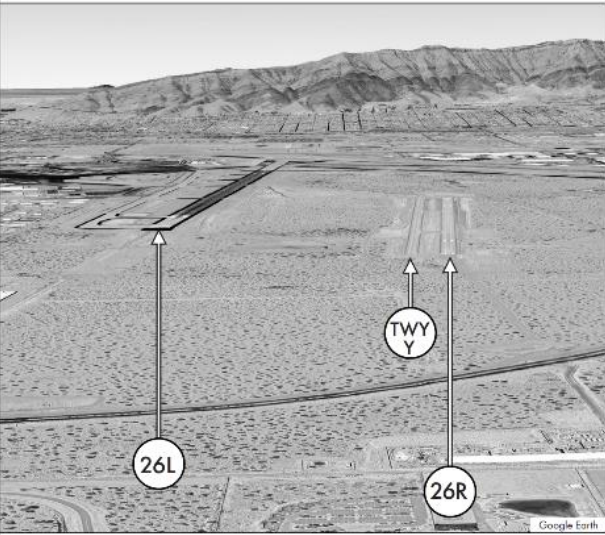
RWY 26L is over 3500 ft. longer and twice the width of RWY 26R. RWY 26R threshold is over 2000 ft. closer than RWY 26L. Pilots confuse TWY Y for RWY 26R.

Not for Navigational Purposes
For Situational Awareness Only

Hmmm...
Something looks familiar!

EL PASO INTERNATIONAL AIRPORT (ELP)
ARRIVAL ALERT

Landing West
RWY 26R and RWY 26L and TWY Y

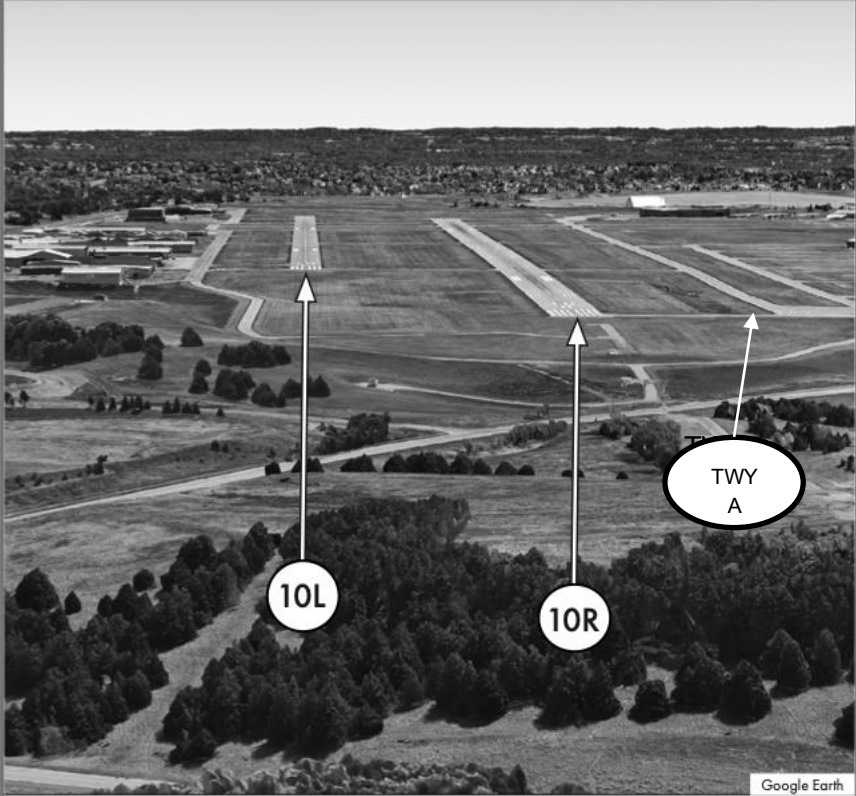


RWY 26L is over 3500 ft. longer and twice the width of RWY 26R. RWY 26R threshold is over 2000 ft. closer than RWY 26L. Pilots confuse TWY Y for RWY 26R.

Not for Navigational Purposes
For Situational Awareness Only

FLYING CLOUD (FCM) ARRIVAL ALERT

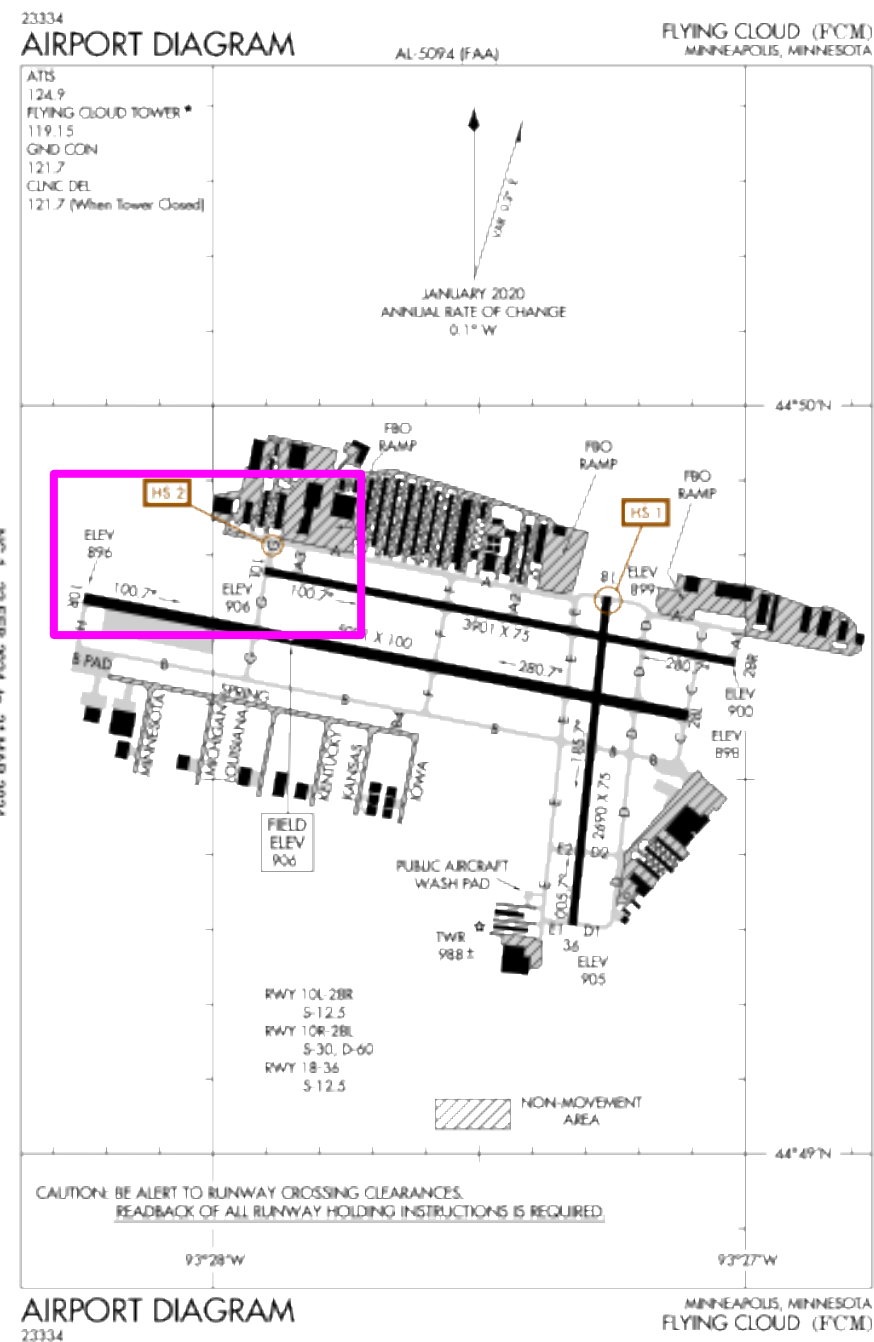
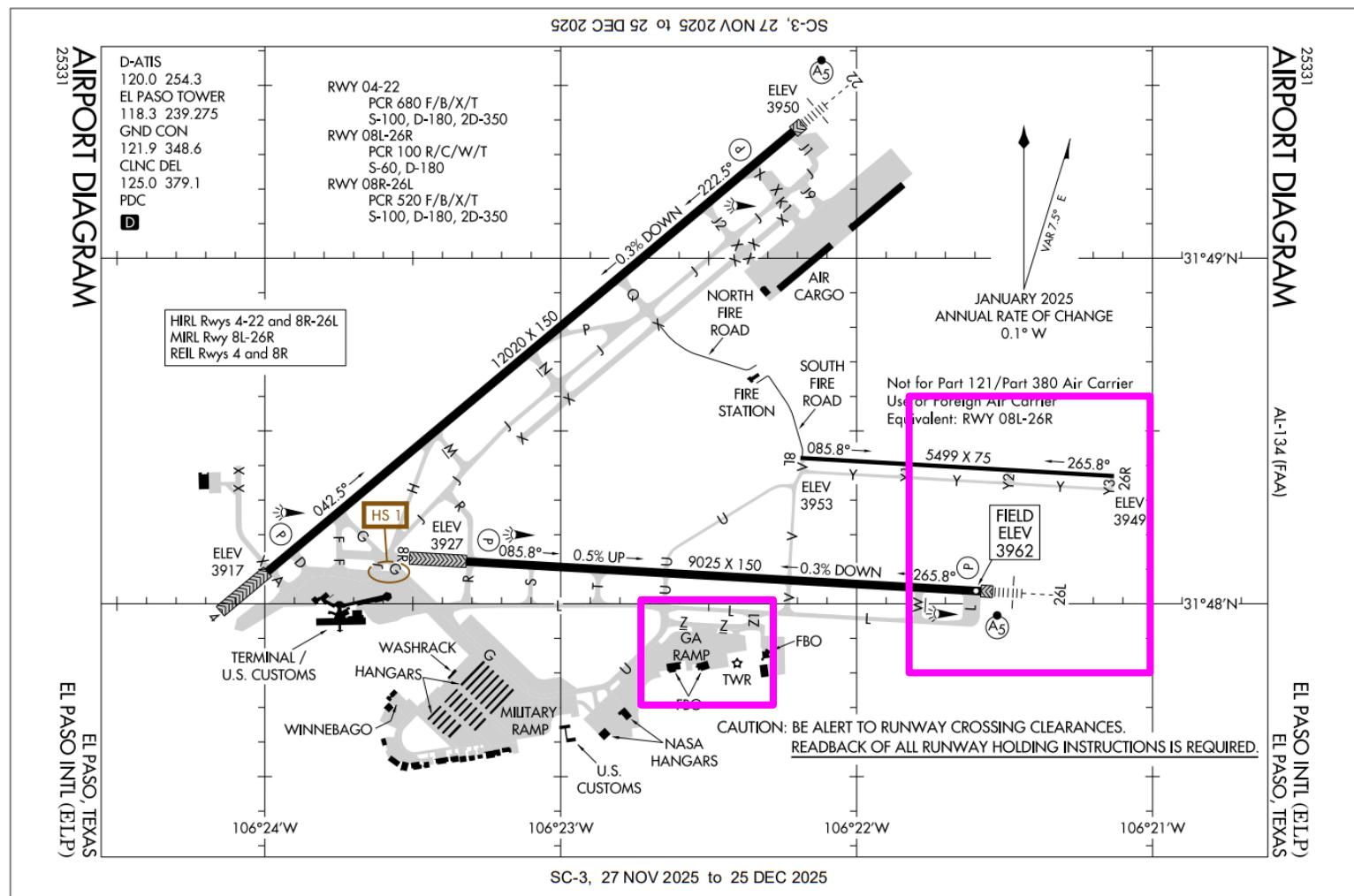
Landing East
RWY 10L and RWY 10R



Off-set Parallels.
Pilots be aware that RWY 10L is 1,400 feet farther down the approach than RWY 10R.

Not for Navigational Purposes
For Situational Awareness Only

Airport Diagram



From the ELP Control Tower: Local Information Your ELP TWR Controllers Want You to Know

- The rise of land

General

- The RWY 38 Approach area is easily confused as several TWYs converge onto the Terminal Ramp area. If you have any questions regarding taxi instructions, please verify with ATIS prior to entering the RWY 38 approach.
- It is important to note that the RWY 38 approach area serves as an overman area for aircraft landing RWY 26L. If possible, you should avoid stopping in the RWY 38 approach lanes as it may initiate Go-around instructions for aircraft on approach to the RWY.

Traffic Patterns

- Traffic pattern altitude for small, fixed wing traffic is 5000' MSL.
- Traffic Pattern altitude for large aircraft is 5500' MSL.
- Traffic Pattern altitude for jets is 6000' MSL.
- Verify traffic pattern direction with ATIS as there may be multiple aircraft in the pattern.

Takeoff/Departure

- ELP has two informal VFR departure areas known as the "Downtown" transition or the "Gap" Transition that are utilized to gain altitude above the Franklin mountains.
- The **Downtown transition** is a VFR departure to the Southwest over the downtown area of LL Paso. Once you feel confident in your ability to climb above obstructions you may continue westbound unless otherwise instructed by ATIS.
- The **Gap transition** refers to the Anthony Gap which is the northernmost part of the Franklin mountains. Aircraft on the Gap transition should fly North westbound until they clear obstructions and then may continue westbound unless otherwise instructed by ATIS.

- The delay of landing or taking off on a TWR edge.



Chart Supplement

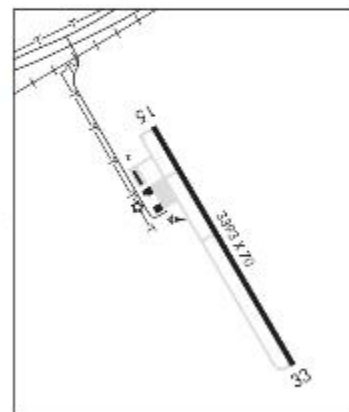
318

TEXAS

EDNA

JACKSON CO (26R) 3 NE UTC-6(-5DT) N29°00.06' W96°34.92'
 62 B NOTAM FILE CXO
 RWY 15-33: H3393X70 (ASPH) S-12.5 MIRL
 RWY 15: P-line.
 SERVICE: S4 FUEL 100LL LQT MIRL Rwy 15-33 preset to low. To incr
 intst and ACTVT—CTAF.
 AIRPORT REMARKS: Unattended. 100LL avbl 24 hrs, self-serve. Twy has
 reflectors on pavement. To mnt aerobatic box—123.3. Hvy ltrnt tfo
 on wkends. NOTE: See Special Notices—Aerobatic Practice Area.
 AIRPORT MANAGER: 361-652-4163
 COMMUNICATIONS: CTAF/UNICOM 122.8
 (R) HOUSTON CENTER APP/DEP CON 135.05
 CLEARANCE DELIVERY PHONE: For CD cto Houston ARTCC at 281-230-5622.
 RADIO AIDS TO NAVIGATION: NOTAM FILE PSX.
 PALACIOS (VH) (H) VORTACW 117.3 PSX Chan 120 N28°45.87'
 W96°18.37' 306° 20.3 NM to fld. 16/8E.

HOUSTON
 L-190, 21A
 IAP



EDWARDS CO (See ROCKSPRINGS on page 424)

EL PASO INTL (ELP)(KELP) 4 NE UTC-7(-6DT) N31°48.44' W106°22.58'
 3962 B TPA—See Remarks AOE Class I, ARFF Index C NOTAM FILE ELP
 RWY 04-22: H12020X150 (ASPH-CONC-GRVD) S-100, D-180, 2D-350 PCR 680 F/B/X/T HIRL
 RWY 04: REIL PAPI(P4L)—GA 3.0° TCH 55'. RVR-TR
 RWY 22: MALSR PAPI(P4R)—GA 3.0° TCH 70'. RVR-TR Rgt tfo. 0.3% down.
 RWY 08R-26L: H9025X150 (ASPH-CONC-GRVD) S-100, D-180, 2S-175, 2D-350 PCR 520 F/B/X/T HIRL
 RWY 08R: REIL PAPI(P4L)—GA 3.0° TCH 75'. Rgt tfo. 0.5% up.
 RWY 26L: MALSR PAPI(P4R)—GA 3.0° TCH 75'. 0.3% down.
 RWY 08L-26R: H5499X75 (CONC-GRVD) S-60, D-180, 2S-175 PCR 100 R/C/W/T MIRL
 RWY 26R: Rgt tfo.
 RUNWAY DECLARED DISTANCE INFORMATION
 RWY 04: TORA-12020 TODA-12020 ASDA-12020 LDA-12020
 RWY 08L: TORA-5499 TODA-5499 ASDA-5499 LDA-5499
 RWY 08R: TORA-9025 TODA-9025 ASDA-9025 LDA-9025
 RWY 22: TORA-12020 TODA-12020 ASDA-12020 LDA-12020
 RWY 26L: TORA-9025 TODA-9025 ASDA-9025 LDA-9025
 RWY 26R: TORA-5499 TODA-5499 ASDA-5499 LDA-5499
 SERVICE: S4 FUEL 100LL, JET A1+ OX 2, 4
 NOISE: Military users should review noise abatement procedures listed for Biggs AAF. Noise abatement procedures in effect,
 cto tower for details.
 AIRPORT REMARKS: Attended continuously. TPA small acft 5000 (1038); turbojet 5504 (1542); overhead apch 6004 (2042).
 Rwy 08L-26R not avbl for Part 121/Part 380 Ops with sked pax carrying ops more than 9 pax seats and non-sked pax
 carrying more than 30 pax seats. 24 hour PPR class A explosives cto 915-212-0333. Biggs AAF 2 NM northwest Rwy
 22 can be mistaken for ELP Rwy 22. Engine power is rstd to idle power on one engine at a time for maximum 5 min on
 any terminal or parking aprons. Holding position markings for Rwy 08R apch and Rwy 04-22 are in close proximity to
 the terminal apron, review arpt diagram prior to pushback from the gate. Rwy 04-22, 206' conc, 10,814' asph, 1,000'
 conc. Rwy 08R-26L, 7,780' asph, 1,247' conc. Twy A south of Rwy 4; Twy J NE of Twy K1; Twy J1 and Twy J9 not
 visible fm ATCT. North bound tfo prohibited on Twy F south of AFR 08R. Compass rose clsd permly. Cross-bleed starts or
 other pre-dep activity on movement areas only. Maintenance or other requirements needing longer or higher power cto
 tower for directions to designated runup areas. NOTE: See Special Notices—Arrival Alert.
 AIRPORT MANAGER: 915 212-0333

EL PASO
 H-4L, L-8F
 IAP, AD

Chart Supplement

EL PASO INTL (ELP)(KELP) 4 NE LTC-7(-6DT) N31°48.44' W106°22.58'

EL PASO

3962 B TPA—See Remarks AOE Class I, ARFF Index C NOTAM FILE ELP

H-4L, L-BF

RWY 04-22: H12020X150 (ASPH-CONC-GRVD) S-100, D-180, 2D-350 PCR 680 F/B/X/T HIRL

IAP, AD

RWY 04: REIL. PAPI(P4L)—GA 3.0° TCH 55'. RVR-TR

RWY 22: MALSR. PAPI(P4R)—GA 3.0° TCH 70'. RVR-TR Rgt t/c. 0.3% down.

RWY 08R-26L: H9025X150 (ASPH-CONC-GRVD) S-100, D-180, 2S-175, 2D-350 PCR 520 F/B/X/T HIRL

RWY 08R: REIL. PAPI(P4L)—GA 3.0° TCH 75'. Rgt t/c. 0.5% up.

RWY 26L: MALSR. PAPI(P4R)—GA 3.0° TCH 75'. 0.3% down.

RWY 08L-26R: H5499X75 (CONC-GRVD) S-60, D-180, 2S-175 PCR 100 R/C/W/T MIRL

RWY 26R: Rgt t/c.

RUNWAY DECLARED DISTANCE INFORMATION

RWY 04: TORA-12020 TODA-12020 ASDA-12020 LDA-12020

RWY 08L: TORA-5499 TODA-5499 ASDA-5499 LDA-5499

RWY 08R: TORA-9025 TODA-9025 ASDA-9025 LDA-9025

RWY 22: TORA-12020 TODA-12020 ASDA-12020 LDA-12020

RWY 26L: TORA-9025 TODA-9025 ASDA-9025 LDA-9025

RWY 26R: TORA-5499 TODA-5499 ASDA-5499 LDA-5499

SERVICE: S4 FUEL 100LL, JET A1+ OX 2, 4

NOISE: Military users should review noise abatement procedures listed for Biggs AAF. Noise abatement procedures in effect, etc tower for details.

AIRPORT REMARKS: Attended continuously. TPA small acft 5000 (1038); turbojet 5504 (1542); overhead apch 6004 (2042).

Rwy 08L-26R not avbl for Part 121/Part 380 Ops with sked pax carrying ops more than 9 pax seats and non-sked pax carrying more than 30 pax seats. 24 hour PPR class A explosives etc 915-212-0333. Biggs AAF 2 NM northwest Rwy 22 can be mistaken for ELP Rwy 22. Engine power is rstd to idle power on one engine at a time for maximum 5 min on any terminal or parking aprons. Holding position markings for Rwy 08R apch and Rwy 04-22 are in close proximity to the terminal apron, review arpt diagram prior to pushback from the gate. Rwy 04-22, 206' conc, 10,814' asph, 1,000' conc. Rwy 08R-26L, 7,780' asph, 1,247' conc. Twy A south of Rwy 4; Twy J NE of Twy K1; Twy J1 and Twy J9 not visible fm ATCT. North bound Hc prohibited on Twy F south of AER 08R. Compass rose cld permly. Cross-bleed starts or other pre-dep activity on movement areas only. Maintenance or other requirements needing longer or higher power etc tower for directions to designated runup areas. NOTE: See Special Notices—Arrival Alert.

AIRPORT MANAGER: 915-212-0333

RAIM

- Garmin

- <https://fly.garmin.com/fly-garmin/support/raim/>

RAIM/FDE Prediction

Various certification authority guidance for area navigation (RNAV) and required navigation performance (RNP) operations requires a pre-flight receiver autonomous integrity monitoring (RAIM) or fault detection and exclusion (FDE) prediction be performed to determine the availability of RAIM/FDE before commencing a flight.

Garmin provides this free RAIM/FDE Prediction service to provide high quality prediction which takes into account the [performance](#) of Garmin GPS receivers.

All fields required.

Route

Departure Procedure

Arrival Procedure

Type of Flight Per [FAA AC 91-70A](#)

Departure Date

Departure Time

Altitude

Predict With

Ground Speed

RNP Default ☐ Override Route RNP

- Foreflight

- Navlog

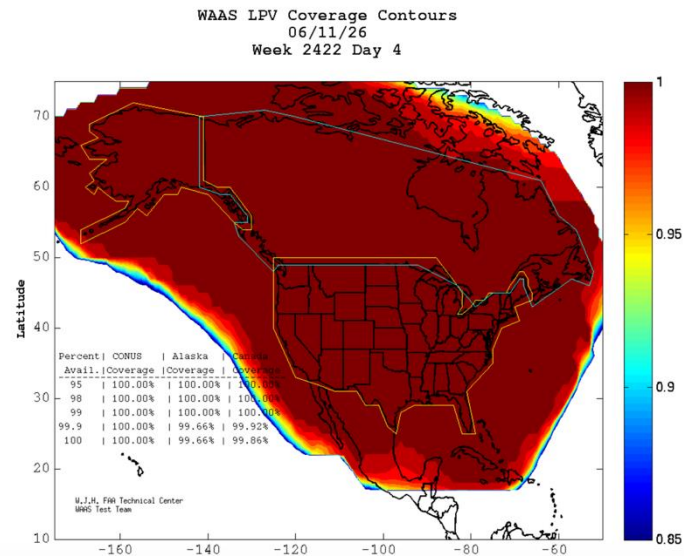
RAIM (5° Mask, With Baro-aid)

✓ **RAIM: No outages predicted**

RAIM

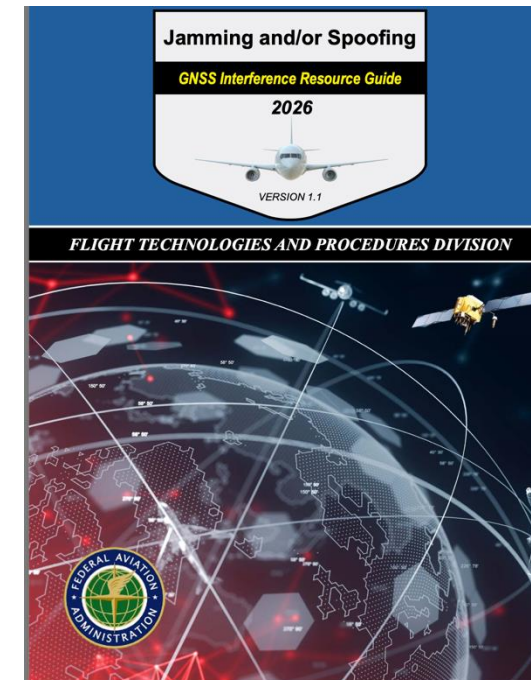
Worldwide WAAS monitoring

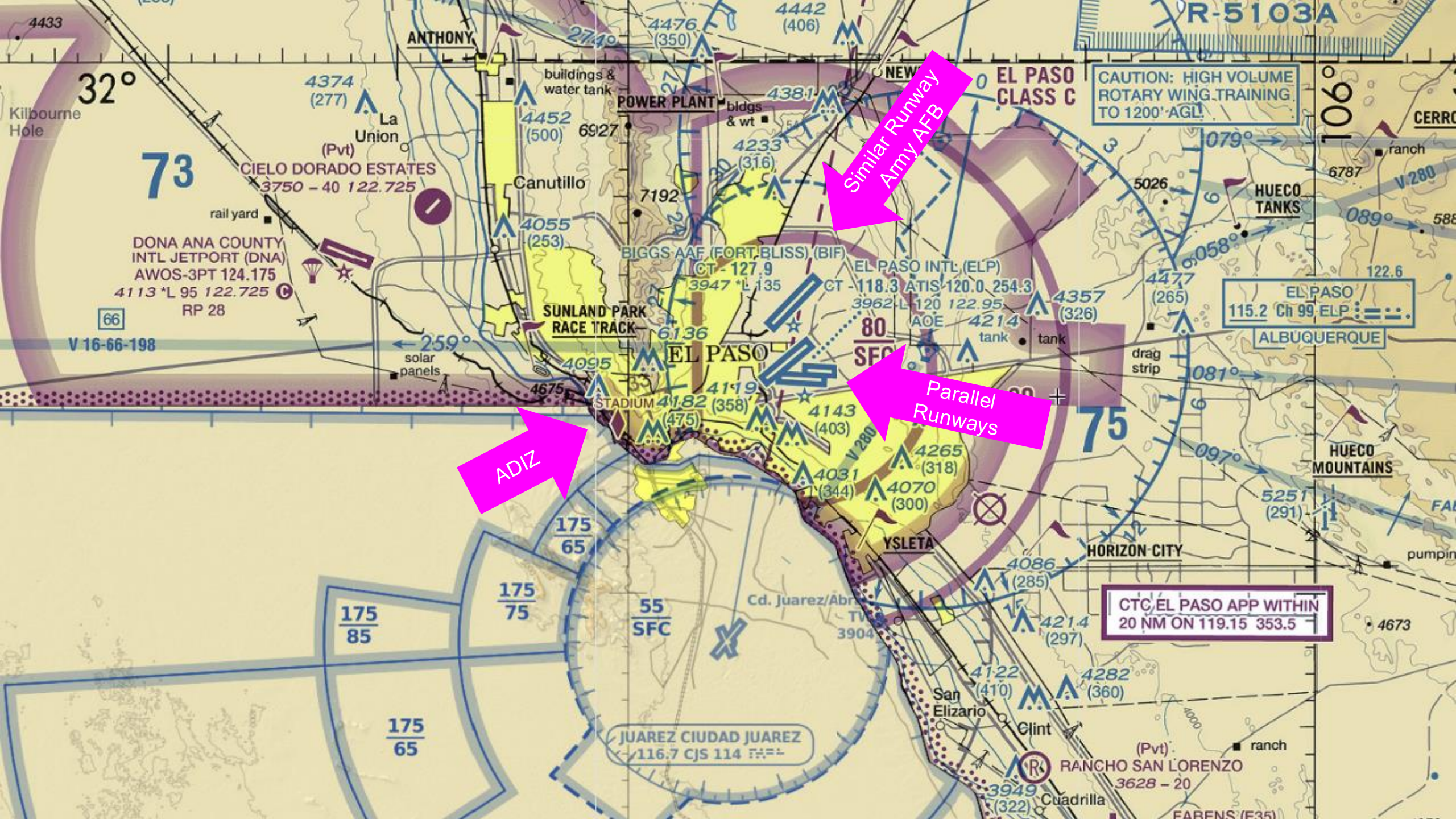
- <https://www.nstb.tc.faa.gov/index.htm>



GNSS Interference Resource Guide

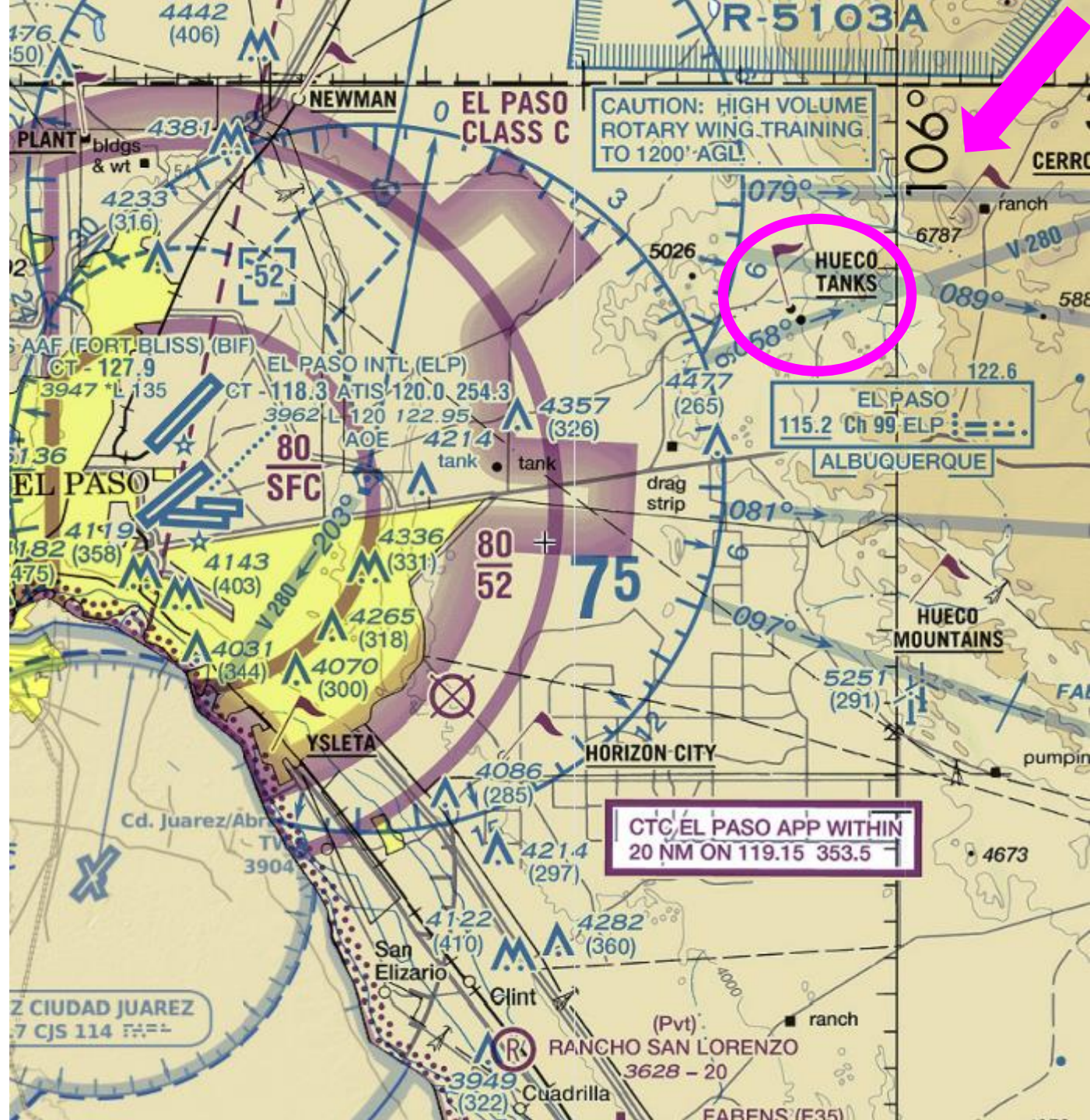
- https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afx/afs/afs400/afs410/GNSS/GNSS_Interference_Resource_Guide.pdf



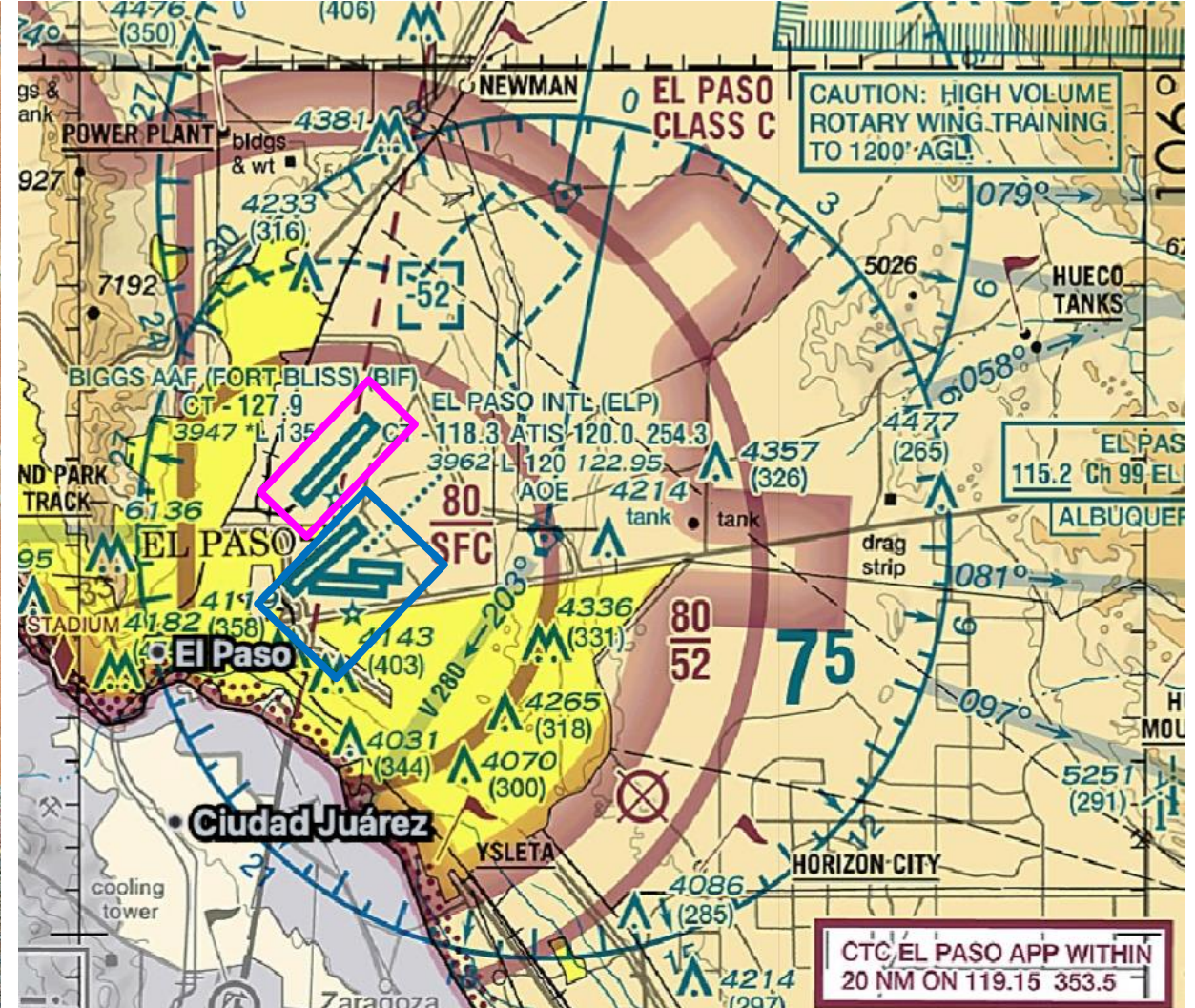
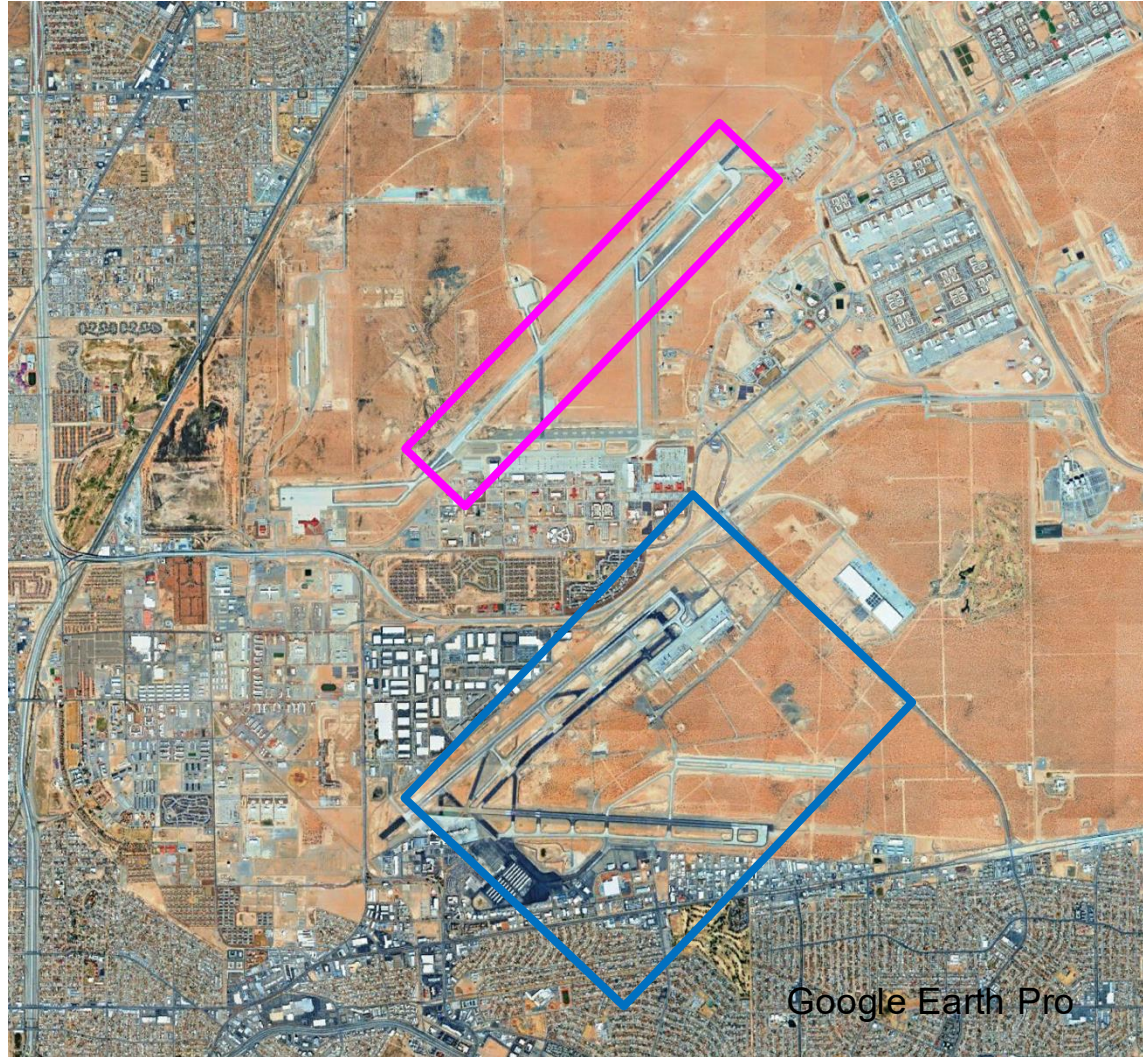




“hollow” en español



Satellite 2d Imagery



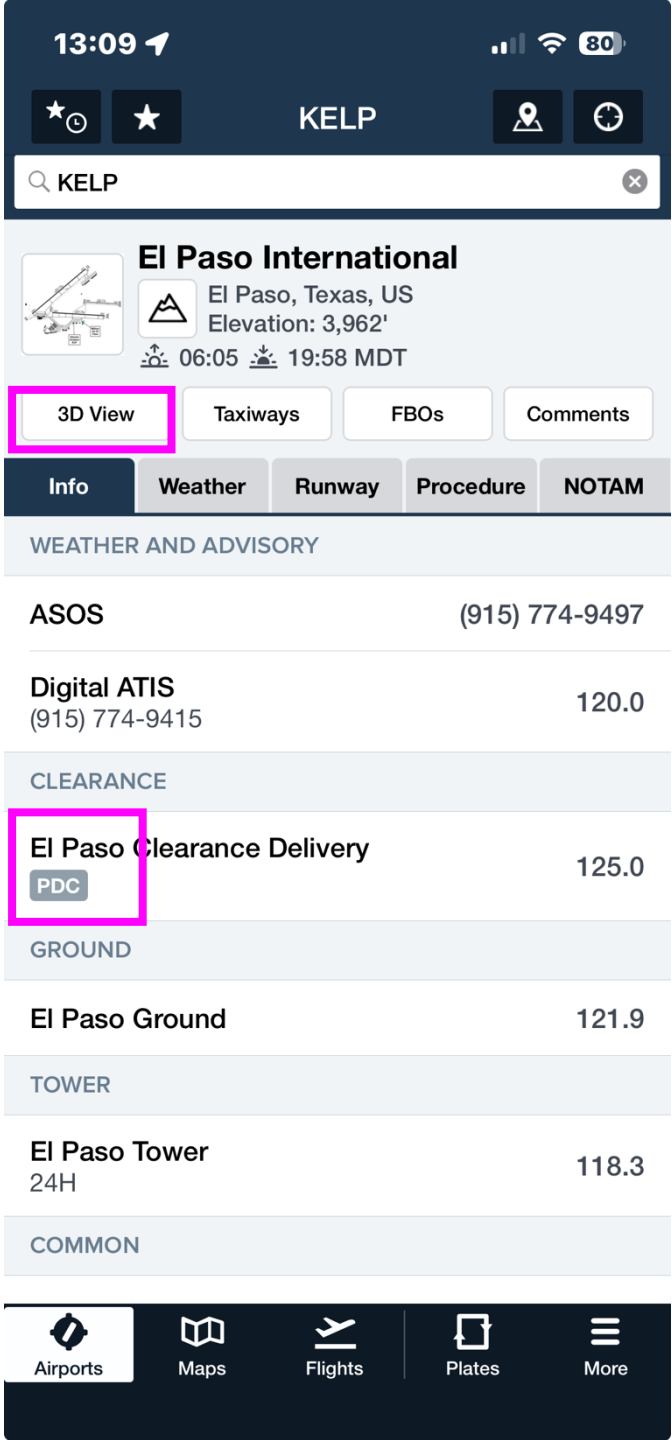
Satellite 3d Imagery High Tilt



Inbound to KELP



ForeFlight Dynamic View



d-ATIS and Pre-Departure Clearance

08:39 📶 100

< 1 +1 (512) 790-9316 >

Mon, Oct 6 at 09:34

Latest ATIS for KELP

ELP ATIS INFO R 1351Z.
16005KT 10SM BKN110
19/07 A2996 (TWO NINER
NINER SIX). EXP VISUAL
APCH RY 22, 26L, RNAV Z
RY 22 APCH, RNAV Z RY
26L APCH. DEPG RWYS
22, 26L. NOTICE TO
AIRMEN. TWY V CLSD BTN
TWY, L AND RY 26L. RY 22
LOC DME OTS, RY 04 LOC
DME OTS. 5G NOTAMS.
READBACK ALL RY HOLD
SHORT INSTRUCTIONS.
USE CAUTION BIGGS
ARMY AIRFIELD LOCATED
2 MILES NORTH OF
ELP. ...ADVS YOU HAVE
INFO R.

To stop receiving these
messages, reply STOP.

08:41 📶 100

< 1 +1 (512) 790-9316 >

Pre-Departure Clearance
For N425KA - C182/G
(AMENDED)
Departure: KELP

Destination: KMCK
Filed Route: KELP WHOLE
CME TXO KMCK
Amended Route: -WHOLE
V280 CME-
Altitude (FL): 90
Squawk: 4160
ETD: 1500 UTC

Remarks: ONE DOG ON
BOARD
NO SID

MAINTAIN 9000FT
EXP 90 10 MIN AFT
DP,DPFRQ 124.25

To stop receiving these
messages, reply STOP.

Homeward Bound



Wrap Up

Key Takeaways

1. **BRIEF** - Thoroughly brief Terminal area during Preflight - BEFORE you go!
2. **PRACTICE** - Keep Pilotage skills proficient even on IFR flights in VMC.
3. **BACK UP** – Utilize enhanced SA features (Distance Rings & Extended Centerlines) in Navigators & EFB's.

Additional Information

https://www.faa.gov/flight_deck

These additional From the Flight Deck videos are available on [general aviation safety challenges](#) and [complex airfield geometry](#) pilots may encounter:

[Arrival Alert Notice](#) 

[Complex Airfield Geometry](#)

[Hold Short](#) 

[Human Factors: The Myth of Multitasking](#) 

[Line Up and Wait](#) 

[Phraseology](#) 

[Winter Weather Challenges](#) 

[Wrong Airport Landings](#) 

[Wrong Direction Intersection Takeoffs](#) 

[Wrong Surface Landings](#) 

EFB References

- AC 91-21D: Use of Portable Electronic Devices Aboard Aircraft
- AC 91-78A: Use of Electronic Flight Bags (EFB)
- AC 120-76E: Authorization for Use of Electronic Flight Bags
- AC 20-173: Installation of Electronic Flight Bag Components

Thank you !

Comments? Feedback?

...Questions?