

FL MCO FSHUN THREE (RNAV) DEPARTURE

4-14-22 PRB Results: Returned for Rework

V4 IS BEING RETURNED FOR THE FOLLOWING:

- 1 REMOVE PROCEDURE NUMBER FROM THE CG WAIVER.

[Procedure numbering removed.](#)

2. ALL OTHER CORRECTIONS HAVE BEEN MADE.

Chart Date 5/19/22 Team 2c

## FL MCO FSHUN THREE (RNAV) DEPARTURE

### 4-7-22 PRB Results: Returned for Rework

V3- PACKAGE IS BEING RETURNED FOR THE FOLLOWING:

REQUESTED WAIVER BELOW IS NOT IN PACKAGE.

UPDATE WAIVER WITH ABOVE CLIMB GRADIENT DESCRIPTION BEING MOVED TO THE DEPARTURE ROUTE DESCRIPTION. ADD CLIMB GRADIENT EVALUATIONS TO THE PACKAGE.

A. RESPONSE: AMEND ATC CG WAIVER AS FOLLOWS: 4. EQUIVALENT LEVEL OF SAFETY PROVIDED: THE GRAPHIC DEPARTURE ROUTE DESCRIPTION WILL STATE: ALL AIRCRAFT: ATC CLIMB GRADIENTS: IF UNABLE TO ACCEPT CLIMB RATES ADVISE ATC PRIOR TO TAXI. RWY 35R: 566 FT/NM TO 2300, RWY 36L: 637 FT/NM TO 2300, RWY 36R: 621 FT/NM TO 2300.

RESPONSE: FLMP concurred. Added per PRB recommendation. COMPLETED

# Procedure Review Board (PRB) Results

## Florida Metroplex

### March 11, 2022

**PRB Recommendations do not constitute approval**

**IAW the current Work Instruction please ensure Environmental Documentation and Flight Inspection**

**PC has been added to the package and noted in SWIMS.**

**Waiver/Approval:** ORLANDO INTL, ORLANDO, FLORIDA (MCO) - FSHUN THREE (RNAV) DEPARTURE,

Requested By: AJV-A

PRB Results: Return for Rework

1. IAW FS Memo (Dated 07/20/2020 Waiver to FAA Order 8260.19 and FAA Order 8260.46, to Remove Airport/Heliport Name(s) from Select FAA Forms): Delete Airport Name from Subject line of the waiver/approval requests and 8260-1 section 1.

**RESPONSE:** Approval Request Updated, **COMPLETE**

2. 8260.46, para 2-1-1e(2)(b)2 and Appendix E, Section 1, para 3 and Fig E-1: Chart "Then on Depicted Route" and Climb gradients in Departure Route Description as indicated below:

**DP ROUTE DESCRIPTION:**

TAKEOFF RWY 17L: CLIMB ON HEADING 185.48 TO INTERCEPT COURSE 215.22 TO CROSS

BAAIT AT OR ABOVE 1500, THEN ON TRACK 185.43, FOR VECTORS TO TUPPY, THENCE ...

TAKEOFF RWY 17R: CLIMB ON HEADING 185.47 TO INTERCEPT COURSE 210.81 TO CROSS

BAAIT AT OR ABOVE 1500, THEN ON TRACK 185.43, FOR VECTORS TO TUPPY, THENCE ...

TAKEOFF RWY 18L: CLIMB ON HEADING 185.46 TO 600, THEN DIRECT BAAIT AT OR ABOVE

1500, THEN ON TRACK 185.43, FOR VECTORS TO TUPPY, THENCE ...

TAKEOFF RWY 18R: CLIMB ON HEADING 185.46 TO 600, THEN DIRECT BAAIT AT OR ABOVE

1500, THEN ON TRACK 185.43, FOR VECTORS TO TUPPY, THENCE ...

TAKEOFF RWY 35L: CLIMB ON HEADING 005.47 TO INTERCEPT COURSE 355.00 TO CROSS

SAWZZ AT OR ABOVE 2300, THEN ON DEPICTED ROUTE TO TUPPY, THENCE...

TAKEOFF RWY 35R: CLIMB ON HEADING 005.48 TO INTERCEPT COURSE 343.21 TO CROSS

SAWZZ AT OR ABOVE 2300, THEN ON DEPICTED ROUTE TO TUPPY, THENCE...

TAKEOFF RWY 36L: CLIMB ON HEADING 005.45 TO 600, THEN DIRECT KYOTE TO CROSS AT

OR ABOVE 2300, THEN ON DEPICTED ROUTE TO TUPPY, THENCE ...

TAKEOFF RWY 36R: CLIMB ON HEADING 005.46 TO 600, THEN DIRECT FACTS TO CROSS AT

OR ABOVE 2300, THEN ON DEPICTED ROUTE TO TUPPY, THENCE ...

**RESPONSE:** **NONCONCUR** with recommendation. The RWY 35 L/R and 36 L/R have altitude speed constraints in the Departure Route Description. Flight Crews could possibly overlook these constraints if only depicted on the chart.

... ON TRACK 204.35 TO FSHUN. MAINTAIN ATC ASSIGNED ALTITUDE. EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

**RESPONSE:** **CONCUR** with recommendation. FLMP will make necessary changes. **COMPLETE**

ALL AIRCRAFT: ATC CLIMB GRADIENTS: IF UNABLE TO ACCEPT CLIMB RATES ADVISE ATC PRIOR TO TAXI. RWY 35R: 566 FT/NM TO 2300, RWY 36L: 637 FT/NM TO 2300, RWY 36R: 621 FT/NM TO 2300.

**Procedure Review Board (PRB) Results**  
**Florida Metroplex**  
**March 11, 2022**

**PRB Recommendations do not constitute approval**  
**IAW the current Work Instruction please ensure Environmental Documentation and Flight Inspection**  
**PC has been added to the package and noted in SWIMS.**

RESPONSE: CONCUR with recommendation. FLMP will make necessary changes.  
COMPLETE

3. Update waiver with above climb gradient description being moved to the departure route description. Add climb gradient evaluations to the package.

RESPONSE: Amend ATC CG Waiver as follows: 4. EQUIVALENT LEVEL OF SAFETY PROVIDED: The Graphic Departure Route Description will state: ALL AIRCRAFT: ATC CLIMB GRADIENTS: IF UNABLE TO ACCEPT CLIMB RATES ADVISE ATC PRIOR TO TAXI. RWY 35R: 566 FT/NM TO 2300, RWY 36L: 637 FT/NM TO 2300, RWY 36R: 621 FT/NM TO 2300.

COMPLETED

4. Based on new position of the climb gradient info: 8260-15B Procedural Data Notes: Delete: NOTE: ATC CLIMB GRADIENT RWY 35R: 566 FT/NM TO 2600, 36L: 637 FT/NM TO 2300, 36R: 621 FT/NM TO 2300, IF UNABLE TO ACCEPT CLIMB RATE ADVISE ATC PRIOR TO TAXI.

RESPONSE: CONCUR with recommendation. FLMP will make necessary changes. COMPLETED

5. IAW 8260.46, Appendix E, section 1, para 12a: To alert pilots to hazard of north departures from KMCO and the close proximity of KORL: 8260-15B Additional Flight Data Add: "Chart: KORL".

RESPONSE: Added KORL to GDP WS. COMPLETED.

6. IAW 8260.19, para 2-12-2: Add flight inspection report to the package.

Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type: SID	Estimated Chart Date: 05/19/2022	APWS Task ID: 45A6FAED57264A28B2A41AF10F6377C5	APWS Project ID: 56CB9D4B2E664C13B8011AD6C76B4B96
Procedure: FLMP MCO FSHUN3 SID		Enroute: YES	Specialist: Garrity, Michael		Agreement Number:
Airport ID: KMCO			Airport City: ORLANDO		State: FL
Facility ID:	Facility Type:	Flight Inspection Remark Type: New FC Slot			
<p><b>Procedure Comments:</b> ACTIVE DATA USED FOR KMCO AIRPORT AND RUNWAYS</p> <p>PREVIOUSLY APPROVED 8260-1(S): (2): 1. NOT CHART IF ALTITUDE AT THE IF FOR RADAR VECTORS (RV). 2. PUBLISH ATC CLIMB GRADIENTS (CG)</p> <p>PREVIOUSLY APPROVED LOA(S): (1): 1. PUBLISH CLIMB GRADIENT HIGHER THAN 500 FT/NM</p> <p>CONTACT: ALLAN WILL, TEAM 2 SUBTEAM-C MANAGER, 405.954.6103, OR MARLON ROBINSON, TEAM 2 MANAGER, 405.954.3636</p> <p>03/22/22: THIS IS A CORRECTED COPY OF THE FORM APPROVED ON 02/25/22. 15B</p> <p>1. DP ROUTE DESCRIPTION FOR RWYS 35L/35R - REPLACED "TRACK 344.78 TO CROSS HANDD AT OR ABOVE 3000 AND AT OR BELOW 230 KIAS, THEN ON TRACK 337.54 TO CROSS LEFTI AT OR ABOVE 4000 AND AT 230 KIAS, THEN ON TRACK 275.43 TO CROSS BLOSM AT OR BELOW 7000, THEN ON TRACK 192.23" WITH "DEPICTED ROUTE".</p> <p>2. DP ROUTE DESCRIPTION FOR RWY 36L - REPLACED "TRACK 005.61 TO CROSS EARRS AT OR ABOVE 3000 AND AT OR BELOW 230 KIAS, THEN ON TRACK 342.13 TO CROSS LEFTI AT OR ABOVE 4000 AND AT 230 KIAS, THEN ON TRACK 275.43 TO CROSS BLOSM AT OR BELOW 7000, THEN ON TRACK 192.23" WITH "DEPICTED ROUTE".</p> <p>3. DP ROUTE DESCRIPTION FOR RWY 36R - REPLACED "TRACK 358.99 TO CROSS EARRS AT OR ABOVE 3000 AND AT OR BELOW 230 KIAS, THEN ON TRACK 342.13 TO CROSS LEFTI AT OR ABOVE 4000 AND AT 230 KIAS, THEN ON TRACK 275.43 TO CROSS BLOSM AT OR BELOW 7000, THEN ON TRACK 192.23" WITH "DEPICTED ROUTE".</p> <p>4. DP ROUTE DESCRIPTION - CHANGED "... ON TRACK 204.35 TO FSHUN. MAINTAIN ATC ASSIGNED ALTITUDE. EXPECT CLEARANCE TO FILED ALTITUDE 10 MINUTES AFTER DEPARTURE" TO "... ON TRACK 204.35 TO FSHUN. MAINTAIN 7000, EXPECT CLEARANCE TO FILED ALTITUDE 10 MINUTES AFTER DEPARTURE".</p> <p>5. DP ROUTE DESCRIPTION - ADDED "ALL AIRCRAFT: ATC CLIMB GRADIENTS: IF UNABLE TO ACCEPT CLIMB RATES ADVISE ATC PRIOR TO TAXI. RWY 35R: 566 FT/NM TO 2300, RWY 36L: 637 FT/NM TO 2300, RWY 36R: 621 FT/NM TO 2300."</p> <p>6. REMOVED "NOTE: ATC CLIMB GRADIENT RWY 35R: 566 FT/NM TO 2600, 36L: 637 FT/NM TO 2300, 36R: 621 FT/NM TO 2300, IF UNABLE TO ACCEPT CLIMB RATE ADVISE ATC PRIOR TO TAXI."</p> <p>7. CHANGED TOP ALTITUDE FROM ASSIGNED BY ATC TO 7000.</p> <p>8. ADDED "CHART: KORL".</p>					



<b>FIPC BASIC FORM</b>							
<b>PROCEDURE:</b> FLMP MCO FSHUN3 SID			<b>AIRPORT NAME:</b> ORLANDO INTL		<b>AIRPORT ID:</b> KMCO	<b>SPECIAL CONTROL NO:</b> AP-02-187-22	
<b>FAC ID:</b> FSHUN3		<b>CITY:</b> ORLANDO			<b>ST:</b> FL	<b>ORIG CHART DATE:</b> 05/19/2022	
<b>DFL TYPE:</b> PROC/T	<b>THIRD PARTY:</b> <input type="checkbox"/> YES	<b>EST. TIME ON SITE:</b> 0.4	<b>REIMB. NUMBER:</b>		<b>PTS TASK ID:</b>		
<b>PREFLIGHT NOTES</b>							
<b>REVIEWER:</b> edward w mesa					<b>DATE:</b> 02/24/2022		
<b>COMMENTS:</b>					<b>CHECK ONE:</b>		
					<input type="checkbox"/> FLT CK REQ <input checked="" type="checkbox"/> NFCR <input type="checkbox"/> REJECT		
							<b>YES</b>
					<b>CPV COMPLETE?</b>		<b>X</b>
<b>PROCEDURE RESULTS</b>							
<b>INSPECTION DATE:</b> 02/24/2022		<b>CREW #:</b> VN283	<b>N #:</b>	<b>INSTRUMENT PROCEDURE STATUS:</b> <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT W/CHANGES <input type="checkbox"/> UNSAT		<b>ARINC CODING:</b> <input checked="" type="checkbox"/> SAT <input type="checkbox"/> SAT/GOLD <input type="checkbox"/> UNSAT	
<b>FLIGHT INSPECTOR SIGNATURE:</b> edward w mesa @ 02/24/2022 13:12			<b>PRINTED NAME:</b> MESA, EDWARD WILLIAM				<b>NOTAM INITIATED?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>FLIGHT INSPECTOR REMARKS:</b>							
<b>IN-FLIGHT OBSTACLE REPORT</b>							
<b>OBSTRUCTION ID #:</b>	<b>COORDINATES OR LOCATION:</b>		<b>GNSS ALTITUDE (MSL):</b>		<b>BAROMETRIC ALTITUDE (MSL):</b>		<b>HEIGHT ABOVE GROUND LEVEL:</b>

**1. FLIGHT PROCEDURE IDENTIFICATION:**

Orlando, FL

KMCO

**FSHUN DEPARTURE (RNAV)**

**2. WAIVER REQUIRED AND APPLICABLE STANDARD:**

Waiver required to not chart IF altitude at the IF for radar vectors (RV). Order 8260.46 H, Appendix E, Section 1, para 12.C. "Document the minimum crossing altitude at the IF on RNAV Radar departure procedures as follows: CHART: MINIMUM CROSSING ALTITUDE AT (RNAV IF)-(Altitude)."

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

Adding unnecessary altitudes at the "IF" on procedures when they are not needed creates unnecessary workload based on the type of climb clearance that is issued. If the altitude restriction at the "IF" is to be adhered to for aircraft departing from the south runways, then after the aircraft is airborne ATC must issue "CLIMB VIA SID EXCEPT MAINTAIN (altitude)". With this procedure, its unnecessary to add an altitude restriction at TUPPY as the aircraft will be issued an initial departure clearance containing "MAINTAIN 7000" and will be receiving radar vectors to the waypoint TUPPY to join the procedure. When aircraft depart from the south runways, they will be climbing to 7000 and ATC must ensure they are at or above the Minimum Vectoring Altitudes (MVA), therefore the aircraft is always operating in airspace at an altitude above any terrain or obstacles.

Adding an unnecessary altitude at TUPPY creates workload for pilots as it could create a climb gradient higher than 200 feet per NM depending on where ATC vectors the aircraft before clearing them to TUPPY and it could increase communication between ATC and pilots who will be asking questions about the altitude restriction, which ties up the radios. It also adds pilot workload once airborne when ATC issues an altitude higher than 7000 by stating "CLIMB and MAINTAIN (altitude)". The use of "CLIMB and MAINTAIN (altitude)" deletes any published altitude restrictions, therefore pilots will be heads down deleting the restriction from the FMC.

AFS has approved other procedures within the NAS provided an evaluation has been completed. In this case, the evaluation has been accomplished and is contained under number 4 below.

**4. EQUIVALENT LEVEL OF SAFETY PROVIDED:**

With an initial procedurally required minimum initial climb gradient of 500 FT/NM to 600 and then the standard climb gradient of 200 FT/NM, a departing aircraft will be above 3000 within 13.0 NM after departure and at a minimum of 14.98 NM prior to the IF (TUPPY) which is 27.98 NM from the closest DER (RWY17R). The departure route description for runways 17L, 17R, 18L, and 18R will provide instruction for the aircraft to conduct an uninterrupted climb to 7000 which is at or above the MVA from the airport to the IF.

ATC will ensure aircraft departing runways 17L, 17R, 18L, and 18R cross the IF at or above 4000 ft. MSL and within the confines of the Class B airspace. This requirement is included in the facility Standard Operating Procedures (SOP).

An OCS with a starting elevation of 2000 ft. (3000 MVA-1000 ROC) was evaluated for the route starting at TUPPY and the surface was clear.

**5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:**

Modifying all the South runway SIDs to eliminate radar vector segments would be incompatible with the procedure efficiency and could cause environmental concerns and possibly delays in publication. .

**6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):**

Eastern Service Area PBN FAA and NATCA leads.

ZJX ARTCC.

ZMA ARTCC

F11 TRACON.

Orlando Tower.

American Airlines and Southwest Airlines.



**7. SUBMITTED BY:**

**DATE:**

**SIGNATURE**

VICKI LYNN  
TURNER

Digitally signed by VICKI  
LYNN TURNER  
Date: 2022.01.12  
15:32:38 -05'00'

**8. AFS ACTIONS:**

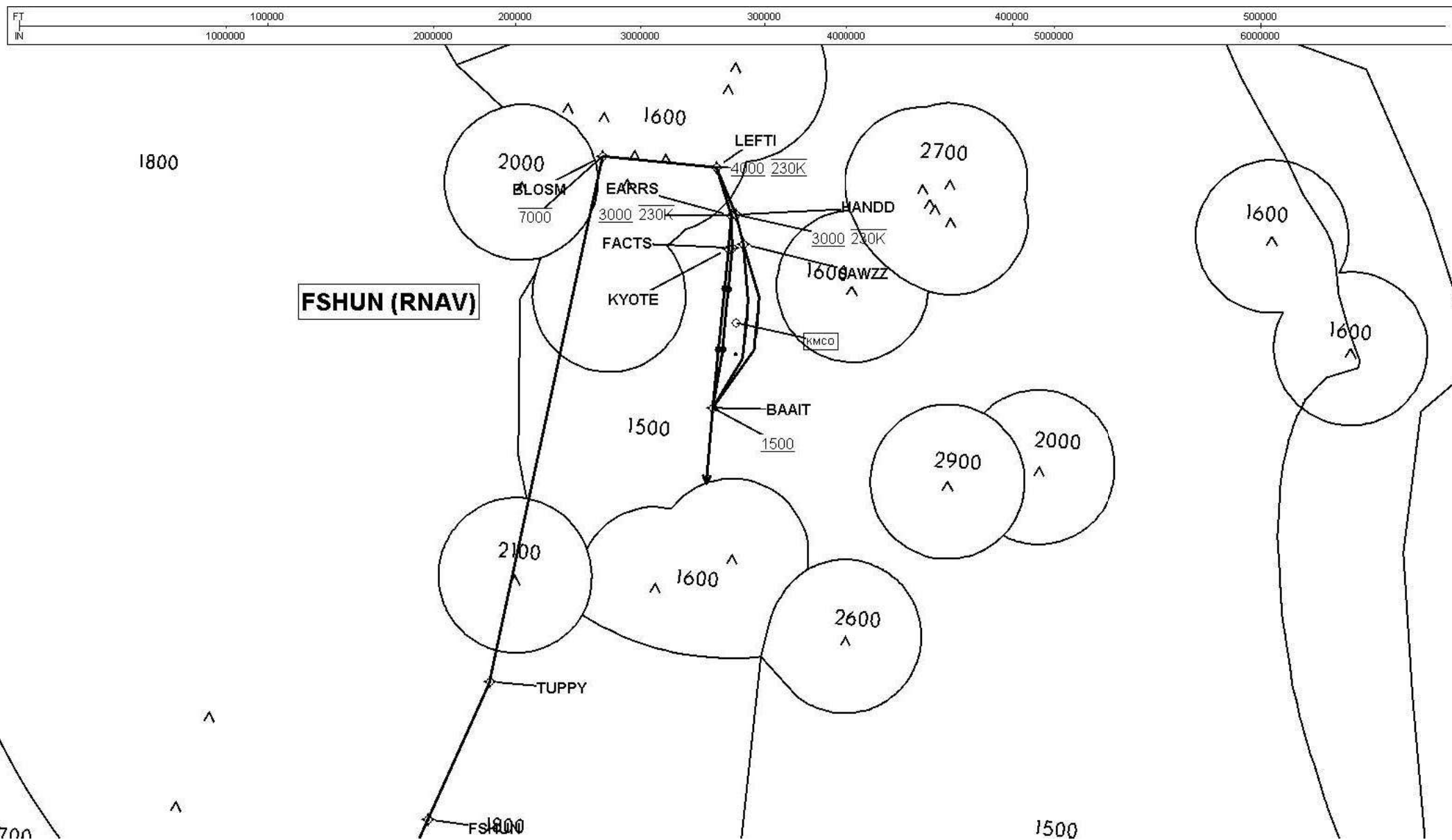
☐ APPROVED ☐ DISAPPROVED ☐ NOT REQUIRED

**COMMENTS:**

**DATE**

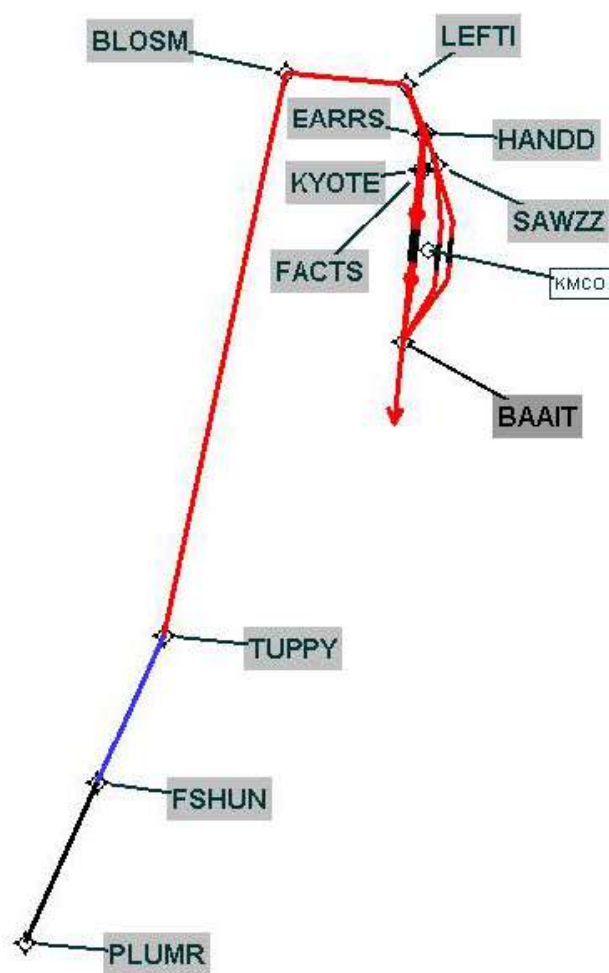
**ROUTING SYMBOL**

**SIGNATURE**





## FSHUN (RNAV)



**1. FLIGHT PROCEDURE IDENTIFICATION:**

Orlando, FL

KMCO

**FSHUN RNAV SID**

**2. WAIVER REQUIRED AND APPLICABLE STANDARD:**

Publish ATC Climb Gradients (CG). FAA Order 8260.46 H Para 2-1-1 e (3) (a), Establish a single minimum CG exceeding 200ft/NM whenever required for obstruction clearance and include the altitude to which the gradient is required in the Takeoff Minimums note. FAA Order 8260.46 H Para 2-1-1 e (3) (c), Do not chart CG's that may be needed to support airspace, navigation solution, environmental, or ATC operations limitations.

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

The ATC CG's of RWY 35R: 566 FT/NM, 36L: 637 FT/NM, and 36R: 621 FT/NM allow for the departures to be clear of arriving traffic into Orlando Executive Airport (KORL) RWY 25 ILS final approach course. This ensures a safe and efficient traffic flow for both airports. If aircraft cannot accept the climb gradient, ATC can provide an alternate option. Historically all aircraft have been able to make the crossing altitudes.

**4. EQUIVALENT LEVEL OF SAFETY PROVIDED:**

The procedure will add "ALL AIRCRAFT: ATC CLIMB GRADIENTS: IF UNABLE TO ACCEPT CLIMB RATES ADVISE ATC PRIOR TO TAXI. RWY 35R: 566 FT/NM TO 2300, RWY 36L: 637 FT/NM TO 2300, RWY 36R: 621 FT/NM TO 2300" to the DP ROUTE DESCRIPTION. This allows controllers time to coordinate with the controller in the adjacent airspace and/or assign a different departure.

**5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:**

Discarding the crossing altitude in favor of a standard climb was considered, but due to the high density of air traffic within the MCO Terminal (F11) airspace, the risk of required additional controller transmissions and disruption of traffic flow was regarded as being too great and introduced an unnecessary safety risk.

**6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):**

Eastern Service Area PBN FAA and NATCA leads.

ZJX ARTCC.

ZMA ARTCC

F11 TRACON.

Orlando Tower.

American Airlines and Southwest Airlines.

7. SUBMITTED BY:

DATE	OFFICE IDENTIFICATION	TITLE
	AJV-A423	MGR

**SIGNATURE**

*Digitally signed by*

**ALLAN WILL**

Feb 14, 2022

8. AFS ACTIONS:

☐ APPROVED ☐ DISAPPROVED ☐ NOT REQUIRED

COMMENTS:

DATE	ROUTING SYMBOL	SIGNATURE
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# Federal Aviation Administration

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## Memorandum

Date: March 31, 2022

To: Christopher Hope, Manager, Flight Technologies and  
Procedures Division  
THRU: Romana Wolf, Manager, Flight Procedures and Airspace Group

From: Bev Bordy, Manager, Instrument Flight Procedures (IFP) Coordination Team, AJV-A45

Prepared by: Jefferson Rutledge, Sr. ATC Specialist, NAVTAC CTR Support

Subject: Approval Request: Orlando, FL (KMCO) FSHUN (RNAV) SID  
ATC CLIMB GRADIENTS

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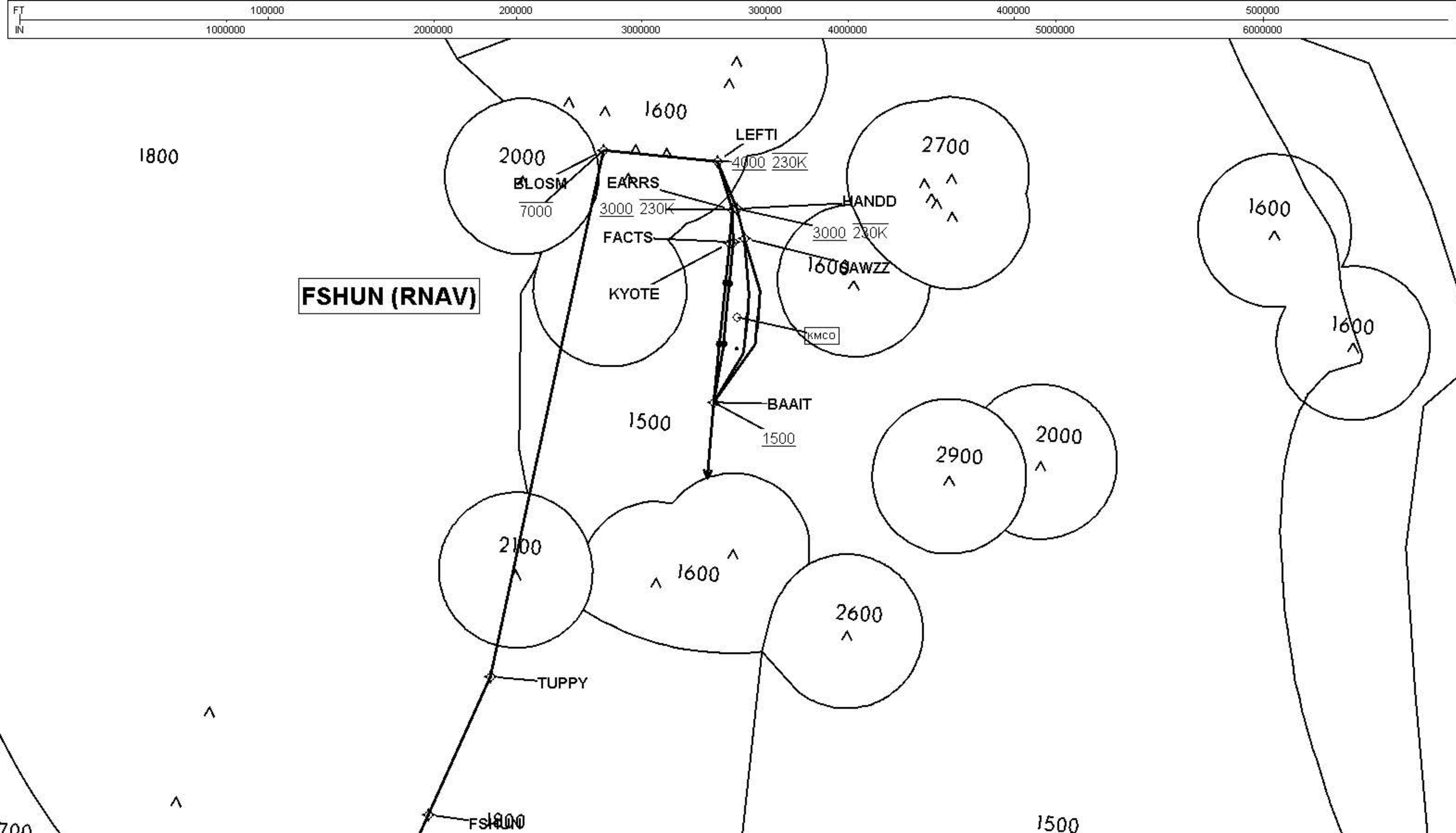
The purpose of this memo is to request Flight Standards approval to publish the FSHUN RNAV SID with a climb gradient higher than 500FT/NM as stated in FAA Order 8260.46 H Para 2-1-1.d.(2): "The Flight Procedures and Airspace Group (or appropriate military authority) must approve DPs and DVAs requiring a CG in excess of 500 FT/NM (600 FT/NM for Helicopters)..." and Para 2-1-1-d-2(a) "Requests for approval of CG's in excess of 500 FT/NM (600 FT/NM for Helicopters) must include documentation showing the calculations used to derive the climb gradient values.

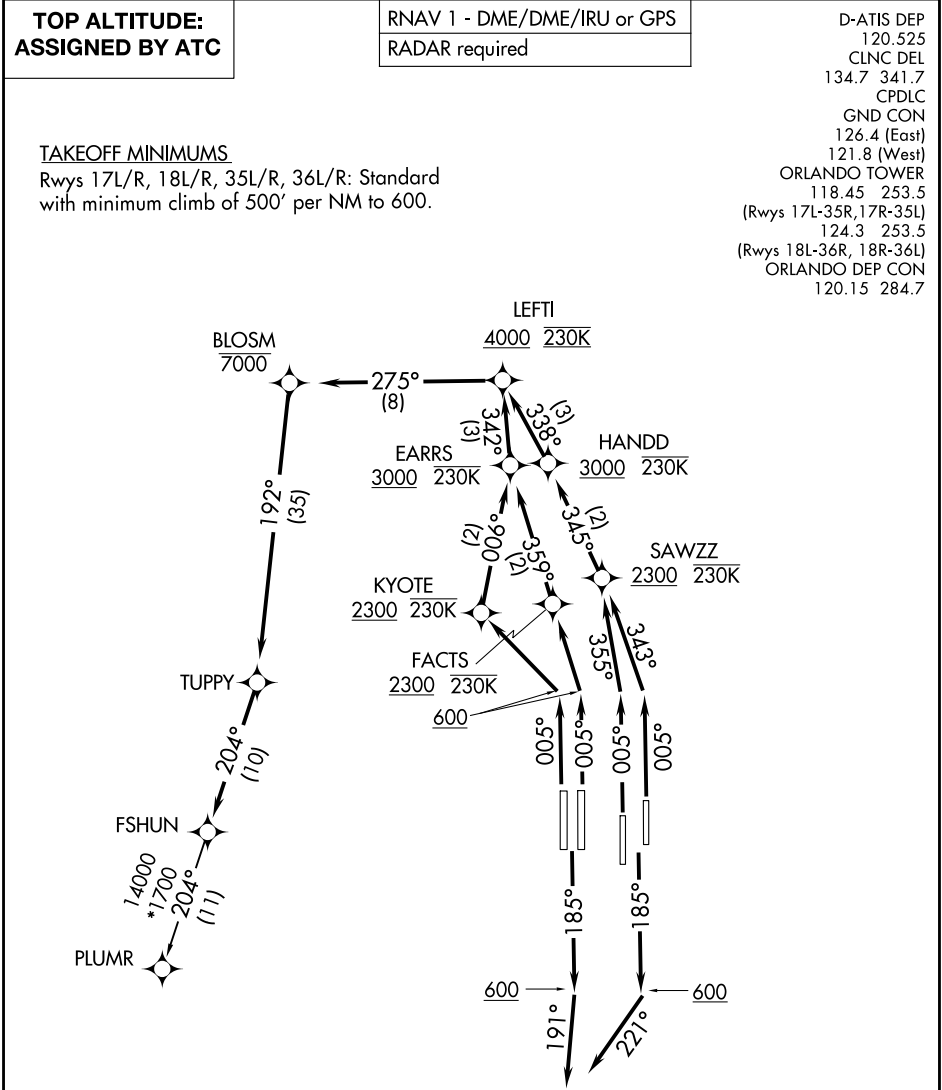
The KMCO FSHUN RNAV SID Departure was intended to overlay the initial climb of the Conventional SIDs to protect the arriving aircraft into Orlando Executive Airport (KORL) on the ILS RWY 25 IAP. The crossing restriction is required to ensure separation and optimal traffic flow in extremely congested airspace. The crossing restrictions result in ATC climb gradients of: RWY 35R; 566 FT/NM to 2300, 36L: 637 FT/NM to 2300, 36R: 621 FT/NM to 2300. This ensures a safe and efficient traffic flow for both airports. If the departure aircraft cannot accept the required ATC climb gradient, ATC can stop or delay aircraft executing the KORL ILS RWY 25 IAP until the departure traffic is airborne and clear of the final approach course. Historically all aircraft have been able to comply with all crossing altitudes.

	DAM	+2600	-5000	+7000
	35L - GOTHOM	380.12/NM	35 GOTHOM	MIEGS 476.19 M-LAPOU -476.19
	35R -	442.92	385.95'	" "
	36L	361.11	@ 3914.28	" "
	36R	369.84	"	"
	MZULD - 35L - GOTHOM	380.12	455.96	455.96
	35R - GOTHOM	442.92	GOTHOM - MIEGS	" MIEGS - ASKUE -
	36L -	361.11 442.92	@ 3558.15	" "
	36R -	369.84 361.11	"	"
	FATHE 35L - JWELE	380.12 485.98/NM	3000 JIRAN 191.38/NM	I - BIGSE 11000 B-BUFFI - 455.58
565.22	35R - KASE	" 565.22	191.38	3933.94' "
623.31	36L - KYOTE	623.31	3000 EARS 319.63	11000 BUFFI 451.47/
613.33	36R - FACTS	613.33	3000 HAND 312.5	11000 BUFFI 435.06/NM
	JEEMY 35L -	" "	" "	+11600 MDUSA 372.39'
ME	35R -	" "	" "	MDUSA 339.32/NM
	36L -	" "	" "	MDUSA 372.39
	36R -	" "	" "	MDUSA 388.52
				MDUSA 389.22
ME NO	EPOT 35L -	+2300 SOW22 466.53	+3000 HAND 344.83	+4000 LEFT 299.40
TR	35R -	493.56	344.83	299.40
	36L -	2300 KYOTE 623.31	+3000 EARS 319.63	4000 LEFT 300.30
	36R -	2300 FACTS 613.33	+3000 EARS 327.10	4000 LEFT 300.30
	LEWIS 35L -	" "	" "	+14000 SARRIL 328.3
	35R -	" "	" "	" 328.3
	36L -	" "	" "	" 328.3
	36R -	" "	" "	" 328.3
	FSHUN 35L -	" "	" "	+12000 TVP/24 -200
	35R -	" "	" "	"
	36L -	" "	" "	"
	36R -	" "	" "	"

AIRPORT	PROCEDURE	RWY	WAYPOINT	RESTRICTION	ATC CG
KMCO	FATHE	35R	JWOLF	1' 2600	565.22' NM
		36L	KYOTE	1' 2300	636.70' NM
		36R	FACTS	1' 2300	620.48' NM
KMCO	JEEMY	35R	JWOLF	1' 2600	565.22' NM
		36L	KYOTE	1' 2300	636.70' NM
		36R	FACTS	1' 2300	620.48' NM
KMCO	EPCOT	35R	SAWII.	1' 2300	565.22' NM
		36L	KYOTE	1' 2300	636.70' NM
		36R	FACTS	1' 2300	620.48' NM
KMCO	LEWRD	35R	SAWII.	1' 2300	565.22' NM
		36L	KYOTE	1' 2300	636.70' NM
		36R	FACTS	1' 2300	620.48' NM
KMCO	FSHUN	35R	SAWII.	1' 2300	565.22' NM
		36L	KYOTE	1' 2300	636.70' NM
		36R	FACTS	1' 2300	620.48' NM







NOTE: Jet and turbo-prop aircraft only.  
NOTE: ATC climb gradient: Rwy 35R: 566'/NM to 2600, 36L: 637'/NM to 2300,  
36R: 621'/NM to 2300, if unable to accept climb rate advise ATC prior to taxi.

(NARRATIVE ON FOLLOWING PAGE)

NOTE: Chart not to scale.



DEPARTURE ROUTE DESCRIPTION  
SEE ADDITIONAL REQUIREMENTS ON AAUP

TAKEOFF RUNWAYS 17L/R: Climb on heading 185° to 600, then on heading 221° or as assigned by ATC, for vectors to TUPPY, thence. . . .

TAKEOFF RUNWAYS 18L/R: Climb on heading 185° to 600, then on heading 191° or as assigned by ATC, for vectors to TUPPY, thence. . . .

TAKEOFF RUNWAY 35L: Climb on heading 005° to intercept course 355° to cross SAWZZ at or above 2300 and at or below 230K, then on track 345° to cross HANDD at or above 3000 and at or below 230K, then on track 338° to cross LEFTI at or above 4000 and at 230K, then on track 275° to cross BLOSM at or below 7000, then on track 192° to TUPPY, thence. . . .

TAKEOFF RUNWAY 35R: Climb on heading 005° to intercept course 343° to cross SAWZZ at or above 2300 and at or below 230K, then on track 345° to cross HANDD at or above 3000 and at or below 230K, then on track 338° to cross LEFTI at or above 4000 and at 230K, then on track 275° to cross BLOSM at or below 7000, then on track 192° to TUPPY, thence. . . .

TAKEOFF RUNWAY 36L: Climb on heading 005° to 600, then direct to cross KYOTE at or above 2300 and at or below 230K, then on track 006° to cross EARRS at or above 3000 and at or below 230K, then on track 342° to cross LEFTI at or above 4000 and at 230K, then on track 275° to cross BLOSM at or below 7000, then on track 192° to TUPPY, thence. . . .

TAKEOFF RUNWAY 36R: Climb on heading 005° to 600, then direct to cross FACTS at or above 2300 and at or below 230K, then on track 359° to cross EARRS at or above 3000 and at or below 230K, then on track 342° to cross LEFTI at or above 4000 and at 230K, then on track 275° to cross BLOSM at or below 7000, then on track 192° to TUPPY, thence. . . .

. . . .on track 204° to FSHUN. Maintain ATC assigned altitude. Expect filed altitude 10 minutes after departure.

PLUMR TRANSITION (FSHUN2.PLUMR)

120.15 284.7

ORLANDO INTL (MCO)

## FSHUN THREE DEPARTURE (RNAV)

ORLANDO, FLORIDA



## DEPARTURE ROUTE DESCRIPTION

SEE ADDITIONAL REQUIREMENTS ON AAUP

TAKEOFF RUNWAY 17L: Climb on heading 185° to intercept course 215° to cross BAAIT at or above 1500, then on track 185°, for vectors to TUPPY, thence. . . .

TAKEOFF RUNWAY 17R: Climb on heading 185° to intercept course 211° to cross BAAIT at or above 1500, then on track 185°, for vectors to TUPPY, thence. . . .

TAKEOFF RUNWAYS 18L/R: Climb on heading 185° to 600, then direct BAAIT at or above 1500, then on track 185°, for vectors to TUPPY, thence. . . .

TAKEOFF RUNWAY 35L: Climb on heading 005° to intercept course 355° to cross SAWZZ at or above 2300, then on track 345° to cross HANDD at or above 3000 and at or below 230K, then on track 338° to cross LEFTI at or above 4000 and at 230K, then on track 275° to cross BLOSM at or below 7000, then on track 192° to TUPPY, thence. . . .

TAKEOFF RUNWAY 35R: Climb on heading 005° to intercept course 343° to cross SAWZZ at or above 2300, then on track 345° to cross HANDD at or above 3000 and at or below 230K, then on track 338° to cross LEFTI at or above 4000 and at 230K, then on track 275° to cross BLOSM at or below 7000, then on track 192° to TUPPY, thence. . . .

TAKEOFF RUNWAY 36L: Climb on heading 005° to 600, then direct KYOTE to cross at or above 2300, then on track 006° to cross EARRS at or above 3000 and at or below 230K, then on track 342° to cross LEFTI at or above 4000 and at 230K, then on track 275° to cross BLOSM at or below 7000, then on track 192° to TUPPY, thence. . . .

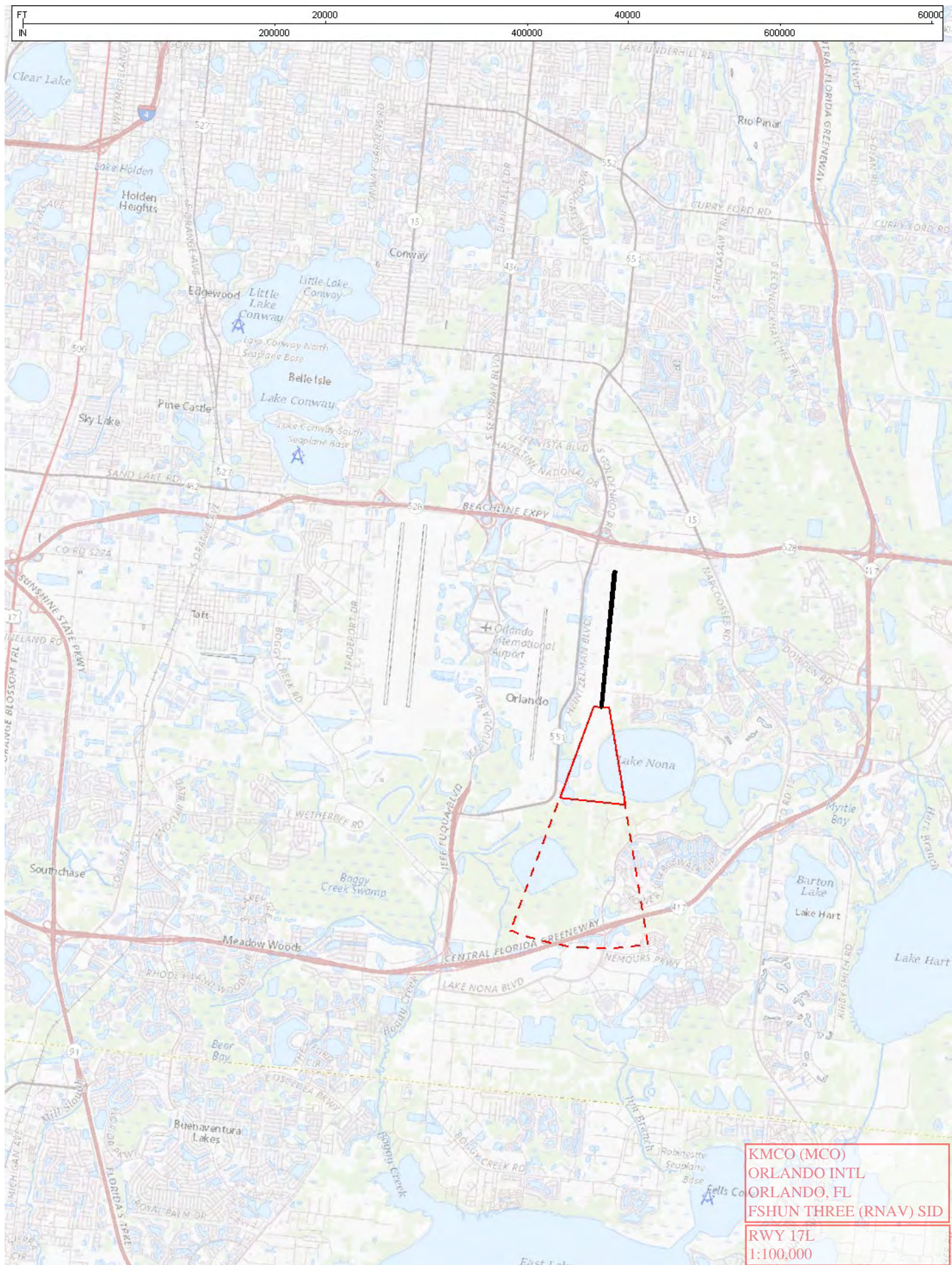
TAKEOFF RUNWAY 36R: Climb on heading 005° to 600, then direct FACTS to cross at or above 2300, then on track 359° to cross EARRS at or above 3000 and at or below 230K, then on track 342° to cross LEFTI at or above 4000 and at 230K, then on track 275° to cross BLOSM at or below 7000, then on track 192° to TUPPY, thence. . . .

. . . on track 204° to FSHUN. Maintain ATC assigned altitude. Expect filed altitude 10 minutes after departure.

PLUMR TRANSITION (FSHUN3.PLUMR)

PROTOTYPE-NOT FOR NAVIGATION

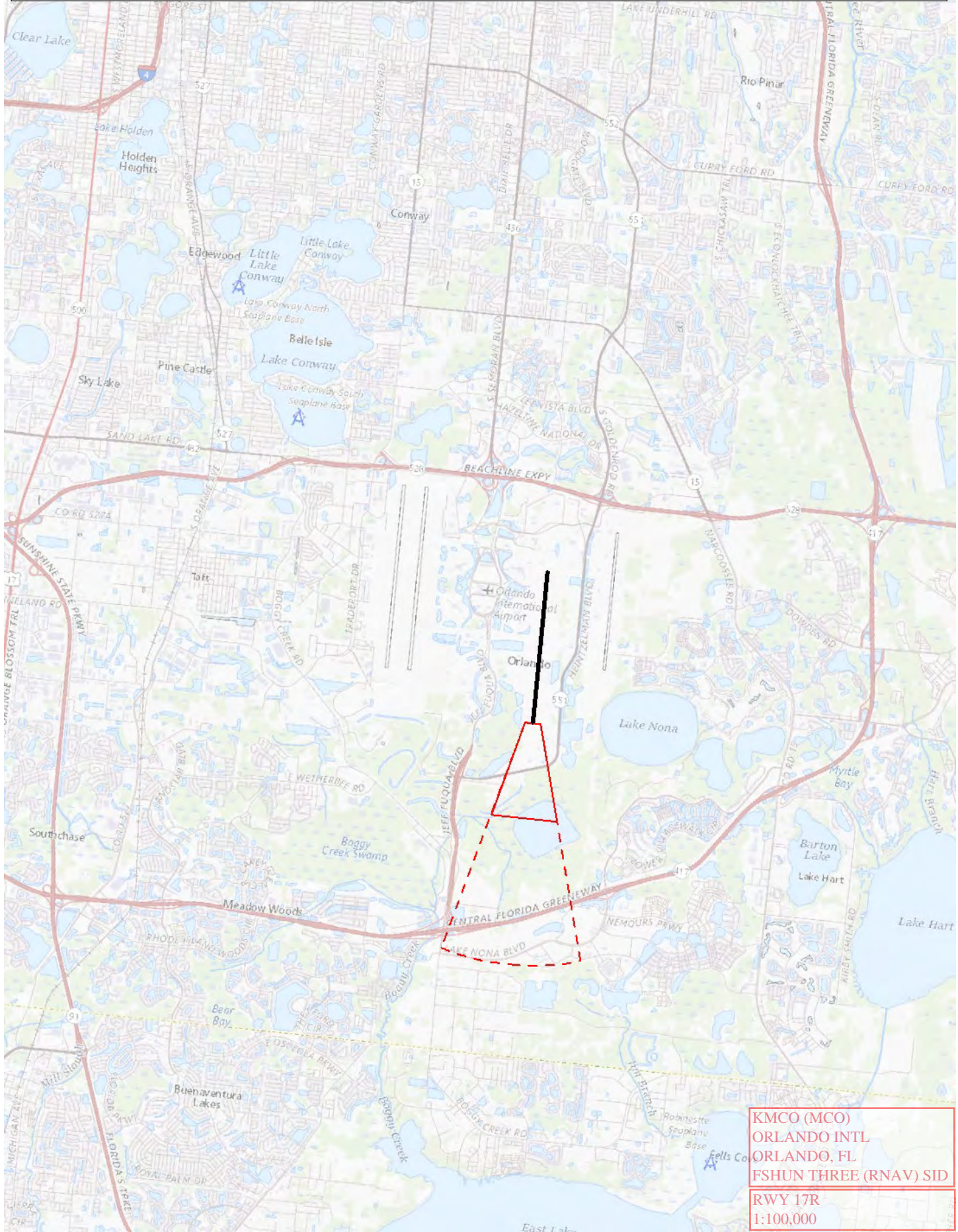
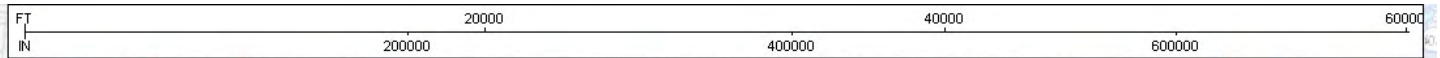






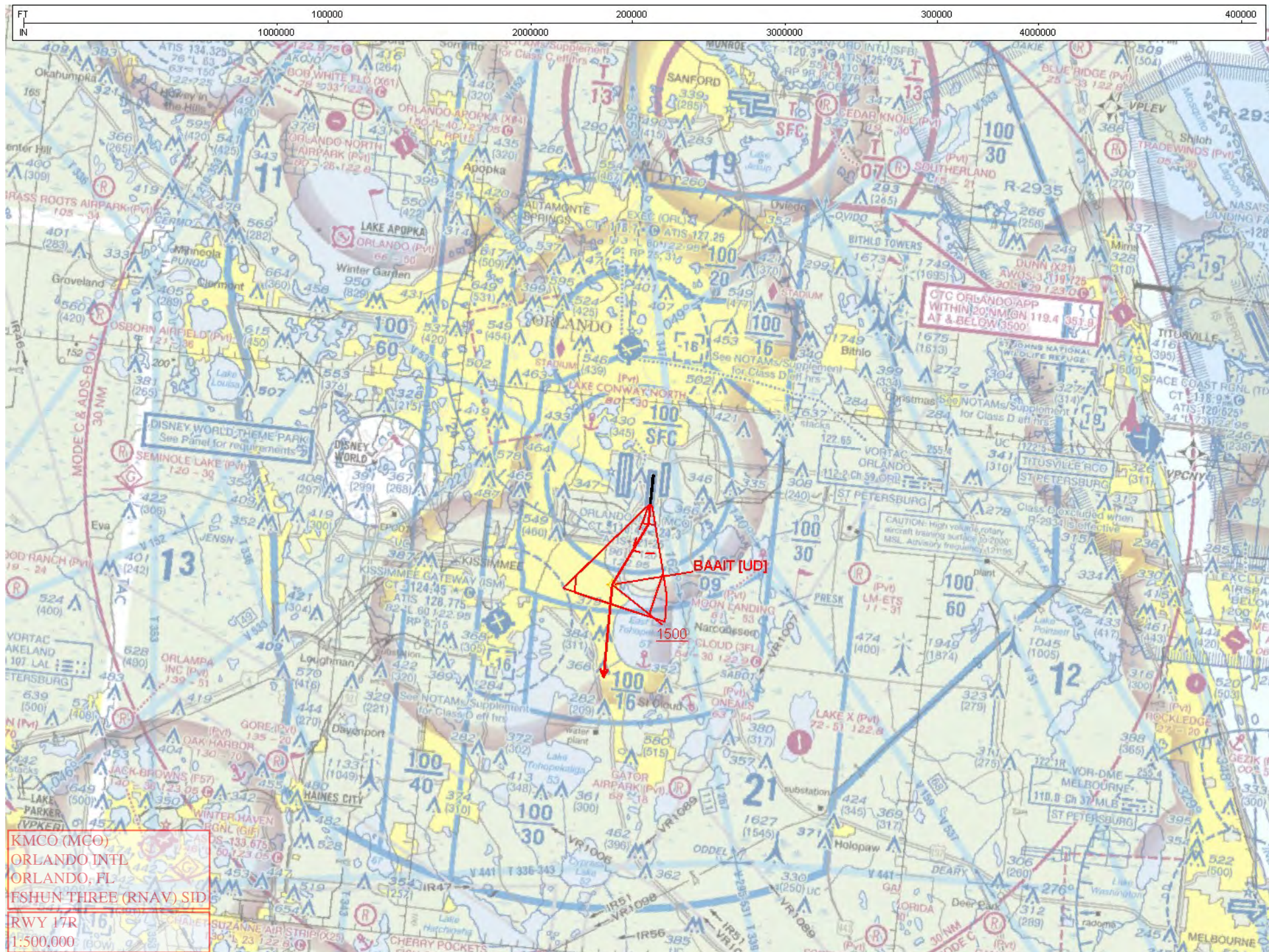




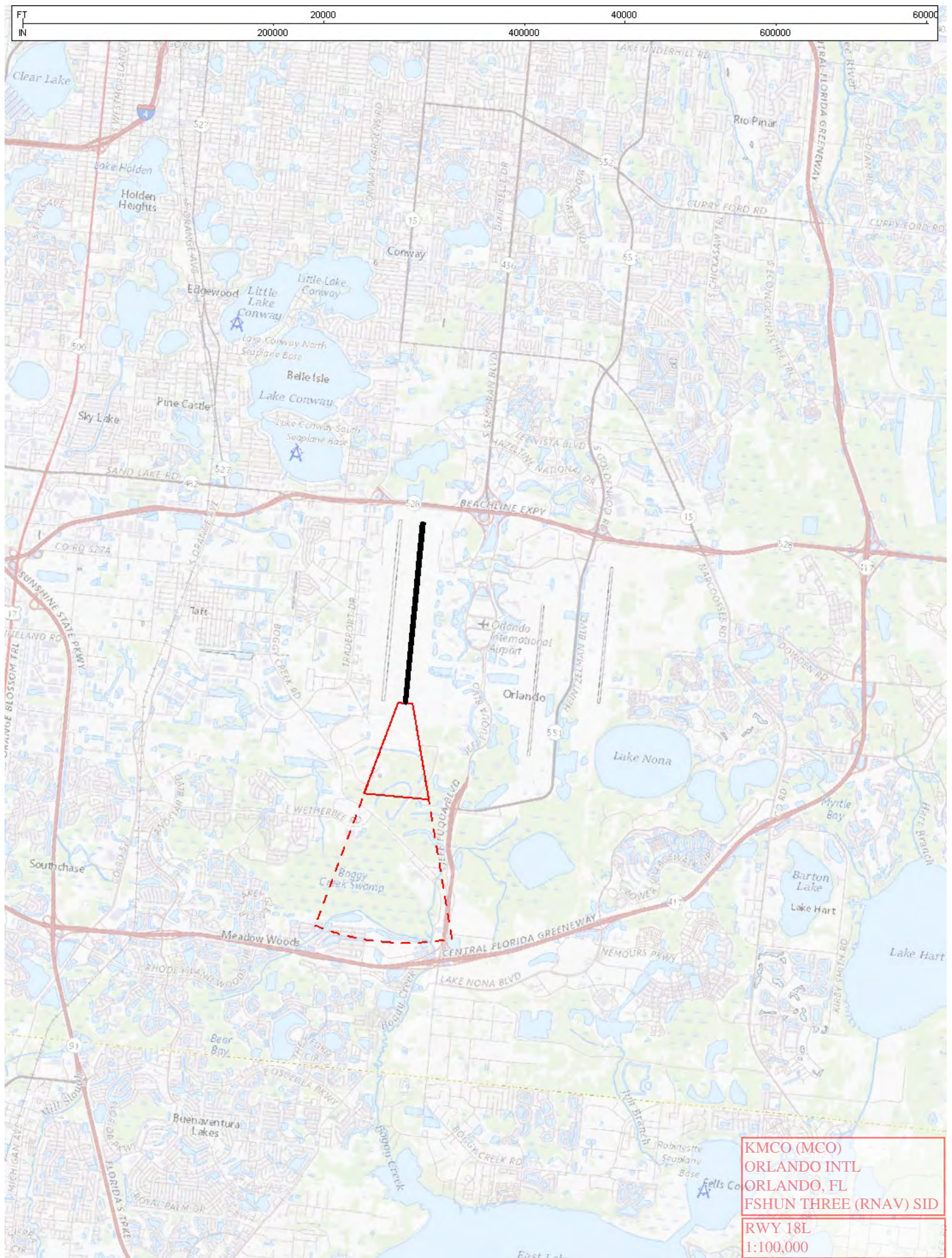


KMCO (MCO)  
ORLANDO INTL  
ORLANDO, FL  
FSHUN THREE (RNAV) SID  
RWY 17R  
1:100,000

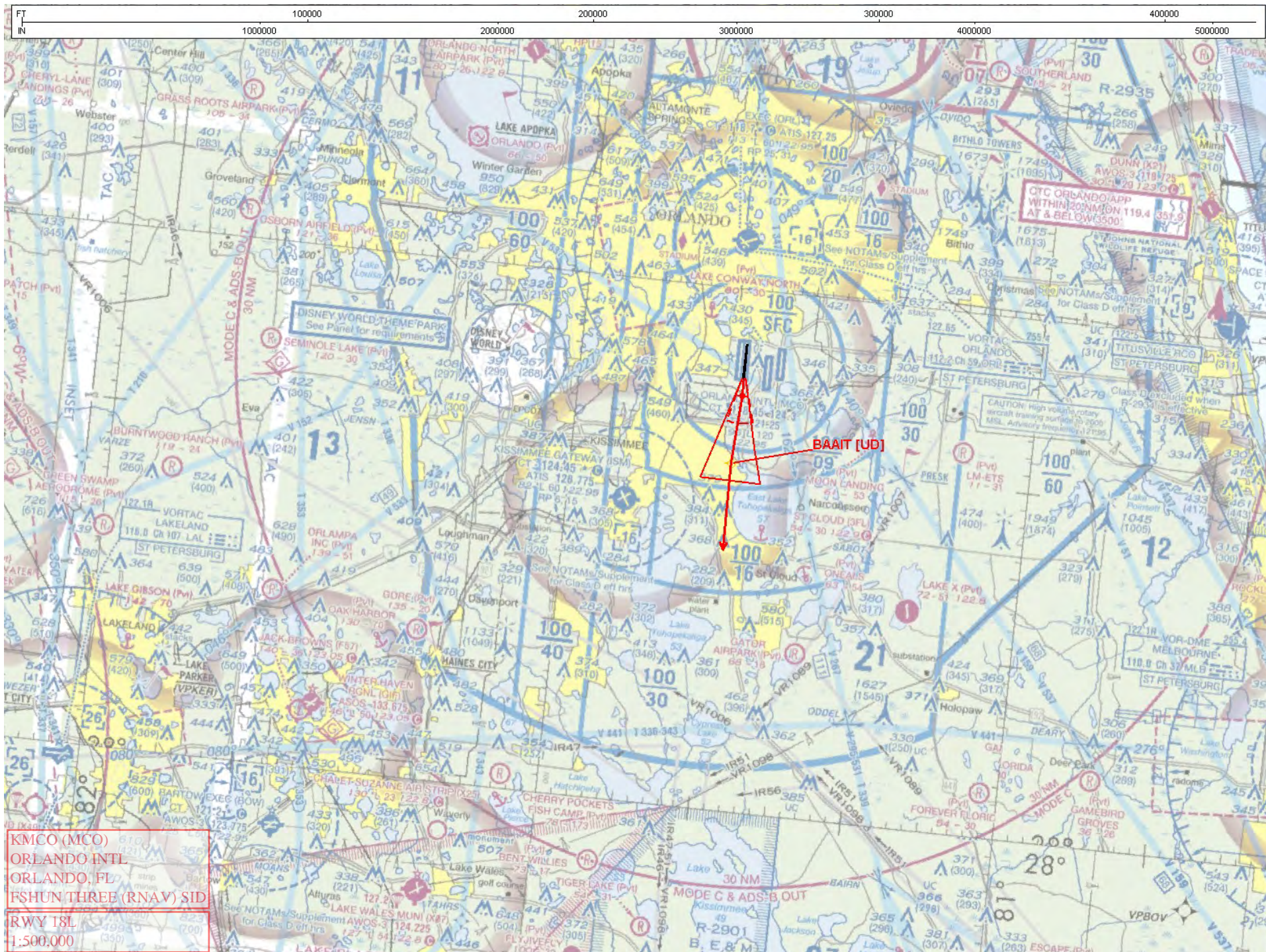




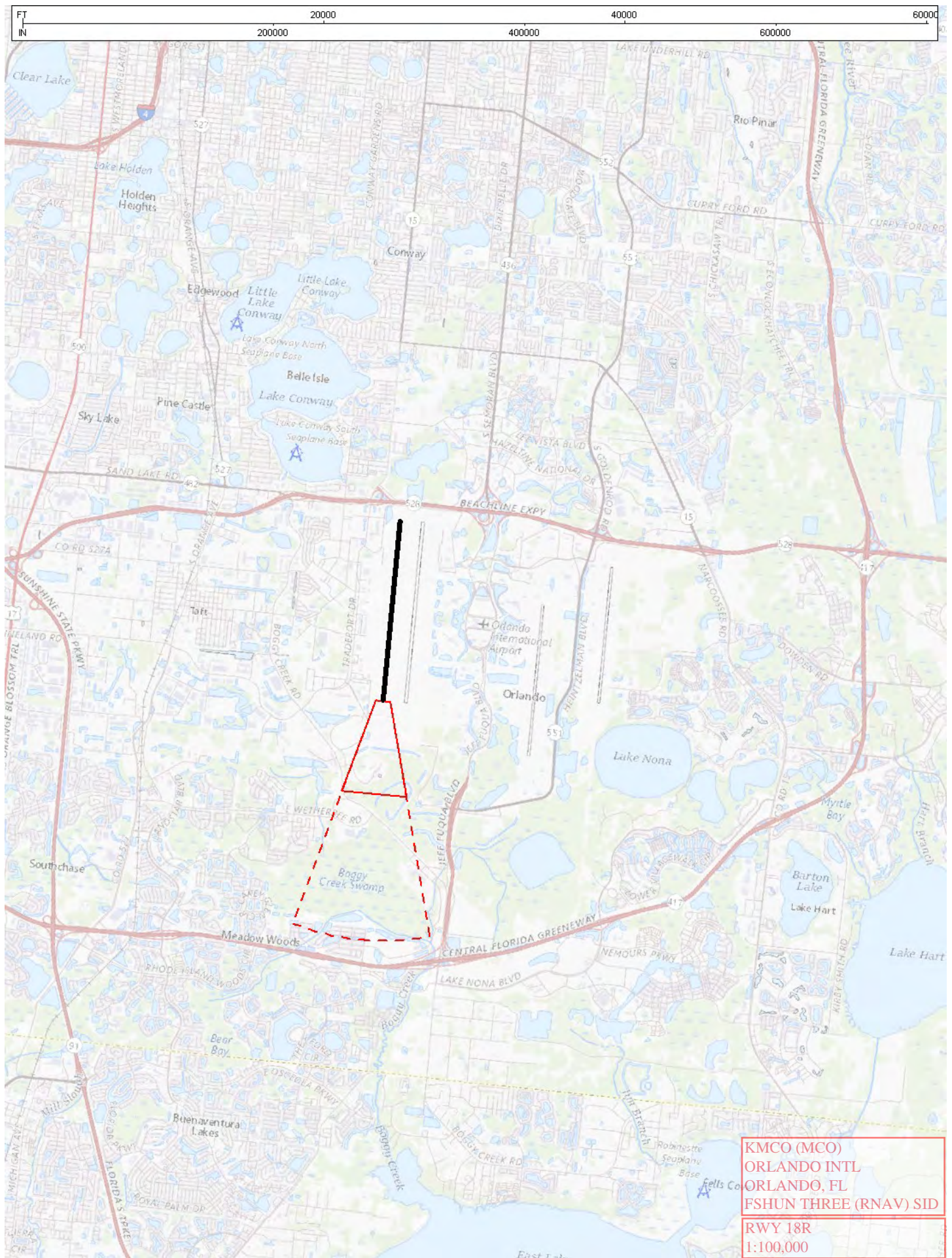




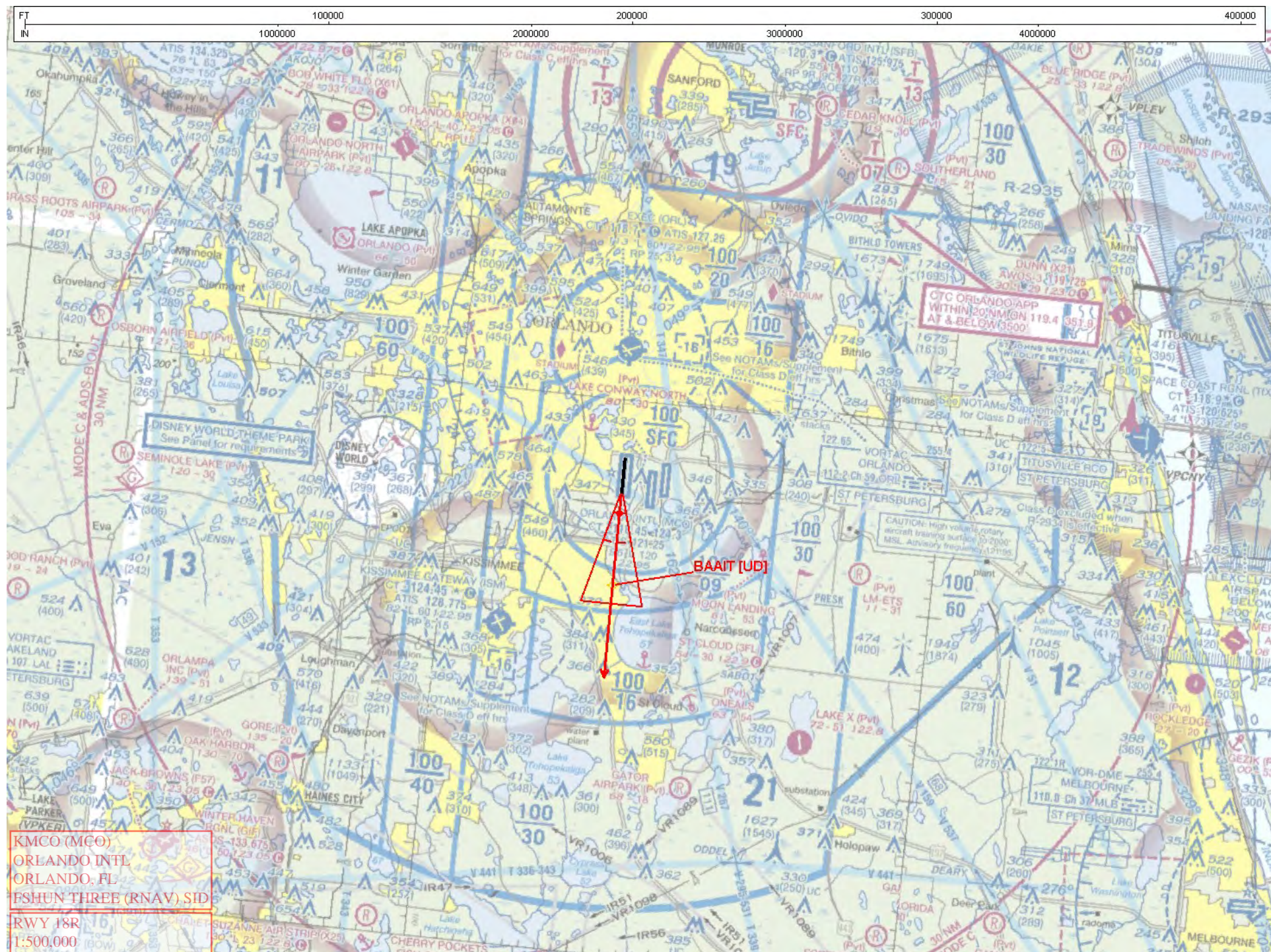




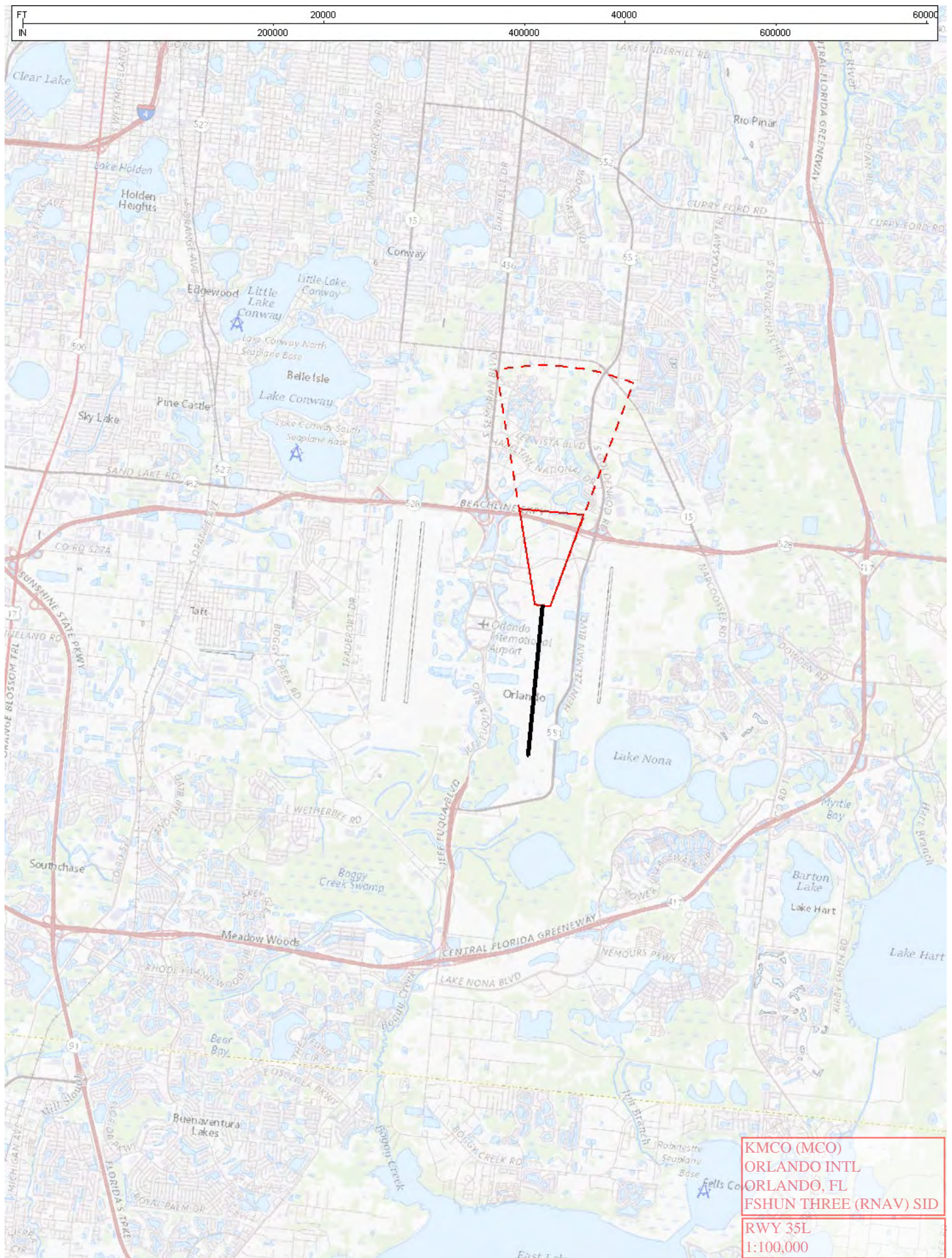








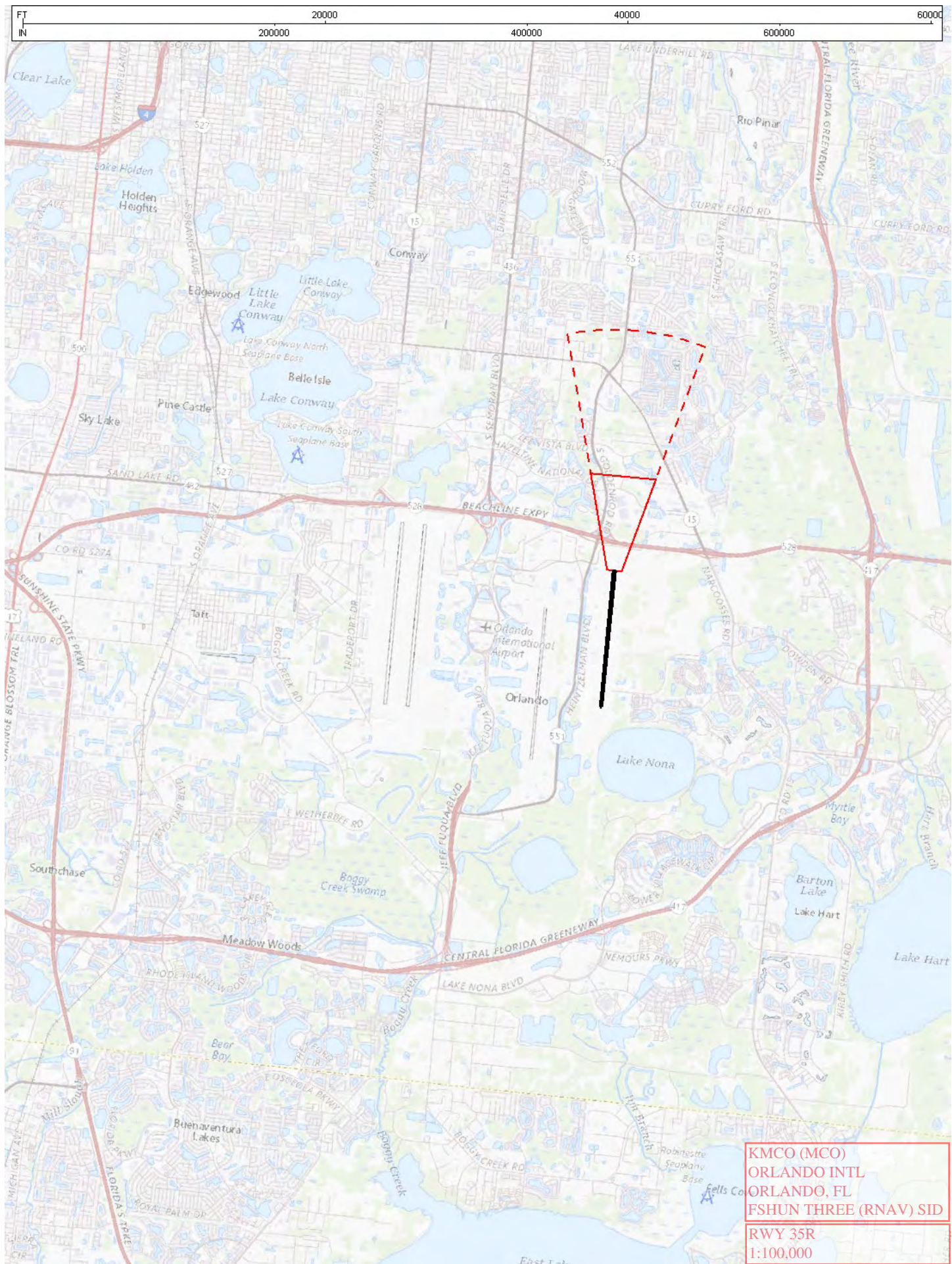




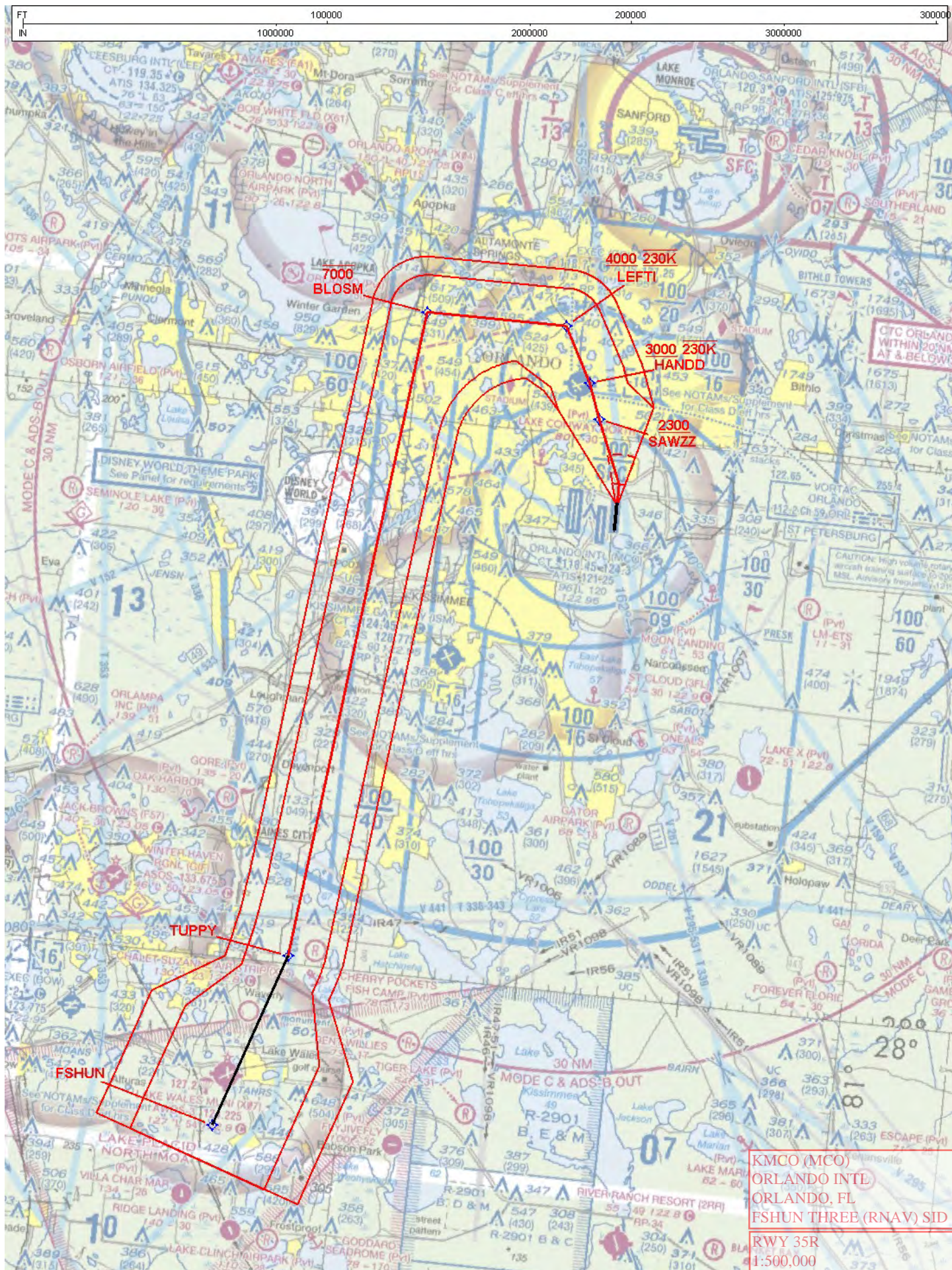




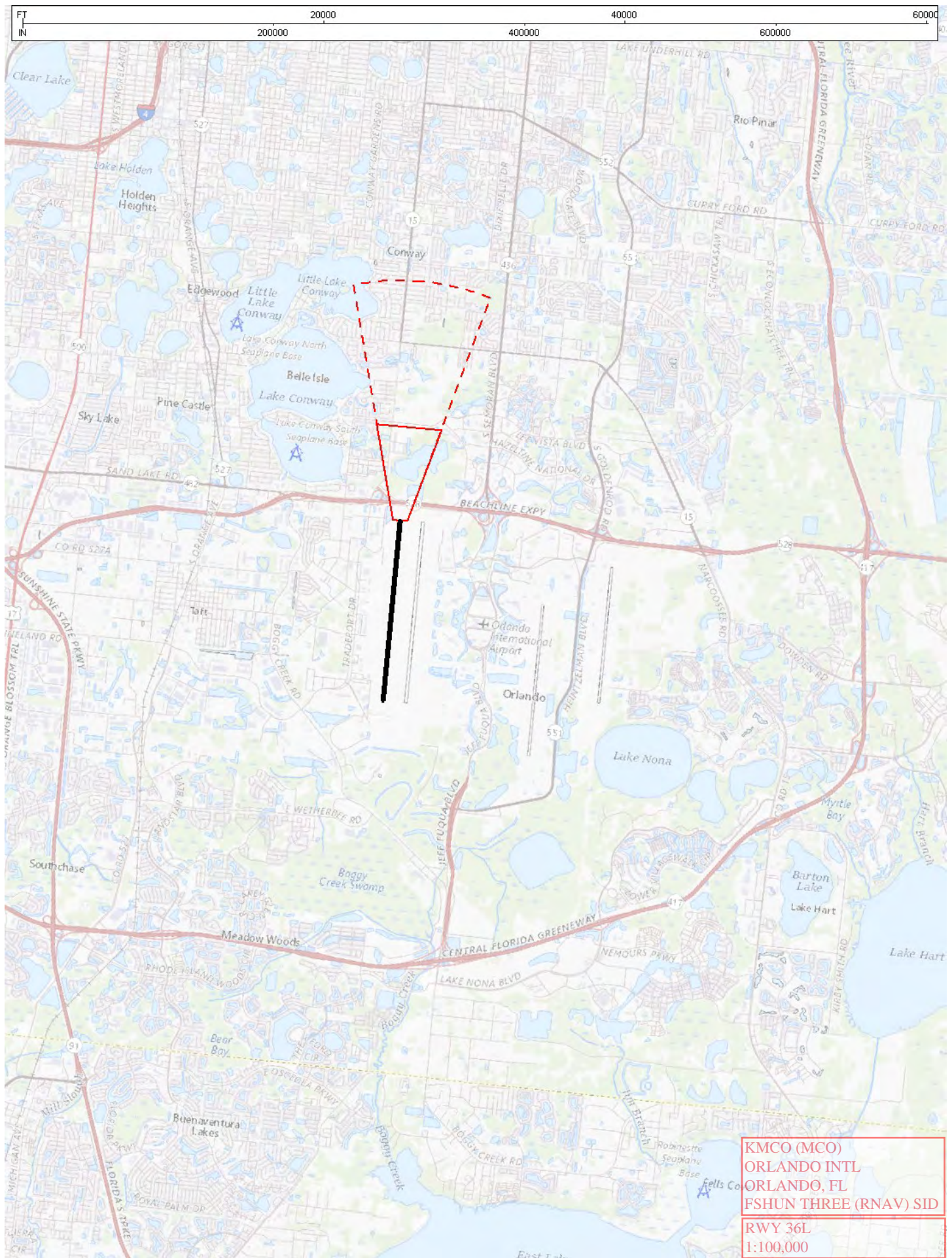




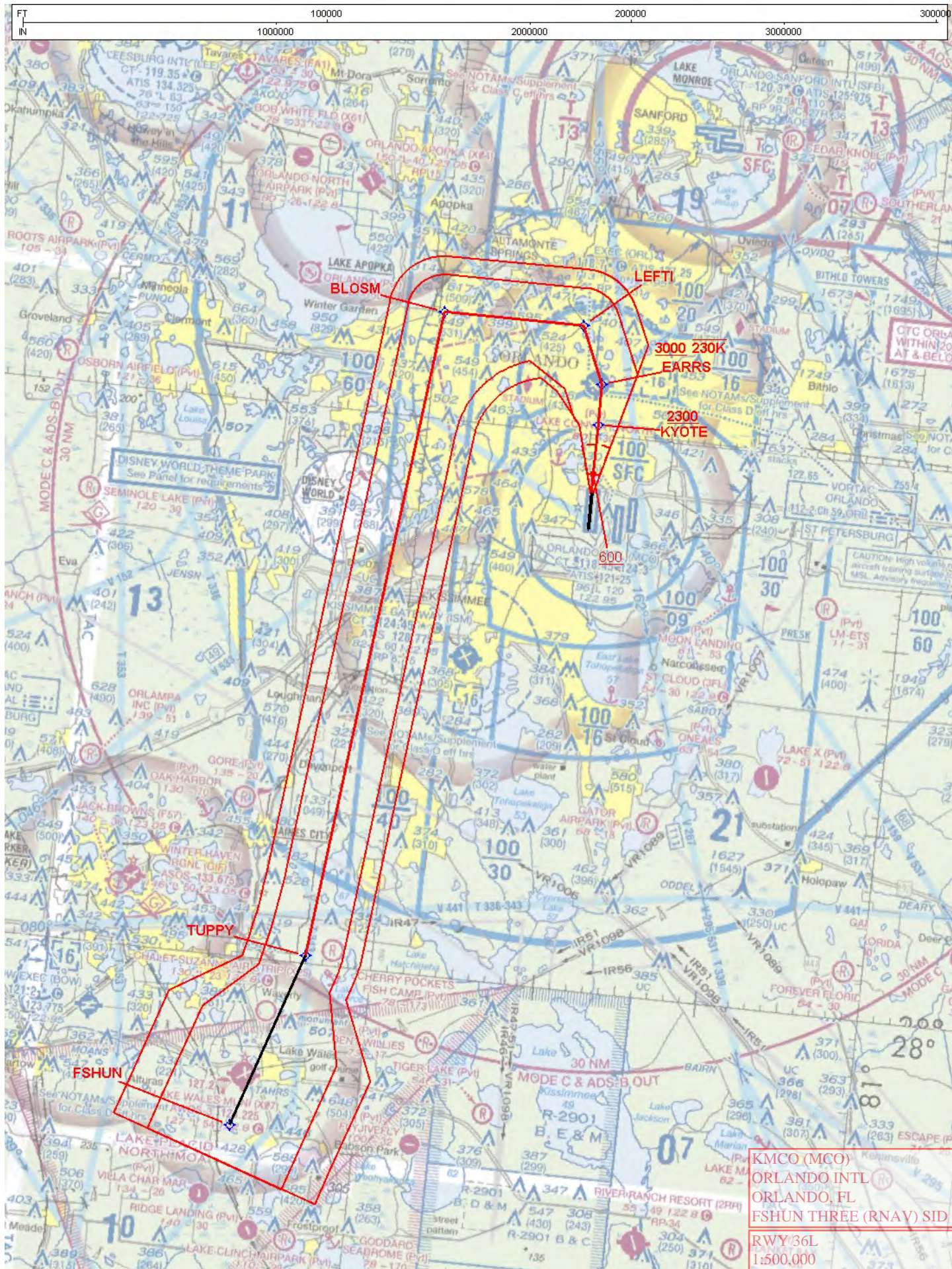




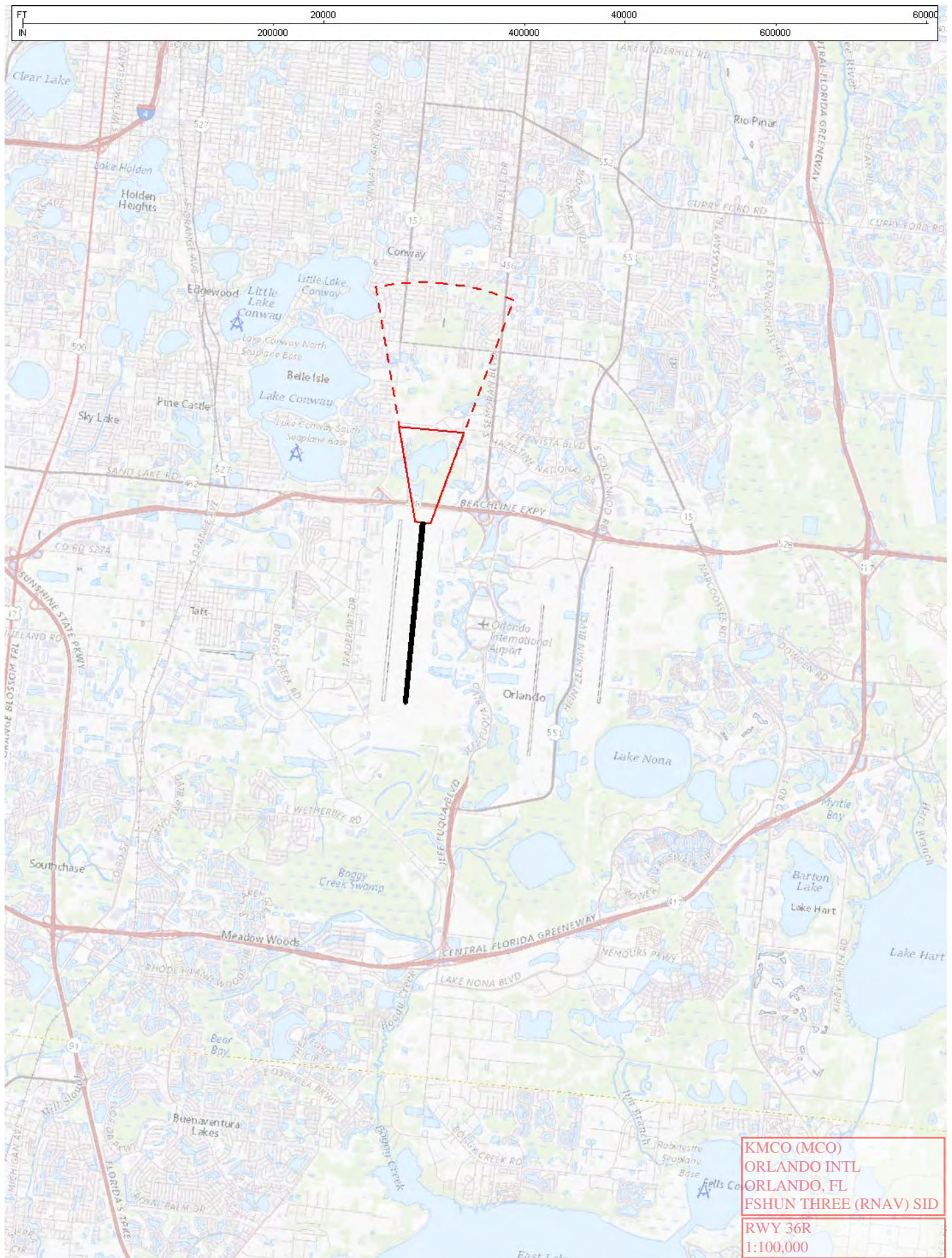




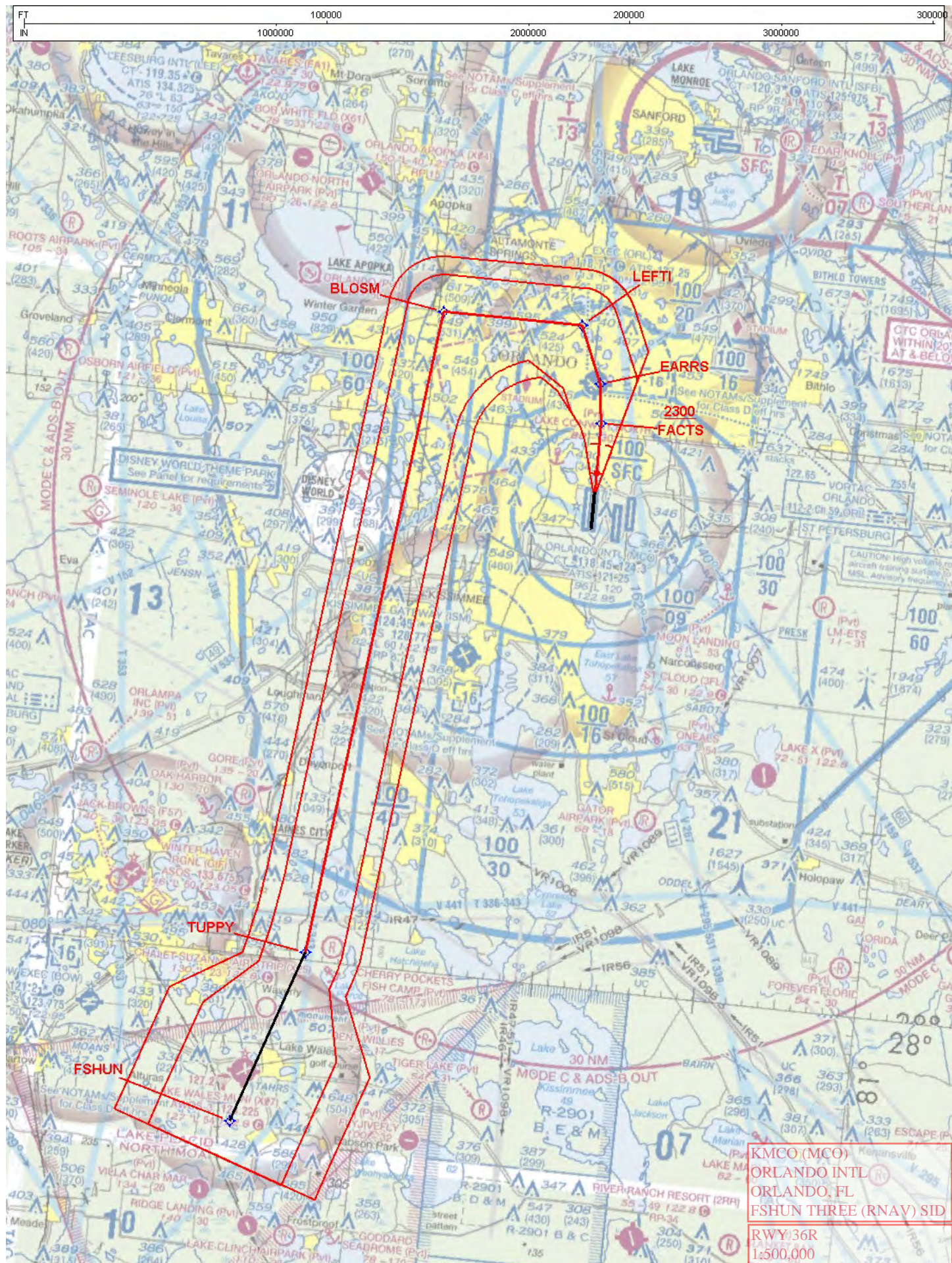




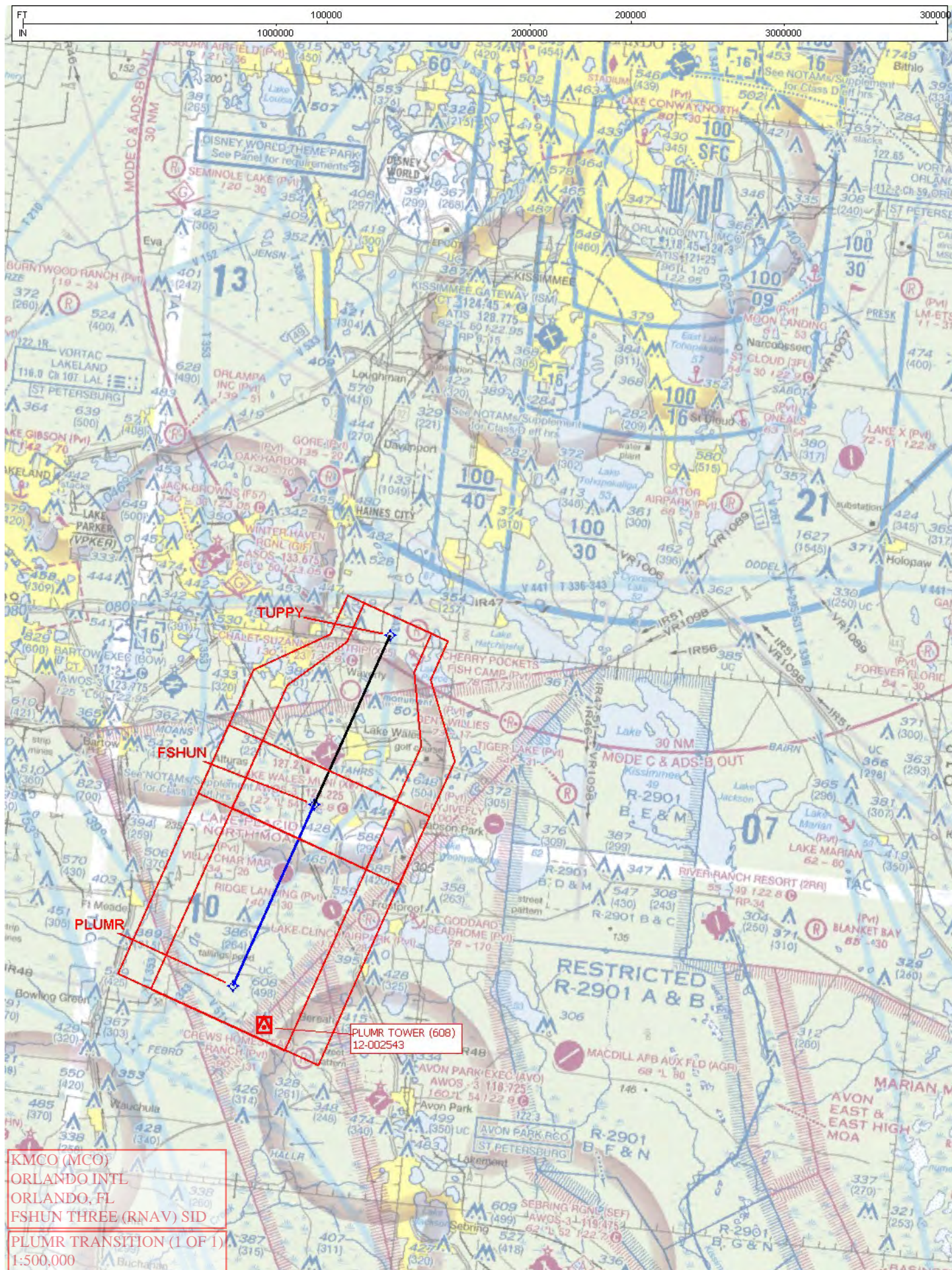
















## **Federal Aviation Administration**

### **Finding of No Significant Impact (FONSI) and Record of Decision (ROD)**

### **For the South-Central Florida (FL) Metroplex**

**October 2020**

#### **I. INTRODUCTION**

This document serves as the Federal Aviation Administration's (FAA) Finding of No Significant Impact and Record of Decision (FONSI/ROD) for the South-Central Florida Metroplex (FL Metroplex) Project, October 2020. This FONSI/ROD relies on the information and analysis described in the Final Environmental Assessment for the FL Metroplex Project, attached hereto and incorporated by reference. The FONSI/ROD has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code (U.S.C.) Section 4321 *et seq.*); implementing regulations issued by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations (CFR), parts 1500-1508); and FAA Order 1050.1F, Environmental Impacts: Policies and Procedures (FAA Order 1050.1F). This FONSI/ROD is also used by the FAA to demonstrate and document its compliance with the several procedural and substantive requirements of aeronautical, environmental, programmatic, and other statutes and regulations that apply to FAA decisions on proposed actions.

Furthermore, this FONSI/ROD

- documents the FAA's finding that the FL Metroplex Project will not "significantly affect the human environment," 42 U.S.C. § 4332(C), and explains the basis for that finding; and
- approves certain Federal actions associated with the implementation of the Project. Implementation of the Project will not result in airport-related development, land acquisition, construction, or other ground disturbance activities.

In approving the FL Metroplex Project, the FAA has considered 49 U.S.C. § 40101(d)(4), which gives the FAA various responsibilities and holds it accountable for controlling the use of navigable airspace and regulating civil and military operations in that airspace in the interest of safety and efficiency. Additionally, consideration has been given to 49 U.S.C. §§ 40103(b)(1) and 40103(b)(2), which authorize and direct the FAA Administrator to develop plans and policy for the use of the navigable airspace; assign by regulation or order the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace; and prescribe air-traffic rules and regulations governing the flight of aircraft for the navigation, protection, and identification of aircraft and the protection of persons and property on the ground. These regulations also provide for the efficient utilization of the navigable airspace, including rules as to safe altitudes of flight and rules for the prevention of collisions between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects.

Furthermore, the FAA has given careful consideration to the aviation safety and operational objectives of the FL Metroplex Project in light of the various aeronautical factors and judgments presented, the need to enhance efficiency of the national air transportation system, and the potential environmental impacts of the FL Metroplex Project.

## **II. BACKGROUND**

The FAA is in the process of implementing the Next Generation Air Transportation System (NextGen), the FAA's plan to modernize the National Airspace System (NAS) through 2025. NextGen is a complex program intended to develop and implement new technologies, while integrating existing technologies and adapting the air traffic management system to a new way of operating. NextGen represents an evolution from an air traffic control system that is primarily ground-based to a system that is satellite-based, thus enabling greater efficiency. To achieve NextGen goals, the FAA is implementing new Area Navigation (RNAV) and Required Navigation Performance (RNP) air traffic routes and instrument procedures (RNAV Standard Instrument Departures [SIDs], Standard Terminal Arrivals [STARs], T-routes, and Standard Instrument Approach Procedures [SIAPs]) around the country that use emerging technologies and aircraft navigation capabilities. The implementation of RNAV and RNP procedures enables the use of other Performance Based Navigation (PBN) technology in the NAS and facilitates more efficient procedures such as an Optimized Profile Descent (OPD).

The Metroplex Initiative is considered a mid-term implementation step in the overall process of transitioning to the NextGen system. The FAA intends to design and implement RNAV procedures that will take advantage of the technology readily available in the majority of aircraft as part of the Metroplex initiative. A "Metroplex" is a geographic area that includes several commercial and general aviation airports in close proximity serving a large metropolitan area. The Metroplex initiative specifically addresses airspace congestion, airports in close geographical proximity, and other limiting factors that reduce efficiency in



busy Metroplex airspace. The Metroplex initiative improves the operational efficiency of the airspace by expanding the implementation of RNAV-based standard instrument procedures and connecting the routes defined by the standard instrument procedures to high and low altitude RNAV routes. Using RNAV procedures to maximize the efficient use of the limited airspace in congested Metroplex environments will also increase the ability of the FAA to safely manage any future increases in operations in that environment.

The FL Metroplex Project is intended to address specific issues related to the efficient flow of traffic in and out of the FL Metroplex.

### **III. PROPOSED ACTION**

The Proposed Action evaluated in the Final EA would implement optimized RNAV SID and STAR Air Traffic Control (ATC) flight procedures and RNP approaches, where feasible, in the FL Metroplex. In addition, the Proposed Action includes conventional STARs, conventional SIDs, ILS approaches, RNAV approaches, and T-routes. The Proposed Action would improve the predictability and segregation of routes, as well as increase flexibility in providing air traffic services. For a more detailed summary of the Proposed Action, see Section VI below and Chapter 3 of the Final EA.

The Proposed Action is a combined package of interrelated ATC flight procedures. These proposed ATC procedures were considered and evaluated in combination with one another to determine whether they would meet the project's Purpose and Need. The FAA considered multiple versions of preliminary designs before developing final designs of the proposed procedures. Several versions of preliminary designs were eliminated from further consideration because they failed to meet the project's Purpose and Need.

Implementation of the Proposed Action is not expected to increase the number of aircraft operations at the Study Airports. Furthermore, the Proposed Action does not involve physical construction of any facilities such as additional runways or taxiways, and does not require permitting or other approvals or actions on a state or local level. Therefore, the implementation of the proposed changes to ATC procedures in the FL Metroplex would not require any physical alterations to environmental resources identified in FAA Order 1050.1F.

### **IV. PURPOSE AND NEED FOR THE PROPOSED ACTION**

The FL Metroplex Project began with a Study Team phase, which analyzed the operational challenges in the Study Area and explored opportunities to optimize air traffic procedures therein. Although RNAV-based SIDs and STARs have been in effect in the FL Metroplex for the last two decades, the Study Team concluded that these procedures could be improved to increase efficient use of the airspace. The Study Team issued its final report in September 2012, and the Study Team's materials identified three key causes of inefficiencies in the FL Metroplex airspace:

- Lack of predictable standard routes defined by procedures to/from airport runways to/from en route airspace
- Complex converging and dependent route procedure interactions
- Lack of flexibility in the efficient transfer of traffic between the en route and terminal area airspace

These three factors demonstrate the need for the Proposed Action.

The purpose of the Proposed Action is to take advantage of the benefits of PBN by optimizing RNAV procedures that will help improve the efficiency of the airspace in the FL Metroplex. The Proposed Action would address the three key factors causing the inefficiencies in the airspace and improve the efficiency of air traffic operations through improved flexibility in transitioning aircraft, enhanced segregation between aircraft, and improving the predictability of air traffic flow. Optimizing RNAV procedures will also comply with direction issued by Congress in the Modernization and Reform Act of 2012, P.L. 112-95 § 213 (Feb. 14, 2012).

## **V. FAA AGENCY ACTIONS AND APPROVALS**

Implementing the Proposed Action requires the FAA to publish new or revised STARs, SIDs, T-Routes, final approach procedures, and transitions, and to undertake controller training.

## **VI. ALTERNATIVES**

The following provides a summary of the alternatives development process and alternatives considered. Further details are available in Chapter 3 of the Final EA.

***Identification and Evaluation of Potential Alternatives*** – In May 2012, the FL Metroplex Study Team began work to define operational problems in the FL Metroplex and to identify potential solutions. The Study Team included experts on the Air Traffic Control (ATC) system for the FL Metroplex. The work completed was intended to provide a guide for later design efforts by the Design and Implementation (D&I) Team. The Study Team held several meetings with local air-traffic control facilities, airspace users (e.g., pilots), and aviation-industry representatives to learn more about the challenges of operating in the FL Metroplex. These meetings helped identify operational challenges associated with existing procedures and potential solutions that would increase efficiency in the FL Metroplex airspace. Initially, the Study Team identified 69 potential issues related to existing procedures in the FL Metroplex. Ultimately, 65 issues were addressed via recommended conceptual solutions that were carried forward to the Design Phase. Four of the 69 identified issues were not addressed by the Study Team because of geographic study area constraints or because the issue ultimately fell outside the scope of the Metroplex process. For the remaining issues, the Study Team identified several PBN solutions that resulted in increased efficiency in the FL Metroplex. The solutions proposed were conceptual in nature and did not include a detailed technical assessment, which was reserved for the D&I Team to conduct.

The D&I Team began work on the procedure designs in October, 2014. First, the Study Team proposals were prioritized based on complexity, interdependencies with other procedures, and degree of potential benefit to the Metroplex. Second, the D&I Team divided into workgroups to further develop and refine the Study Team proposals into preliminary designs. Finally, the preliminary designs were brought to the whole D&I Team for review and modification, if necessary. In developing the proposed procedures, the D&I Team was responsible for following regulatory and technical guidance, as well as meeting criteria and standards in four general categories: RNAV design criteria, Air Traffic Control regulatory requirements, operational criteria, and safety factors.

To ensure that procedures included in the Proposed Action were viable, the D&I team undertook validation exercises that further refined the procedures. The D&I Team relied on stakeholder input, design solution tools (e.g., design and testing software), and the criteria described above to meet several final design milestones. For each individual Study Team concept, the D&I Team went through an iterative design process, considering alternative

lateral and vertical flight paths, various speed and altitude restrictions, alternative leg types, different de-confliction options, and various charting considerations. The D&I Team considered the efficiency gains associated with each proposal, the potential impact to controller task complexity, and the implementation challenges, among other considerations. The combined final procedure designs have been brought forward in the Final EA as the Proposed Action alternative.

The Proposed Action includes the Proposed Final Designs for all procedures the D&I Team developed, plus existing procedures that would continue to be used. This alternative will increase efficiency in the FL Metroplex airspace by improving flexibility in transitioning aircraft, segregating arrivals and departures, and improving the predictability of air traffic flows.

The Proposed Action includes 106 SIDs and STARs with 11 T-routes:

- 2 new conventional SIDs
- 11 new conventional STARs
- 37 new RNAV SIDs
- 33 new RNAV STARs
- 12 existing conventional SIDs
- 7 existing conventional STARs
- 4 existing RNAV SIDs
- 11 new RNAV T-Routes

The Proposed Action maintains 19 existing conventional procedures. In order to accommodate non-RNAV aircraft operations, the D&I Team proposed two new conventional SIDs and 11 new conventional STARs. The Proposed Action presents 67 new procedures, 17 procedures changed from the No Action alternative to the Proposed Action, and 22 procedures staying the same from the No Action alternative (described following) to the Proposed Action.

In addition to SIDs, STARs, and T-routes; the FL Metroplex incorporates 42 new and existing satellite based RNAV or ground based Instrument Landing System (ILS) derived final approach procedures. Additionally, the Proposed Action includes 455 runway transitions and 245 en route transitions.

***Alternatives Analyzed in the Final EA*** – In addition to the Proposed Action (described above), the Final EA also analyzed the No Action alternative. Under the No Action alternative, the FAA would maintain 85 existing arrival and departure procedures for the FL Metroplex. The 85 currently published SIDs and STARs in the FL Metroplex serving the FL Metroplex Study Airports that comprise the No Action alternative:

- 22 RNAV STARs
- 30 RNAV SIDs
- 18 conventional (i.e., non-RNAV) STARs
- 15 conventional (i.e., non-RNAV) SIDs

The existing conventional and RNAV arrival and departure procedures would remain as is, subject to minor periodic reviews and revisions in response to changes in the operational environment (i.e., magnetic variation changes, obstruction surveys, and changes in FAA Air Traffic Control regulations). The No Action alternative would not implement the specific procedures designed as part of the FL Metroplex Project.

The No Action alternative would not meet the purpose and need for the FL Metroplex Project. It would not improve the efficiency of the airspace nor address any of the three key causal factors for airspace inefficiency. Furthermore, the No Action alternative would not meet the congressional mandate to implement additional RNAV procedures.

## **VII. AFFECTED ENVIRONMENT**

The General Study Area for this Project includes the geographic area in which natural resources and the human environment are potentially affected by the Proposed Action and its reasonable alternative. Paragraph B-1.3 of Appendix B to FAA Order 1050.1F requires consideration of impacts of airspace actions from the surface to 10,000 feet AGL if the study area is larger than the immediate area around an airport or involves more than one airport, as this one is. Furthermore, policy guidance issued by the FAA Program Director for Air Traffic Airspace Management states that for air traffic project environmental analyses, noise impacts should be evaluated for proposed changes in arrival procedures between 3,000 and 7,000 feet AGL and departure procedures between 3,000 and 10,000 feet AGL for large civil jet aircraft weighing over 75,000 pounds.

In developing the General Study Area, the FAA collected radar data from flight paths in the FL Metroplex. The General Study Area was designed to capture all flight paths identified in the radar data collected for the preparation of the Final EA as well as the designed Proposed Action routes out to the point at which 95 percent of aircraft are at or above 10,000 feet AGL for departures and at or above 7,000 feet AGL for arrivals, accounting for the terrain in and around the FL Metroplex. The lateral extent of the General Study Area was precisely defined to focus on areas of traffic flow.

The resulting General Study Area is depicted on Exhibits 4-1 and 4-2 in the Final EA and includes all or portions of 36 counties in the state of Florida. Detailed information regarding the affected environment with respect to each relevant impact category is presented in Chapter 4 of the Final EA.

The FL Metroplex General Study Area encompasses five major airports:

- Fort Lauderdale/Hollywood International Airport – FLL
- Orlando International Airport – MCO
- Miami International Airport – MIA
- Palm Beach International Airport – PBI
- Tampa International Airport – TPA

The FL Metroplex General Study Area also includes the following 16 satellite airports:

- Ocean Reef Club Airport – 07FA
- Boca Raton Airport – BCT
- Fort Lauderdale Executive Airport – FXE
- Kissimmee Gateway Airport – ISM
- Lakeland Linder Regional – LAL
- Leesburg International Airport – LEE
- Melbourne International Airport – MLB
- Miami-Opa Locka Executive Airport – OPF
- Orlando Executive Airport – ORL

- Punta Gorda Airport – PGD
- St Pete-Clearwater International Airport – PIE
- Orlando Sanford International Airport – SFB
- Sarasota/Bradenton International Airport – SRQ
- Witham Field Airport – SUA
- Miami Executive Airport – TMB
- Venice Municipal Airport – VNC

The Final EA refers to the five major and 16 satellite airports collectively as the Study Airports.

## **VIII. ENVIRONMENTAL CONSEQUENCES**

The FAA analyzed the potential environmental impacts that could result from implementation of the Proposed Action, as well as the impacts associated with the No Action alternative on all relevant environmental impact categories specified in FAA Order 1050.1F. The FAA evaluated both alternatives for conditions in 2021, the first year of implementation of the optimized air traffic procedures under the Proposed Action, and 2026, five years after expected implementation of the Proposed Action.

The Proposed Action would not involve land acquisition, physical disturbance, or construction activities and, therefore, would not affect certain environmental impact categories. The following environmental resource categories would remain unaffected because either the resource does not exist within the General Study Area or it would not be affected by the activities associated with the Proposed Action. The unaffected resource categories or sub-categories include:

- Biological Resources (including fish and plants only)
- Coastal Resources
- Farmlands
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Historical, Architectural, Archeological, and Cultural Resources –Archeological and Architectural sub-category only
- Land Use
- Natural Resources and Energy Supply – Natural resources sub-category only (aircraft Fuel only)
- Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks (Socioeconomic Impacts sub-category; Children's Environmental Health and Safety Risks sub-categories)
- Visual Effects – Light Emissions Only
- Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

The Proposed Action would not cause changes in patterns of population movement or growth, public service demands, or business and economic activity. In addition, the Proposed Action does not involve construction or other ground disturbing activities that would involve the relocation of people or businesses. Furthermore, the Proposed Action does not include the construction of airport facilities that would result in or induce an increase in operational capacity. Thus, the Proposed Action would not result in Secondary or Induced impacts.

Those environmental impact categories that could potentially be affected by the Proposed Action are discussed further below.

### **Noise and Noise-Compatible Land Use**

As required by FAA Order 1050.1F, the Aviation Environmental Design Tool (AEDT) was used to model the noise impacts for the FL Metroplex Project because the Project involves a study area larger than the immediate vicinity of an airport, incorporates more than one airport, and includes actions above 3,000 feet above ground level (AGL). FAA also applied its criteria of significance, an increase of 1.5 dB DNL<sup>1</sup> or more over any noise sensitive area within areas exposed to 65 dB DNL or higher, to determine whether the Project would result in a noise impact “significantly affecting the human environment” under the National Environmental Policy Act, 42 U.S.C. § 4332(C). Noise was analyzed for both the Proposed Action and the No Action alternative during the year in which implementation of the Proposed Action would be initiated (2021) and a five-year look-ahead (2026).

The AEDT model computed DNL exposure values at three sets of data points throughout the General Study Area:

1. United States Census Bureau population census block centroids (center point of a census block);
2. Unique points representing certain specific cultural resources and areas potentially protected under Section 4(f) of the Department of Transportation Act (DOT Act) (49 U.S.C. § 303(c)), and historic properties protected under Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. § 470 *et seq.*);
3. A uniform grid covering the General Study Area (using 0.5 nautical mile spacing) to document aircraft DNL exposure levels at potential noise sensitive locations that were not otherwise identified.

The results identified the differences in DNL noise exposure between the two alternatives (Proposed Action compared to the No Action alternative) to determine if implementing the Proposed Action would result in significant noise impacts. The analysis also identified any DNL increase of 3 dB or higher in areas exposed to noise between DNL 60 dB and 65 dB and any DNL increase of 5 dB or higher in areas exposed to noise between DNL 45 dB and 60 dB. While the Final EA refers to such increases as a “reportable noise increase,” they are not considered significant impacts for purposes of the National Environmental Policy Act. The results of the AEDT modeling indicated that:

1. The Proposed Action would not result in a DNL 1.5 dB or higher increase in noise-sensitive areas exposed to aircraft noise at or above DNL 65 dB
2. The Proposed Action would not result in DNL increases of 3 dB or higher in areas exposed to noise between DNL 60 dB and 65 dB
3. The Proposed Action would not result in a DNL increase of 5 dB or higher in areas exposed to noise between DNL 45 dB and 60 dB.

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<sup>1</sup> DNL is the Day Night Average Sound Level. It is a single value representing the aircraft sound level averaged over a 24-hour period. To represent the greater annoyance caused by noise at night, the DNL metric includes a 10-decibel penalty weighting for noise occurring between 10:00 pm and 7:00 am.

Thus, the Proposed Action would not result in significant noise impacts. Accordingly, no mitigation is required per FAA Order 1050.1F, Appendix B-1.13.

FAA Order 1050.1F requires that Final EA documents discuss possible conflicts between the proposed action and the objectives of federal, regional, state, local and tribal land use plans, policies and controls for the area concerned. Potential impacts to noise-compatible land use were focused on changes in aircraft noise exposure resulting from implementing the Proposed Action. FAA Order 1050.1F states, “The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the airport’s noise impact. If the noise analysis concludes that there is no significant impact, a similar conclusion usually may be drawn with respect to compatible land use.” Air traffic actions like the FL Metroplex Project do not result in direct impacts to land due to a lack of ground disturbance. Accordingly, the compatible land use analysis relies on changes in aircraft noise exposure between the Proposed Action and the No Action alternative as the basis for determining noise-compatible land use impacts within the General Study Area.

The Proposed Action, when compared with the No Action alternative, would not result in changes in aircraft noise exposure in 2021 or 2026 that would exceed the FAA’s significance thresholds described in FAA Order 1050.1F. Likewise, there are no conflicts with federal, regional, state, local land use plans, policies and controls. Therefore, the Proposed Action would not result in significant noise-compatible land use impacts.

Under the No Action alternative, there would be no changes to air traffic routing in the General Study Area and no changes in aircraft noise exposure expected to occur in either 2021 or 2026. Therefore, the No Action alternative would not result in significant noise-compatible land use impacts.

### **Air Quality**

The Proposed Action would result in a slight increase in emissions when compared to the No Action alternative. However, operational changes likely to result in a change in emissions under the Proposed Action would occur at or above 3,000 feet AGL and are presumed to conform to the applicable state implementation plan (SIP) for Florida. Federal Aviation Administration, *Federal Presumed to Conform Actions under General Conformity*, 72 Fed. Reg. 41565, 41577 (Jul. 30, 2007). For any changes to flight paths below that mixing height, they are also presumed to conform to the SIP because they are modifications to air-traffic procedures that are designed to enhance operational airspace efficiency. *Id.* The slight increase in emissions is expected to have little if any effect on emissions or ground concentrations. Therefore, no significant impacts to air quality would be anticipated in 2021 or 2026.

The No Action alternative would not result in a change in the number of aircraft operations or air traffic routes; therefore, no impacts to air quality would be anticipated in 2021 or 2026.

### **Biological Resources – Wildlife (Avian and Bat Species) and Migratory Birds Sub-Categories only**

The greatest potential for impacts to wildlife species related to air traffic procedure changes would result from wildlife strikes on avian and bat species at altitudes below 3,000 feet AGL. The FAA’s Wildlife Strike Database provides strike information that is reportable by airport, including species struck, height of strike, and type and extent of aircraft damage. Since 1990, the FAA has compiled pilot and airport reports of wildlife strikes with aircraft. Between the

most recent comprehensive reporting period of 1990 and 2018, 209,950 wildlife strikes were reported nationally and in 2018, birds were involved in 94.7 percent of the reported strikes while bats were involved in 3.2 percent. From 1990–2018, about 41 percent of bird strikes with commercial aircraft occurred when the aircraft was at ground level, 71 percent occurred at less than 500 feet AGL, and 92 percent occurred at or below 3,500 feet AGL. About one percent of bird strikes occurred above 9,500 feet AGL. Above 500 feet AGL, the number of reported strikes declined consistently by 34 percent for each 1,000-foot gain in height. The Wildlife Strike Database reports that of identified species, waterfowl, gulls, and raptors are the species groups of birds with the most damaging strikes.

A summary of wildlife strikes reported for the Study Airports between January 1, 1990 and March 1, 2020 is reported in Tables 5-3 and 5-4 of the Final EA. In total, 9,415 reported strikes (96.33 percent of all strike records) occurred at altitudes below 3,000 feet AGL, which is slightly higher than the US average 1990-2020.

The number of aircraft operations under the Proposed Action and No Action alternative would be the same. Therefore, the assessment of the potential impacts focuses on changes to flight paths and the potential for impact due to wildlife strikes. The substantial decline in the number of strikes reported above 3,000 feet AGL indicates that there is less likelihood of bird/bat strikes at these altitudes. Under the Proposed Action, changes to proposed flight paths would primarily occur at or above 3,000 feet AGL, and no significant changes to arrival and departure corridors below 3,000 feet AGL would be expected. Therefore, no significant impacts to bird or bat species would be anticipated in 2021 or 2026.

The No Action alternative would not involve changes to air traffic flows, land acquisition, construction, or other ground-disturbing activities. Therefore, no impacts to avian and bat species would occur in 2021 or 2026.

### **Climate**

In accordance with FAA guidance, estimated CO<sub>2</sub> emissions were calculated from the amount of fuel burned under the No Action alternative and the Proposed Action in 2021 and 2026. The resulting CO<sub>2</sub> emissions were then reported as CO<sub>2</sub>e. Greenhouse gas emissions were quantified in terms of carbon dioxide equivalent (CO<sub>2</sub>e), which was calculated by multiplying the number of gallons of fuel projected to be burned under both the Proposed Action and the No Action alternatives by the CO<sub>2</sub>e associated with each gallon of fuel burned (9.7438 kg of CO<sub>2</sub>e). Based on the fuel burn values reported in the Final EA, CO<sub>2</sub>e emissions would increase slightly with implementation of the Proposed Action compared with the No Action alternative (54.52 MT or 0.46 percent more in the first year of implementation (2021) and 57.30 MT or 0.43 percent more in the five-year look-ahead year (2026)).

### **Department of Transportation Act, Section 4(f)**

The FAA identified resources within the General Study Area that had the potential to qualify for protection under Section 4(f) of the DOT Act. No land acquisition, construction, or other ground-disturbing activities would occur under the Proposed Action; therefore, the Proposed Action would not physically use any potential Section 4(f) resources. Consequently, the focus of the evaluation of potential Section 4(f) resources was adverse impacts that have the potential to result in a constructive use. This could occur as a result of noise impacts. With regard to aircraft noise, a constructive use would occur should noise levels substantially diminish the activities, features, or attributes of the resource, to the extent that the value of the property is substantially reduced or lost. See FAA Order 1050.1F ¶ B-2.2.2.



As noted under “Noise” above, the FAA’s noise modeling included areas potentially protected under Section 4(f). However, no potential Section 4(f) resources located in areas exposed to DNL 65 dB or higher would experience a significant increase of DNL 1.5 dB or higher. Furthermore, the Proposed Action would not cause reportable increases of DNL 3 dB or higher in areas exposed to noise between DNL 60 dB and 65 dB or DNL 5 dB or higher in areas exposed to noise between DNL 45 dB and DNL 60 dB.

Under FAA Order 1050.1F, a significant impact would occur when a proposed action either involves more than a minimal physical use of a Section 4(f) resource or would result in a “constructive use” substantially impairing the 4(f) property. Because the Proposed Action would result in neither a physical nor constructive use of Section 4(f) resources, there would be no significant impacts on those resources in 2021 or 2026.

### **Historic, Architectural, Archeological, and Cultural Resources – Historic and Cultural Resources Sub-Categories only**

The National Historic Preservation Act of 1966 requires the FAA to consider the effects of its undertakings on properties listed or eligible for listing in the National Register of Historic Places (i.e., National Register). In assessing whether an undertaking, such as the Proposed Action, affects a property listed or eligible for listing on the National Register, the FAA must consider both direct and indirect effects. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association.

Federal regulations define an area of potential effect (APE) as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking. Direct effects generally occur at the time and place of the proposed action. An APE coterminous with the General Study Area boundary has been defined for the FL Metroplex Project to assess the potential direct and indirect effects of the Proposed Action on historic properties.

The FAA determined that under the meaning of 36 CFR, Parks, Forests, and Public Property, section 800.5(a), Protection of Historic Properties, the Proposed Action would not have an “adverse effect” on historic resources. Additionally, in accordance with the Section 106 of the NHPA, written concurrence of FAA’s determination was obtained from the Florida State Historic Preservation Officer (SHPO) with the finding of no adverse effects for the proposed undertaking. The concurrence letter can be found in Appendix A of the Final EA.

When compared with the No Action alternative, the Proposed Action would not result in changes in aircraft noise exposure in 2021 or 2026 that would exceed FAA’s significance threshold for noise. Therefore, the Proposed Action would not result in an adverse effect to historic properties or cultural resources. Noise analysis results for historic properties or cultural resources located within the General Study Area.

Under the No Action alternative no changes to air traffic routes in the South-Central Florida Metroplex would occur in either 2021 or 2026, and no adverse effects related to changes in aircraft noise exposure would be anticipated. Therefore, the No Action alternative would not result in impacts to historic or cultural resources.

### **Natural Resources and Energy Supply – Energy Supply sub-category only (aircraft fuel only)**

The Proposed Action would not change the number of aircraft operations relative to the No Action alternative, but it would involve changes to air traffic flows during the departure, descent, and approach phases of flight. These changes affect both the route an aircraft may follow and its climb-out and descent profiles. This in turn may directly affect aircraft fuel burn (or fuel expended). Aircraft fuel burn is considered a proxy for determining whether the Proposed Action would have a measurable effect on local energy supplies when compared with the No Action alternative.

In comparison to the No Action alternative, the Proposed Action would result in approximately 17.28 metric tons (MT) more fuel burned in 2021 (0.46% percent increase) and approximately 18.16 MT more fuel burned in 2026 (0.43% percent increase). Given these relatively small increases, the FAA expects that when compared with the No Action alternative, the Proposed Action would not adversely affect local fuel supplies. Therefore, no significant impacts to energy supply would be anticipated in 2021 or 2026.

### **Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks – Environmental Justice sub-category only**

Under the Proposed Action, no census block centroids in the General Study Area would experience a change in noise exposure in 2021 or 2026 that exceeds any of the FAA's significance thresholds for noise impacts on people. Therefore, no adverse direct or indirect effects would occur to any environmental justice populations within the General Study Area under the Proposed Action for 2021 and 2026.

Under the No Action alternative, neither people nor businesses would be displaced. Furthermore, air traffic routes would not change, and there would be no change in aircraft noise exposure in 2016 or 2021 that could result in an indirect impact. Therefore, the No Action alternative would not result in disproportionately high and adverse human health or environmental effects on minority and low-income populations.

Neither the Proposed Action nor the No Action alternative would displace people or businesses; therefore, implementing the Proposed Action or No Action alternative would not result in direct impacts in this category. No areas within the General Study Area would experience significant impacts to air quality or noise. Therefore, no disproportionately high and adverse effects to minority populations or low-income populations would occur under either the Proposed Action or the No Action alternative in 2021 or 2026.

### **Visual Effects (Visual Resources / Visual Character Only)**

Aesthetic impacts deal more broadly with the extent that the project contrasts with the existing environment and whether the difference is considered objectionable by the agency responsible for the location in which the project is set. Visual impacts are normally related to the disturbance of the aesthetic integrity of an area caused by development, construction, or demolition, and thus do not typically apply to airspace changes.

To evaluate the potential for indirect impacts resulting from changes in aircraft routings and visual intrusion, the general altitudes at which aircraft route changes occur beyond the immediate airport environs, which experience overflights on a routine basis, are considered to evaluate the potential for visual impacts. Implementation of the Proposed Action would not increase the number of aircraft operations at the Study Airports compared with the No Action

alternative. Changes in aircraft traffic patterns under the Proposed Action are expected to be at altitudes and distances sufficiently removed from viewers that visual impacts would not be anticipated.

Under the No Action alternative, no changes in air traffic routes would occur and no changes in aircraft overflight patterns would be expected. Therefore, the No Action alternative would not result in visual effects to visual resources or visual character of any resource in 2021 or 2026.

### **Cumulative Impacts**

Prior to the date of this decision, the Council on Environmental Quality published new regulations implementing NEPA. Council on Environmental Quality, *Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act*, 85 Fed. Reg. 43,304 (Jul. 16, 2020). Prior regulations required that federal agencies consider “cumulative impacts,” defined as the incremental impact of the action when added to the impacts of other past, present, and reasonably foreseeable future actions regardless of the agency, federal or nonfederal, undertaking such actions. See 40 C.F.R. § 1508.25(a)(2) (2019). Before this Record of Decision was published, the Council on Environmental Quality changed its position “to state that analysis of cumulative effects, as defined in the 1978 regulations, is not required under NEPA.” 85 Fed. Reg. at 43,344. Nevertheless, the draft EA contains an analysis of present or reasonably foreseeable actions (past actions are reflected in the environmental baselines described in Chapter 4), including airport improvement projects at the Study Airports or FAA actions relating to airspace, flight procedures, or air traffic routes that would have the potential for such effects. FAA reviewed capital improvement program (CIP) projects at the Study Airports that directly affect or involve runway surfaces having the potential to affect local or regional flight patterns. The FAA has retained that discussion in the Final EA.

The FAA is aware that Runway 04/22 at Punta Gorda Airport (PGD) will be temporarily closed due to construction to rehabilitate the airport, and that during this closure Runway 15/33 will be used. Due to the distance from the airport, altitude, and nature of the Proposed Action procedure changes, the forecast environmental impacts for 2021 and 2026 are not expected to change. The FAA is aware of a need for potential operational changes to departures at MIA, but at the time of the Final EA, the timing and frequency of these changes remains unknown. This research did not reveal any other present, or reasonably foreseeable actions with the potential for direct or indirect effects on aircraft flight patterns within the General Study Area. Therefore, no cumulative impacts would be anticipated for the Proposed Action when compared to the No Action alternative for either 2021 or 2026.

### **Mitigation**

Thresholds of significance for any environmental impact category would not be exceeded due to the Proposed Action; therefore, no mitigation is being proposed as part of this Project.

### **Other Considerations**

The Proposed Action involves air traffic control routing changes for airborne aircraft only. The United States Government has exclusive sovereignty of airspace in the United States [49 U.S.C. Section 40103(a)]. Congress has provided extensive and plenary authority to the FAA concerning the efficient use and management of the navigable airspace, air traffic control, air navigation facilities, and the safety of aircraft and persons and property on the ground [49

U.S.C. Sections 40103(b)(1) and (2)]. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the Proposed Action is consistent with the plans, goals, and policies for the area and with the applicable regulations and policies of federal, state, and local agencies.

## **IX. AGENCY AND PUBLIC INVOLVEMENT**

FAA Community engagement and early consultation process within the overall Environmental Assessment (EA) process began with a notice the FAA was initiating preparation of an EA for the Project. On July 25, 2019, the FAA distributed a letter containing the notice of intent to prepare an EA for the FL Metroplex Project to 590 federal, state, regional, and local officials.

On July 28, 2019, a notice of intent to prepare an EA was published in the Miami Herald (English), El Nuevo Herald (Spanish), The News-Press (English and Spanish), The Orlando Sentinel (English and Spanish), the Sun Sentinel (English and Spanish), and The Tampa Bay Times (English and Spanish). On August 16, 2019, the FAA distributed a letter clarifying a FL Metroplex Project scope statement in the July 25, 2019 notice of intent letter. 15 responses were received acknowledging and/or commenting on the notice of intent. On May 6, 2020 the FAA initiated Section 106 consultation with the Florida SHPO office. There are no federally recognized tribes in the Area of Potential Effect, however, the FAA initiated government-to-government consultations with the Miccosukee Tribe of Florida, Mississippi Band of Choctaw Indians, Seminole Nation of Oklahoma, Seminole Tribe of Florida, Poarch Band of Creek Indians, and the Muscogee (Creek) Nation tribes on April 8, 2019. Tribal Historic Preservation Officers did not request further consultation.

Throughout the post-Study Team recommendations, and in the Project period spanning from Preliminary Design to Proposed Final Designs, the Design and Implementation Team undertook a Community Engagement process that encompassed 47 select official briefings, aviation stakeholder briefings, and public workshops. These Community Engagement activities occurred between April, 2019 and April, 2020. As a result of the 19 public workshops held; email comments, FAA website comments, and written comments were received and considered in the procedure design process. Design changes were reviewed as a result of the comments received and changes to the preliminary designs were attempted to address the public comments.

On May 11, 2020 the FAA released a Draft EA for the proposed FL Metroplex Project for an initial 61 day public review and comment period. On May 12, 2020 the FAA subsequently identified certain inadvertent errors in the Draft EA for the South-Central Florida Metroplex project, posted the information on the FL Metroplex Project website, and released a revised Draft EA. The Google Earth-based files that are supplemental materials to the Draft EA documents were also revised. The “FL Metroplex Draft EA Procedures – South” was updated on Wednesday, May 20 to include the runway transitions for the SIDs and the “FL Metroplex Draft EA Procedures – North” was updated on Thursday, May 21 to include the runway transitions for the SIDs. On July 8, 2020, the FAA extended the public comment period ending date from July 10, 2020 to July 24, 2020 yielding a total 75 day public comment period on the Draft EA. No further extensions were made to the public comment period.

The FAA appreciates and acknowledges receipt of the thoughtful responses to its requests to comment on the Draft EA. The FAA considered all comments received during the May 11, 2020 through July 24, 2020 public review period before issuing the Final EA. The comments received on the Draft EA were submitted through the FAA website comment form, regular

mail, and six designated FAA FL Metroplex Project email addresses. The FAA received 3,239 comments by private citizens and groups, elected officials, municipalities, local, State, and Federal agencies. Consistent with FAA Order 1050.1F, the text of all substantive comments to the Draft EA and the FAA's responses were included in Appendix J of the Final EA.

On October 26, 2020, the FAA released the Final EA for the proposed FL Metroplex Project consistent with this FONSI/ROD. The Final EA included minor errata, agency coordination and consultation outcomes, and corrections. The FAA carefully considered the public comments and some changes were made to the Proposed Action as reflected in the Final EA. These changes did not affect the Final EA's conclusion that the Proposed Action would not cause any significant environmental impacts.

## **X. THE AGENCY'S FINDINGS**

### **A. The Proposed Action will ensure the safety of aircraft and the efficient use of airspace. (49 U.S.C. § 40103(b)).**

The Federal Aviation Act of 1958 gives the Administrator the authority and responsibility to assign by order or regulation the use of the navigable airspace in order to ensure the safety of aircraft and the efficient use of the airspace. In its continuous effort to ensure safety of aircraft and improve the efficiency of transit through the navigable airspace, the FAA will create or modify SIDs, STARs, T-routes, and instrument approaches in the FL Metroplex. The Project will enhance the efficiency of the airspace in the FL Metroplex by creating shorter, more predictable ground and vertical paths through the limited airspace in the FL Metroplex. Additionally, this Project will allow the FAA to begin to achieve its NextGen goals.

In deciding to implement the Proposed Action, the FAA carefully evaluated both the Proposed Action and the No Action alternatives. The No Action alternative will do nothing to improve the efficiency of the airspace or address any of the three key causal factors for airspace efficiency. The No Action alternative would not further the Agency's goal in transitioning to NextGen.

### **B. The Proposed Action does not involve the direct or constructive use of any resources protected under Department of Transportation Act Section 303(c), also known as Section 4(f).**

The Proposed Action does not involve any physical development or modification of facilities and therefore no actual, physical use of resources protected under Section 4(f) of the Department of Transportation Act or Section 106 of the National Historic Preservation Act would result. The Proposed Action will not result in a constructive use of any protected property because it will not cause increases in noise sufficient to impair the value of those resources. None of the protected properties in the General Study Area have a quiet setting as a generally recognized purpose and attribute.

### **C. The Proposed Action does not adversely affect historic resources protected under Section 106 of the National Historic Preservation Act that are listed on the National Register of Historic Places or eligible for listing.**

The Proposed Action will not cause an adverse effect under Section 106 of the National Historic Preservation Act on historic resources listed on or eligible for listing on the National

Register of Historic Places located within the Area of Potential Effect. This determination is based on consultation under Section 106 of the National Historic Preservation Act with the Florida State Historic Preservation Officer.

**D. The Proposed Action will not have a disproportionately high and adverse impact on minority or low income populations (Executive Order 12898).**

The FAA has determined that no disproportionately high and adverse impacts to environmental justice communities will occur from the Proposed Action, based upon findings that there are no noise impacts on residential communities, no community disruptions or divisions, no surface transportation impacts, no human health impacts and no essential services disruptions or other impacts that could potentially disproportionately impact any minority or low-income community.

**E. The Proposed Action does not require a conformity determination under Section 176 (c)(1) of the Clean Air Act (42 U.S.C. § 7506(c)(1)).**

The Proposed Action is an air traffic control activity that adopts air traffic procedures for air operations. It is presumed to conform to all applicable State Implementation Plans using criteria identified in Category 14 of the FAA's list of presumed-to-conform actions. 72 Fed. Reg. 41565 (July 30, 2007). The Proposed Action would not result in the development of physical facilities nor would it result in or induce an increase in operational capacity in the General Study Area. Detailed analysis was not necessary to conclude that the Proposed Action conforms to the purposes of the State Implementation Plan for the State of Florida. The Proposed Action will not cause a new violation of the National Ambient Air Quality Standards (NAAQS), worsen an existing violation, or delay meeting the standards of the NAAQS in the General Study Area.



## **XI. DECISIONS AND ORDERS**

After careful and thorough consideration of the Final EA and the facts contained herein, I find that the Proposed Action is consistent with existing national environmental policies and objectives as set forth in Section 101 of the National Environmental Policy Act and other applicable environmental requirements and will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 102(2)(C) of the National Environmental Policy Act. Therefore, an environmental impact statement will not be prepared.

I, the undersigned, have reviewed the Final EA including the evaluation of the purpose and need that this Project would serve, the alternative means of achieving the purpose and need, and the environmental impacts associated with these alternatives. I find the Proposed Action described in the Final EA is reasonably supported, and issuance of a FONSI is appropriate.

I have carefully considered the FAA's statutory mandate under 49 U.S.C. § 40103 to ensure the safe and efficient use of the national airspace system as well as the other aeronautical goals and objectives discussed in the Final EA.

Accordingly, under the authority delegated to me by the Administrator of the FAA, I approve the operational changes as described in the Proposed Action and direct that actions be taken that will enable implementation of that alternative.

Approved:	ANGELA RENEE MCCULLOUGH	Digitally signed by ANGELA RENEE MCCULLOUGH Date: 2020.10.15 09:13:14 -04'00'	October 15, 2020
	Angela McCullough Vice President, Mission Support Services Air Traffic Organization Federal Aviation Administration		Date

## **RIGHT OF APPEAL**

**This FONSI/ROD constitutes a final order of the FAA Administrator and is subject to exclusive judicial review under 49 U.S.C. § 46110 by the U.S. Circuit Court of Appeals for the District of Columbia or the U.S. Circuit Court of Appeals for the circuit in which the person contesting the decision resides or has its principal place of business. Any party having substantial interest in this order may apply for review of the decision by filing a petition for review in the appropriate U.S. Court of Appeals no later than 60 days after the order is issued in accordance with the provisions of 49 U.S.C. § 46110. Any party seeking to stay implementation of the ROD must file an application with the FAA prior to seeking judicial relief as provided in Rule 18(a) of the Federal Rules of Appellate Procedure.**