Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type: SID	Estimated Chart Date: 05/16/2024	APWS Task ID: C4BA469AD91346F4BFB36ACB80ADAC38	APWS Project ID: BEE9A4783EBE4340BBEA5B4391CB2132		
Procedure: SID TRMML FOUR (RNAV)		Enroute: YES	Specialist: Sarmento, April		Agreement Number:		
Airport ID: KDTW			Airport City: DETROIT		State: MI		
Facility ID:	Facility Type:	Flight Inspection Remark Type: New FC Slot					

#### **Procedure Comments:**

FULL AMENDMENT.

PENDING AIRPORT DATA FOR KYIP. ACTIVE DATA FOR ALL OTHER AIRPORTS.

#### WAIVERS (2):

- 1. TO NOT CHART IF ALTITUDE AT IF FOR RADAR VECTORS.
- 2. AFS-420 MEMO "WAIVER TO FAA ORDER 8260.58C PARAGRAPH 1-2-5.C.(3), MAXIMUM BANK ANGLE" DATED 01/31/2023.

KYIP: RWY 27 CONTROLLING OBSTACLE 903 FT MSL TOWER (26-002998) LAT/LONG CHANGED FROM 421431.78N/0833411.47W TO 421431.80N/0833411.49W (MOVED 2.52 FT NORTHWEST); TAKEOFF MINIMUMS DID NOT CHANGE.

KVLL: RWY 28 CONTROLLING OBSTACLES CHANGED FROM 940 FT MSL BLDG 423234.20N/0831235.50 (CLIMB GRADIENT), 1749 FT MSL TOWER 422858.00N/0831219.00W (CLIMB-TO ALTITUDE) TO 905 FT MSL BUILDING (26-003210) 423232.54N/0831234.07W; RETAINED CURRENT TAKEOFF MINIMUMS TO MATCH PUBLISHED ODP.

KMTC: RWY 19 CLIMB GRADIENT INCREASED FROM 234 FT/NM TO 235 FT/NM. CONTROLLING OBSTACLE DID NOT CHANGE 1246 FT MSL TOWER (26-001410) 423312.00N/0825315.00W (4D).

CONTACT: CASIMIR TABAKA, (405) 954-7931

04/08/2024: THIS IS A CORRECTED COPY OF THE FORM APPROVED ON 01/26/2024.

- 1. ADDED TRANSITION NAME GNZOE TO THE TRANSITION.
- 2. GNZOE TRANSITION: CORRECTED TRMML TO DDEEZ TRACK FROM 353.32 TO 352.32.

J ZEDER 04/08/2024

QUAI 41



FIPC DME/DME FORM																	
PROCEDURE:					AI	AIRPORT NAME: AIRPO					AIRPOF	RT ID: SPECIAL (			CONTROL NO:		
TRMML FOUR (RNAV) DEPARTURE					D	DETROIT METRO WAYNE COUNTY KDTW				KDTW		BG-01-226-24					
FAC ID: TRMML4 CITY: DETROIT						ST: M				ST: MI	ORIG CHA			ART DATE: 05/16/2024			
DFL TYPE:	THIRD	PARTY:	EST. TIM	IE ON SITE:	: REIMB. NUMBER: PTS TASK ID:						•						
PROC/D		YES	6 1.0 C4BA469AD91346F4B							BFB36ACB80ADAC38							
PREFLIGHT NOTES																	
REVIEWER: scott wiebe DATE: 03/08/2024																	
COMMENTS:												СНЕСК С	ONE:				
												X FLT	CK RE	Q	☐ NFCR	RE	JECT
																YES	NO
												CPV COM	<b>IPLET</b>	Е?		X	
PROCEDURE RESULTS																	
INSPECTION DA	TE:	CREV	CREW #: N #: INSTRUMENT PROCEDURE STATUS:						ARINC CODING:								
03/08/2024		VN21	19	N69	X SAT   SAT W/CHANGES   UNSAT   SAT   SAT/GOLD   UNSAT							NSAT					
FLIGHT INSPECTOR SIGNATURE: PRINTED							RINTED NAME: NOTAM INITIATED									ΓED?	
scott wiebe @ 03/08/2024 14:14						WIEBE, GREGORY SCOTT YES X NO									NO		
FLIGHT INSPECTOR REMARKS: Procedure Satisfactory for GNSS operations, DME/DME awaiting approval by the applicable AJV Operations Support Group.																	
DME/DME STATUS: SPECIALIST SIGNATURE: PRINTED NAME:																	
X SATUNSATsteven s-ctr rager @ 03/20/2024 14:54Steven Rager																	
SPECIALIST REMARKS:																	
Procedure SAT for DME/DME/IRU NAV. All DME ESV's for legs flown recorded by Inspection Aircraft all other ESV's certified by TARGETS.																	
IN-FLIGHT OBSTACLE REPORT																	
OBSTRUCTION	ID #:   C	COORDIN	ATES OR	LOCATION:	TION: GNSS ALTITUDE (MSL): BAROMETRIC ALTITUDE (MSL): HEIGHT ABOVE GROUND LE						EVEL:						

FIPC BASIC FORM																		
PROCEDURE:						AIRPORT NAME: AIRPORT					RT ID: SPECIAL		CONTROL NO:					
TRMML FOUR (RNAV) DEPARTURE						DETROIT METRO WAYNE COUNTY KDTW				KDTW	BG-01-226-2			5-24	24			
FAC ID: TRMML4 CITY: DETROIT						ST: MI					ORIG CHART DATE: 05					24		
DFL TYPE:	THIRD	PARTY:	EST. TIMI	E ON SITE:	RE	REIMB. NUMBER: PTS TASK ID:						•						
PROC/D		YES	1.0 C4BA469AD91346F4BFI							BFB36ACI	6ACB80ADAC38							
PREFLIGHT NOTES																		
REVIEWER: scott wiebe DATE: 03/08/2024																		
COMMENTS:												СНЕСК (	ONE:					
												X FLT	CK RE	Q	☐ NFCR	RE.	JECT	
																YES	NO	
												CPV CON	<b>IPLET</b>	E?		X		
PROCEDURE RESULTS																		
INSPECTION DA	TE:	CREV	N #:	N #:	INSTRUMENT PROCEDURE STATUS: ARINC CODING:													
03/08/2024		VN21	19	N69	] [								NSAT					
FLIGHT INSPECT	TOR SIG	SNATURE	Ξ:		I	PRINTED NAME: NOTAM INITIATED?										ΓED?		
scott wiebe @ 03/08/2024 14:14						WIEBE, GREGORY SCOTT							☐ YES	YES X NO				
FLIGHT INSPECTOR REMARKS:  Procedure Satisfactory for GNSS operations, DME/DME awaiting approval by the applicable AJV Operations Support Group.																		
IN-FLIGHT OBSTACLE REPORT																		
OBSTRUCTION I	UCTION ID #: COORDINATES OR LOCATION: GNSS ALTITUDE (MSL): BAROMETRIC ALTITUDE (MSL): HEIGHT ABOVE GROUND LE							EVEL:										



# **Memorandum**

Date: January 31, 2023

To: **Instrument Flight Procedure Service Providers** 

Digitally signed by WADE WADE EK TERRELL EK TERRELL

Date: 2023.01.31 09:21:16

From: Wade E.K. Terrell, Manager, Flight Procedures and Airspace Group

Waiver to FAA Order 8260.58C paragraph 1-2-5.c.(3), Maximum bank Subject:

angle

**Background:** The Performance Based Navigation (PBN) Aviation Rulemaking Committee (PARC) made a recommendation that the FAA adjust the turn parameters used in PBN instrument flight procedure (IFP) design to reflect modern avionics values. The Flight Procedures and Airspace Group analyzed current avionics specifications with the help of several FAA offices and RTCA SC-227 to identify the new bank angles necessary for current IFP design. The Flight Procedures and Airspace Group then conducted an Operational Safety Review (OSR) for this amendment to bank angle criteria. The outcome of the OSR was that no new hazard is introduced into the National Aerospace System (NAS).

Purpose: This memorandum waives FAA Order 8260.58C, United States Standard for Performance Based Navigation (PBN) Instrument Procedure Design, paragraph 1-2-5.c.(3) and authorizes use of a maximum bank angle of 23 degrees above FL195 up to FL245 and a maximum bank angle of 16 degrees above FL245.

This waiver remains in effect until rescinded. No additional waiver request action is required. Please direct all inquiries to Thomas J. Nichols, Standards Section Manager, Flight Procedures and Airspace Group at 405-954-1171 or thomas inichols@faa.gov

FLIGHT STANDARDS USE ONLY CONTROL NO.

### 1. FLIGHT PROCEDURE IDENTIFICATION:

Detroit, MI (KDTW) TRMML (RNAV) SID

### 2. WAIVER REQUIRED AND APPLICABLE STANDARD:

Waiver required to not chart IF altitude at the IF for radar vectors (RV). Order 8260.46J Appendix E, Section 1, para 2m(3). "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 DETROIT METRO WAYNE COUNTY AIRPORT (DTW), then after the aircraft is airborne ATC must issue "CLIMB VIA SID EXCEPT MAINTAIN (altitude)". With this procedure, it's unnecessary to add an altitude restriction at LOALA as the aircraft will be issued an initial departure clearance containing an altitude "AS ASSIGNED BY ATC" and will be receiving radar vectors to the waypoint LOALA to join the procedure. When aircraft depart, 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 obstacles.

Adding an unnecessary altitude at LOALA 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 LOALA 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 a higher altitude 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 a standard climb gradient of 200 ft/nm all surfaces are clear to IF (LOALA) which is 14.17 nm from the closest DER. The departure route description for all runways will provide instruction for the aircraft to conduct an uninterrupted climb to an altitude "AS ASSIGNED BY ATC" which is above the MVA from the airport to the IF.

ATC will ensure aircraft departing will cross the IF at or above 3000 ft MSL. An OCS with a starting elevation of 2000 ft (3000 MVA-1000 ROC) was evaluated for the route starting at LOALA and the surface was clear.

## 5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

Modifying all runway SIDs to replace the radar vectors segment with RNAV OTG would be incompatible with procedure efficiency in a constrained airspace and cause environmental issues and delays.

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

Central Service Area PBN FAA and NATCA Leads ZOB ARTCC D21 TRACON Detroit Metro Tower

## 7. SUBMITTED BY:

DATE OFFICE IDENTIFICATION TITLE

1/26/2024

AJV-A432

MGR

Digitally signed by SIGNATURE

CASIMIR L TABAKA

Jan 26, 2024

US Department of Transportation Federal Aviation Administration

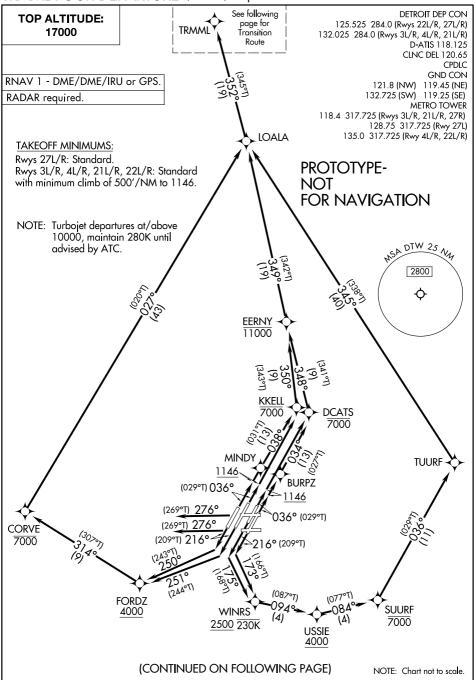
## FLIGHT PROCEDURE STANDARDS WAIVER

FLIGHT STANDARDS USE ONLY CONTROL NO.

8. FLIGHT STAN	DARDS ACTIONS:	
	☐ DISAPPROVED [	NOT REQUIRED
COMMENTS:		
DATE	ROUTING SYMBOL	SIGNATURE

TRMML FOUR DEPARTURE (RNAV) Departure Routes

DETROIT, MICHIGAN



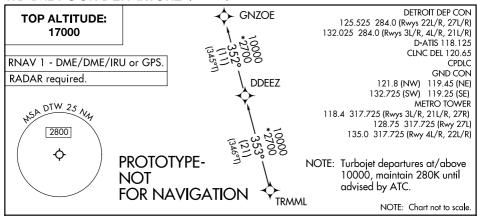
TRMML FOUR DEPARTURE (RNAV) Departure Routes (TRMML4.TRMML) FIG DETROIT M

DETROIT, MICHIGAN

DETROIT METRO WAYNE COUNTY (DTW)

## TRMML FOUR DEPARTURE (RNAV) Transition Route

DETROIT, MICHIGAN



#### V

#### DEPARTURE ROUTE DESCRIPTION

#### SEE ADDITIONAL REQUIREMENTS ON AAUP

TAKEOFF RUNWAY 3L: Climb on heading 036° to 1146, then direct to cross DCATS at or below 7000, then on track 348° to cross EERNY at or below 11000, then on track 349° to LOALA, thence....

TAKEOFF RUNWAY 3R: Climb on heading 036° to 1146, then direct BURPZ, then on track 034° to cross DCATS at or below 7000, then on track 348° to cross EERNY at or below 11000, then on track 349° to LOALA, thence....

TAKEOFF RUNWAY 4L: Climb on heading 036° to 1146, then direct MINDY, then on track 038° to cross KKELL at or below 7000, then on track 350° to cross EERNY at or below 11000, then on track 349° to LOALA, thence....

TAKEOFF RUNWAY 4R: Climb on heading 036° to 1146, then direct to cross KKELL at or below 7000, then on track 350° to cross EERNY at or below 11000, then on track 349° to LOALA, thence....

TAKEOFF RUNWAY 21L: Climb on heading 216° to intercept course 173° to cross WINRS at or above 2500 and at or below 230K, then on track 094° to cross USSIE at or above 4000, then on track 084° to cross SUURF at or below 7000, then on track 036° to TUURF, then on track 345° to LOALA, thence....

TAKEOFF RUNWAY 21R: Climb on heading 216° to intercept course 175° to cross WINRS at or above 2500 and at or below 230K, then on track 094° to cross USSIE at or above 4000, then on track 084° to cross SUURF at or below 7000, then on track 036° to TUURF, then on track 345° to LOALA, thence....

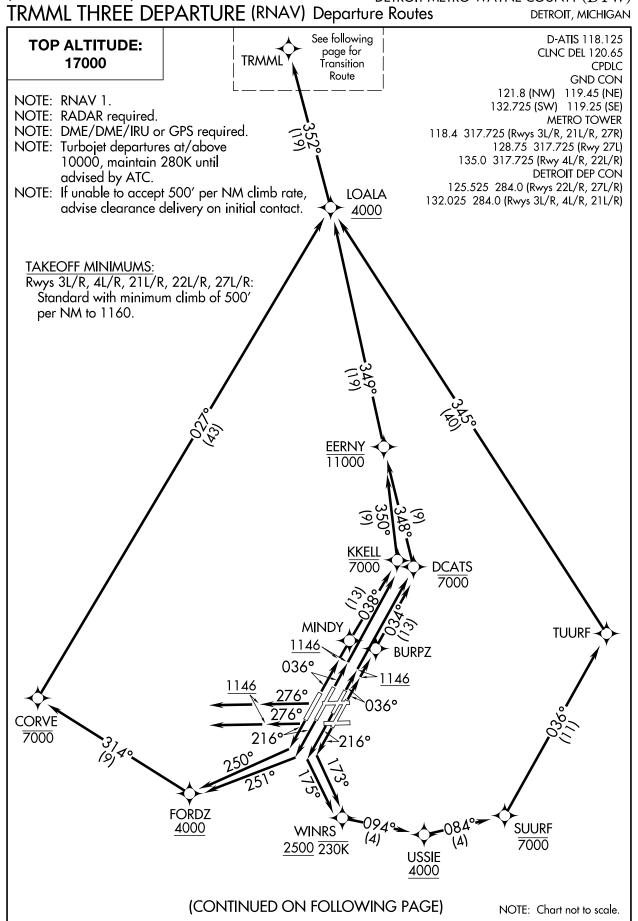
TAKEOFF RUNWAY 22L: Climb on heading 216° to intercept course 251° to cross FORDZ at or above 4000, then on track 314° to cross CORVE at or below 7000, then on track 027° to LOALA, thence....

TAKEOFF RUNWAY 22R: Climb on heading 216° to intercept course 250° to cross FORDZ at or above 4000, then on track 314° to cross CORVE at or below 7000, then on track 027° to LOALA,

TAKEOFF RUNWAYS 27L/R: Climb on heading 276° or as assigned by ATC, for RADAR vectors to LOALA, thence....

....on track 352° to TRMML, then on (transition). Maintain 17000, expect filed altitude 10 minutes after departure.

GNZOE TRANSITION (TRMML4.GNZOE)



EC-1, 20 APR 2023 to 18 MAY 2023

NOTE: Chart not to scale.

EC-1, 20 APR 2023 to 18 MAY 2023

#### **GNZOE TOP ALTITUDE:** D-ATIS 118.125 **CLNC DEL 120.65** 17000 **CPDLC GND CON** 121.8 (NW) 119.45 (NE) 132.725 (SW) 119.25 (SE) METRO TOWER NOTE: RNAV 1. **DDEEZ** 118.4 317.725 (Rwys 3L/R, 21L/R, 27R) NOTE: RADAR required. 128.75 317.725 (Rwy 27L) NOTE: DME/DME/IRU or GPS required. 135.0 317.725 (Rwy 4L/R, 22L/R) NOTE: Turbojet departures at/above DETROIT DEP CON 10000, maintain 280K until 125.525 284.0 (Rwys 22L/R, 27L/R) advised by ATC. 132.025 284.0 (Rwys 3L/R, 4L/R, 21L/R) NOTE: If unable to accept 500' per NM climb rate, advise clearance delivery on initial contact.

## V

## DEPARTURE ROUTE DESCRIPTION

**TRMML** 

NOTE: See additional requirements in RNAV departure AAUP.

TAKEOFF RUNWAY 3L: Climb on heading 036° to 1146, then direct to cross DCATS at or below 7000, then on track 348° to cross EERNY at or below 11000, then on track 349° to cross LOALA at or above 4000, thence....

TAKEOFF RUNWAY 3R: Climb on heading 036° to 1146, then direct BURPZ, then on track 034° to cross DCATS at or below 7000, then on track 348° to cross EERNY at or below 11000, then on track 349° to cross LOALA at or above 4000, thence....

<u>TAKEOFF RUNWAY 4L</u>: Climb on heading 036° to 1146, then direct MINDY, then on track 038° to cross KKELL at or below 7000, then on track 350° to cross EERNY at or below 11000, then on track 349° to cross LOALA at or above 4000, thence....

<u>TAKEOFF RUNWAY 4R</u>: Climb on heading 036° to 1146, then direct to cross KKELL at or below 7000, then on track 350° to cross EERNY at or below 11000, then on track 349° to cross LOALA at or above 4000, thence....

<u>TAKEOFF RUNWAY 21L</u>: Climb on heading 216° to intercept course 173° to cross WINRS at or above 2500 and at or below 230K, then on track 094° to cross USSIE at or above 4000, then on track 084° to cross SUURF at or below 7000, then on track 036° to TUURF, then on track 345° to cross LOALA at or above 4000, thence....

TAKEOFF RUNWAY 21R: Climb on heading 216° to intercept course 175° to cross WINRS at or above 2500 and at or below 230K, then on track 094° to cross USSIE at or above 4000, then on track 084° to cross SUURF at or below 7000, then on track 036° to TUURF, then on track 345° to cross LOALA at or above 4000, thence....

<u>TAKEOFF RUNWAY 22L</u>: Climb on heading 216° to intercept course 251° to cross FORDZ at or above 4000, then on track 314° to cross CORVE at or below 7000, then on track 027° to cross LOALA at or above 4000, thence....

<u>TAKEOFF RUNWAY 22R</u>: Climb on heading 216° to intercept course 250° to cross FORDZ at or above 4000, then on track 314° to cross CORVE at or below 7000, then on track 027° to cross LOALA at or above 4000, thence....

TAKEOFF RUNWAYS 27L/R: Climb on heading 276° to 1146, then on heading 276° or as assigned for RADAR vectors to cross LOALA at or above 4000, thence....

....on track 352° to TRMML, then on (transition). Maintain 17000 or as assigned by ATC, expect filed altitude 10 minutes after departure.

GNZOE TRANSITION (TRMML3.GNZOE)

DETROIT, MICHIGAN

to 02 NOV 2023

EC-1, 05 OCT 2023

## **ATTENTION ALL USERS PAGE (AAUP)**

CURRENT

#### SIMULTANEOUS RNAV DEPARTURES

The purpose of this briefing is to provide guidance, safe operating practices, and phraseology that will help ensure heightened awareness when conducting parallel RNAV departures at the Detroit Metro Wayne County Airport (DTW). Where applicable, pilots should comply with established company procedures for RNAV operations.

- 1. **PREFLIGHT:** Expect clearance for RNAV Standard Instrument Departure (SID), if capable of terminal RNAV procedures. If unable to accept the assigned RNAV SID, advise Clearance Delivery on initial contact. Upon assignment of an RNAV SID, crosscheck the charted RNAV SID with the aircraft navigation system against the ATC clearance. Consider the following cross items:
  - Ensure correct departure runway is loaded
  - Ensure all transitions are loaded correctly
  - Ensure sequence of waypoints match the appropriate charts
  - Use the LEGS page to verify routing (for navigation systems with ROUTE and LEGS pages)
  - Ensure altitude set in the altitude window matches the TOP ALTITUDE of the SID (unless amended by ATC)
  - Do not modify or manually construct RNAV procedures
  - Advise ATC prior to takeoff if unable verify correct loading or if unable to comply with the SID
- 2. **BEFORE TAKEOFF:** Ensure the departure runway assigned on taxi is depicted by the navigation system.
- Verify all modifications, including runway changes, in the navigation system with the RNAV SID
- Verify aircraft symbol relative to the runway symbol, lateral track, and depicted route agree with the ATC clearance (electronic navigation map displays)
- 3. **LINE UP/TAKEOFF:** Expect a takeoff clearance that will include "RNAV to" the first waypoint on the SID, or a heading. If issued a heading, do not delete the SID from the navigation system.
- Clearance: "Delta 123, RNAV to SAAMS, Runway 22L, Cleared for Takeoff"
- Response: "Delta 123, RNAV to SAAMS, Runway 22L, Cleared for Takeoff"
- Verify the correct runway and SID are loaded and the correct lateral navigation mode is available and ready for use after takeoff
- If the takeoff clearance does not match the planned/loaded procedure, request an initial heading from tower or refuse the takeoff clearance until the discrepancy is resolved.
- 4. AFTER TAKEOFF: Unless issued a heading, engage lateral navigation flight guidance as soon as practical and fly the departure precisely.
- Parallel RNAV departures must not encroach on the airspace between parallel runway centerlines without specific ATC clearance
- When possible, track the runway centerline until reaching the departure end of runway
- Strict compliance with the lateral and vertical tracks and charted speed restrictions is imperative
- Once established on the procedure, maintain route centerline, as depicted by onboard lateral navigation indicators and/or flight guidance
- Manually intervene if necessary, to stay on track to avoid transgressing in the direction of a parallel runway, track, or aircraft
- If unable to comply with the SID profile, either laterally or vertically, immediately notify ATC

(CONTINUED ON FOLLOWING PAGE)

#### ATTENTION ALL USERS PAGE (AAUP)

(CONTINUED FROM PREVIOUS PAGE)

5. SPECIFIC INFORMATION: Runway assignments will be issued on initial contact with Ground Control and will be based on traffic conditions, runway closures, and other operational requirements.

For planning purposes, pilots can anticipate a runway assignment based upon the information below.

Runway Assignment for Dual Departure Operations

Departing Runways 22L/R, 21L/R

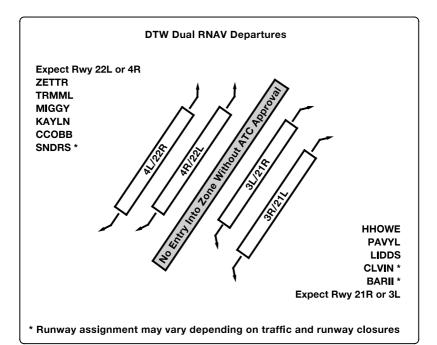
SNDRS, CCOBB, KAYLN, MIGGY, TRMML, ZETTR - Expect Runway 22L HHOWE, PAVYL, LIDDS, BARII, CLVIN - Expect Runway 21R

Departing Runways 4L/R, 3L/R

SNDRS, CCOBB, KAYLN, MIGGY, TRMML, ZETTR - Expect Runway 04R HHOWE, PAVYL, LIDDS, BARII, CLVIN - Expect Runway 03L

Departing Runways 27L/R (not depicted below)

KAYLN, MIGGY, TRMML, ZETTR, HHOWE - Expect Runway 27R CCOBB, SNDRS, BARII, CLVIN, LIDDS, PAVYL - Expect Runway 27L



to 02 NOV 2023

EC-1, 05 OCT 2023

