Flight Procedures Cover Page	Task Action: FLIGHT CHECK	Task Type: SID	Estimated Chart Date: 03/19/2026	APWS Task ID: 267C95C69DC349929576280778334DE	APWS Project ID: 7EA80D4CD2A64E0A9E50FC25C40CBBAC
Procedure: BUNYN ONE DEPARTURE (RNAV)		Enroute: YES	Specialist: Sweeting, Dexter		Agreement Number:
Airport ID: KMSP			Airport City: MINNEAPOLIS		State: MN
Facility ID:	Facility Type:	Flight Inspection Remark Type: Hold FC Slot			

Procedure Comments:
ACTIVE DATA USED FOR KMSP, KANE, KFCM, KSTP AND RUNWAYS.

WAIVERS (1): ATC REQUESTED ALTITUDE LOWER THAN UNRESTRICTED CLIMB ALLOWED BY TERPS EVALUATION; WAIVER (2): REDUCED ROC; WAIVER (3): ATC CLIMB GRADIENT.

MSP VOR MON - NEW RNAV SID.

KMZ:
KSTP_DIV_DEP_RWY_09_AMDT_1: CG CONTROLLING OBSTACLE.
KSTP_DIV_DEP_RWY_09_AMDT_1_1: CG AND CGTA CONTROLLING OBSTACLES.
KSTP_DIV_DEP_RWY_09_AMDT_1_2: CTA CONTROLLING OBSTACLE (1234 FT MSL BUILDING)
KSTP_DIV_DEP_RWY_13_AMDT_1: CG AND CGTA CONTROLLING OBSTACLES.
KSTP_DIV_DEP_RWY_13_AMDT_1_1: CTA CONTROLLING OBSTACLE (1137 FT MSL TANK)
KSTP_DIV_DEP_RWY_14_AMDT_1: CG AND CGTA CONTROLLING OBSTACLES.
KSTP_DIV_DEP_RWY_14_AMDT_1_1: CTA CONTROLLING OBSTACLE (2375 FT MSL TOWER)
KSTP_DIV_DEP_RWY_27_AMDT_1: CG CONTROLLING OBSTACLE.
KSTP_DIV_DEP_RWY_27_AMDT_1_1: CG AND CGTA CONTROLLING OBSTACLES.
KSTP_DIV_DEP_RWY_27_AMDT_1_2: CTA CONTROLLING OBSTCLE (2438 FT MSL TOWER)
KSTP_DIV_DEP_RWY_32_AMDT_1: CG CONTROLLING OBSTACLE.
KSTP_DIV_DEP_RWY_32_AMDT_1_1: CG AND CGTA CONTROLLING OBSTACLES.
KSTP_DIV_DEP_RWY_32_AMDT_1_2: CTA CONTROLLING OBSTACLE (1271 FT MSL BUILDING)

CONTACT: RAKE MCGRAW (AJV-A422), 405-954-8711.

10/20/2025: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 08/26/2025.
1. DP ROUTE DESCRIPTION: TAKEOFF RWY 17: UPDATED ROUTE FROM "...CROSS FSHAY AT OR ABOVE 3500..." TO "...CROSS PGPEN AT OR ABOVE 3500...".

10/24/2025: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 08/26/2025.
1. REMARKS: DP RESTRICTIONS FOR ATC FACILITIES INFORMATION: ANE: UPDATED NOTE FROM " ...RWY 9, 27, 36: 190 CW 060 CLIMB TO 3000..." TO "...RWY 9, 27, 36: 190 CW 090 CLIMB TO 3000...".
2. REMARKS: DP RESTRICTIONS FOR ATC FACILITIES INFORMATION: ANE: UPDATED NOTE FROM " ...RWY 18: RIGHT TURN 190 CW TO 060 CLIMB TO 3000. LEFT TURN CW 060 TO CW 190 CLIMB TO 3500..." TO "...RWY 18: RIGHT TURN 190 CW 090 CLIMB TO 3000. LEFT TURN 190 CW 060 CLIMB TO 3500...".

Data as of: 10/27/2025 08:13:46 CDT

FLIGHT PROCEDURE STANDARDS WAIVER

1. FLIGHT PROCEDURE IDENTIFICATION:

Minneapolis, MN: MSP, ANE, FCM; St Paul, MN: STP
BITEZ DEPARTURE (RNAV), BUNYN DEPARTURE (RNAV), HTDSH DEPARTURE (RNAV), KBREW DEPARTURE (RNAV), MINNEAPOLIS DEPARTURE, NRTHN DEPARTURE (RNAV), SNOWZ DEPARTURE (RNAV), SNUPE DEPARTURE (RNAV), TOTTZ DEPARTURE (RNAV), ZMBRO DEPARTURE (RNAV).

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

Deviation from standard criteria. 8260.3, Paragraph 1-4-2. An ATC requested maintained altitude lower than the unrestricted climb allowed by TERPS evaluation.

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

FAA Order 8260.3 does not describe how to assess obstacles for a SID supporting a range of initial headings when ATC requests a maintain altitude lower than unrestricted climb allowed by TERPS. AFS issued a Memo dated May 23, 2023 with the subject “Clarification to FAA Order 8260.46, Departure Procedure (DP) Program, Standard Instrument Departure (SID), which states a waiver is required to apply 8260.3, 13-2 in this case. (include evaluation method of the hold down maintain altitude, justification and description of the requested altitude vs the altitude of the unrestricted climb allowed by TERPS).

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

FAA Order 8260.3, Section 13-2, Diverse Departure Assessment was applied to assess obstacles to ensure obstacle clearance to the requested altitude and for the evaluation of the hold down altitude.
a. TERPS Maintain/Top altitude: see attached for each airport assessment.
b. Lowest assigned altitude by ATC for traffic: see attached for each airport assessment.
c. Diverse Assessment Distance: see attached for each airport assessment.
d. The MVA assessment: see attached for each airport assessment.
e. Climb gradient for obstacle assessment: see attached for each airport assessment.
f. Radar is required for the SID.
g. FAA JO 7110.65, paragraph 5-6-3.b. "After reaching the first MVA/MIA sector, all subsequent MVA/MIA sectors encountered must be met." This requires the controller to ensure the aircraft doesn't go into a higher MVA once they reached the first MVA sector altitude.
h. ATC is not allowed to let an aircraft climbing to the initially assigned altitude in b above enter a higher MVA unless ATC has assigned and the pilot reached the altitude equal to or higher than the MVA sector they are entering or FAA Order 7110.65, paragraph 5-6-3.a.(1) or (2) is being applied (ATC is responsible for obstacle separation until the aircraft reaches the MVA altitude or higher).
i. Affected MSP ATC Facilities will make sure all controllers are aware of this waiver for compliance.

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

ATC needs to vector aircraft for separation within a constrained airspace (Class B) as well as for noise abatement requirements. The design requirement for vectors is compliant with FAA Order 8260.58, Appendix E.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

This action was coordinated with MSP TRACON (M98), ZMP ARTCC, Minneapolis Tower, Delta and Southwest Airlines, NATCA, AJV-A, Central Service Area Flight Procedures Team leads, and FS.

7. SUBMITTED BY:

DATE **OFFICE IDENTIFICATION** **TITLE** **SIGNATURE**

8. FLIGHT STANDARDS ACTIONS:

☐ **APPROVED** ☐ **DISAPPROVED** ☐ **NOT REQUIRED**

COMMENTS:

DATE **ROUTING SYMBOL** **SIGNATURE**

FLIGHT PROCEDURE STANDARDS WAIVER

1. FLIGHT PROCEDURE IDENTIFICATION:

MINNEAPOLIS, MN
MSP
BITEZ DEPARTURE, BUNYN DEPARTURE, HTDSH DEPARTURE, KBREW DEPARTURE, MINNEAPOLIS DEPARUTE, NRTHN DEPARTURE, SNOWZ DEPARTURE, SNUPE DEPARTURE, TOTTZ DEPARTURE, ZMBRO DEPARTURE.

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

Deviation from standard criteria. 8260.3, Paragraph 2-1-3. Using less ROC than required for DP level OCS.

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

a. Two different rounding criteria are used for evaluation.
(1). FAA Order 8260.3 requires 1000 feet of level ROC when assessing level flight. The altitude must be rounded up to the next higher 100 foot altitude.
(2). ATO allows the altitude to be rounded down to the next lower 100 foot for 49 feet or less.
c. MSP ATCT/TRACON will be using radar vectors and the MVA to separate aircraft.
d. The TERPS evaluation doesn't account for the ATC hold down/lowest assigned altitude.
e. The departure procedures were designed originally before the change to criteria but have not been brought into compliance. MSP ATCT/TRACON has a need to separate the flow for departures and arrivals. MSP ATCT/TRACON has an LOA requirement to turn departures based on a range of headings using all runways when needed and the lowest altitude assigned would be based on the MVA.

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

a. Aircraft will be required to climb to ATC assigned altitude based on radar and the MVA so controllers will know where the aircraft is (see attached supporting documentation for the ATC hold down/lowest altitude).
b. Pilots are required per 14 CFR to check their altimeter on the ground and ensure it is not more than 75 feet off from the airport altitude when departing.
c. ATC is required to validate the altitude on initial contact.
d. Per 14 CFR, part 91.185 the pilot is expected to climb to the requested/assigned altitude and proceed direct to the assigned/filed route of flight.
e. Level ROC on approach is 500/250 in the terminal environment. The aircraft would only be assigned the initial altitude based on the MVA (see attached supporting documentation for the controlling obstacle information) for a short period of time to ensure initial separation. The aircraft will then be assigned the Maintain altitude (see attached supporting documentation for the Maintain altitude assigned by ATC).

5. ALTERNATIVE ACTIONS DEEMED NOT FEASIBLE:

Climbing the aircraft to an altitude 100ft higher will cause major issues with LOA and other ATC existing agreements.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

This action was coordinated with MSP TRACON (M98), ZMP ARTCC, Minneapolis Tower, Delta and Southwest Airlines, NATCA, AJV-A, Central Service Area Flight Procedures Team leads, and FS.

7. SUBMITTED BY:

DATE	OFFICE IDENTIFICATION	TITLE	SIGNATURE

8. FLIGHT STANDARDS ACTIONS:

☐ **APPROVED** ☐ **DISAPPROVED** ☐ **NOT REQUIRED**

COMMENTS:

DATE **ROUTING SYMBOL** **SIGNATURE**

1. FLIGHT PROCEDURE IDENTIFICATION:

Minneapolis, MN
Minneapolis - St Paul International/Wold - Chamberlain Airport (KMSP)
BITEZ DEPARTURE, BUNYN DEPARTURE, HTDSH DEPARTURE, KBREW DEPARTURE, NRTHN DEPARTURE, SNOWZ DEPARTURE, SNUPE DEPARTURE, TOTTZ DEPARTURE, ZMBRO DEPARTURE.

2. WAIVER REQUIRED AND APPLICABLE STANDARD:

Publish ATC Climb Gradients (CG). FAA Order 8260.46,
2-1-1.a. Instrument flight procedures (IFPs) must be designed, documented, and processed in accordance with these standards; however, obstacles, navigation information, or traffic congestion may require special consideration, where justified by operational requirements. When IFPs cannot be designed/documented in accordance with applicable standards, apply Order 8260.3, United States Standard for Terminal Instrument Procedures (TERPS), paragraph 1-4-2.
2-1-5h(2)(b) When ATC requests a minimum “at or above” altitude restriction at a fix in an initial SID routing (prior to reaching the SID termination fix) that is higher than the required procedure design minimum altitude at the same fix, the higher requested ATC altitude then becomes the minimum altitude at that fix. This altitude must support all procedure design and criteria requirements [i.e., obstacle clearance/procedure design constraints/navigation solution and the ATC requirement(s)].
a. When establishing crossing altitudes for other than meeting obstacle clearance and/or to support a shortened ICA to ensure LNAV engagement can occur before turning, stakeholders should give consideration to aircraft performance limitations based on the type of aircraft expected to be using the SID and whether those aircraft will be capable of meeting these altitude restrictions. This may require consultation with industry partners and local operators that could be impacted.
b. Calculate (but do not publish) the CG necessary to meet each minimum altitude restriction. FPAG’s approval is required if the calculated CG exceeds 500 ft/NM (600 ft/NM for helicopters).

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

Previously MSP conventional DPs used a crossing restriction at an DME/ARC. This was replaced by PBN DPs with an Open SID design. The ATC waypoint crossing restrictions cause CG's higher than standard. The restrictions provide procedural separation of the departures from satellite airport Class D airspace, satellite controller airspace and aircraft executing instrument approaches into satellite airports as well as supporting noise abatement procedures. This ensures traffic flow for all airports and if the aircraft cannot accept the climb gradient ATC will coordinate for separation. Historically most aircraft have been able to make the crossing altitudes. This will reduce coordination approximately 12 times a day on average.

4. EQUIVALENT LEVEL OF SAFETY PROVIDED:

a. The procedure will include the ATC crossing restrictions and climb gradients in the departure route description after the common information statement (see FAA Form 8260-15B departure route descriptions for details instructions).
Crossing restriction and climb gradient information: "All AIRCRAFT: ATC CROSSING RESTRICTIONS AND CLIMB GRADIENTS: IF UNABLE TO ACCEPT CROSSING RESTRICTIONS AND CLIMB RATES ADVISE ATC PRIOR TO TAXI.
(Runways): cross (waypoint) at or above (altitude), (CG) FT/NM to (altitude)."

b. When a pilot cannot accept the restriction controllers will coordinate with the controller in the adjacent airspace 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 air traffic in the MSP airspace, the risk of essential controller transmissions and the loss of traffic flow was regarded as being too great.

6. COORDINATION WITH USER ORGANIZATIONS (SPECIFY):

This action was coordinated with MSP TRACON (M98), ZMP ARTCC, Minneapolis Tower, Delta and Southwest Airlines, NATCA, AJV-A, Central Service Area Flight Procedures Team leads, and FS.

FLIGHT PROCEDURE STANDARDS WAIVER

7. SUBMITTED BY:

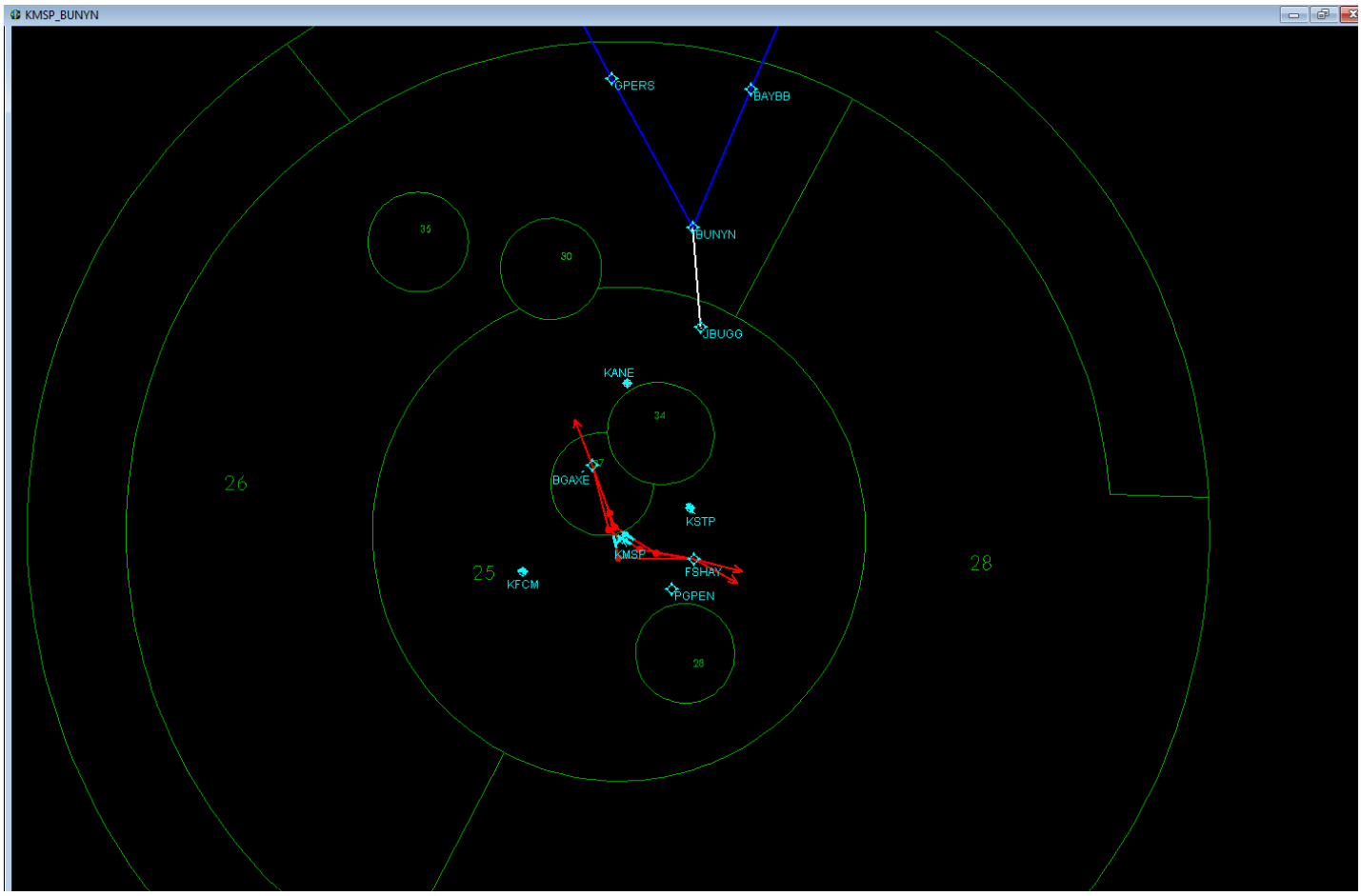
DATE **OFFICE IDENTIFICATION** **TITLE** **SIGNATURE**

8. AFS ACTIONS:

☐ **APPROVED** ☐ **DISAPPROVED** ☐ **NOT REQUIRED**

COMMENTS:

DATE **ROUTING SYMBOL** **SIGNATURE**


KMSP_BUNYN
GPERS
BAYBB
BUNYN
JBUGG
KANE
BGAXE
KSTP
KMSP
FSHAY
PGPEN
KFCM
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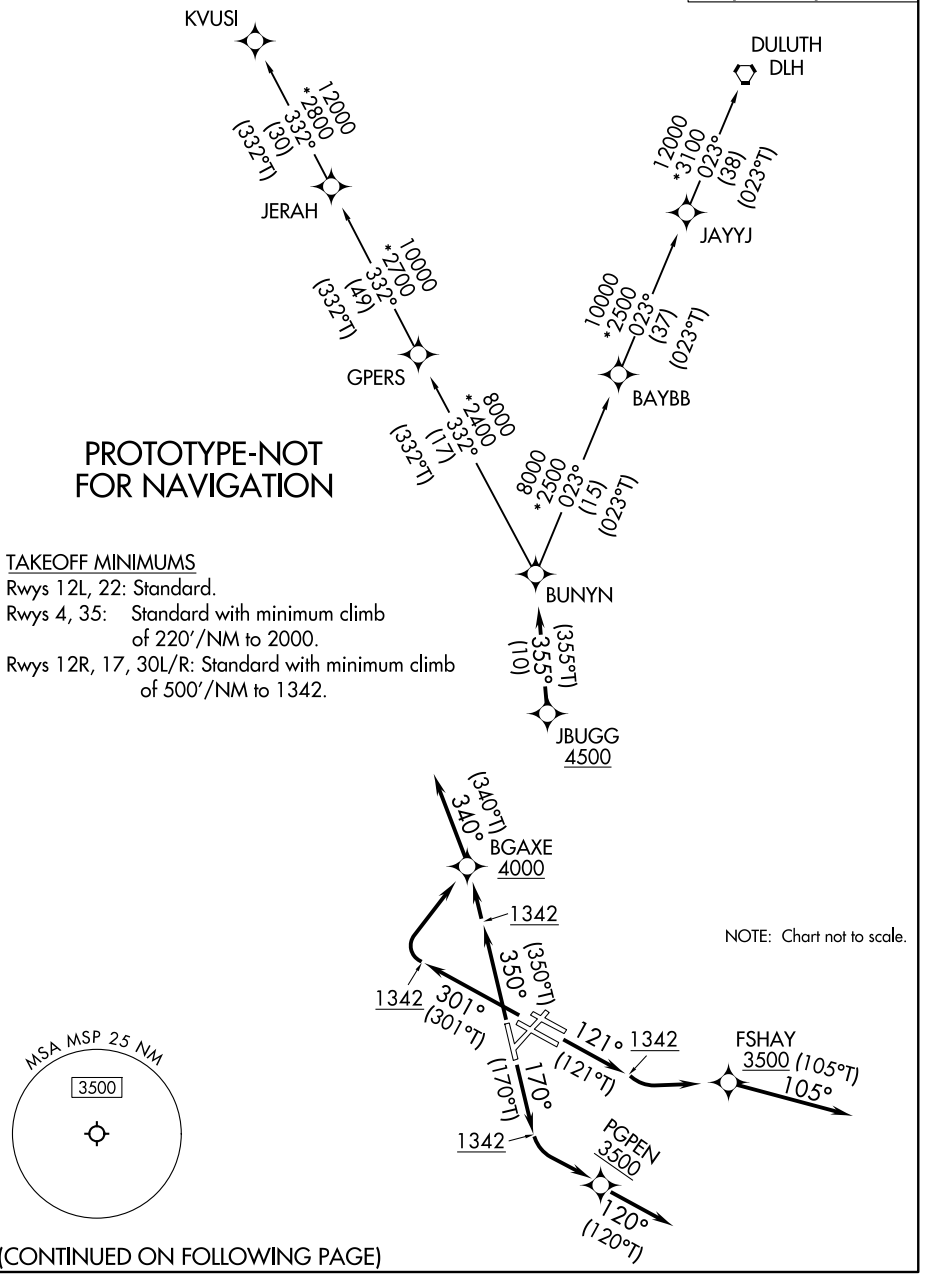
BUNYN ONE DEPARTURE (RNAV)

MINNEAPOLIS DEP CON
SOUTH/EAST 124.7 335.65
NORTH/WEST 125.75 335.65

RNAV 1- DME/DME/IRU or GPS.
RADAR required.

TOP ALTITUDE: (JETS) 7000/ (PROPS) 5000



TAKEOFF MINIMUMS

Rwys 12L, 22: Standard.

Rwys 4, 35: Standard with minimum climb of 220'/NM to 2000.

Rwys 12R, 17, 30L/R: Standard with minimum climb of 500'/NM to 1342.

(CONTINUED ON FOLLOWING PAGE)

DEPARTURE ROUTE DESCRIPTION

TAKEOFF RUNWAYS 4, 22: Climb on assigned heading for vectors to JBUGG, thence . . . .
TAKEOFF RUNWAYS 12L/R: Climb on heading 121° to 1342, then left turn direct FSHAY, cross FSHAY at or above 3500, then on track 105° for vectors to JBUGG, thence . . . .
TAKEOFF RUNWAY 17: Climb on heading 170° to 1342, then left turn direct PGPEN , cross PGPEN at or above 3500, then on track 120° for vectors to JBUGG, thence . . . .
TAKEOFF RUNWAYS 30L/R: Climb on heading 301° to 1342, then right turn direct BGAXE, cross BGAXE at or above 4000, then on track 340° for vectors to JBUGG, thence . . . .
TAKEOFF RUNWAY 35: Climb on heading 350° to 1342, then direct BGAXE, cross BGAXE at or above 4000, then on track 340° for vectors to cross JBUGG, thence . . . .

. . . . cross JBUGG at or above 4500, then on track 355° to BUNYN then on transition. Maintain (jets) 7000/(props) 5000, expect filed altitude 10 minutes after departure.

ALL AIRCRAFT: ATC crossing restrictions and climb gradients: If unable to accept crossing restrictions and climb gradients advise ATC prior to taxi.
RUNWAY 12L: Cross FSHAY at or above 3500, 420'/NM to 3500.
RUNWAY 12R: Cross FSHAY at or above 3500, 400'/NM from 1342 to 3500.
RUNWAY 17: Cross PGPEN at or above 3500, 370'/NM from 1342 to 3500.
RUNWAYS 30L/R: Cross BGAXE at or above 4000, 420'/NM from 1342 to 3500.
RUNWAY 35: Cross BGAXE at or above 4000, 430'/NM to 4000.

DULUTH TRANSITION (BUNYN1.DLH)
KVUSI TRANSITION (BUNYN1.KVUSI)