

**FEDERAL AVIATION ADMINISTRATION  
FLIGHT STANDARDS SERVICE  
RNAV (RNP) STANDARD INSTRUMENT APPROACH PROCEDURE**

**TITLE 14 CFR PART 97.33**

Bearings, headings, courses, tracks and radials are magnetic. Elevations and altitudes are in feet, MSL, except HAT, HAA, TCH, and RA. Altitudes are minimum altitudes unless otherwise indicated.  
Ceilings are in feet above airport elevation. Distances are in nautical miles unless otherwise indicated, except visibilities which are in statute miles or feet RVR.

|  |   |   |  |                                   |                              |                                  |
|--|---|---|--|-----------------------------------|------------------------------|----------------------------------|
| <u><b>AIRPORT ID</b></u><br>KBED       | <u><b>PROCEDURE NAME</b></u><br>RNAV (RNP) Y RWY 11 | <u><b>ORIGINAL/AMENDMENT</b></u><br>1           | <u><b>CITY</b></u><br>BEDFORD                    | <u><b>STATE</b></u><br>MA         |                              |                                  |
| <u><b>AIRPORT ELEVATION</b></u><br>132 | <u><b>TDZE</b></u><br>132                           | <u><b>SUPERSEDED</b></u><br>RNAV (RNP) Y RWY 11 | <u><b>ORIGINAL/AMENDMENT</b></u><br>ORIG-A       | <u><b>DATED</b></u><br>05/25/2017 | <u><b>MAG VAR</b></u><br>16W | <u><b>EPOCH YEAR</b></u><br>1995 |
| <u><b>FACILITY</b></u><br>RNAV         | <u><b>COORDINATES OF FACILITIES</b></u>             | <u><b>ACTUAL EFFECTIVE DATE</b></u>             | <u><b>REQUIRED EFFECTIVE DATE</b></u><br>ROUTINE | <u><b>CANCEL/SUSPEND</b></u>      |                              |                                  |

**TERMINAL ROUTES**

| <u><b>FROM</b></u> | <u><b>FIX TYPE</b></u> | <u><b>TO</b></u> | <u><b>FIX TYPE</b></u> | <u><b>LEG TYPE</b></u> | <u><b>FO/FB</b></u> | <u><b>RNP</b></u> | <u><b>COURSE</b></u>         | <u><b>DISTANCE</b></u> | <u><b>ALTITUDE</b></u> |
|--------------------|------------------------|------------------|------------------------|------------------------|---------------------|-------------------|------------------------------|------------------------|------------------------|
| FOVEG              | IF                     | WIDKA            |                        | TF                     | FB                  | 1.00              | 020.03                       | 5.17                   | 2000                   |
| WIDKA              |                        | URTOQ            |                        | RF                     | FB                  | 1.00              | (2.60 NM RADIUS CW (CFFGN))  | 2.94                   | 1800                   |
| WANLA              | IF                     | CESOL            |                        | TF                     | FB                  | 1.00              | 084.58                       | 6.37                   | 1900                   |
| CESOL              |                        | URTOQ            |                        | TF                     | FB                  | 1.00              | 084.67                       | 3.35                   | 1800                   |
| URTOQ              |                        | JOPVU            |                        | RF                     | FB                  | 1.00              | (4.00 NM RADIUS CW (CFFGP))  | 1.98                   | 1800                   |
| BRONC              |                        | LOBBY            |                        | TF                     | FB                  | 1.00              | 113.22                       | 5.06                   | 2300                   |
| LOBBY              | IAF                    | ZELKA            |                        | TF                     | FB                  | 1.00              | 118.67                       | 2.55                   | 2000                   |
| HIDRI              | IAF                    | ZELKA            |                        | TF                     | FB                  | 1.00              | 202.97                       | 6.00                   | 2000                   |
| ZELKA              | IF                     | JOPVU            |                        | TF                     | FB                  | 1.00              | 112.96                       | 6.24                   | 1800                   |
| LWRNC              | IAF                    | OMIXY            |                        | TF                     | FB                  | 1.00              | 250.10                       | 7.74                   | 2000                   |
| OMIXY              |                        | ZARAB            |                        | TF                     | FB                  | 1.00              | 250.62                       | 5.04                   | 2000                   |
| ZARAB              | IF                     | ILEXE            |                        | TF                     | FB                  | 1.00              | 250.56                       | 6.00                   | 2000                   |
| ILEXE              |                        | JOPVU            |                        | RF                     | FB                  | 1.00              | (2.51 NM RADIUS CCW (CFFGM)) | 6.02                   | 1800                   |
| JOPVU              | PFAF                   | RW11             | MAP                    | TF                     | FO                  | 0.30              | 113.05                       | 5.08                   |                        |
| RW11               | MAP                    | 1000 MSL         |                        | CA                     |                     |                   | 113.05                       |                        | 1000                   |
| 1000 MSL           |                        | ZIMOT            |                        | DF                     | FO                  | 1.00              |                              |                        | 2000                   |



**MISSED APPROACH**

**MAP:**

RNP: DA

**MISSED APPROACH INSTRUCTIONS:**

CLIMB TO 1000 THEN CLIMBING LEFT TURN TO 2000 DIRECT ZIMOT AND HOLD.

**ALTERNATE MISSED APPROACH INSTRUCTIONS:**

**PROFILE:**

|                            |                |                 |                  |          |                   |
|----------------------------|----------------|-----------------|------------------|----------|-------------------|
| 1. PT                      | SIDE OF COURSE | OUTBOUND        | FT WITHIN        | MILES OF | (IAF)             |
| 2. PROFILE STARTS AT JOPVU |                |                 |                  |          |                   |
| 3. FAC:                    | 113.05         | FAF: URTOQ      | DIST FAF TO MAP: |          | DIST FAF TO THLD: |
| 4. MIN ALT:                | JOPVU 1800     |                 |                  |          |                   |
| 5. DIST TO THLD FROM OM:   | 5.08           | MM:             | IM:              | 150 HAT: | 402 HAT: 1.10     |
| GS ANT:                    |                |                 |                  |          |                   |
| 6. MIN GP INCPT:           | 1800           | GP ALT AT FAF : | JOPVU 1800       | OM:      | MM:               |
| IM:                        |                |                 |                  |          |                   |
| 7. GP ANGLE:               | 3.00           | 34:1: IS CLEAR  | 20:1: IS CLEAR   | TCH:     | 50.3              |
| 8. MSA FROM: RW11 3400     |                |                 |                  |          |                   |

**PBN REQUIREMENTS NOTE:**

RNP AR APCH.

**NOTES:**

CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, PROCEDURE NA BELOW -19°C OR ABOVE 54°C.  
CHART PROFILE NOTE: VGSI AND RNAV GLIDEPATH NOT COINCIDENT (VGSI ANGLE {ANGLE}/TCH {FEET}).  
CHART PROFILE NOTE: SEE PLANVIEW FOR MULTIPLE IF LOCATIONS.  
CHART NOTE: FOR INOPERATIVE ALS, INCREASE RNP 0.30 ALL CATS VISIBILITY TO 1 3/8 SM.  
CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVALS AT BRONC ON V431 WESTBOUND.  
CHART PLANVIEW NOTE ADJACENT TO LWRNC IAF: RF REQUIRED.  
CHART PLANVIEW NOTE ADJACENT TO WANLA: RF REQUIRED.  
CHART PLANVIEW NOTE ADJACENT TO FOVEG: RF REQUIRED.  
CHART PLANVIEW NOTE AT FOVEG: MAX 210 KIAS.  
CHART PLANVIEW NOTE AT WANLA: MAX 210 KIAS.  
CHART PLANVIEW NOTE AT HIDRI: MAX 210 KIAS.  
CHART PLANVIEW NOTE AT ZARAB: MAX 210 KIAS.

**ADDITIONAL FLIGHT DATA:**

HOLD NE, LT, 223.97 INBOUND.  
CHART R-4102 A/B.



**MINIMUMS:**

TAKEOFF: SEE FAA FORM 8260-15A FOR THIS AIRPORT

ALTERNATE: NA ☐ STANDARD

| CATEGORY:              | A      |      |         | B      |      |         | C      |      |         | D      |      |         | E      |     |         |
|------------------------|--------|------|---------|--------|------|---------|--------|------|---------|--------|------|---------|--------|-----|---------|
| FINAL TYPE             | DA/MDA | VIS  | HAT/HAA | DA/MDA | VIS  | HAT/HAA | DA/MDA | VIS  | HAT/HAA | DA/MDA | VIS  | HAT/HAA | DA/MDA | VIS | HAT/HAA |
|                        |        |      |         |        |      |         |        |      |         |        |      |         |        |     |         |
|                        |        |      |         |        |      |         |        |      |         |        |      |         |        |     |         |
|                        |        |      |         |        |      |         |        |      |         |        |      |         |        |     |         |
| AUTHORIZATION REQUIRED |        |      |         |        |      |         |        |      |         |        |      |         |        |     |         |
| RNP 0.30 DA            | 534    | 4500 | 402     | 534    | 4500 | 402     | 534    | 4500 | 402     | 534    | 4500 | 402     |        |     |         |

**CHANGES - REASONS**

1. REMOVED ALL REFERENCES TO LWM VOR/DME AND REPLACED WITH LWRNC WP. - LWM VOR/DME DECOMMISSIONED.
2. REMOVED NOTE GPS REQUIRED. - NOTE NO LONGER REQUIRED.
3. REMOVED ROUTE TYPE QUALIFIERS FROM ADDITIONAL FLIGHT DATA. - TYPE QUALIFIERS NO LONGER REQUIRED.
4. ADDED PBN EQUIPMENT REQUIREMENT NOTE "RNP AR APCH". - ADDED IAW 8260.58A CHNG 2 TABLE 1-2-1.
5. DISTANCE FROM HIDRI TO ZELKA CHANGED FROM 5.25 TO 6.00. - HIDRI MOVED 4556.90 FT NORTHEAST.
6. UNCOMPENSATED BARO-VNAV AVERAGE COLD TEMP UPDATED FROM -16 TO -19. - UPDATED 5-YEAR AVERAGE COLD TEMP UTILIZED.

**COORDINATED WITH:**A4A ☒ ALPA ☒ AOPA ☒ APA ☒ HAI ☐ NBAA ☒ OTHER: ZBW, BOS APP CON, BED ATCT, BED AMGR

Digitally signed by

**FLIGHT CHECKED BY**

JEREMY R VIRTIS

**DONALD H LANIER**

Dec 17, 2020

**OFFICE**

FICO

**DATE**

12/16/2020

**DEVELOPED BY**

NICHOLAS K. JACKSON

Digitally signed by

**NICHOLAS JACKSON**

Oct 26, 2020

**OFFICE**

AJV-A431

**DATE**

06/09/2020

**APPROVED BY**

LONNIE EVERHART

Digitally signed by

**DONALD H LANIER**

Dec 17, 2020

**OFFICE**

AJV-A430

**DATE****TITLE**  
MANAGERQUALITY  
10  
CHECKED

FEDERAL AVIATION ADMINISTRATION  
FLIGHT STANDARDS SERVICE  
STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

|                           |  |                      |                        |                    |                                 |                         |
|---------------------------|--|----------------------|------------------------|--------------------|---------------------------------|-------------------------|
| <u>AIRPORT ID</u><br>KBED | <u>PROCEDURE NAME</u><br>RNAV (RNP) Y RWY 11 | <u>AMDT NO.</u><br>1 | <u>CITY</u><br>BEDFORD | <u>STATE</u><br>MA | <u>AIRPORT ELEVATION</u><br>132 | <u>FACILITY</u><br>RNAV |
|---------------------------|--|----------------------|------------------------|--------------------|---------------------------------|-------------------------|

PART A: OBSTRUCTION DATA SEGMENTS

FEEDER

FROM  
BRONC

TO  
LOBBY

| <u>RNP</u><br>2.00 | <u>DISTANCE</u><br>5.06 | <u>PAT</u> | <u>MAP</u>      | <u>HAT</u>  | <u>HMAS</u> |           |            |            |           |             |                    |                |
|--------------------|-------------------------|------------|-----------------|-------------|-------------|-----------|------------|------------|-----------|-------------|--------------------|----------------|
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>      |            | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u> | <u>OCS</u> | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| AAO                | 422909.00N/0714442.00W  |            | 857             | 164         | 98          | 4E        | 1000       |            |           |             | AC98 AT345         | 2300           |
| TERRAIN            | 423212.00N/0714242.00W  |            | 554 (600)       |             |             |           |            |            |           |             | AS1500             | 2100           |

COMPUTATIONS

ALT   KIAS   KTAS   HAA   VKTW   TR   BA   DTA   COURSE CHANGE   DVEB   VEB OCS   RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INITIAL

FROM  
LOBBY

TO  
ZELKA

| <u>RNP</u><br>1.00 | <u>DISTANCE</u><br>2.55 | <u>PAT</u> | <u>MAP</u>      | <u>HAT</u>  | <u>HMAS</u> |           |            |            |           |             |                    |                |
|--------------------|-------------------------|------------|-----------------|-------------|-------------|-----------|------------|------------|-----------|-------------|--------------------|----------------|
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>      |            | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u> | <u>OCS</u> | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| AAO                | 423018.00N/0713330.00W  |            | 850             | 164         | 98          | 4E        | 1000       |            |           |             | AC98               | 2000           |
| TERRAIN            | 423018.00N/0713330.00W  |            | 649 (600)       |             |             |           |            |            |           |             | AS1000             | 1600           |

COMPUTATIONS

ALT   KIAS   KTAS   HAA   VKTW   TR   BA   DTA   COURSE CHANGE   DVEB   VEB OCS   RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



INITIAL

FROM

HIDRI

TO

ZELKA

| RNP         | DISTANCE               | PAT | MAP       | HAT  |      |    | HMAS |     |    |      |             |         |
|-------------|------------------------|-----|-----------|------|------|----|------|-----|----|------|-------------|---------|
| 1.00        | 6.00                   |     |           |      |      |    |      |     |    |      |             |         |
| OBSTRUCTION | COORDINATES            |     | ELEV MSL  | HORZ | VERT | AC | ROC  | OCS | CG | CGTA | ADJUSTMENTS | MIN ALT |
| AAO         | 423018.00N/0713330.00W |     | 850       | 164  | 98   | 4E | 1000 |     |    |      | AC98        | 2000    |
| TERRAIN     | 423018.00N/0713330.00W |     | 649 (600) |      |      |    |      |     |    |      | AS1000      | 1600    |

| COMPUTATIONS | ALT | KIAS | KTAS | HAA | VKTW | TR | BA | DTA | COURSE CHANGE | DVEB | VEB OCS | RF CENTER FIX/DISTANCE |
|--------------|-----|------|------|-----|------|----|----|-----|---------------|------|---------|------------------------|
|--------------|-----|------|------|-----|------|----|----|-----|---------------|------|---------|------------------------|

SEGMENT REMARKS:

INITIAL

FROM

LWRNC

TO

OMIXY

| RNP               | DISTANCE               | PAT | MAP       | HAT  |      |    | HMAS |     |    |      |             |         |
|-------------------|------------------------|-----|-----------|------|------|----|------|-----|----|------|-------------|---------|
| 1.00              | 7.74                   |     |           |      |      |    |      |     |    |      |             |         |
| OBSTRUCTION       | COORDINATES            |     | ELEV MSL  | HORZ | VERT | AC | ROC  | OCS | CG | CGTA | ADJUSTMENTS | MIN ALT |
| TOWER (25-000052) | 424622.00N/0710601.00W |     | 868       | 500  | 50   | 5D | 1000 |     |    |      | AC50        | 2000    |
| TERRAIN           | 423915.00N/0711309.00W |     | 380 (400) |      |      |    |      |     |    |      | AS1500      | 1900    |

| COMPUTATIONS | ALT | KIAS | KTAS | HAA | VKTW | TR | BA | DTA | COURSE CHANGE | DVEB | VEB OCS | RF CENTER FIX/DISTANCE |
|--------------|-----|------|------|-----|------|----|----|-----|---------------|------|---------|------------------------|
|--------------|-----|------|------|-----|------|----|----|-----|---------------|------|---------|------------------------|

SEGMENT REMARKS:



INITIAL: STEPDOWN

FROM  
OMIXY

TO  
ZARAB

| <u>RNP</u>         | <u>DISTANCE</u>        | <u>PAT</u>      | <u>MAP</u>  | <u>HAT</u>  |           |            | <u>HMAS</u> |           |             |                    |                |
|--------------------|------------------------|-----------------|-------------|-------------|-----------|------------|-------------|-----------|-------------|--------------------|----------------|
| 1.00               | 5.04                   |                 |             |             |           |            |             |           |             |                    |                |
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>     | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u> | <u>OCS</u>  | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| TOWER (25-000611)  | 423914.00N/0711300.00W | 807             | 250         | 50          | 4D        | 1000       |             |           |             | AC50 AT143         | 2000           |
| TERRAIN            | 423803.00N/0711342.00W | 360 (400)       |             |             |           |            |             |           |             | AS1500             | 1900           |

| COMPUTATIONS |      |      |     |      |    |    |     |               |      |         |                        |  |  |
|--------------|------|------|-----|------|----|----|-----|---------------|------|---------|------------------------|--|--|
| ALT          | KIAS | KTAS | HAA | VKTW | TR | BA | DTA | COURSE CHANGE | DVEB | VEB OCS | RF CENTER FIX/DISTANCE |  |  |

SEGMENT REMARKS:

INTERMEDIATE

FROM  
FOVEG

TO  
WIDKA

| <u>RNP</u>         | <u>DISTANCE</u>        | <u>PAT</u> | <u>MAP</u>      | <u>HAT</u>  |             |           | <u>HMAS</u> |            |           |             |                    |                |
|--------------------|------------------------|------------|-----------------|-------------|-------------|-----------|-------------|------------|-----------|-------------|--------------------|----------------|
| 1.00               | 5.17                   |            |                 |             |             |           |             |            |           |             |                    |                |
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>     |            | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u>  | <u>OCS</u> | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| TOWER (25-000619)  | 422302.73N/0712935.33W |            | 1462            | 50          | 3           | 2A        | 500         |            |           |             | AC3                | 2000           |
| TERRAIN            | 422136.00N/0713206.00W |            | 515 (500)       |             |             |           |             |            |           |             | AS1500             | 2000           |

| COMPUTATIONS |      |      |     |      |    |    |     |               |      |         |                        |  |  |
|--------------|------|------|-----|------|----|----|-----|---------------|------|---------|------------------------|--|--|
| ALT          | KIAS | KTAS | HAA | VKTW | TR | BA | DTA | COURSE CHANGE | DVEB | VEB OCS | RF CENTER FIX/DISTANCE |  |  |

SEGMENT REMARKS:



INTERMEDIATE: STEPDOWN

FROM  
WIDKA

TO  
URTOQ

| <u>RNP</u><br>1.00 | <u>DISTANCE</u><br>2.94 | <u>PAT</u> | <u>MAP</u>      | <u>HAT</u>  |             |           | <u>HMAS</u> |            |           |             |                    |                |
|--------------------|-------------------------|------------|-----------------|-------------|-------------|-----------|-------------|------------|-----------|-------------|--------------------|----------------|
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>      |            | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u>  | <u>OCS</u> | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| AAO                | 422942.00N/0713018.00W  |            | 663             | 164         | 98          | 4E        | 500         |            |           |             | AC98 AT539         | 1800           |
| TERRAIN            | 422633.00N/0713106.00W  |            | 515 (500)       |             |             |           |             |            |           |             | AS1000             | 1500           |

| COMPUTATIONS |      |      |        |        |      |      |       |     |               |      |         |                        |
|--------------|------|------|--------|--------|------|------|-------|-----|---------------|------|---------|------------------------|
| RF SEGMENT   | ALT  | KIAS | KTAS   | HAA    | VKTW | TR   | BA    | DTA | COURSE CHANGE | DVEB | VEB OCS | RF CENTER FIX/DISTANCE |
| WIDKA-URTOQ  | 3028 | 210  | 225.38 | 2896.4 | 53   | 2.60 | 23.46 | 0   | 0             |      |         | (CFFGN)/2.94           |

SEGMENT REMARKS:

INTERMEDIATE

FROM  
WANLA

TO  
CESOL

| <u>RNP</u>         | <u>DISTANCE</u>        | <u>PAT</u>      | <u>MAP</u>  | <u>HAT</u>  |           |            | <u>HMAS</u> |           |             |                    |                |
|--------------------|------------------------|-----------------|-------------|-------------|-----------|------------|-------------|-----------|-------------|--------------------|----------------|
| 1.00               | 6.37                   |                 |             |             |           |            |             |           |             |                    |                |
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>     | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u> | <u>OCS</u>  | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| AAO                | 422709.00N/0713642.00W | 889             | 164         | 98          | 4E        | 500        |             |           |             | AC98 AT413         | 1900           |
| TERRAIN            | 422709.00N/0713642.00W | 688 (700)       |             |             |           |            |             |           |             | AS1000             | 1700           |

| COMPUTATIONS |     |      |      |     |      |    |    |     |               |      |         |                        |
|--------------|-----|------|------|-----|------|----|----|-----|---------------|------|---------|------------------------|
|              | ALT | KIAS | KTAS | HAA | VKTW | TR | BA | DTA | COURSE CHANGE | DVEB | VEB OCS | RF CENTER FIX/DISTANCE |

SEGMENT REMARKS:



INTERMEDIATE: STEPDOWN

FROM  
CESOL

TO  
URTOQ

| <u>RNP</u><br>1.00 | <u>DISTANCE</u><br>3.35 | <u>PAT</u> | <u>MAP</u>      | <u>HAT</u>  |             |           | <u>HMAS</u> |            |           |             |                    |                |
|--------------------|-------------------------|------------|-----------------|-------------|-------------|-----------|-------------|------------|-----------|-------------|--------------------|----------------|
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>      |            | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u>  | <u>OCS</u> | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| AAO                | 422933.00N/0713115.00W  |            | 699             | 164         | 98          | 4E        | 500         |            |           |             | AT503 AC98         | 1800           |
| TERRAIN            | 422633.00N/0713106.00W  |            | 515 (500)       |             |             |           |             |            |           |             | AS1000             | 1500           |

| COMPUTATIONS |      |      |     |      |    |    |     |               |      |         |                        |  |  |
|--------------|------|------|-----|------|----|----|-----|---------------|------|---------|------------------------|--|--|
| ALT          | KIAS | KTAS | HAA | VKTW | TR | BA | DTA | COURSE CHANGE | DVEB | VEB OCS | RF CENTER FIX/DISTANCE |  |  |

SEGMENT REMARKS:

INTERMEDIATE: STEPDOWN

FROM  
URTOQ

TO  
JOPVU

| <u>RNP</u>         | <u>DISTANCE</u>        | <u>PAT</u>      | <u>MAP</u>  | <u>HAT</u>  |           |            | <u>HMAS</u> |           |             |                    |                |
|--------------------|------------------------|-----------------|-------------|-------------|-----------|------------|-------------|-----------|-------------|--------------------|----------------|
| 1.00               | 1.98                   |                 |             |             |           |            |             |           |             |                    |                |
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>     | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u> | <u>OCS</u>  | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| AAO                | 423024.00N/0712633.00W | 624             | 164         | 98          | 4E        | 500        |             |           |             | AC98 AT578         | 1800           |
| TERRAIN            | 423024.00N/0712636.00W | 423 (400)       |             |             |           |            |             |           |             | AS1000             | 1400           |

| COMPUTATIONS |      |      |       |         |       |      |       |     |               |      |         |                        |  |
|--------------|------|------|-------|---------|-------|------|-------|-----|---------------|------|---------|------------------------|--|
| RF SEGMENT   | ALT  | KIAS | KTAS  | HAA     | VKTW  | TR   | BA    | DTA | COURSE CHANGE | DVEB | VEB OCS | RF CENTER FIX/DISTANCE |  |
| URTOQ-JOPVU  | 2295 | 210  | 222.9 | 2162.56 | 51.54 | 4.00 | 15.35 | 0   | 0             |      |         | (CFFGP)/1.98           |  |

SEGMENT REMARKS:





INTERMEDIATE

FROM  
ZELKA

TO  
JOPVU

| <u>RNP</u>         | <u>DISTANCE</u>        | <u>PAT</u> | <u>MAP</u>      | <u>HAT</u>  |             |           | <u>HMAS</u> |            |           |             |                    |                |
|--------------------|------------------------|------------|-----------------|-------------|-------------|-----------|-------------|------------|-----------|-------------|--------------------|----------------|
| 1.00               | 6.24                   |            |                 |             |             |           |             |            |           |             |                    |                |
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>     |            | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u>  | <u>OCS</u> | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| AAO                | 423018.00N/0713330.00W |            | 850             | 164         | 98          | 4E        | 500         |            |           |             | AC98 AT352         | 1800           |
| TERRAIN            | 423103.00N/0713251.00W |            | 623 (600)       |             |             |           |             |            |           |             | AS1000             | 1600           |

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INTERMEDIATE

FROM  
ZARAB

TO  
ILEXE

| <u>RNP</u><br>1.00 | <u>DISTANCE</u><br>6.00 | <u>PAT</u> | <u>MAP</u>      | <u>HAT</u>  |             |           | <u>HMAS</u> |            |           |             |                    |                |
|--------------------|-------------------------|------------|-----------------|-------------|-------------|-----------|-------------|------------|-----------|-------------|--------------------|----------------|
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>      |            | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u>  | <u>OCS</u> | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| AAO                | 423436.00N/0712630.00W  |            | 670             | 164         | 98          | 4E        | 500         |            |           |             | AC98               | 1300           |
| TERRAIN            | 423436.00N/0712630.00W  |            | 469 (500)       |             |             |           |             |            |           |             | AS1500             | 2000           |

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



INTERMEDIATE: STEPDOWN

FROM

ILEXE

TO

JOPVU

| <u>RNP</u>         | <u>DISTANCE</u>        | <u>PAT</u> | <u>MAP</u>      | <u>HAT</u>  |             |           | <u>HMAS</u> |            |           |             |                    |                |
|--------------------|------------------------|------------|-----------------|-------------|-------------|-----------|-------------|------------|-----------|-------------|--------------------|----------------|
| 1.00               | 6.02                   |            |                 |             |             |           |             |            |           |             |                    |                |
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>     |            | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u>  | <u>OCS</u> | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| AAO                | 423057.00N/0712839.00W |            | 676             | 164         | 98          | 4E        | 500         |            |           |             | AT526 AC98         | 1800           |
| TERRAIN            | 423057.00N/0712839.00W |            | 475 (500)       |             |             |           |             |            |           |             | AS1000             | 1500           |

| <u>COMPUTATIONS</u> |             |             |            |             |           |           |            |                      |             |                |                               |  |
|---------------------|-------------|-------------|------------|-------------|-----------|-----------|------------|----------------------|-------------|----------------|-------------------------------|--|
| <u>ALT</u>          | <u>KIAS</u> | <u>KTAS</u> | <u>HAA</u> | <u>VKTW</u> | <u>TR</u> | <u>BA</u> | <u>DTA</u> | <u>COURSE CHANGE</u> | <u>DVEB</u> | <u>VEB OCS</u> | <u>RF CENTER FIX/DISTANCE</u> |  |

SEGMENT REMARKS:

FINAL

FROM

JOPVU

TO

RW11

| <u>RNP</u>         | <u>DISTANCE</u>        | <u>PAT</u> | <u>MAP</u>      | <u>HAT</u>  |             |           | <u>HMAS</u> |            |           |             |                    |                |
|--------------------|------------------------|------------|-----------------|-------------|-------------|-----------|-------------|------------|-----------|-------------|--------------------|----------------|
| 0.30               | 5.08                   |            | RW11            | 402         |             |           |             |            |           |             |                    |                |
| <u>OBSTRUCTION</u> | <u>COORDINATES</u>     |            | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u>  | <u>OCS</u> | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
| TREE (25-034656)   | 422834.97N/0711908.66W |            | 257             | 20          | 3           | 1A        |             | 22.11:1    |           |             | AC3                | 534            |

| <u>COMPUTATIONS</u> |            |             |             |            |             |           |           |            |                      |             |                |                               |
|---------------------|------------|-------------|-------------|------------|-------------|-----------|-----------|------------|----------------------|-------------|----------------|-------------------------------|
| <u>TF TURN FIX</u>  | <u>ALT</u> | <u>KIAS</u> | <u>KTAS</u> | <u>HAA</u> | <u>VKTW</u> | <u>TR</u> | <u>BA</u> | <u>DTA</u> | <u>COURSE CHANGE</u> | <u>DVEB</u> | <u>VEB OCS</u> | <u>RF CENTER FIX/DISTANCE</u> |
|                     | 1800       | 165         | 173.84      | 1668       | 30          | 0.00      | 0         | 0          | 0                    | 3769.59     | 22.11:1        |                               |

SEGMENT REMARKS:



MISSED APPROACH

FROM

RW11

TO

| <u>RNP</u><br>0.30-1.00 | <u>DISTANCE</u>        | <u>PAT</u>      | <u>MAP</u>  | <u>HAT</u>  |           |            | <u>HMAS</u> |           |             |                    |                |
|-------------------------|------------------------|-----------------|-------------|-------------|-----------|------------|-------------|-----------|-------------|--------------------|----------------|
| <u>OBSTRUCTION</u>      | <u>COORDINATES</u>     | <u>ELEV MSL</u> | <u>HORZ</u> | <u>VERT</u> | <u>AC</u> | <u>ROC</u> | <u>OCS</u>  | <u>CG</u> | <u>CGTA</u> | <u>ADJUSTMENTS</u> | <u>MIN ALT</u> |
|                         |                        |                 |             |             |           |            | ASC         |           |             |                    |                |
| TOWER (25-000611)       | 423914.00N/0711300.00W | 807             | 250         | 50          | 4D        | 1000       |             |           |             | AC50               | 1900           |
| TERRAIN                 | 422709.00N/0711315.00W | 406 (400)       |             |             |           |            |             |           |             | AS1500             | 1900           |

COMPUTATIONS

ALT

KIAS

KTAS

HAA

VKTW

TR

BA

DTA

COURSE CHANGE

DVEB

VEB OCS

RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

CIRCLING

☐ ALL CATS

☐ CAT A

☐ CAT B

☐ CAT C

☐ CAT D

☐ CAT E

☒ NOT AUTHORIZED

MSA

CENTER

RW11

RADIUS

25

| SECTOR  | OBSTRUCTION | COORDINATES            | BEARING | DISTANCE | ELEV MSL | HORZ | VERT | AC | ROC  | OCS | ADJUSTMENTS | MIN ALT |
|---------|-------------|------------------------|---------|----------|----------|------|------|----|------|-----|-------------|---------|
| 360-360 | AAO         | 422921.00N/0715312.00W | 288     | 26.1     | 2215     | 164  | 98   | 4E | 1000 |     | AC98        | 3400    |

MSA REMARKS:

NOTES/EXPLANATIONS FROM PROCEDURE SEGMENTS:

SEGMENT FROM BRONC TO LOBBY UPDATED TO INITIAL SEGMENT WITH STEPDOWN DUE TO LEG LENGTH REQUIREMENTS FROM LOBBY TO ZELKA FOR VECTORS. DUE TO R-4102A/B, PRIOR COORDINATION REQUIRED WITH CONTROLLING AGENCY REQUIRED.

WANLA TRANSITION TIED TO DREEM (RNAV) STAR.

MAX SPEED ZARAB TO ILEXE, ILEXE TO JOPVU, WANLA TO CESOL, CESOL TO URTOQ, FOVEG TO WIDKA, WIDKA TO URTOQ, URTOQ TO JOPVU - 210 KIAS.



PART B: SUPPLEMENTAL DATA

COMMUNICATIONS WITH  
BED TOWER, BOS APP CON, ZBW ARTCC

|                                   |                         |                            |                                 |                          |                       |                         |
|-----------------------------------|-------------------------|----------------------------|---------------------------------|--------------------------|-----------------------|-------------------------|
| <u>WX SERVICE</u><br>ASOS         | <u>LOCATION</u><br>KBED | <u>HRS OPERATION</u><br>24 | <u>ALTIMETER SOURCE</u><br>KBED | <u>DISTANCE</u><br>0     | <u>SERVICE-A</u><br>Y | <u>ADJUSTMENTS</u><br>0 |
| <u>BACK-UP WX SERVICE</u><br>ASOS | <u>LOCATION</u><br>KBOS | <u>HRS OPERATION</u><br>24 | <u>ALTIMETER SOURCE</u><br>KBOS | <u>DISTANCE</u><br>14.08 | <u>SERVICE-A</u><br>Y | <u>ADJUSTMENTS</u><br>0 |

WX REMARKS:

|  |                      |                        |                            |
|--|----------------------|------------------------|----------------------------|
| <u>PRIMARY NAVAID</u>                      | <u>MONITOR POINT</u> | <u>HRS OPERATION</u>   | <u>CAT</u>                 |
| <u>APPROACH AND RUNWAY LIGHTING SYSTEM</u> |                      | <u>RUNWAY MARKINGS</u> | <u>RUNWAY VISUAL RANGE</u> |
| RW05 - MIRL (PCL), REIL, VASI-4L           |                      | NPI-G                  |                            |
| RW23 - MIRL (PCL), REIL, VASI-4R           |                      | NPI-G                  |                            |
| RW11 - MALSR (PCL), HIRL (PCL), PAPI-4L    |                      | PIR-G                  | APPROACH                   |
| RW29 - MALSR (PCL), HIRL (PCL), PAPI-4R    |                      | PIR-G                  | ROLL OUT                   |

|                                 |                                  |                    |                        |                          |                           |                    |
|---------------------------------|----------------------------------|--------------------|------------------------|--------------------------|---------------------------|--------------------|
| <u>GLIDESLOPE ANGLE</u><br>3.00 | <u>ELEV RWY THRESHOLD</u><br>132 | <u>TCH</u><br>50.3 | <u>ELEV GS ANTENNA</u> | <u>DISTANCE FROM RWY</u> | <u>VGSI ANGLE</u><br>3.00 | <u>TCH</u><br>67.0 |
|---------------------------------|----------------------------------|--------------------|------------------------|--------------------------|---------------------------|--------------------|

FINAL APPROACH COURSE AIMING

|                  |                                     |                    |                              |
|------------------|-------------------------------------|--------------------|------------------------------|
| RUNWAY THRESHOLD | <input checked="" type="checkbox"/> | FT FROM THRESHOLD  | DISPLACED THRESHOLD DISTANCE |
| ON CENTERLINE    | <input checked="" type="checkbox"/> | FT FROM CENTERLINE |                              |

CRITICAL TEMPERATURES

|                             |                              |                    |                           |
|-----------------------------|------------------------------|--------------------|---------------------------|
| <u>CRITICAL LOW</u><br>-19C | <u>CRITICAL HIGH</u><br>+54C | <u>ACT</u><br>-22C | <u>APT ISA</u><br>+14.74C |
|-----------------------------|------------------------------|--------------------|---------------------------|

CRITICAL TEMPERATURE REMARKS:

AVERAGE COLD TEMPERATURE DERIVED FROM 5-YEAR HISTORY (2015-2019).  
CRITICAL LOW TEMPERATURE BASED ON ACT.  
DESCENT RATE (FPM): STANDARD TEMP 957 HIGH TEMP 1262.

"VISUAL PORTION OF FINAL" PENETRATIONS

HELICOPTER 'VISUAL PORTION OF FINAL' PENETRATIONS



and/or  
**5280-FT "PROCEED VFR" SEGMENT LEVEL SURFACE AREA PENETRATIONS**

|                              |
|------------------------------|
| <b>PENETRATIONS REMARKS:</b> |
|                              |

**PART C: GENERAL REMARKS:**  
VDP NOT ESTABLISHED - RNP APCH.  
PRECIPITOUS TERRAIN EVALUATION COMPLETED.



|   |  |                                  |                                    |                                |   |                                     |
|---|--|----------------------------------|------------------------------------|--------------------------------|---|-------------------------------------|
| <div>AIRPORT ID</div> <div>KBED</div>   | <div>PROCEDURE NAME</div> <div>RNAV (RNP) Y RWY 11</div> | <div>AMDT NO.</div> <div>1</div> | <div>CITY</div> <div>BEDFORD</div> | <div>STATE</div> <div>MA</div> | <div>AIRPORT ELEVATION</div> <div>132</div> | <div>FACILITY</div> <div>RNAV</div> |
| PART D: AIRSPACE  |  |                                  |                                    |                                |   |                                     |
| DOCKET #  |  |                                  |                                    |                                |   |                                     |
| ALL DISTANCES TO 1/100NM; ELEVATION TO NEAREST 100 FEET; COORDINATES TO 1/100 SECOND; DEG TO 1/100 DEGREE |  |                                  |                                    |                                |   |                                     |
| DISTANCE FROM   | THLD   | TO 1000FT POINT                  | 3.82                               |                                |   |                                     |
| WIDTH OF  | FINAL  | SEGMENT AT 1000FT POINT          | 1.20                               |                                |   |                                     |
| TRUE COURSE OF  | FINAL  | SEGMENT CONTAINING 1000FT POINT  | 097.05                             |                                |   |                                     |
| HIGH TERRAIN IN   | FINAL  | SEGMENT CONTAINING 1000FT POINT  | 400                                |                                |   |                                     |
| DISTANCE FROM   | THLD   | TO 1500FT POINT                  | 6.02                               |                                |   |                                     |
| WIDTH OF  | INTERMEDIATE   | SEGMENT AT 1500FT POINT          | 4.00                               |                                |   |                                     |
| TRUE COURSE OF  | INTERMEDIATE   | SEGMENT CONTAINING 1500FT POINT  | 096.96                             |                                |   |                                     |
| HIGH TERRAIN IN   | INTERMEDIATE   | SEGMENT CONTAINING 1500FT POINT  | 600                                |                                |   |                                     |
| THRESHOLD<br>COORDINATES<br>(IF STR-IN)   | 422818.57N/0711801.23W                                   |                                  |                                    |                                |   |                                     |
| ARP COORDINATES   | 422811.80N/0711720.40W                                   |                                  |                                    |                                |   |                                     |
| RUNWAY APCH END<br>AND DIST FURTHEST<br>FROM ARP  | RUNWAY 29 DISTANCE 0.64 NM                               |                                  |                                    |                                |   |                                     |
| FAF<br>COORDINATES  | 422856.21N/0712449.96W                                   |                                  |                                    |                                |   |                                     |
| FIX NAME<br>COORDINATES   |  |                                  |                                    |                                |   |                                     |
| REMARKS   |  |                                  |                                    |                                |   |                                     |

QUALITY

10

CHECKED

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Electronic Version

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PART E: PREPARED BY

|                                    |                           |                           |   |
|------------------------------------|---------------------------|---------------------------|---|
| <u>NAME</u><br>NICHOLAS K. JACKSON | <u>OFFICE</u><br>AJV-A431 | <u>DATE</u><br>06/09/2020 | <u>TITLE</u><br>AERONAUTICAL INFORMATION SPECIALIST |
|------------------------------------|---------------------------|---------------------------|---|

