Flight Procedure Tracking Form	Action: FLIGHT CHECK	Task Type: IAP	Date Open: 03/09/2011	Task #: 2011030930453501001	Request #: 20110309304535
Procedure: RNAV (RNP) Z RWY 16 L ORIG		Airport ID: KSEA	**Airport:** SEATTLE-TACOMA INTL		Reimbursable #:
City: SEATTLE	**ST:** WA	GPS #:		Estimated Chart Date: 03/07/2013	FICO #:
Fac ID:	**Fac. Type:** RNP		**Specialist:** JON DENTON		

Procedure Review

	Rec'd	Rel'd	Full Name	Comments
Lead:	08/17/2012	11/20/2012	LONNIE EVERHART	
QA:	11/20/2012	11/20/2012	SCOTT BEARD	
Liaison:	11/20/2012		Spurlin	WAIVER

PL

ESV REQUEST INCLUDED

pkg 1 of 1

Procedure Comments: ENROUTE **Remark Type:** INFORMATION

SEATTLE, WA SEATTLE-TACOMA INTL (KSEA) RNAV (RNP) Z RWY 16L, ORIG (RNP) ENROUTE-YES FC: 1.8.13 PUB: 3.7.13

ATTACHED FORMS: ESV REPORTS; 8260-3; 8260-10; 8260-9; 8260-2(S): CAKCA, ORIG; CFBRH, ORIG; CFBRJ, ORIG; CFBRK, ORIG; COPEX, ORIG; DGLAS-INT, REV 6; DLTNN, REV 1; FERIE, REV 1; GRIFY, REV 1; HEGEM, REV 1; HELZR-INT, REV 5; KARFO-INT, REV 4; KENMO-INT, REV 4; MILLT-INT, REV 11; MOONZ, ORIG; NOVNE, ORIG; PPAUL, REV 1; RAYUU, REV 1; SEGAW, REV 1; VASHN, ORIG; YORUC, ORIG; (INFO ONLY) PAINE (PAE) VDME, REV 7.

CONTACT: PETE GETZ/LONNIE EVERHART-AVN-130 LEADS, 405.954.2079/ 405.954.4576.

RNAV (RNP) Z RWY 16L

SEATTLE-TACOMA INTL (SEA)

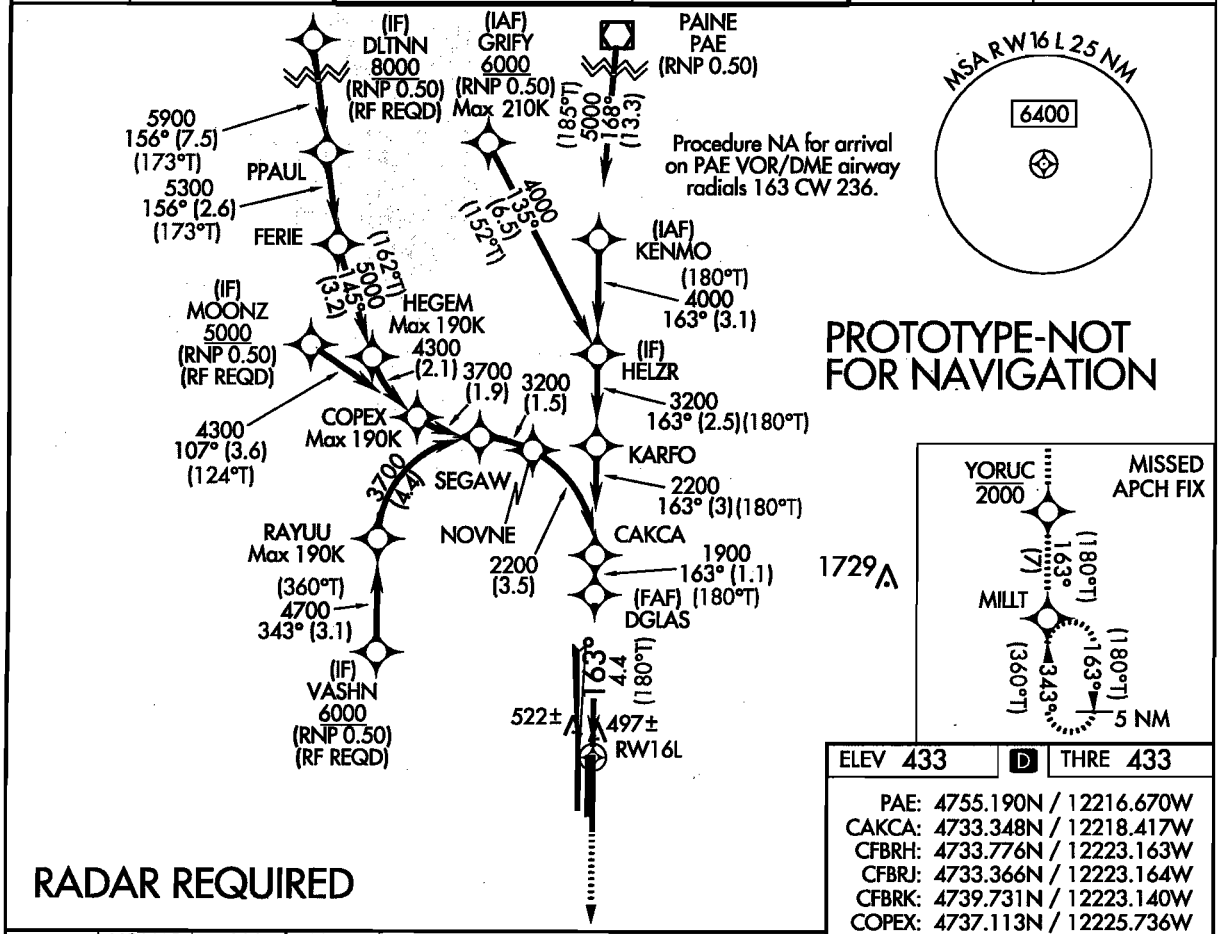
APP CRS	Rwy Idg	11901
163°	THRE	433
	Apt Elev	433

For uncompensated Baro-VNAV systems, procedure NA below -8°C (18°F) or above 54°C (130°F). For inop ALSF, increase RNP 0.12 all Cats visibility to RVR 6000, and RNP 0.30 all Cats visibility to 1¼. Simultaneous approach authorized with Rwy16R, except for arrivals at DLTNN, MOONZ and VASHN. GPS Required. Use of FD or AP providing RNAV track guidance required during simultaneous operations.

ALSF-2

MISSED APPROACH: Climb direct YORUC to cross YORUC at or below 2000, then climb to 5000 on track 163° to MILLT and hold, continue climb-in-hold to 5000.

ATIS	SEATTLE APP CON	SEATTLE TOWER	GND CON	CLNC DEL
118.0	133.65 273.45	119.9 239.3 (Rwys 16C/34C, 16L/34R) 120.95 239.3 (Rwy 16R/34L)	121.7	128.0



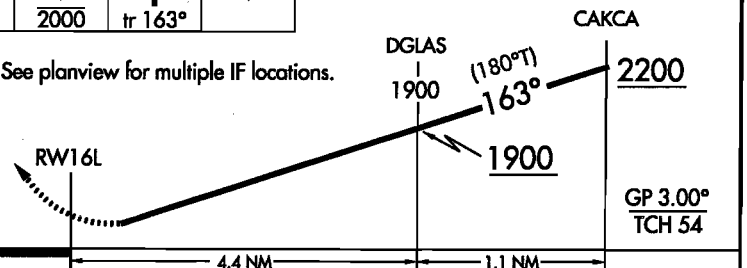
PROTOTYPE-NOT FOR NAVIGATION

1729A

RADAR REQUIRED

YORUC	5000	MILLT
2000	tr 163°	

VGSI and RNAV glidepath not coincident (VGSI Angle 3.00/TCH 79).



CATEGORY	A	B	C	D
RNP 0.12 DA		767/40	334 (400-¾)	
RNP 0.30 DA		811/40	378 (400-¾)	

AUTHORIZATION REQUIRED

ELEV 433	D	THRE 433

PAE:	4755.190N / 12216.670W
CAKCA:	4733.348N / 12218.417W
CFBRH:	4733.776N / 12223.163W
CFBRJ:	4733.366N / 12223.164W
CFBRK:	4739.731N / 12223.140W
COPEX:	4737.113N / 12225.736W
DGLAS:	4732.265N / 12218.426W
DLTNN:	4751.845N / 12230.966W
FERIE:	4741.834N / 12229.037W
GRIFY:	4744.640N / 12222.872W
HEGEM:	4738.766N / 12227.580W
HELZR:	4738.855N / 12218.368W
KARFO:	4736.345N / 12218.390W
KENMO:	4741.993N / 12218.341W
MILLT:	4715.129N / 12218.480W
MOONZ:	4739.095N / 12230.115W
NOVNE:	4736.220N / 12220.982W
PPAUL:	4744.373N / 12229.528W
RAYUU:	4733.786N / 12227.304W
SEGAW:	4736.579N / 12223.152W
VASHN:	4730.690N / 12227.322W
YORUC:	4722.091N / 12218.515W
RW16L:	4727.828N / 12218.465W

HIRL all Rwys
TDZ/CL Rwys 16L, 16C, 16R and 34R

ESV Details

Originating Office :	Airspace Docket Number :	Request Type : Establish	
Facility Data			
Chart Name : SEATTLE	City : SEATTLE	Ident : SNQ	State : WA
Type/Class : GS	Frequency : M335	Reference No.: 12108820	

Expanded Service Volume Data: (Requesting Officer)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude
FAA 981618-004	343	0	12	40	48

Requirement: HELZR FIX ON RWY KSEA RWY 16L GS.		
Signature: Denton Jon	Routing Symbol: AJV-354	Date: 10/10/2012

Expanded Service Volume Data: (FMO)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 981618-004	343	0	12	40	48	APPROVE

Requirement/Remarks: HELZR FIX ON RWY KSEA RWY 16L GS.APPROVED. PEND. FLIGHT CHK/INSPECT @ THE REQ. DIST. AND MIN ALT.		
Signature: ORear Daniel	Routing Symbol:	Date: 10/11/2012

Expanded Service Volume Data: (Super FMO)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 981618-004	343	0	12	40	48	APPROVE

Requirement/Remarks: HELZR FIX ON RWY KSEA RWY 16L GS.APPROVED. PEND. FLIGHT CHK/INSPECT @ THE REQ. DIST. AND MIN ALT.		
Signature: Hughes Dennis	Routing Symbol:	Date: 10/12/2012

Expanded Service Volume Data: (FIFO)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 981618-004	343	0				

Requirement/Remarks:		
Signature:	Routing Symbol:	Date:

ESV Details

Originating Office :	Airspace Docket Number :	Request Type : Establish	
Facility Data			
Chart Name : SEATTLE	City : SEATTLE	Ident : SNQ	State : WA
Type/Class : GS	Frequency : M335	Reference No.: 12108840	

Expanded Service Volume Data: (Requesting Officer)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude
FAA 981618-005	343	0	15	50	50

Requirement: KENMO FIX ON RWY KSEA RWY 16L GS.		
Signature: Denton Jon	Routing Symbol: AJV-354	Date: 10/10/2012

Expanded Service Volume Data: (FMO)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 981618-005	343	0	15	50	50	APPROVE

Requirement/Remarks: KENMO FIX ON RWY KSEA RWY 16L GS.APPROVED. PEND. FLIGHT CHK/INSPECT @ THE REQ. DIST. AND MIN ALT.		
Signature: ORear Daniel	Routing Symbol:	Date: 10/11/2012

Expanded Service Volume Data: (Super FMO)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 981618-005	343	0	15	50	50	APPROVE

Requirement/Remarks: KENMO FIX ON RWY KSEA RWY 16L GS.APPROVED. PEND. FLIGHT CHK/INSPECT @ THE REQ. DIST. AND MIN ALT.		
Signature: Hughes Dennis	Routing Symbol:	Date: 10/12/2012

Expanded Service Volume Data: (FIFO)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 981618-005	343	0				

Requirement/Remarks:		
Signature:	Routing Symbol:	Date:

ESV Details

Originating Office :	Airspace Docket Number :	Request Type : Establish	
Facility Data			
Chart Name : SEATTLE	City : SEATTLE	Ident : SNQ	State : WA
Type/Class : LOC	Frequency : M110.3	Reference No.: 12108841	

Expanded Service Volume Data: (Requesting Officer)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude
FAA 980264-005	343	0	17	50	50

Requirement: KENMO FIX ON RWY KSEA RWY 16L GS.		
Signature: Denton Jon	Routing Symbol: AJV-354	Date: 10/10/2012

Expanded Service Volume Data: (FMO)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 980264-005	343	0	17	50	50	APPROVE

Requirement/Remarks: KENMO FIX ON RWY KSEA RWY 16L GS.APPROVED. PEND. FLIGHT CHK/INSPECT @ THE REQ. DIST. AND MIN ALT.		
Signature: ORear Daniel	Routing Symbol:	Date: 10/11/2012

Expanded Service Volume Data: (Super FMO)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 980264-005	343	0	17	50	50	APPROVE

Requirement/Remarks: KENMO FIX ON RWY KSEA RWY 16L GS.APPROVED. PEND. FLIGHT CHK/INSPECT @ THE REQ. DIST. AND MIN ALT.		
Signature: Hughes Dennis	Routing Symbol:	Date: 10/12/2012

Expanded Service Volume Data: (FIFO)

ESV ID	Radial 1	Radial 2	Distance	Minimum Altitude	Maximum Altitude	Action Type
FAA 980264-005	343	0				

Requirement/Remarks:		
Signature:	Routing Symbol:	Date:

US DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

RNAV (RNP) - STANDARD, INSTRUMENT APPROACH PROCEDURE, TITLE 14 CFR PART 97.33

Bearings, headings, courses, 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 in feet RVR.

TERMINAL ROUTES

FROM	TO	COURSE AND DISTANCE	ALTITUDE
PAE VOR/DME	KENMO (TF) (FB) (RNP 1.00)	167.88 / 13.25	5000
KENMO (IAF)	HELZR (TF) (FB) (RNP 1.00)	163.34 / 3.14	4000
GRIFY (IAF)	HELZR (TF) (FB) (RNP 1.00)	135.25 / 6.54	4000
HELZR (IF)	KARFO (TF) (FB) (RNP 0.70)	163.34 / 2.51	3200
KARFO	CAKCA (TF) (FB) (RNP 0.70)	163.34 / 3.00	2200
(SEE FORM 8260-10)			

MISSED APPROACH

RNP: DA

CLIMB DIRECT YORUC TO CROSS YORUC AT OR BELOW 2000, THEN CLIMB TO 5000 ON TRACK 162.80 TO MILLT AND HOLD, CONTINUE CLIMB-IN-HOLD TO 5000.

1. PT ____ SIDE OF COURSE ____ OUTBOUND ____ FT WITHIN ____ MILES OF ____ (IAF)
2. PROFILE STARTS AT CAKCA
3. FAC: 163.34 FAF: ____ DIST FAF TO MAP: ____ THLD: ____
4. MIN. ALT: CAKCA 2200, DGLAS 1900
5. DIST TO THLD FROM OM: 4.44 MM: ____ IM: ____ 150 HAT: ____ 100 HAT: ____ GS ANT: ____
6. MIN GS INCPT: 1900 GS ALT AT: DGLAS 1900 OM: ____ MM: ____ IM: ____
7. GS ANGLE: 3.00 TCH: 53.6# 34:1 IS NOT CLEAR
8. MSA FROM: RW16L 6400

ADDITIONAL FLIGHT DATA:
HOLD S, RT, 342.66 INBOUND.
CHART FAS OBST: 497 TREE 472820N/1221816W
CHART FAS OBST: 522 TREE 472831N/1221916W
CHART LOC RWY 16R
DISTANCE TO THLD FROM 334 HATH: 0.88 NM.
#TCH 486.1 MSL (DO NOT CHART)
ROUTE TYPE: A, H
ROUTE TYPE QUALIFIER 1: F
ROUTE TYPE QUALIFIER 2: S
CHART MAXIMUM 2000 AT YORUC.
CHART AT OR ABOVE 6000 AT VASHN.
CHART AT OR ABOVE 6000 AT GRIFY.
CHART AT OR ABOVE 5000 AT MOONZ.
CHART AT OR ABOVE 8000 AT DLTNN.

MAG VAR: 17E EPOCH YEAR: 2010

MINIMUMS

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

CATEGORY =====>	A			B			C			D			E		
	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA
AUTHORIZATION REQUIRED															
RNP 0.12 DA	767	4000	334	767	4000	334	767	4000	334	767	4000	334			
RNP 0.30 DA	811	4000	378	811	4000	378	811	4000	378	811	4000	378			

NOTES:
CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, PROCEDURE NA BELOW -8C (18F) OR ABOVE 54C (130F).
CHART NOTE: FOR INOPERATIVE ALSF, INCREASE RNP 0.12 ALL CATS VISIBILITY TO RVR 6000, AND RNP 0.30 ALL CATS VISIBILITY TO 1 1/4.
CHART NOTE: SIMULTANEOUS APPROACH AUTHORIZED WITH RWY 16R, EXCEPT FOR ARRIVALS AT DLTNN, MOONZ AND (SEE FORM 8260-10)

CITY AND STATE	ELEVATION: 433 THRE: 433 AIRPORT NAME:	FACILITY IDENTIFIER:	PROCEDURE NO./AMDT NO./EFFECTIVE DATE:	SUP:
SEATTLE, WA	SEATTLE-TACOMA INTL	RNAV	RNAV (RNP) Z RWY 16L, ORIG	AMDT: NONE
				DATED

ALL AFFECTED PROCEDURES REVIEWED?	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE
[ ] YES [X] NO		ROUTINE

COORDINATED WITH:

ATA	AAT	ALPA	APA	AOPA	NBAA	OTHER (specify)
[X]	[ ]	[X]	[X]	[X]	[X]	[X] ZSE, SEA ATCT, SEA APP CON

FLIGHT CHECKED BY

NAME:	FIFO	DATE:
JAMES MICHAEL MEEK	FIOG	12/27/2012

DEVELOPED BY

NAME:	FIFO	DATE:
JON DENTON	AJV-354	09/20/2012

APPROVED BY

NAME:		FIFO	DATE:
DEZ SILAGYI	MANAGER	AJV-354	

CHANGES:

ORIGINAL.

REASONS:

ATC AND FPT REQUEST.

01/10/13: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 09/20/12.
1. ADDED PLANVIEW NOTE MAX 210 KTS AT GRIFY.

US DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

RNAV (RNP) - STANDARD,
INSTRUMENT APPROACH PROCEDURE, - TITLE 14 CFR PART 97.33

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TERMINAL ROUTES, (CONT.):

FROM	TO	COURSE AND DISTANCE	ALTITUDE
DLTNN (IF)	PPAUL (TF) (FB) (RNP 1.00)	155.60 / 7.54	5900
PPAUL	FERIE (TF) (FB) (RNP 1.00)	155.57 / 2.56	5300
FERIE	HEGEM (TF) (FB) (RNP 1.00)	145.20 / 3.22	5000
HEGEM	COPEX (RF) (FB) (RNP 1.00)	(3.15 NM RADIUS CCW (CFBRK) / 2.11	4300
MOONZ (IF)	COPEX (TF) (FB) (RNP 1.00)	106.78 / 3.56	4300
COPEX	SEGAW (RF) (FB) (RNP 0.90)	(3.15 NM RADIUS CCW (CFBRK) / 1.85	3700
VASHN (IF)	RAYUU (TF) (FB) (RNP 1.00)	343.23 / 3.10	4700
RAYUU	SEGAW (RF) (FB) (RNP 1.00)	(2.80 NM RADIUS CW (CFBRH) / 4.40	3700
SEGAW	NOVNE (RF) (FB) (RNP 0.70)	(3.22 NM RADIUS CW (CFBRJ) / 1.53	3200
NOVNE	CAKCA (RF) (FB) (RNP 0.70)	(3.22 NM RADIUS CW (CFBRJ) / 3.53	2200
CAKCA	DGLAS (TF) (FB) (RNP 0.50)	163.34 / 1.08	1900
DGLAS (FAF)	RW16L (MAP) (TF) (FO)	163.34 / 4.44	
RW16L (MAP)	YORUC (DF)		2000
YORUC	MILLT (TF) (FO) (RNP 1.00)	162.80 / 6.97	5000

NOTES, (CONT.):
VASHN.
CHART NOTE: GPS REQUIRED.
CHART PLANVIEW NOTE AT COPEX : MAX 190 KIAS.

CITY AND STATE	ELEVATION: 433 THRE: 433	FACILITY IDENTIFIER:	PROCEDURE NO./ AMDT NO./EFFECTIVE DATE:	SUP:
SEATTLE, WA	AIRPORT NAME: SEATTLE-TACOMA INTL	RNAV	RNAV (RNP) Z RWY 16L, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	FIFO	DATE:
APPROVED BY		
NAME:	FIFO	DATE:

CHANGES:

REASONS:

US DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

RNAV (RNP) - STANDARD,
INSTRUMENT APPROACH PROCEDURE, - TITLE 14 CFR PART 97.33

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CHART PLANVIEW NOTE AT GRIFY : MAX 210 KIAS.
CHART PLANVIEW NOTE AT HEGEM : MAX 190 KIAS.
CHART PLANVIEW NOTE AT RAYUU : MAX 190 KIAS.
CHART PLANVIEW NOTE: RADAR REQUIRED.
CHART PLANVIEW NOTE ADJACENT TO DLTNN IF: RF REQUIRED.
CHART PLANVIEW NOTE ADJACENT TO MOONZ IF: RF REQUIRED.
CHART PLANVIEW NOTE ADJACENT TO VASHN IF: RF REQUIRED.
CHART PLANVIEW NOTE AT PAE VOR/DME: (RNP 0.50).
CHART PLANVIEW NOTE AT GRIFY: (RNP 0.50).
CHART PLANVIEW NOTE AT DLTNN: (RNP 0.50).
CHART PLANVIEW NOTE AT MOONZ: (RNP 0.50).
CHART PLANVIEW NOTE AT VASHN: (RNP 0.50).
CHART PROFILE NOTE: VGSI AND RNAV GLIDEPATH NOT COINCIDENT.
CHART PROFILE NOTE: SEE PLANVIEW FOR MULTIPLE IF LOCATIONS.
CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVAL ON PAE VOR/DME AIRWAY RADIALS 163 CW 236.
CHART NOTE: USE OF FD OR AP PROVIDING RNAV TRACK GUIDANCE REQUIRED DURING SIMULTANEOUS OPERATIONS.

CITY AND STATE	ELEVATION: 433 THRE: 433 AIRPORT NAME:	FACILITY IDENTIFIER:	PROCEDURE NO./ AMDT NO./EFFECTIVE DATE:	SUP:
SEATTLE, WA	SEATTLE-TACOMA INTL	RNAV	RNAV (RNP) Z RWY 16L, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	FIFO	DATE:
APPROVED BY		
NAME:	FIFO	DATE:

CHANGES:

REASONS:

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

RNAV (RNP) STANDARD INSTRUMENT APPROACH PROCEDURE

FLIGHT STANDARDS SERVICES - **FAR PART 97.33**

Bearings, headings, courses, 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 in feet RVR.

ARINC PACKET - 424-18 - RNAV (RNP)

```
                1         2         3         4         5         6         7         8         9         0         1         2         3
NAVAID  12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ----------------------------------------------------------------------------------------------------------------------------
        SUSAD        PAE   K1011060VDLW N47551140W122164020    N47551210W122164180E0200006741     NARPAINE

                1         2         3         4         5         6         7         8         9         0         1         2         3
WP      12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ----------------------------------------------------------------------------------------------------------------------------
        SUSAEAENRT   CAKCA K10    W     N47332090W122182500                    E0164     NAR          CAKCA
        SUSAEAENRT   CFBRH K10    W     N47334657W122230975                    E0164     NAR          CNF(CFBRH)
        SUSAEAENRT   CFBRJ K10    W     N47332194W122230984                    E0164     NAR          CNF(CFBRJ)
        SUSAEAENRT   CFBRK K10    W     N47394385W122230840                    E0165     NAR          CNF(CFBRK)
        SUSAEAENRT   COPEX K10    W     N47370676W122254413                    E0165     NAR          COPEX
        SUSAEAENRT   DGLAS K10    C     N47321590W122182557                    E0164     NAR          DGLAS
        SUSAEAENRT   DLTNN K10    W     N47515071W122305797                    E0166     NAR          DLTNN
        SUSAEAENRT   FERIE K10    W     N47415006W122290224                    E0165     NAR          FERIE
        SUSAEAENRT   GRIFY K10    W     N47443841W122225233                    E0165     NAR          GRIFY
        SUSAEAENRT   HEGEM K10    W     N47384595W122273482                    E0165     NAR          HEGEM
        SUSAEAENRT   HELZR K10    C     N47385130W122182209                    E0165     NAR          HELZR
        SUSAEAENRT   KARFO K10    C     N47362068W122182342                    E0164     NAR          KARFO
        SUSAEAENRT   KENMO K10    C     N47415957W122182043                    E0165     NAR          KENMO
        SUSAEAENRT   MILLT K10    C     N47150775W122182881                    E0163     NAR          MILLT
        SUSAEAENRT   MOONZ K10    W     N47390571W122300688                    E0165     NAR          MOONZ
        SUSAEAENRT   NOVNE K10    W     N47361321W122205891                    E0165     NAR          NOVNE
        SUSAEAENRT   PPAUL K10    W     N47442240W122293166                    E0165     NAR          PPAUL
        SUSAEAENRT   RAYUU K10    W     N47334717W122271824                    E0165     NAR          RAYUU
        SUSAEAENRT   SEGAW K10    W     N47363476W122230911                    E0165     NAR          SEGAW
        SUSAEAENRT   VASHN K10    W     N47304141W122271932                    E0164     NAR          VASHN
        SUSAEAENRT   YORUC K10    W     N47220546W122183090                    E0164     NAR          YORUC

                1         2         3         4         5         6         7         8         9         0         1         2         3
AIRPORT 12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ----------------------------------------------------------------------------------------------------------------------------
        SUSAP KSEAK1ASEA     0     119YHN47265960W122184240E017000433        1800018000C    MNAR    SEATTLE-TACOMA INTL

                1         2         3         4         5         6         7         8         9         0         1         2         3
SEGMENT 12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ----------------------------------------------------------------------------------------------------------------------------
        SUSAP KSEAK1FH16LZ ADLTNN 010DLTNNK1EA0E  B    IF                                    + 08000     18000              A FS
        SUSAP KSEAK1FH16LZ ADLTNN 020PPAULK1EA0E    010TF                                   + 05900                        A FS
        SUSAP KSEAK1FH16LZ ADLTNN 030FERIEK1EA0E    010TF                                   + 05300                        A FS
        SUSAP KSEAK1FH16LZ ADLTNN 040HEGEMK1EA0E    010TF                                   + 05000          190           A-FS
        SUSAP KSEAK1FH16LZ ADLTNN 050COPEXK1EA0E   L010RF       0031501452    10680021    + 04300          190   CFBRK K1EAA-FS
        SUSAP KSEAK1FH16LZ ADLTNN 060SEGAWK1EA0E   L091RF       0031501068    07320019    + 03700                CFBRK K1EAA FS
```

CITY AND STATE	ELEVATION: 433 THRE: 433	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
SEATTLE, WA	AIRPORT NAME: SEATTLE-TACOMA INTL	RNAV	RNAV (RNP) Z RWY 16L, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	NFPG	DATE:
APPROVED BY		
NAME:	NFPG	DATE:

CHANGES:

REASONS:

Bearings, headings, courses, 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 in feet RVR.

```
SUSAP KSEAK1FH16LZ ADLTNN 070NOVNEK1EA0E   R071RF       0032200732    10030015    + 03200                CFBRJ K1EAA FS
SUSAP KSEAK1FH16LZ ADLTNN 080CAKCAK1EA0E   R071RF       0032201003    16330035    + 02200                CFBRJ K1EAA FS
SUSAP KSEAK1FH16LZ ADLTNN 090DGLASK1EA0EE   051TF                                  + 01900                     A FS
SUSAP KSEAK1FH16LZ AGRIFY 010GRIFYK1EA0E  A    IF                                  + 06000     18000210        A-FS
SUSAP KSEAK1FH16LZ AGRIFY 020HELZRK1EA0E  B 010TF                                  + 04000                     A FS
SUSAP KSEAK1FH16LZ AGRIFY 030KARFOK1EA0E    071TF                                  + 03200                     A FS
SUSAP KSEAK1FH16LZ AGRIFY 040CAKCAK1EA0E    071TF                                  + 02200                     A FS
SUSAP KSEAK1FH16LZ AGRIFY 050DGLASK1EA0EE   051TF                                  + 01900                     A FS
SUSAP KSEAK1FH16LZ AMOONZ 010MOONZK1EA0E  B    IF                                  + 05000     18000           A FS
SUSAP KSEAK1FH16LZ AMOONZ 020COPEXK1EA0E    010TF                                  + 04300          190        A-FS
SUSAP KSEAK1FH16LZ AMOONZ 030SEGAWK1EA0E   L091RF       0031501068    07320019    + 03700                CFBRK K1EAA FS
SUSAP KSEAK1FH16LZ AMOONZ 040NOVNEK1EA0E   R071RF       0032200732    10030015    + 03200                CFBRJ K1EAA FS
SUSAP KSEAK1FH16LZ AMOONZ 050CAKCAK1EA0E   R071RF       0032201003    16330035    + 02200                CFBRJ K1EAA FS
SUSAP KSEAK1FH16LZ AMOONZ 060DGLASK1EA0EE   051TF                                  + 01900                     A FS
SUSAP KSEAK1FH16LZ APAE   010PAE  K1D 0V       IF                                                 18000       A FS
SUSAP KSEAK1FH16LZ APAE   020KENMOK1EA0E  A 010TF                                  + 05000                     A FS
SUSAP KSEAK1FH16LZ APAE   030HELZRK1EA0E  B 010TF                                  + 04000                     A FS
SUSAP KSEAK1FH16LZ APAE   040KARFOK1EA0E    071TF                                  + 03200                     A FS
SUSAP KSEAK1FH16LZ APAE   050CAKCAK1EA0E    071TF                                  + 02200                     A FS
SUSAP KSEAK1FH16LZ APAE   060DGLASK1EA0EE   051TF                                  + 01900                     A FS
SUSAP KSEAK1FH16LZ AVASHN 010VASHNK1EA0E  B    IF                                  + 06000     18000           A FS
SUSAP KSEAK1FH16LZ AVASHN 020RAYUUK1EA0E    010TF                                  + 04700          190        A-FS
SUSAP KSEAK1FH16LZ AVASHN 030SEGAWK1EA0E   R010RF       0028003432    07320044    + 03700                CFBRH K1EAA FS
SUSAP KSEAK1FH16LZ AVASHN 040NOVNEK1EA0E   R071RF       0032200732    10030015    + 03200                CFBRJ K1EAA FS
SUSAP KSEAK1FH16LZ AVASHN 050CAKCAK1EA0E   R071RF       0032201003    16330035    + 02200                CFBRJ K1EAA FS
SUSAP KSEAK1FH16LZ AVASHN 060DGLASK1EA0EE   051TF                                  + 01900                     A FS
SUSAP KSEAK1FH16LZ H      020DGLASK1EA1E  F    IF                                  + 01900     18000       RW16L K1PGA FS
SUSAP KSEAK1FH16LZ H      020DGLASK1EA2W                                                A031A122                 FS
SUSAP KSEAK1FH16LZ H      030RW16LK1PG0GY M 031TF                                    00486          -300        A FS
SUSAP KSEAK1FH16LZ H      040YORUCK1EA0E M     DF                                  - 02000                     A FS
SUSAP KSEAK1FH16LZ H      050MILLTK1EA0EY    010TF                                  + 05000                     A FS
SUSAP KSEAK1FH16LZ H      060MILLTK1EA0EE  R   HM                    34270050    + 05000                     A FS
```

```
                1         2         3         4         5         6         7         8         9         0         1         2         3
RUNWAY  12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------
        SUSAP KSEAK1GRW16L   0119011633 N47274966W122182790-0700    +010880043300005415OIISNQ3
```

```
                1         2         3         4         5         6         7         8         9         0         1         2         3
MSA     12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------
        SUSAP KSEAK1SRW16LK1PG              0   18018006425                                                              M
```

CITY AND STATE	ELEVATION: 433 THRE: 433	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
SEATTLE, WA	AIRPORT NAME: SEATTLE-TACOMA INTL	RNAV	RNAV (RNP) Z RWY 16L, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	NFPG	DATE:
APPROVED BY		
NAME:	NFPG	DATE:

CHANGES:

REASONS:

U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

RNAV (RNP) STANDARD INSTRUMENT APPROACH PROCEDURE

FLIGHT STANDARDS SERVICES - **FAR PART 97.33**

Bearings, headings, courses, 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 in feet RVR.

ARINC SUMMARY - 424-18 - RNAV (RNP)

ROUTES	TRANSITION	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG(TRUE)	DISTANCE	ALTITUDE	SPEED
	DLTNN	DLTNN	010		IF		FB				AA 08000	
	DLTNN	PPAUL	020		TF		FB	1.0			AA 05900	
	DLTNN	FERIE	030		TF		FB	1.0			AA 05300	
	DLTNN	HEGEM	040		TF		FB	1.0			AA 05000	AB 190
	DLTNN	COPEX	050		RF	L	FB	1.0		002.1	AA 04300	AB 190
	DLTNN	SEGAW	060		RF	L	FB	0.9		001.9	AA 03700	
	DLTNN	NOVNE	070		RF	R	FB	0.7		001.5	AA 03200	
	DLTNN	CAKCA	080		RF	R	FB	0.7		003.5	AA 02200	
	DLTNN	DGLAS	090		TF		FB	0.5			AA 01900	
	GRIFY	GRIFY	010	IAF	IF		FB				AA 06000	AB 210
	GRIFY	HELZR	020		TF		FB	1.0			AA 04000	
	GRIFY	KARFO	030		TF		FB	0.7			AA 03200	
	GRIFY	CAKCA	040		TF		FB	0.7			AA 02200	
	GRIFY	DGLAS	050		TF		FB	0.5			AA 01900	
	MOONZ	MOONZ	010		IF		FB				AA 05000	
	MOONZ	COPEX	020		TF		FB	1.0			AA 04300	AB 190
	MOONZ	SEGAW	030		RF	L	FB	0.9		001.9	AA 03700	
	MOONZ	NOVNE	040		RF	R	FB	0.7		001.5	AA 03200	
	MOONZ	CAKCA	050		RF	R	FB	0.7		003.5	AA 02200	
	MOONZ	DGLAS	060		TF		FB	0.5			AA 01900	
	PAE	PAE	010		IF		FB					
	PAE	KENMO	020	IAF	TF		FB	1.0			AA 05000	
	PAE	HELZR	030		TF		FB	1.0			AA 04000	
	PAE	KARFO	040		TF		FB	0.7			AA 03200	
	PAE	CAKCA	050		TF		FB	0.7			AA 02200	
	PAE	DGLAS	060		TF		FB	0.5			AA 01900	
	VASHN	VASHN	010		IF		FB				AA 06000	
	VASHN	RAYUU	020		TF		FB	1.0			AA 04700	AB 190
	VASHN	SEGAW	030		RF	R	FB	1.0		004.4	AA 03700	
	VASHN	NOVNE	040		RF	R	FB	0.7		001.5	AA 03200	
	VASHN	CAKCA	050		RF	R	FB	0.7		003.5	AA 02200	
	VASHN	DGLAS	060		TF		FB	0.5			AA 01900	
		DGLAS	020	FAF	IF		FB				AA 01900	
		RW16L	030	MAP	TF		FO	0.3			AT 00486	

MISSED APPROACH	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG(TRUE)	DISTANCE	ALTITUDE	SPEED
	YORUC	040		DF		FB				AB 02000	
	MILLT	050		TF		FO	1.0			AA 05000	
	MILLT	060		HM	R	FO		342.7(359.7T)	005.0	AA 05000	

POINT DATA	WAYPOINT	LAT IN SECS	LONG IN SECS	LAT IN MINS	LONG IN MINS

CITY AND STATE	ELEVATION: 433 THRE: 433	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
SEATTLE, WA	AIRPORT NAME: **SEATTLE-TACOMA INTL**	**RNAV**	**RNAV (RNP) Z RWY 16L, ORIG**	AMDT: **NONE**
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	NFPG	DATE:
APPROVED BY		
NAME:	NFPG	DATE:

CHANGES:

REASONS:

Bearings, headings, courses, 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 in feet RVR.

PAE	N475511.40	W1221640.20	N4755.190	W12216.670
CAKCA	N473320.90	W1221825.00	N4733.348	W12218.417
CFBRH	N473346.57	W1222309.75	N4733.776	W12223.163
CFBRJ	N473321.94	W1222309.84	N4733.366	W12223.164
CFBRK	N473943.85	W1222308.40	N4739.731	W12223.140
COPEX	N473706.76	W1222544.13	N4737.113	W12225.736
DGLAS	N473215.90	W1221825.57	N4732.265	W12218.426
DLTNN	N475150.71	W1223057.97	N4751.845	W12230.966
FERIE	N474150.06	W1222902.24	N4741.834	W12229.037
GRIFY	N474438.41	W1222252.33	N4744.640	W12222.872
HEGEM	N473845.95	W1222734.82	N4738.766	W12227.580
HELZR	N473851.30	W1221822.09	N4738.855	W12218.368
KARFO	N473620.68	W1221823.42	N4736.345	W12218.390
KENMO	N474159.57	W1221820.43	N4741.993	W12218.341
MILLT	N471507.75	W1221828.81	N4715.129	W12218.480
MOONZ	N473905.71	W1223006.88	N4739.095	W12230.115
NOVNE	N473613.21	W1222058.91	N4736.220	W12220.982
PPAUL	N474422.40	W1222931.66	N4744.373	W12229.528
RAYUU	N473347.17	W1222718.24	N4733.786	W12227.304
SEGAW	N473634.76	W1222309.11	N4736.579	W12223.152
VASHN	N473041.41	W1222719.32	N4730.690	W12227.322
YORUC	N472205.46	W1221830.90	N4722.091	W12218.515
RW16L	N472749.66	W1221827.90	N4727.828	W12218.465

RUNWAY DATA

RWY	THRESHOLD ELEVATION	TCH
RW16L	00433	54

CITY AND STATE	ELEVATION: 433 THRE: 433	FACILITY IDENTIFIER:	PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE:	SUP:
SEATTLE, WA	AIRPORT NAME: SEATTLE-TACOMA INTL	RNAV	RNAV (RNP) Z RWY 16L, ORIG	AMDT: NONE
				DATED:

ALL AFFECTED PROCEDURES REVIEWED? ☐ YES ☐ NO	COORDINATES OF FACILITIES	REQUIRED EFFECTIVE DATE

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

FLIGHT CHECKED BY		
NAME:	FIFO	DATE:
DEVELOPED BY		
NAME:	NFPG	DATE:
APPROVED BY		
NAME:	NFPG	DATE:

CHANGES:

REASONS:

STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

1. APP SEGMENT	FROM	TO	OBSTRUCTION	COORDINATES	ELEV. MSL	ROC	ALT. ADJUSTMENTS	MIN. ALT.
FEEDER	PAE VOR/DME	KENMO	1. TANK (53-000560)	475546.00N/1221419.00W	787 (5E)	1000	AC125 AT3088	5000
(RNP 1.00)			2. TERRAIN	475138.00N/1221657.00W	635 (600)		AS1500	2100
INITIAL	KENMO	HELZR	3. TOWER (53-000053)	473755.00N/1222114.00W	1015 (2A)	1000	AC3 AT1982	4000
(RNP 1.00)			4. TERRAIN	474142.00N/1221909.00W	483 (500)		AS1500	2000
INITIAL	GRIFY	HELZR	3. TOWER (53-000053)	473755.00N/1222114.00W	1015 (2A)	1000	AC3 AT1982	4000
(RNP 1.00)			5. TERRAIN	474427.00N/1222133.00W	548 (500)		AS1500	2000
INTERMEDIATE	HELZR	KARFO	6. TOWER (53-000500)	473656.35N/1221830.45W	1092 (4D)	500	AS50 AT1558	3200
(RNP 0.70)			7. TERRAIN	473733.00N/1221851.00W	453 (500)		AS1500	2000
INTERMEDIATE: STEPDOWN	KARFO	CAKCA	6. TOWER (53-000500)	473656.35N/1221830.45W	1092 (4D)	500	AC50 AT558	2200
(RNP 0.70)			8. TERRAIN	473357.00N/1221824.00W	365 (400)		AS1500	1900
INTERMEDIATE	DLTNN	PPAUL	9. TOWER (53-001007)	474535.10N/1223103.60W	725 (5E)	500	AC125 AT4550	5900
(RNP 1.00)			10. TERRAIN	474915.00N/1223030.00W	417 (400)		AS1500	1900
INTERMEDIATE: STEPDOWN	PPAUL	FERIE	11. AAO	474027.00N/1223115.00W	581 (4E)	500	AC98 AT4121	5300
(RNP 1.00)			12. TERRAIN	474127.00N/1223130.00W	227 (200)		AS1500	1700
2. PROCEDURE TURN								
3. MISSED APPROACH MAP:								
3. MISSED APPROACH ELEV:								

4. CIRCLING AREA	DISTANCE	HT. ABV. ARPT. REQUIRED	HT. ABV. ARPT. ACTUAL
CATEGORY A	1.3 NM	350	
CATEGORY B	1.5 NM	450	
CATEGORY C	1.7 NM	450	
CATEGORY D	2.3 NM	550	
CATEGORY E	4.5 NM	550	

5. MINIMUM SAFE ALTITUDES — PRIMARY NAVAID: **RW16L**

SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A	SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A
360-360	AAO	080/ 28.2	5362 (6A)	6400					

CITY AND STATE		FACILITY	PROCEDURE AND AMENDMENT NO:	REGION
SEATTLE, WA	ELEVATION: 433 AIRPORT NAME: SEATTLE-TACOMA INTL	RNAV	RNAV (RNP) Z RWY 16L, ORIG	ANM

PART B - SUPPLEMENTAL DATA

1. COMMUNICATIONS WITH:	2. WEATHER SERVICE	3. ALTIMETER SETTING
ZSE ARTCC SEA TOWER SEA APP CON	[ ] NWS [ ] FAA [ ] A/C OTHER: ASOS	SOURCE: KSEA DISTANCE: HOURS REMOTE OPERATION:
SATISFACTORY ON: [X] VHF [X] UHF [ ] HF	LOCATION: KSEA	ADJUSTMENT: 0

4. MONITOR STATUS	PRIMARY NAVAID:	
	MONITOR POINT:	
	HRS OPTN:	CAT 1
		CAT 3

5. APPROACH & RUNWAY LIGHTING	
X	ALSF-2 16C, 16L, 16R
	(S) SALS
X	MALSR 34L, 34C, 34R
X	HIRL 16C, 16L, 34L, 16R, 34C, 34R
	MIRL
	REIL
X	TDZ 16C, 16L, 16R, 34R
X	C/L 16C, 16L, 34L, 16R, 34C, 34R
X	OTHER (SPECIFY) PAPI-4R 16R PAPI-4L 16C, 16L, 34L, 34C, 34R

6. RUNWAY MARKINGS	BASIC	
	ALL WEATHER	PIR-G 16C, 16L, 34L, 16R, 34C, 34R
	INSTRUMENT	
7. RUNWAY VISUAL RANGE	APPROACH	16C, 16L, 34L, 16R, 34C, 34R
	MIDFIELD	16C, 16L, 34L, 16R, 34C, 34R
	ROLL OUT	16C, 16L, 34L, 16R, 34C, 34R
8. GLIDE PATH	GP ANGLE: 3.00	ELEV RWY THRESHOLD: 432.5
	DISTANCE FROM RWY:	ELEV GP ANTENNA:
		THRESHOLD CROSSING HEIGHT: 53.6

9. FINAL APPROACH COURSE AIMING			
	X	RUNWAY THRESHOLD	FT. FROM THRESHOLD
	X	ON CENTERLINE	FT. FROM CENTERLINE

10. WAIVERS: 1

ORDER 8260.3B, VOLUME 1, PARAGRAPH 274; AIR TRAFFIC HAS A NEED TO KEEP AIRCRAFT THAT ARE EXECUTING A MISSED APPROACH AT 2000 FT WHILE THEY ARE WITHIN 1 NM OF THE AIRPORT DUE TO OTHER TRAFFIC OVERFLYING THE AIRPORT AT 3000 FT.

PART D - PREPARED BY: JON DENTON	DATE: 09/20/2012
TITLE: AERONAUTICAL INFORMATION SPECIALIST	OFFICE: AJV-354

PART C - REMARKS:

MAX SPEED RAYUU TO SEGAW - 190 KIAS.

MAX SPEED HEGEM TO COPEX - 190 KIAS.

MAX SPEED COPEX TO SEGAW - 190 KIAS.

ISA DEVIATION USED: -22.1C (-7.8F)

VDP NOT ESTABLISHED - RNP PROCEDURE.

PARA 251, 34:1 PENETRATION.

PRECIPITOUS TERRAIN EVALUATION COMPLETED.

TERPS, VOLUME 1, VISUAL PORTION OF FINAL PENETRATIONS: 34:1
437 OL LOC (KSEAC009) (20/3) 472754.27N/1221827.86W 0.24

SEGMENT	ALT	KIAS	KTAS	HAA	VKTW*	TR	BA
HEGEM-COPEX	5000	190	209.00	4568	57.0	3.15	18.31
COPEX-SEGAW	4300	190	206.34	3868	56.0	3.15	17.66
SEGAW-NOVNE	3700	190	204.06	3268	54.0	3.22	16.81
NOVNE-CAKCA	3200	190	202.16	2768	50.00	3.22	16.09
RAYUU-SEGAW	4700	190	207.86	4268	56.0	2.8	19.91

*VKTW OBTAINED FROM .54A FORMULA 2-3B AND .52 TABLE 1-3.

TFTURNFIX	ALT	KIAS	KTAS	HAA	*VKTW	TR	BA
GRIFY-HELZR	6000	210	235.20	5568	59.00	3.89	18.00

PART B: SUPPLEMENTAL DATA
2. KSEA ASOS ON SERVICE A. HRS OPTN: 24.
3. BACKUP ALTIMETER SOURCE NOT REQUIRED DUE TO REDUNDANT LOCAL SOURCES.

VGSI DATA: 3.00/79.4

WAIVER: FAAO 8260.3B VOL 1 PARA 274 AIR TRAFFIC HAS A NEED TO KEEP AIRCRAFT THAT ARE EXECUTING A MISSED APPROACH AT 2000 FT WHILE THEY ARE WITHIN 1 NM OF THE AIRPORT DUE TO OTHER TRAFFIC OVERFLYING THE AIRPORT AT 3000 FT.

SEE ATTACHED AIRSPACE LETTER.

SINGLE 1500 FT POINT BETWEEN HELZR AND KARFO, HIGH TERRAIN WITHIN FINAL SEGMENT.

MULTIPLE INTERMEDIATE SEGMENTS DEVELOPED PER ATC REQUEST.

MISSED APPROACH: FAAO 8260.54A CRITERIA APPLIED.

AUTHORIZATION REQUIRED, FAA 8260.52 CRITERIA APPLIED.

VEB ROC APPLIED/USED.

HEGEM, COPEX, CFBRK COORDINATES OFF SLIGHTLY FROM -2 TO ACCOMMODATE USING SAME FIXES FOR PARALLEL RWYS PER J. CECIL.

AVERAGE COLD TEMPERATURE BASED ON A 5 YR HISTORY (2007-2011), ACT -8.

CONT.

STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

1. APP SEGMENT	FROM	TO	OBSTRUCTION	COORDINATES	ELEV. MSL	ROC	ALT. ADJUSTMENTS	MIN. ALT.
INTERMEDIATE: STEPDOWN	FERIE	HEGEM	13. AAO	474024.00N/1223115.00W	588 (4E)	500	AC98 AT3814	5000
(RNP 1.00)			14. TERRAIN	474024.00N/1223115.00W	388 (400)		AS1500	1900
INTERMEDIATE: STEPDOWN	HEGEM	COPEX	15. AAO	473930.00N/1222448.00W	568 (4E)	500	AC98 AT3134	4300
(RNP 1.00)			16. TERRAIN	473924.00N/1222448.00W	358 (400)		AS1500	1900
INTERMEDIATE	MOONZ	COPEX	17. AAO	473854.00N/1222427.00W	558 (4E)	500	AC98 AT3144	4300
(RNP 1.00)			18. TERRAIN	473854.00N/1222424.00W	358 (400)		AS1500	1900
INTERMEDIATE: STEPDOWN	COPEX	SEGAW	19. AAO	473448.00N/1222248.00W	568 (4E)	500	AC98 AT2534	3700
(RNP 0.90)			20. TERRAIN	473448.00N/1222309.00W	352 (400)		AS1500	1900
INTERMEDIATE	VASHN	RAYUU	21. AAO	473448.00N/1223009.00W	634 (4E)	500	AC98 AT3468	4700
(RNP 1.00)			22. TERRAIN	473221.00N/1222948.00W	260 (300)		AS1500	1800
INTERMEDIATE: STEPDOWN	RAYUU	SEGAW	3. TOWER (53-000053)	473755.00N/1222114.00W	1015 (2A)	500	AC3 AT2182	3700
(RNP 1.00)			23. TERRAIN	473454.00N/1223006.00W	447 (400)		AS1500	1900
INTERMEDIATE: STEPDOWN	SEGAW	NOVNE	24. BLDG (53-000455)	473616.80N/1221951.08W	1075 (1A)	500	AC3 AT1622	3200
(RNP 0.70)			25. TERRAIN	473754.00N/1222154.00W	430 (400)		AS1500	1900
INTERMEDIATE: STEPDOWN	NOVNE	CAKCA	24. BLDG (53-000455)	473616.80N/1221951.08W	1075 (1A)	500	AC3 AT622	2200
(RNP 0.70)			26. TERRAIN	473651.00N/1221839.00W	411 (400)		AS1500	1900
3. MISSED APPROACH	MAP:							
	ELEV:							

4. CIRCLING AREA	DISTANCE		HT. ABV. ARPT.		
CATEGORY A	1.3 NM	REQUIRED	350	ACTUAL	
CATEGORY B	1.5 NM		450		
CATEGORY C	1.7 NM		450		
CATEGORY D	2.3 NM		550		
CATEGORY E	4.5 NM		550		

5. MINIMUM SAFE ALTITUDES — PRIMARY NAVAID:

SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A	SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A

CITY AND STATE		FACILITY	PROCEDURE AND AMENDMENT NO:	REGION
SEATTLE, WA	ELEVATION: 433 AIRPORT NAME: SEATTLE-TACOMA INTL	RNAV	RNAV (RNP) Z RWY 16L, ORIG	ANM

PART B - SUPPLEMENTAL DATA

1. COMMUNICATIONS WITH:	2. WEATHER SERVICE	3. ALTIMETER SETTING
SATISFACTORY ON:	☐ NWS ☐ FAA ☐ A/C OTHER:	SOURCE: DISTANCE: HOURS REMOTE OPERATION:
☐ VHF ☐ UHF ☐ HF	LOCATION:	ADJUSTMENT:

4. MONITOR STATUS	PRIMARY NAVAID:	
	MONITOR POINT:	
	HRS OPTN: CAT 1	
	HRS OPTN: CAT 3	

5. APPROACH & RUNWAY LIGHTING	☐	ALS
	☐	(S) SALS
	☐	MALS
	☐	HIRL
	☐	MIRL
	☐	REIL
	☐	TDZ
	☐	C/LINE
	☐	OTHER (SPECIFY)

6. RUNWAY MARKINGS	BASIC	
	ALL WEATHER	
	INSTRUMENT	
7. RUNWAY VISUAL RANGE	APPROACH	
	MIDFIELD	
	ROLL OUT	
8. GLIDE PATH	GP ANGLE:	ELEV RWY THRESHOLD:
	DISTANCE FROM RWY:	ELEV GP ANTENNA:
		THRESHOLD CROSSING HEIGHT:

9. FINAL APPROACH COURSE AIMING	☐	RUNWAY THRESHOLD	FT. FROM THRESHOLD
	☐	ON CENTERLINE	FT. FROM CENTERLINE

10. WAIVERS:

PART D - PREPARED BY:	DATE:
TITLE:	OFFICE:

PART C - REMARKS:

CONTINUED.

ALTITUDE CHARTED AT INITIAL FIXES AT ATC REQUEST.

QUALITY 4 CHECKED

STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

1. APP SEGMENT	FROM	TO	OBSTRUCTION	COORDINATES	ELEV. MSL	ROC	ALT. ADJUSTMENTS	MIN. ALT.
INTERMEDIATE: STEPDOWN	**CAKCA**	**DGLAS**	**27. AAO**	**473300.00N/1221812.00W**	**552 (4E)**	**500**	**AC98**	**1200**
(RNP 0.50)			**28. TERRAIN**	**473303.00N/1221812.00W**	**352 (400)**		**AS1500**	**1900**
FINAL: RNP 0.12	**DGLAS**	**RW16L**	**29. TREE (KSEAC014)**	**472820.18N/1221816.21W**	**497 (1A)**	**20.94:1**	**AC3 MA79**	**767/334**
FINAL: RNP 0.30	**DGLAS**	**RW16L**	**30. TREE (KSEA0011)**	**472830.69N/1221916.42W**	**522 (1A)**	**20.9:1**	**AC3 MA30**	**811/378**
MISSED APPROACH	DA	R16L	31. TREE	472805.41N/1221800.33W	574 (2C)	ASC	AC20	
(RNP 0.12 -1.00)		40:1						
MISSED APPROACH	DA	R16L	31. TREE	472805.41N/1221800.33W	574 (2C)	ASC	AC20	
(RNP 0.30 -1.00)		40:1						
MISSED APPROACH	R16L	YORUC				ASC		2000
(RNP 0.12 -1.00)		40:1						
MISSED APPROACH	R16L	YORUC				ASC		2000
(RNP 0.30 -1.00)		40:1						
MISSED APPROACH	YORUC	MILLT				ASC		
(RNP 1.00)								
MISSED APPROACH	YORUC	MILLT				ASC		
(RNP 1.00)								
3. MISSED APPROACH MAP:	DA / DA	MILLT				ASC		5000
			32. ATCT (53-001394)	472720.55N/1221805.18W	696 (1A)	1000	AC3	1700
ELEV:	527/507		33. TERRAIN	472712.00N/1221709.00W	525 (500)		AS1500	2000

4. CIRCLING AREA	DISTANCE		HT. ABV. ARPT.		
CATEGORY A	1.3 NM	REQUIRED	350	ACTUAL	
CATEGORY B	1.5 NM		450		
CATEGORY C	1.7 NM		450		
CATEGORY D	2.3 NM		550		
CATEGORY E	4.5 NM		550		

5. MINIMUM SAFE ALTITUDES — PRIMARY NAVAID:

SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A	SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A

QUALITY CHECKED 4

CITY AND STATE		FACILITY	PROCEDURE AND AMENDMENT NO:	REGION
SEATTLE, WA	**ELEVATION: 433** AIRPORT NAME: **SEATTLE-TACOMA INTL**	**RNAV**	**RNAV (RNP) Z RWY 16L, ORIG**	**ANM**

PART B - SUPPLEMENTAL DATA

1. COMMUNICATIONS WITH:	2. WEATHER SERVICE	3. ALTIMETER SETTING
SATISFACTORY ON:	☐ N W S OTHER: ☐ F A A ☐ A / C	SOURCE: DISTANCE: . HOURS REMOTE OPERATION:
☐ V H F ☐ U H F ☐ H F	LOCATION:	ADJUSTMENT:

4. MONITOR STATUS	PRIMARY NAVAID:	
	MONITOR POINT:	
	HRS OPTN: CAT 1	
	HRS OPTN: CAT 3	

5. APPROACH & RUNWAY LIGHTING		
	☐	**ALS**
	☐	**(S) SALS**
	☐	**MALS**
	☐	**HIRL**
	☐	**MIRL**
	☐	**REIL**
	☐	**TDZ**
	☐	**C/LINE**
	☐	**OTHER (SPECIFY)**

6. RUNWAY MARKINGS	BASIC	
	ALL WEATHER	
	INSTRUMENT	
7. RUNWAY VISUAL RANGE	APPROACH	
	MIDFIELD	
	ROLL OUT	
8. GLIDE PATH	GP ANGLE:	ELEV RWY THRESHOLD:
	DISTANCE FROM RWY:	ELEV GP ANTENNA:
		THRESHOLD CROSSING HEIGHT:

9. FINAL APPROACH COURSE AIMING			
	☐	RUNWAY THRESHOLD	FT. FROM THRESHOLD
	☐	ON CENTERLINE	FT. FROM CENTERLINE

10. WAIVERS:

PART D - PREPARED BY:	DATE:
TITLE:	OFFICE:

PART C - REMARKS:

RADIO FIX AND HOLDING DATA RECORD

NAME: CAKCA **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473320.90N/1221825.00W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON, SEA ATCT
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: CFBRH **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473346.57N/1222309.75W **TYPE:** CNF

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON/ATCT
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: CFBRJ **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473321.94N/1222309.84W **TYPE:** CNF

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION: **NFDC**
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON/ATCT
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: CFBRK **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473943.85N/1222308.40W **TYPE:** CNF

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON/ATCT
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: COPEX **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473706.76N/1222544.13W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON/ATCT
OTHER:

SIGNATURE & CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: DGLAS **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473215.90N/1221825.57W **TYPE:** WP, RADAR, DME

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	SEATTLE	I-SNQ	LOC/DME		343.34	000.34	6.21	6.56	39884	1900	4800

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

REMARKS:
DME ANTENNA COORDINATES: 472603.60N/1221822.68W
PFAF DETERMINED IAW FAAO 8260.54A FORMULA 2-16B.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	ILS OR LOC RWY 16L	1		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16L (SA CAT I, CAT II/III)	1		KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 6 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
FIX MOVED 324.24 FT NORTH.
UPDATED FIX COORDINATES.
CHANGED FAC 1 DME FOM 6.16 TO 6.21.
ADDED DIST FROM FAC IN NM AND FEET FOR FAC 1.
DELETED FACS 2 AND 3.
UPDATED FIX USE.

DEVELOPED BY: **DATE:** 09/20/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEZ SILAGYI

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA/SEA
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: DLTNN **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 475150.71N/1223057.97W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)
STAR	MARNR (RNAV)			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: STAR, IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
ADDED STAR AND SIAP TO REQUIRED CHARTING.
UPDATED FIX USE, ADDED MARNR STAR AND RNAV (GPS) Z RWY'S 16L/C/R.

DEVELOPED BY: **DATE:** 09/13/2012 **OFFICE:** AJV-354 **NAME:** DION LANCIA

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEZ SILAGYI

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: FERIE **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 474150.06N/1222902.24W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
FIX MOVED 20.27 FT NORTH, ATC REQUEST.
UPDATED FIX USE.

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON/ATCT
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: GRIFY **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 474438.41N/1222252.33W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	ILS OR LOC RWY 16C (SA CAT I, CAT II, III)			KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 16L (SA CAT I, CAT II, III)			KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 16R (SA CAT I, CAT II, III)			KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)
STAR	MARNR (RNAV)			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: STAR, IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
CHANGED SPECIAL FIX RESTRICTION TO RNAV (RNP) M RWY 16R VICE MARNR RNAV STAR.
ADDED IAP TO REQUIRED CHARTING.
UPDATED FIX USE, CONVERTED MARNR STAR FROM SPECIAL TO PUBLIC USE AND ADDED ALL OTHER PROCEDURES.

DEVELOPED BY: **DATE:** 09/13/2012 **OFFICE:** AJV-354 **NAME:** DION LANCIA

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEZ SILAGYI

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: HEGEM **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473845.95N/1222734.82W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
FIX MOVED 1441.28 FT SE, FOR RF TURN.
ADDED IAP AND SPECIAL IAP CHARTING.
UPDATED FIX USE.

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON/ATCT
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: HELZR **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473851.30N/1221822.09W **TYPE:** WP, RADAR, DME

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	SEATTLE	I-SNQ	LOC/DME		343.34	000.34	12.80	13.16		4000	4800

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

REMARKS:
DME ANTENNA COORDINATES: 472603.60N/1221822.68W
FIX LOCATION DETERMINE IAW 8260.54A, FORMULA 2-16B.
ESV: SNQ GS R343/12/40/48

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	ILS OR LOC RWY 16L	1		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16L (SA CAT I, CAT II/III)	1		KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 5 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
FIX MOVED 1938.41 FT NORTH.
UPDATED FIX COORDINATES.
CHANGED FAC 1 DME FROM 12.48 TO 12.80.
ADDED DIST FROM FAC 13.10.
CHANGED GS ESV FROM 11 TO 12 NM.
DELETED FAC 2 DATA.
UPDATED FIX USE.

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA ATCT/APP CON
OTHER:

QUALITY 4 CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: KARFO **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473620.68N/1221823.42W **TYPE:** WP, RADAR, DME

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	SEATTLE	I-SNQ	LOC/DME		343.34	000.34	10.29	10.65		3200	4800

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

REMARKS:
DME ANTENNA COORDINATES: 472603.60N/1221822.68W
FIX LOCATION DETERMINED IAW 8260.54A, FORMULA 2-16B.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	ILS OR LOC RWY 16L	1		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16L (SA CAT I, CAT II/III)	1		KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 4 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
FIX MOVED 1171.34 FT NORTH.
DELETED FAC 2 DATA.
CHANGED FAC 1 DME FROM 10.10 TO 10.29.
ADDED DIST FROM FAC 10.59.
UPDATED FIX COORDINATES.

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA ATCT/APP CON
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: KENMO **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 474159.57N/1221820.43W **TYPE:** WP, RADAR, DME

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	SEATTLE	I-SNQ	LOC/DME		343.34	000.34	15.94	16.30		5000	5000

EXPANDED SERVICE VOLUME (ESV):

FAC IDENT	FAC TYPE	RADIAL/BEARING	DISTANCE	MIN ALTITUDE	MAX ALTITUDE
I-SNQ	LOC/DME	R-343	17	50	50

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

REMARKS:
DME ANTENNA COORDINATES: 472603.60N/1221822.68W
FIX LOCATION DETERMINED IAW 8260.54A, FORMULA 2-16B.
ESV: SNQ GS R343/15/50/50

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	ILS OR LOC RWY 16L	1		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16L (SA CAT I, CAT II/III)	1		KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 4 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
FIX MOVED 3150.32 FT NORTH.
UPDATED FIX COORDINATES.
DELETED FAC 2 DATA.
UPDATE ALL ESV DATA.
UPDATED FIX USE.

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA ATCT/APP CON
OTHER:

QUALITY 4 CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: MILLT **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 471507.75N/1221828.81W **TYPE:** WP, RADAR, INT, DME

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	SEATTLE	SEA	VORTAC	H	160.66	179.66	11.00	11.00		3000	17500
2	MCCHORD	TCM	VORTAC	T	025.39	047.39		9.28		3000	12200

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

PATTERNS:

PAT	DIR	IDENT	TYPE	RAD/CRS/BRG	CRS INBOUND	TURN (L OR R)	LEG LENGTH TIME	LEG LENGTH DME	HOLDING ALTITUDES MIN	HOLDING ALTITUDES MAX	TEMPLATES MIN	TEMPLATES MAX
1	S	SEA	VORTAC	160.66	340.66	R	1		5000	10000	5	9
2	S		WP	162.66	342.66	R		5	5000	10000	6	10

CONTROLLING OBSTRUCTIONS:

PAT	AIRSPEED	OBSTRUCTION	COORDINATES	ELEVATION	ACCURACY CODE
1	200	AAO	470800.00N/1221048.00W	1037	4E
1	310	AAO	465851.00N/1220545.00W	2792	4E
2	200	AAO	470739.00N/1220954.00W	1076	4E
2	310	AAO	465830.00N/1220448.00W	3002	4E

PRECIPITOUS TERRAIN ADDITIONS:

PAT	SPEED	ADDITION
2	310	170

HOLDING RESTRICTIONS:
HOLDING LIMITED TO ESTABLISHED PATTERNS.

PROCEDURES REQUIRING CLIMB-IN-HOLD:

PAT	PROCEDURE TITLE	AIRPORT IDENT	CITY	STATE
1	ILS RWY 16L (SA CAT I, CAT II/III)	KSEA	SEATTLE	WA (US)
1	ILS OR LOC RWY 16L	KSEA	SEATTLE	WA (US)
1	ILS OR LOC RWY 16C	KSEA	SEATTLE	WA (US)
1	ILS RWY 16C (SA CAT I, CAT II/III)	KSEA	SEATTLE	WA (US)
1	ILS OR LOC RWY 16R	KSEA	SEATTLE	WA (US)
1	ILS RWY 16R (SA CAT I, CAT II/III)	KSEA	SEATTLE	WA (US)
2	RNAV (GPS) Y RWY 16L	KSEA	SEATTLE	WA (US)
2	RNAV (GPS) Y RWY 16C	KSEA	SEATTLE	WA (US)
2	RNAV (RNP) Z RWY 16L	KSEA	SEATTLE	WA (US)
2	RNAV (RNP) Z RWY 16C	KSEA	SEATTLE	WA (US)

REMARKS:
SEATTLE (FAC 1) AND MCCHORD (FAC 2) USED TO ESTABLISH FIX COORDINATES
PRECIPITOUS TERRAIN EVALUATION COMPLETED.
CLIMB IN HOLD EVALUATED TO 10000.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	ILS OR LOC RWY 16C	1, 2	1	KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 16L	1, 2	1	KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 16R	1, 2	1	KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16C (SA CAT I, CAT II/III)	1, 2	1	KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16L (SA CAT I, CAT II/III)	1, 2	1	KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16R (SA CAT I, CAT II/III)	1, 2	1	KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16C		2	KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16L		2	KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C		2	KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L		2	KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: MILITARY IAP, IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 11 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
DELETED FAC 3 DATA.
ADDED DIST FROM FAC FOR FAC 1 AND 2.
UPDATED FIX USE.

DEVELOPED BY:	**DATE:** 09/12/2012	**OFFICE:** AJV-354	**NAME:** JON DENTON
APPROVED BY:	**DATE:**	**OFFICE:** AJV-354	**NAME:** DEZ SILAGYI
	SIGNATURE:		

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON, SEA ATCT
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: MOONZ **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473905.71N/1223006.88W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 10/11/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA ATCT/APP CON
OTHER:

ORIGINAL RECEIVED

RADIO FIX AND HOLDING DATA RECORD

NAME: NOVNE **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473613.21N/1222058.91W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA ATCT/APP CON
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: PPAUL **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 474422.40N/1222931.66W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
FIX MOVED 22.38 FT NORTH, ATC REQUEST.
UPDATED FIX COORDINATES.
ADDED IAP AND SPECIAL IAP FOR CHARTING.
UPDATED FIX USE.

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA ATCT/APP CON
OTHER:

QUALITY CHECKED

RADIO FIX AND HOLDING DATA RECORD

NAME: RAYUU **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473347.17N/1222718.24W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
FIX MOVED 13.17 FT NORTH, ATC REQUEST.
UPDATED FIX COORDINATES.
ADDED IAP AND SPECIAL IAP CHARTING.
UPDATED FIX USE.

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA ATCT/APP CON
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: SEGAW **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473634.76N/1222309.11W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 1 **DATE OF REVISION:** 03/07/2013

REASON FOR REVISION:
FIX MOVED 55.18 FT NW.
UPDATED FIX COORDINATES.
ADDED IAP AND SPECIAL IAP TO CHARTING.
UPDATED FIX USE.

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA ATCT/APP CON
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: VASHN **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 473041.41N/1222719.32W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) M RWY 16R			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R			KSEA	SEATTLE	WA (US)
STAR	HAWKZ (RNAV)			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: STAR, IAP, SPECIAL IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 09/07/2012 **OFFICE:** AJV-354 **NAME:** DION LANCIA

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEZ SILAGYI

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA APP CON
OTHER:

RADIO FIX AND HOLDING DATA RECORD

NAME: YORUC **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 472205.46N/1221830.90W **TYPE:** WP

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** ESTABLISH

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
IAP	RNAV (RNP) Z RWY 16L			KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: IAP

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: ORIG **DATE OF REVISION:** 03/07/2013

DEVELOPED BY: **DATE:** 10/10/2012 **OFFICE:** AJV-354 **NAME:** JON DENTON

APPROVED BY: **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA ATCT/APP CON
OTHER:

RADIO FIX AND HOLDING DATA RECORD

INFO ONLY

NAME: PAINE VOR/DME **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 475511.40N/1221640.20W **TYPE:**

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** MODIFY

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	DIST FROM FAC FEET	MRA	MAA
1	PAINE	PAE	VOR/DME	L							17500

FIX RESTRICTIONS:
SPECIAL RNAV (RNP) M RWY 16R, KSEA, SEATTLE, WA

HOLDING: **HOLDING TYPE OF ACTION:** NO CHANGE

PATTERNS:

PAT	DIR	IDENT	TYPE	RAD/CRS/BRG	CRS INBOUND	TURN (L OR R)	LEG LENGTH TIME	LEG LENGTH DME	HOLDING ALTITUDES MIN	HOLDING ALTITUDES MAX	TEMPLATES MIN	TEMPLATES MAX
1	NW	PAE	VOR/DME	329.04	149.04	R	1-1 1/2		2000	17500	4	16

CONTROLLING OBSTRUCTIONS:

PAT	AIRSPEED	OBSTRUCTION	COORDINATES	ELEVATION	ACCURACY CODE
1	200	200' AAO	475148.00N/1221706.00W	814	4E
1	310	200' AAO	475148.00N/1221706.00W	814	4E

HOLDING RESTRICTIONS:
HOLDING LIMITED TO ESTABLISHED PATTERN

PROCEDURES REQUIRING CLIMB-IN-HOLD:

PAT	PROCEDURE TITLE	AIRPORT IDENT	CITY	STATE
1	BELLEVUE (LOST COMMUNICATIONS)	KRNT	RENTON	WA (US)

REMARKS:
PRECIPITOUS TERRAIN EVALUATION COMPLETED: NO ADJUSTMENT

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
DP	ARLINGTON			KAWO	ARLINGTON	WA (US)
DP	KIENO (OBSTACLE)			KBLI	BELLINGHAM	WA (US)
DP	PAINE			KPAE	EVERETT	WA (US)
DP	TAKE-OFF MINIMUMS			KPAE	EVERETT	WA (US)
DP	YELM			KOLM	OLYMPIA	WA (US)
DP	BELLEVUE (LOST COMMUNICATIONS)		1	KRNT	RENTON	WA (US)
DP	KENT			KBFI	SEATTLE	WA (US)
DP	NEEDLE			KBFI	SEATTLE	WA (US)
DP	BANGR (RNAV)			KSEA	SEATTLE	WA (US)
DP	HAROB (RNAV)			KSEA	SEATTLE	WA (US)
DP	MOUNTAIN			KSEA	SEATTLE	WA (US)
DP	SEATTLE			KSEA	SEATTLE	WA (US)
DP	SUMMA			KSEA	SEATTLE	WA (US)
EN ROUTE	V23					(US)
EN ROUTE	V287					(US)
IAP	LOC RWY 34			KAWO	ARLINGTON	WA (US)
IAP	NDB RWY 34			KAWO	ARLINGTON	WA (US)
IAP	RNAV (GPS) RWY 34			KAWO	ARLINGTON	WA (US)
IAP	RNAV (GPS) RWY 29			KBVS	BURLINGTON/MOUNT VERNON	WA (US)
IAP	ILS OR LOC/DME Y RWY 16R			KPAE	EVERETT	WA (US)
IAP	ILS OR LOC/DME Z RWY 16R			KPAE	EVERETT	WA (US)
IAP	ILS Z RWY 16R (SA CAT II)			KPAE	EVERETT	WA (US)
IAP	RNAV (GPS) RWY 34L			KPAE	EVERETT	WA (US)
IAP	RNAV (GPS) Y RWY 16R			KPAE	EVERETT	WA (US)
IAP	RNAV (GPS) Z RWY 16R			KPAE	EVERETT	WA (US)
IAP	VOR RWY 16R		1	KPAE	EVERETT	WA (US)
IAP	VOR/DME RWY 16R		1	KPAE	EVERETT	WA (US)
IAP	RNAV (GPS) Y RWY 16			KRNT	RENTON	WA (US)
IAP	RNAV (GPS) Z RWY 16			KRNT	RENTON	WA (US)
IAP	ILS OR LOC RWY 31L			KBFI	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 13R			KBFI	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 13R			KBFI	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 16C			KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 16L			KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 16R			KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 34C		1	KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 34L		1	KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 34R		1	KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16C (SA CAT I, CAT II/III)			KSEA	SEATTLE	WA (US)

IAP	ILS RWY 16L (SA CAT I, CAT II/III)		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16R (SA CAT I, CAT II/III)		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 34C (SA CAT I, CAT II)	1	KSEA	SEATTLE	WA (US)
IAP	ILS RWY 34L (SA CAT I, CAT II)	1	KSEA	SEATTLE	WA (US)
IAP	ILS RWY 34R (SA CAT I, CAT II)	1	KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16C		KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS) Y RWY 16L		KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) M RWY 16R		KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16C		KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16L		KSEA	SEATTLE	WA (US)
IAP	RNAV (RNP) Z RWY 16R		KSEA	SEATTLE	WA (US)
IAP	RNAV (GPS)-A		KS43	SNOHOMISH	WA (US)
STAR	MADEE (RNAV)		CYXX	ABBOTSFORD, BRITISH COLUMBIA	(CA)
STAR	MADEE (RNAV)		KBLI	BELLINGHAM	WA (US)
STAR	EPHRATA		KSEA	SEATTLE	WA (US)
STAR	GLASR		KSEA	SEATTLE	WA (US)
STAR	JAWBN		KSEA	SEATTLE	WA (US)

REQUIRED CHARTING: DP, STAR, IAP, CONTROLLER, EN ROUTE LOW, EN ROUTE HIGH

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 7 **DATE OF REVISION:** 05/05/2011

REASON FOR REVISION:
UPDATE HOLDING RESTRICTIONS
UPDATE FIX USE
UPDATE REQUIRED CHARTING

DEVELOPED BY: **DATE:** 10/06/2010 **OFFICE:** AVN-130 **NAME:** JOHN WALKER

APPROVED BY: **DATE:** 03/01/2011 **OFFICE:** AVN-130 **NAME:** DEZ SILAGYI

SIGNATURE:

DISTRIBUTION:
NFDC
FPO: WST
ARTCC: ZSE
ATC FACILITY: SEA
OTHER: PAE ATCT

US Department of Transportation
Federal Aviation Administration

FLIGHT PROCEDURES STANDARDS WAIVER

FLIGHT STANDARDS USE ONLY

CONTROL NO:

1. Flight Procedure Identification:
SEATTLE-TACOMA INTL
Seattle, WA
RNAV (RNP) Z RWY 16L

2. Waiver Required and Applicable Standard:
Waiver Required: To use an "at or below" altitude in the missed approach.
Applicable Standard: FAAO 8260.3B, Volume 1, Para 274 (Straight Missed Approach Obstacle Clearance).

3. Reason for Waiver *(Justification for nonstandard treatment)*:
Air traffic has a need to keep aircraft that are executing a missed approach at 2000 ft while they are within 1 NM of the airport due to other traffic overflying the airport at 3000 ft.

4. Equivalent Level of Safety Provided:
40:1 OCS and level surface evaluations were completed from the DA/MAP to YORUC and from YORUC to the clearance limit. The at or below altitude of 2000' MSL provides 1000' ROC for aircraft that level off at 2000' MSL. From YORUC to the clearance limit the OCS was evaluated beginning at 1000' MSL(2000' MSL less 1000' ROC) at YORUC to simulate the first level surface portion of the missed approach.

5. How Relocation or Additional Facilities Will Affect Waiver Requirement:
NA - RNAV Procedure.

6. Coordination With User Organizations (Specify):
AJV-354:

7. SUBMITTED BY

DATE:	Office Identification:	Title:	Signature:
10/11/2012	AJV-35	Gregory Yamamoto, Manager, Terminal Products Group	

FAA FORM 8260 - 1 / July 2003 (computer generated)

8. CONTINUATION	
Comments:	
9. AFS ACTION	☐ Approved ☐ Disapproved ☐ Not Required
Comments:	

Date:	Routing Symbol:	Signature:

CAKCA – DGLAS

PFAF Calculations

Min Intermediate Segment Alt (a):	
LTP MSL Elevation (b):	
TCH:	
Glidepath Angle (Θ):	
Distance from LTP to PFAF (D):	0.00
	0.00 NM
LTP/FTP Latitude:	
LTP/FTP Longitude:	
True RWY Bearing/True Course:	
PFAF Latitude:	000° 00' 00.00"
PFAF Longitude:	000° 00' 00.00"

Latitude/Longitude valid for straight segment only

VEB OCS Origin & Slope

Intermediate Segment Altitude:	2200
LTP Elevation:	432.5
Glidepath Angle:	3
TCH:	53.57
RNP Value:	0.30
Δ ISA:	-22.135
Straight In Segment	
(*Wingspan =<262*) **LTP to Origin:**	3,679.26'
(*Wingspan =<136*) **LTP to Origin:**	3,470.18'
OCS Slope Ratio:	20.91 : 1
RF Turn Segment | Bank angle:	19.12°
(*Wingspan =<262*) **LTP to Origin:**	4,053.68'
(*Wingspan =<136*) **LTP to Origin:**	3,622.25'
OCS Slope Ratio:	20.91 : 1

Version 2.0

VEB Temperature Limits

Glidepath Angle:		
Max Glidepath Angle:		
PFAF Elevation:		
LTP Elevation:		
ACT:		
Min Glidepath Angle	#DIV/0!	
NA Below	#DIV/0!	#DIV/0!
NA Above	#DIV/0!	#DIV/0!

Intermediate Segment VEB ROC

Glidepath Angle	3.00°
LTP MSL Elevation	432.50
TCH (ft)	53.57
OCS Slope	20.91
OCS Origin Distance (ft) *(measured along-track from LTP)*	3,679.26
Obstacle Distance (ft) *(measured along-track from LTP)*	31,450.88
VEB ROC *(at obstacle)*	**379**
Glidepath MSL altitude at Obstacle	2,158.04
OCS MSL altitude at Obstacle	1,779.13

KEEP WITH PACKAGE

PFAF
Calculations

Min Intermediate Segment Alt (a):	
LTP MSL Elevation (b):	
TCH:	
Glidepath Angle (Θ):	
Distance from LTP to PFAF (D):	0.00
	0.00 NM
LTP/FTP Latitude:	
LTP/FTP Longitude:	
True RWY Bearing/True Course:	
PFAF Latitude:	000° 00' 00.00"
PFAF Longitude:	000° 00' 00.00"

Latitude-Longitude valid for straight segment only

VEB
OCS Origin & Slope

Intermediate Segment Altitude:	2200
LTP Elevation:	432.5
Glidepath Angle:	3
TCH:	53.57
RNP Value:	0.12
Δ ISA:	-22.135

Straight In Segment

(Wingspan =<262) **LTP to Origin:**	**2,426.54'**
(Wingspan =<136) **LTP to Origin:**	**2,217.16'**
OCS Slope Ratio:	**20.94 : 1**

RF Turn Segment | Bank angle:	**19.12°**
(Wingspan =<262) **LTP to Origin:**	**2,801.52'**
(Wingspan =<136) **LTP to Origin:**	**2,369.45'**
OCS Slope Ratio:	**20.94 : 1**

Version 2.0

VEB
Temperature Limits

Glidepath Angle:		
Max Glidepath Angle:		
PFAF Elevation:		
LTP Elevation:		
ACT:		
Min Glidepath Angle	**#DIV/0!**	
NA Below	**#DIV/0!**	**#DIV/0!**
NA Above	**#DIV/0!**	**#DIV/0!**

Intermediate Segment
VEB ROC

Glidepath Angle	3.00°
LTP MSL Elevation	432.50
TCH (ft)	53.57
OCS Slope	20.94
OCS Origin Distance (ft) *(measured along-track from LTP)*	2,426.54
Obstacle Distance (ft) *(measured along-track from LTP)*	31,450.88
VEB ROC *(at obstacle)*	**319**
Glidepath MSL altitude at Obstacle	2,158.04
OCS MSL altitude at Obstacle	1,838.76