Letter of Agreement

Effective: August 7, 2025

1) **PURPOSE.** This letter of agreement (LOA) delegates airspace to Northern California TRACON (NCT) and establishes procedures for coordination and control of air traffic between Oakland ARTCC (ZOA) and NCT. The procedures contained in this LOA may be modified on an individual basis with proper coordination. This agreement is supplemental to Order JO 7110.65, Air Traffic Control.

2) **GENERAL.**
   a) NCT has continuous control of their airspace.
   b) Aircraft entering ZOA Areas North, South, or East with diverging courses may be separated by 3 NM constantly increasing to 5 NM at the time of communications change.
   c) Inappropriate Altitude for Direction of Flight (IAFDOF) may be assigned in accordance with FAA JO7110.65 and with prior approval from the receiving facility.
   d) NCT has control for RV 30 degrees left/right, and descent except where noted in Attachment 3.

   NOTE: *NCT Sunol and Cedar sectors are responsible for separation from all Optimized Profile Descent (OPD) arrivals, OAK/SFO conventional arrivals, and Wine Country (Napa CX) arrivals when exercising control under this section.*

   e) ZOA has control for RV 30 degrees left/right, and climb except where noted in Attachment 3.
   f) Control statements in this agreement are in addition to the +/- 30 and descent/climb unless specifically stated as “only.”
   g) Departure speed assignments issued by NCT do not require verbal coordination with ZOA.
   h) Arrival speed assignments must be addressed individually in this agreement, and where authorized.
   i) NCT must advise ZOA of changes in NCT’s traffic and airspace configuration.
   j) NCT must notify ZOA Area East of changes in runway configuration at RNO.
   k) NCT must issue the appropriate altimeter to aircraft descending via an OPD STAR.
   l) The ZOA/NCT controller receiving a handoff from the other facility is responsible for any coordination that results from the use of the standard control or control additions/restrictions contained in Attachment 3.
   m) Interfacility coordination must be accomplished with the appropriate sector or as identified in Attachment 3; that sector is then responsible for further interfacility coordination.
   n) Unless otherwise specified in Attachment 3 in accordance with this agreement, aircraft must be handed off to the first sector the aircraft enters in the receiving facility.
   o) ZOA Area South must advise NCT Seca sector of the status of the Hunter military operating areas (MOAs). When the Hunter MOA is active aircraft must be routed as indicated in Attachment 3.
   p) ZOA Area South must advise NCT Seca sector when R2513 is active at or above 130. When R2513 is active aircraft will be assigned a heading east or west of R2513.
   q) Except as defined in Attachment 1, NCT has control for direct first fix on assigned route outside of NCT’s airspace.

      NOTE- *When aircraft have an aircraft/jet route in the flight flight plan, NCT must clear aircraft to the first fix on the airway outside of NCT.*

3) PRE-ARRANGED COORDINATION PROCEDURES

a) The pre-arranged coordination procedures contained in this agreement are the only valid P-ACP procedures.

b) Except when the Hunter MOA is active, southbound departures exiting via Morgan Sector's airspace that are requesting FL200 or higher and handed off directly to ZOA Pac South must be laterally (5nm) separated from the SILCN arrival routes prior to exiting NCT airspace.

c) SERFR/WWAVS STAR:
   i) ZOA Pac South must display full data blocks including the aircraft's assigned altitude.
   ii) Aircraft must be established on, or direct WWAVS, and descending via the SERFR/WWAVS arrival no later than WWAVS waypoint.
   iii) ZOA Pac South must initiate an automated hand-off no later than 10 NM south of NRRLI and prior to descending out of FL200.
   iv) For aircraft direct WWAVS, ZOA Pac South must initiate an automated hand-off prior to descending out of FL220.
   v) ZOA Pac South may penetrate the airspace of NCT Seca/Laguna sector with aircraft established on, or direct WWAVS over or southwest of the SERFR/WWAVS STAR, and descending via the SERFR arrival.
   vi) Transfer of communications must occur after the completion of the radar handoff or no later than 15 nm prior to WWAVS waypoint regardless of hand-off status.

d) SILCN STAR
   i) ZOA Pac South must display full data blocks including the aircraft's assigned altitude.
   ii) Aircraft must be established on, or direct VLLEY, and descending via the SILCN no later than VLLEY waypoint.
   iii) ZOA Pac South must initiate an automated hand-off no later than 15 nm south of SILCN and prior to descending out of FL200.
   iv) For aircraft direct VLLEY, ZOA Pac South must initiate an automated hand-off prior to descending out of FL220.
   v) ZOA Pac South may penetrate the airspace of NCT Morgan or Seca sector with aircraft established on, or direct VLLEY, and descending via the SILCN arrival.
   vi) Transfer of communications must occur after the completion of the radar handoff or no later than 10 nm prior to VLLEY waypoint regardless of handoff status.

e) BDEGA STAR
   i) ZOA Area North must display full data blocks including the aircraft's assigned altitude.
   ii) Aircraft must be established on and descending via the BDEGA no later than LOZIT waypoint.
   iii) ZOA Area North must initiate an automated hand-off no later than 10 nm north/northwest of LOZIT.
   iv) ZOA Area North may penetrate the airspace of NCT Boulder/Sutro sector with aircraft established on and descending via the BDEGA arrival.
   v) Transfer of communications must occur after completion of the radar handoff or between LOZIT and a point 10 nm north of LOZIT, regardless of hand-off status.

f) BRIXX STAR
   i) ZOA Area North must display full data blocks including the aircraft's assigned altitude.
   ii) Aircraft must be established on and descending via the BRIXX no later than ZINNN waypoint.
   iii) ZOA Area North must initiate an automated hand-off no later than 10 nm north/northwest of ZINNN.
   iv) ZOA Area North may penetrate the airspace of NCT Boulder/Richmond/Sutro sector with aircraft established on and descending via the BRIXX arrival.
   v) Transfer of communications must occur after completion of the radar handoff or between 10 nm north/northwest of the ZOA-NCT boundary and the boundary, regardless of hand-off status.

g) MRY Runway 28L/28R Arrivals
   i) ZOA Area South must display full data blocks including the aircraft's assigned altitude.
   ii) Aircraft must be west of the SAU125R and direct WIGGL, descending to 10,000 ft no later than 20 nm from the NCT-ZOA boundary.
   iii) ZOA Area South must initiate an automated hand-off to Seca sector no later than 20 nm from the NCT-ZOA boundary.
   iv) ZOA Area South may penetrate the airspace of NCT Morgan sector with aircraft west of the SAU125R and direct WIGGL, descending to 10,000 ft.
   v) Transfer of communication must occur after completion of the radar hand-off and prior to entering Seca sector airspace.

4) FLIGHT DATA

a) Aircraft will be routed via Adapted Departure Routes (ADR's), Adapted Departure and Arrival Routes (ADAR's) or as specified in Attachment 3. Routes of flight not in compliance must be individually coordinated.

b) ZOA is responsible for entering all verbally coordinated route and altitude changes into the computer.

5) ARRIVALS

a) When applicable, ZOA Must ensure RNAV capable jet aircraft are assigned the appropriate OPD STAR.

b) Non-RNAV arrival aircraft not assigned a conventional route must be assigned a heading to simulate the appropriate RNAV STAR or route as indicated in Attachment 3.

c) ZOA must assign the following OPD STAR transitions when applicable:

AIRPORT	RUNWAY	TRANSITION
SJC	30L/R	RWY 30 (North/West) Transition
SJC	12L/R	RWY 12 (South/East) Transition
SMF	35L/R	RWY 35 (North) Transition
SMF	17L/R	RWY 17 (South) Transition

d) Unless specified otherwise in Attachment 1, ZOA must ensure that all aircraft assigned an OPD STAR are established on and descending via the arrival, prior to entering NCT Airspace.

e) After initial coordination with the NCT sector has been established, ZOA may penetrate and hold at the following fixes in NCT's airspace without further coordination. NCT will protect the holding pattern within their delegated airspace at the following altitudes:

FIX	ALTITUDE	NOTES
LOZIT	AOA 11,000	
PYE VOR/DME	AOA 9,000	OAK (SFO RWY 10 only)
STINS	AOA 7,000	SFOW only
STINS	AOA 9,000	SFOE only
PIRAT	Between 10,000 and 14,000	

f) West Plan Dual Arrival Route (DAR) Procedures for SFO.
   i) The decision to utilize dual arrival streams must be a collaborative process between the ZOA and NCT Prior to utilizing DARs, the following conditions must be in effect:
      (1) NCT must be in a west-plan configuration;
      (2) SFO must be landing on Runways 28L/R;
      (3) The NCT and ZOA will determine the appropriate arrival rate when DARs are in use; and
   ii) NCT must make the final determination to utilize DARs to SFO.
g) High performance turboprop aircraft that are able to comply with all published speeds may be routed via the applicable jet route STAR.
h) Low performance jets that are unable to comply with all published speed restrictions may be routed via the applicable turboprop route.

6) EN-ROUTE

a) Aircraft transiting NCT airspace at or below 15,000 feet southwest of a Scaggs Island (SGD) VORTAC – PXN line must be assigned one of the following routes:
   i) Aircraft northbound must be established on V27 by EUGEN.
   ii) Aircraft southbound must be established on V27 by STINS.
   iii) During SFOW operations, aircraft landing at airports in ZOA Area North may be routed via T263 or V301 SUNOL SGD direct to their destination.
   iv) During SFOW, aircraft transitioning through NCT airspace either northbound or southbound may utilize T257 at or below 10,000 feet. Aircraft utilizing this route must be established on T257 while in the confines of NCT airspace.

7) COLUMBIA (O22) AIRPORT

a) NCT is the clearance authority for all O22 approaches/departures.
b) Arrivals
   i) NCT must coordinate IFR arrivals with ZOA, as appropriate.

8) GROVELAND/PINE MOUNTAIN LAKE (E45) AND MARIPOSA-YOSEMITE (MPI) AIRPORTS

a) ZOA is the clearance authority for all approaches into E45 and MPI.

b) Arrivals

i) NCT must obtain approval from ZOA prior to issuing an IFR approach.

ii) Prior to terminating radar service, NCT must instruct the aircraft to report missed approach, landing, or cancelling IFR to ZOA.

iii) ZOA must advise NCT when a previously coordinated IFR arrival has executed a missed approach, landed, or cancelled IFR.

c) Simultaneous IAPs at E45 and MPI or at E45 and O22 are not authorized.

9) SOUTH LAKE TAHOE (TVL) AIRPORT

a) ZOA is the clearance authority for all approaches into and departures out of TVL.

b) Arrivals

i) ZOA must coordinate IFR arrivals with NCT as appropriate. When an IAP is coordinated, NCT must protect the published missed approach procedure.

ii) NCT must obtain approval from ZOA prior to issuing an approach clearance into TVL.

iii) Prior to terminating radar service, NCT must instruct the aircraft to report missed approach, landing, or cancellation of IFR to ZOA.

10) TRUCKEE-TAHOE (TRK) AIRPORT

a) ZOA is the clearance authority for all approaches into and departures out of TRK.

b) ZOA must advise NCT when the TRK tower opens, including the active runways and approach in use, and any changes thereafter.

c) Arrivals

i) ZOA must coordinate IFR arrivals with NCT as appropriate. When an IAP is coordinated, NCT must protect the published missed approach procedure.

ii) Visual Approaches - NCT must:

(1) Obtain a point-out and the current ATIS information from ZOA Area East and clear the aircraft for the visual approach; or

(2) Issue direct TRK, maintain 14,000 ft, and hand-off to ZOA Area East. ZOA has control on contact.

iii) NCT is not required to clear aircraft for the RNAV RWY 11 or 20 approaches.

iv) When issuing the RNAV RWY 20 approach, NCT must:

(1) Obtain a point-out and the current ATIS information from ZOA Area East.

(2) Clear the aircraft for the approach.

(3) If not clearing for the approach, NCT must issue the filed route, or coordinate a heading, and maintain 14,000 ft.

v) For RNAV RWY 11 Approaches, NCT must:

(1) Issue direct LEKYI, maintain 14,000 ft.

(2) Hand-off to ZOA Area East, ZOA has control on contact.

vi) For all other approaches, NCT must issue the filed route, or coordinate a heading, and maintain 14,000 ft.

vii) When TRK Tower is closed, NCT must obtain approval from ZOA prior to issuing an approach clearance and must instruct the aircraft to report missed approach, landing, or cancellation of IFR with ZOA.

d) Departures
   i) ZOA must coordinate the TRUCK DP with NCT.
   ii) When a TRUCK DP is coordinated, NCT must protect the TRUCK DP, including the holding pattern, 13,000 feet, and below until ZOA completes a point-out/hand-off on the departing aircraft.
e) Published instrument procedures at TRK conducted simultaneously with published instrument procedures at TVL are not authorized.

11) MINDEN-TAHOE (MEV)/ CARSON CITY (CXP) AIRPORTS

a) NCT is the clearance authority for all approaches into and departures out of MEV/CXP.
b) ZOA will coordinate with NCT prior to issuing an approach to CXP.
   i) Prior to terminating radar service, ZOA must instruct the aircraft to report missed approach, landing, or canceling IFR to NCT.

12) SUSANVILLE MUNICIPAL (SVE) AIRPORT

a) ZOA is the clearance authority for all approaches into and departures out of SVE.
b) When issuing the RNAV RWY 29 approach, NCT must:
   i) Instruct the aircraft to report missed approach, landing, or canceling IFR to ZOA.
   ii) Protect 14,000 feet and below northwest of HALLE until advised that the approach is terminated.
c) Prior to approving or issuing any other procedure at SVE, ZOA must coordinate with NCT. NCT must protect 14,000 feet and below northwest of HALLE until advised that the procedure is terminated.

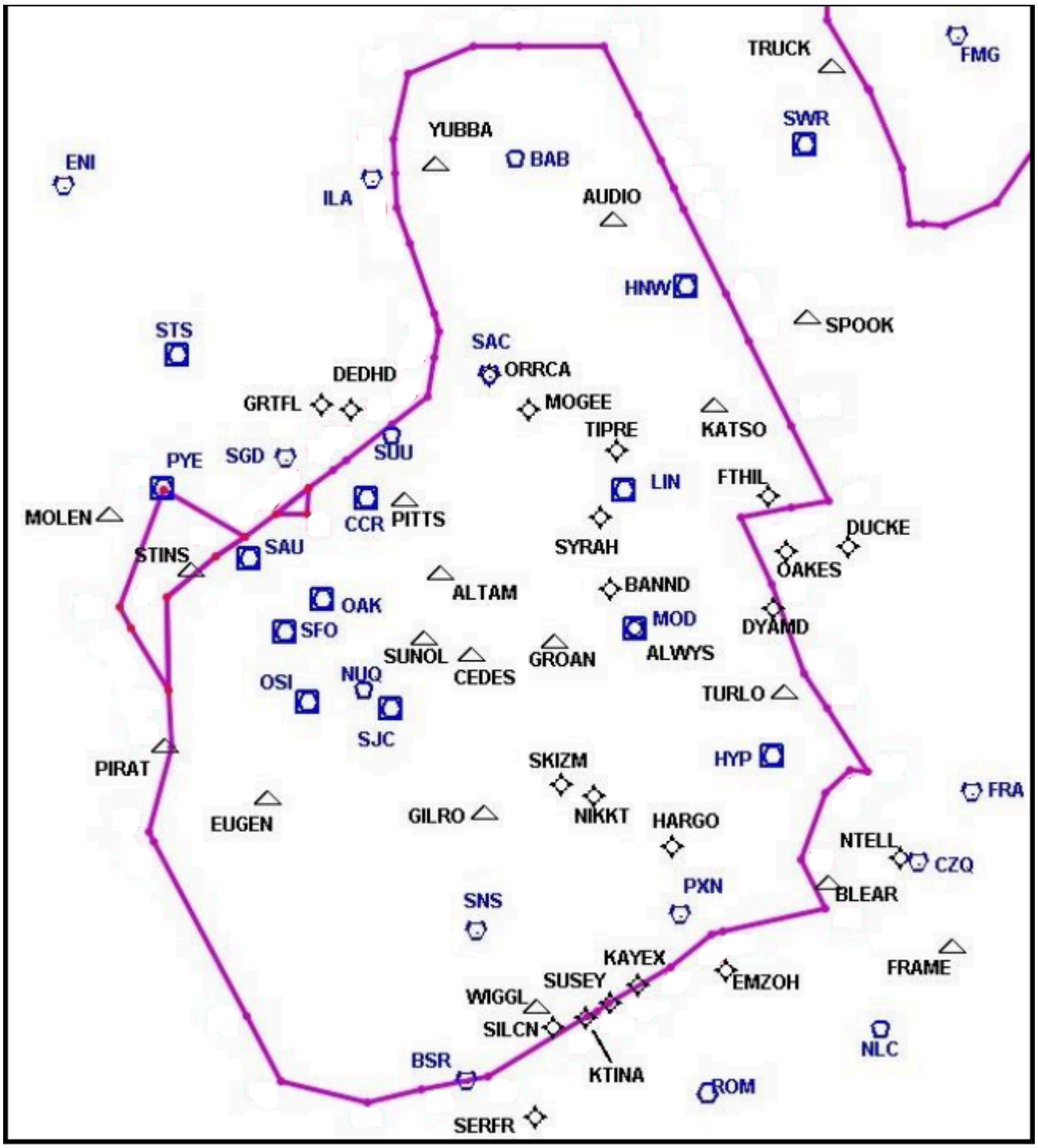
13) NERVINO-BECKWOURTH (O02) AIRPORT

a) ZOA is the clearance authority for all O02 approaches/departures.

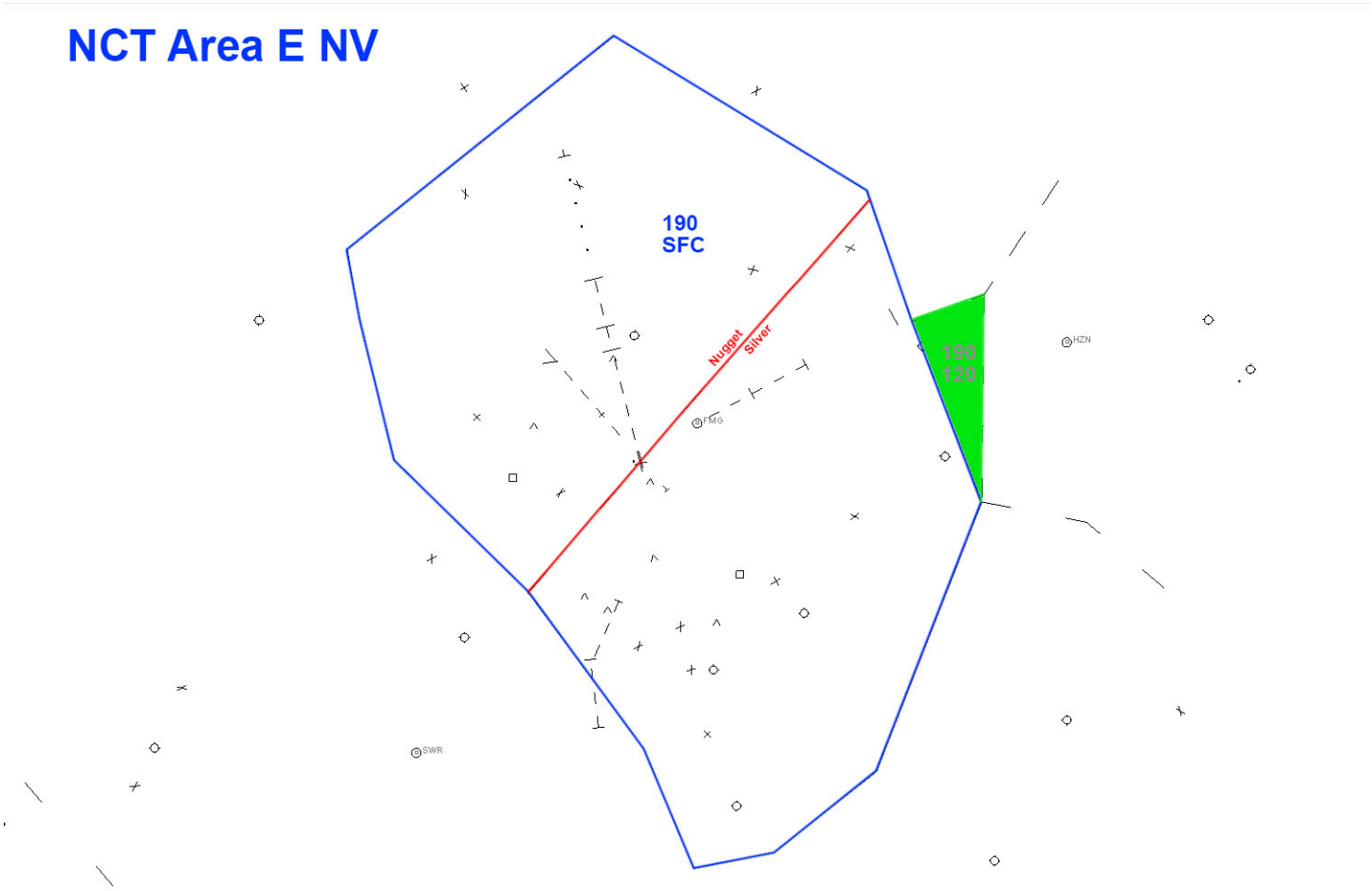
14) SILVER SPRINGS (SPZ) AIRPORT

a) When NAS Fallon RATCF (NFA) is open, they are the clearance authority for IFR arrivals and departures at SPZ. At all other times ZOA is the clearance authority for IFR operations at SPZ.
b) When ZOA is the IFR clearance authority ZOA will coordinate with NCT prior to issuing an IFR approach or departure at SPZ.

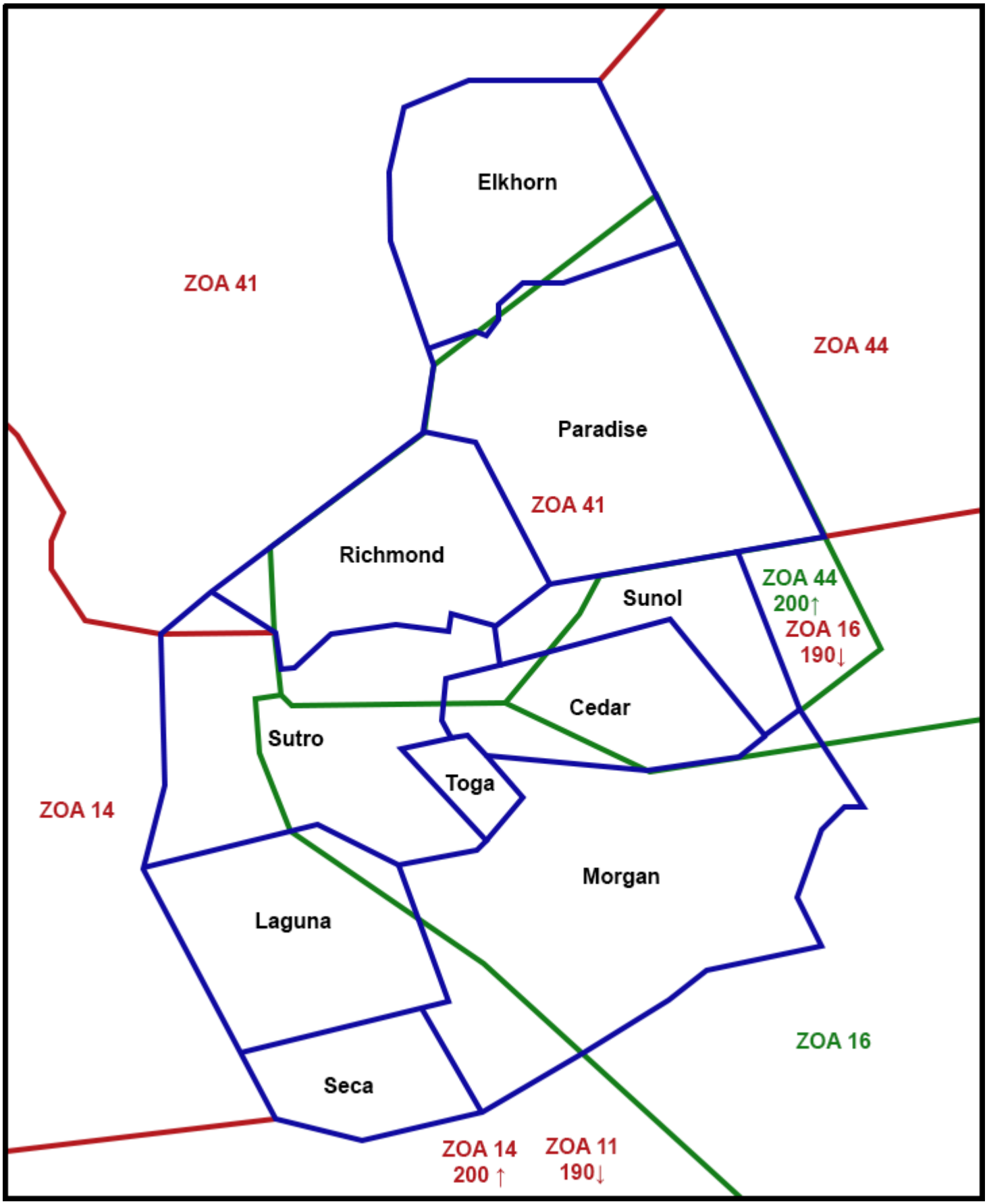
ATTACHMENT 1. DELEGATION OF AIRSPACE



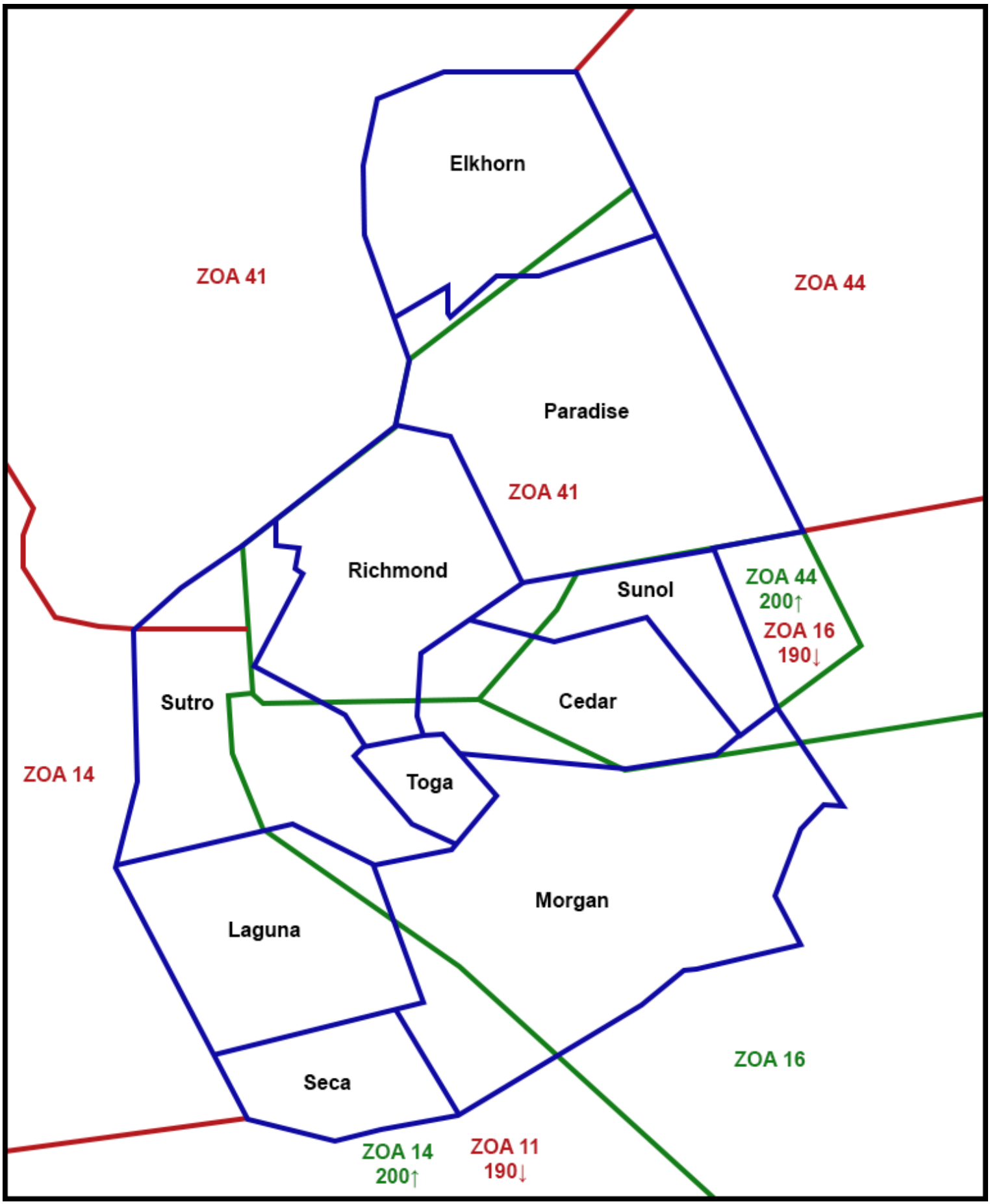
ADJACENT AIRSPACE STRATIFICATION AND SECTORIZATION.



SFO West Plan and SMF Runway 17.



SFO East Plan and SMF Runway 35.



ATTACHMENT 2. DEFINITIONS, HANDOFF CODES, AND FREQUENCIES

1. DEFINITIONS

Aircraft Types. Assign routes and altitudes based on the following definitions

P	Non-jet aircraft with a cruise speed of 179 knots or less
T	Non-jet aircraft with a cruise speed of 180 knots or greater
J	Jet aircraft and 4-engine turboprop aircraft

Airport Configuration and Traffic Flow Descriptions. Assign routes and altitudes based on the following airport configuration and traffic flow descriptions:

(SFOW)	SFO landing Runways 01 or 28 OAK landing Runways 28 and 30, SJC landing Runways 30.
(SFOE)	SFO landing Runways 10 or 19, OAK landing Runways 10 and 12, SJC landing Runways 12.
(OAKE)	SFO landing Runways 01 or 28 and OAK landing Runways 10 and 12
(SJCE)	SFO landing Runways 01 or 28 OAK landing Runways 28 and 30, SJC landing Runway 12

2. ZOA AND NCT FREQUENCIES AND HANDOFF CODES

NCT SECTOR	FREQUENCY
BOULDER (Q2B)	133.95
CEDAR (Q2Z)	128.32
ELKHORN (Q5E)	125.40
PARADISE (Q5P)	123.70
GROVE (Q3G)	125.35
LAGUNA (Q2G)	128.57
LICKE (Q1L)	120.10
MORGAN (Q1M)	124.52
NILES (Q2N)	134.50
NUGGET (Q8N)	126.30
RICHMOND (Q4R)	120.90
SECA (Q2S)	127.15
SILVER (Q8S)	119.20
SUNOL (Q3S)	124.80
SUTRO (Q4U)	135.10
VALLEY (Q3Y)	125.10

ZOA SECTOR	FREQUENCY
Area South (C16)	123.80
Pac South (C14)	134.55
Pac North (C36)	119.97
Area North (C41)	125.85
Area East (C44)	127.95

ATTACHMENT 3. ARRIVAL, DEPARTURE, AND OVERFLIGHT ROUTES AND ALTITUDES

1. ZOA/NCT must verbally coordinate speed restrictions on the SFO OPD STARs except where noted in the tables below.
2. Control additions/restrictions listed in the tables below are upon contact unless otherwise noted.
3. NCT Area E must accomplish all intra-facility coordination when requesting or approving requests that affect both the NCT CA and NV sectors.

Table 1-1. From Area South (Sectors 10 & 11) to NCT west of NLC.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
SFO (SFOW)	SERFR STAR	J	At filed altitude		
SFO (SFOE)	WWAVS STAR				
SFO (SFOW)	BSR SHOEY OSI or SNS V25 OSI	T P			
SFO (SFOE)	BSR or SHOEY V27 HADLY SAU				
NUQ	HOSNU	J T	↓ 160 or level at lower filed altitude		
SJC (SFOW)	SILCN STAR or SNS KLIDE	J	At filed altitude		
SJC (SFOE/SJCE)	SILCN STAR or SNS HITIR	J T			
SJC	KLIDE	T P	↓160 or lower filed		
RHV	GILRO	J T P			
OAK	EMZOH STAR	J	Descend via or @ lower filed	MORGAN	NCT control RV right of course only
OAK HWD	PXN V301 SUNOL or PXN STAR	J T P	↓ FL200 or lower filed		
WINE COUNTRY (SFOW)	VNYRD STAR	J T	Cross MISON @ FL200 (if filed above FL200)	SUTRO	
WINE COUNTRY (SFOE)	REBAS STAR				
WINE COUNTRY (SFOW)	OAK.VNYRD STAR	J T P	@ 160 or higher filed altitude		
	BSR V27 PYE or V301 SUNOL SGD	T P	@140 or lower filed altitude		
WINE COUNTRY (SFOE)	BRIXX.REBAS STAR	J T P	@ 160 or higher filed altitude		
	BSR V27 PYE or MOD OAKEY	T P	@140 or lower filed altitude		
LVK	MOD UHHUT	J T P	↓ FL200 or lower filed		
SUU CCR	MOD OAKEY				

Table 1-1 (continued). From Area South (Sectors 10 & 11) to NCT west of NLC.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
PAO	DOCAL	T P	Turboprops: ↓ 160 Props: ↓ 100		
SQL	DOCAL AMEBY				
E16	Direct				
CVH					
SNS	AANNE SNS	J T P	↓ 100		NCT Control
WVI	SNS				
MRY (RWY10)	PEBBS				
MRY (RWY28)	WIGGL		X WIGGL @ 100		
SCK C83 TCY O27 1O3	MOD		↓ FL200	MORGAN	

Table 1-2. From NCT to Area South (Sectors 10 & 11) west of NLC.

From Airport/Sector	Route	ACFT	Altitude	Requirements
SFO	SSTIK, WESLA, SEGUL, or GAP DP	J T	↑ FL190 or lower filed altitude	RNAV DP or direct last fix in approach airspace
OAK	CNDEL, COAST, or NUEVO DP			
HWD OAK CCR	CEDES HARGO BLEAR FRAME	T P		Established on route by HARGO
LVK HWD SUU CCR Eastbound	CEDES MKNNA	J T P		
PAO RHV NUQ SQL Eastbound	MKNNA	T P		
LVK SCK TCY C83	PXN AVE or FRAME EHF	J T P		
SJC	TECKY, SPTNS, or SJC DP or via MOONY or Direct AVE/NTELL	J		SJC: RNAV DP or Direct last fix in NCT airspace or Direct NTELL SPTNS/TECKY DP Direct NTELL: NCT will turn direct NTELL no later than 5 nm north of Toga/Morgan boundary or else RV 120 heading
SJC NUQ	SUSEY	T P		
NUQ	Direct first fix or Direct CZQ/NTELL	J		
MORGAN/VALLEY	AVE or filed routing	J T P		
SECA	BSR V27	J T		Aircraft @070 must be routed BSR V27 MQO
MRY	BSR LIBBO TOKIO or SERFR			NCT direct LIBBO or TOKIO (Requesting AOA 090)
SNS WVI	BSR or SUSEY			(Requesting AOB 090)

Table 1-2 (continued). From NCT to Area South (Sectors 10 & 11) West of NLC.

From Airport/Sector	Route	ACFT	Altitude	Requirements
CEDAR	Direct First Fix ***EXCEPTION:*** Aircraft landing BFL: AVE EHF	J T	↑ FL190 or lower filed altitude	RNAV DP or Direct last fix in approach airspace or Direct NTELL ZOA control
SFO OAK HWD		J		
SFO (SFOE)	SAHEY or GAP SID or Direct NTELL			
OAK (SFOE)	KATFH, SKYLINE, or OAK SID, or Direct NTELL			
SFO (SFOE) Landing BFL	OSI AVE EHF	T		
MORGAN/SECA	Filed route **HUNTER MOAs HOT:** Aircraft vectored west of the Hunter MOA must be assigned a 160 heading not less than 5 nm west of BSR; aircraft between 7,000 and 9,000 must be routed via and established on V27 Aircraft vectored east of the Hunter MOA must be on a heading to remain at least 3 nm east of the MOA Seca is responsible for any required point-outs to Morgan	J T P	↑ FL190 or lower filed altitude	No verbal coordination
SQL Filed via V27	Established V27 by BSR	T		(Requesting AOB 090)
SQL	Filed route			

Table 1-3. From Area South (Sectors 15, 22) to NCT East of NLC.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
SMF	SUUTR STAR	J	Descend via or lower filed	SUNOL	ZOA control for speeds 260 to 300 kts NCT control for RV right and speeds North of TURLO AOB FL230
MCC BAB MHR SAC	TURLO LIN	J T P	↓ FL200 or lower filed		
SUU	TURLO LIN OAKEY				
SUU CCR	BMBER STAR	J	Descend via or lower filed		
SCK	MOD or SIMMS	J T P	↓ 100 or 120 or level at lower filed altitude		

Table 1-3 (continued). From Area South (Sectors 15, 22) to NCT East of NLC.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
MOD	MOD	J T P	↓ 100 or 120 or level at lower filed altitude		
SJC	RAZRR STAR		Descend via		NCT control AOB FL230
	KLIDE via S of RAZRR (Non-RNAV)		↓ FL200 or lower filed altitude		
	MOD BORED KLIDE	T	↓ 160	SUNOL	
	BUSHY	P			
SFO (SFOW)	MOD CEDES	T P	↓ 160 or level at lower filed altitude		
SFO (SFOE)	WRAPS REJOY V6 PITTS or SNS V230 SHOEY V27 HADLY SAU				
OAK (SFOE) (OAKE)	OAKES STAR	J		SUNOL	
OAK	PXN V301 SUNOL or PXN STAR	T P		MORGAN	
	WRAPS			SUNOL	
HWD	OAKES STAR	J T			
	WRAPS CATTY	P			
	PXN V301 SUNOL or PXN STAR	T P		MORGAN	
LVK	MOD UHHUT	J T P			Cross NCT boundary AOB FL200
MRY SNS WVI CVH E16	PXN SNS	J T P	↓ FL200		
CCR & WINE COUNTRY	WRAPS OAKEY	T P	↓ 160 or lower filed altitude	SUNOL	
CCR * WINE COUNTRY	MOD OAKEY		Cross 20nm South of MOD @FL200	CEDAR	
NUQ	PXN HOSNU or HOSNU S of RAZRR	J	↓FL200 or lower filed altitude	TURLOCK	Direct HOSNU ZOA sequence with SJC NCT control

Table 1-4. From NCT to Area South (Sector 22) east of NLC.

From Airport/Sector	Route	ACFT	Altitude	Requirements
PARADISE	FTHIL or FROGO SID	J T	↑ Filed FL190 or lower altitude	
MORGAN Landing VIS, FAT, or FCH	Direct NTELL	J T P	↓ 110	
LVK SCK TCY C83	FRAME EHF		↑ FL190	

Table 1-5. From Pac South (Sector 14) to NCT over BSR.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
SFO (SFOW)	SERFR STAR or Direct WWAVS SERFR STAR	J	Descend Via	LAGUNA (J) SECA (T/P)	No verbal coordination from ZOA on speed assignments of 280 or less NCT Control Speeds 250-280 knots IAS N of NRRLI
SFO (SFOE)	WWAVS STAR or Direct WWAVS WWAVS STAR				
SFO (SFOW)	BSR STAR		↓ FL200		NCT control RV left north of BSR @ FL200 and control RV SKUNK or ANJEE
SFO (SFOW)	BSR SHOEY OSI	T P			
SFO (SFOE)	BSR or SHOEY V27 HADLY SAU	J T P			NCT control RV west of course when North of BSR
SJC	SILCN STAR or Direct VLLEY SILCN STAR	J	Descend Via	MORGAN	NCT control speeds NCT control RV right of course only NCT responsible for any further coordination with ZOA sectors
SJC (SJCW)	SNS KLIDE		X 15NM SOUTH SNS @ FL200		
SJC (SFOE/SJCE)	SNS HITIR				

Table 1-6. From NCT to Pac South (Sector 14) over BSR.

From Airport/Sector	Route	ACFT	Altitude	Requirements
SFO	SSTIK, WESLA, SEGUL or GAP SID	J T	↑ FL190	RNAV DP or direct last fix in approach airspace ZOA control
OAK	CNDEL or COAST or NUEVO SID			
MRY	BSR LIBBO TOKIO or SERFR			NCT direct LIBBO or TOKIO (Requesting AOA FL200)
SNS WVI	BSR			(Requesting AOA FL200)
SQL	Filed route	T		

Table 1-7. From Pac South (Sector 35) to NCT over the ocean.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
SJC (SFOW)	TPCAT HEPAP SJC	J T P	X TPCAT @100	BOULDER	Direct HEPAP @ 100 (SFOW only) NCT control Boulder will PO to Sutro if necessary on Tailored Arrivals
SJC (SFOE)			X TPCAT @ 080		
SFO OAK (SFOW)	PIRAT OSI		X PIRAT @ 100		
	PIRAT STAR				
SFO OAK (SFOE)	PIRAT SAU		X PIRAT @ 080		
MRY	Direct		↓ 080		

Table 1-8. From NCT to Pac South (Sector 35) over the ocean.

From Airport/Sector	Route	ACFT	Altitude	Requirements
SJC (SFOW)	MOLEN AMAKR BOXER	J	↑ FL190	Heading 260° ZOA control
SFO OAK SJC HWD NUQ PAO RHV SQL HAF MRY (SFOW)	GNNRR SID or oceanic departures direct the filed oceanic transition fix	T P	↑ 130 or lower filed altitude	ZOA control
		J	↑ FL190	
SFO OAK SJC HWD NUQ PAO RHV SQL HAF MRY (SFOE)	Direct ALCOA, BEBOP, or CINNY All others heading 260	T P	↑ 130 or lower filed altitude	
		J	↑ FL190	

Table 1-9. From Area North (Sectors 40, 41) to NCT west of ILA.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
SFO (SFOW)	BDEGA STAR	J T	Descend via	BOULDER	SUTRO must protect SFO arrivals handed off to BOULDER
	PYE SFO		Jets: X 6 NW SFO @110 & 250K		
	PYE STAR or PYE V27 HADLY OSI	T	X STINS @ 070	SUTRO	NCT control for descent
		P	X STINS @ 050		
SFO (SFOE)	STLER STAR	J T	Descend via	BOULDER	NCT control RV up to 45° left or right & ↓ 070
	STINS STAR or PYE STINS		X PYE @ 090		
		T	X PYE @ 070		NCT control RV up to 45°
		P	X STINS @ 040	GROVE	
HWD (SFOE)	SGD T263 MOVDD T259 NORCL	J T P	X SGD @ 110	RICHMOND	

Table 1-9 (continued). From Area North (Sectors 40, 41) to NCT west of ILA.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
OAK HWD (SFOW)	WNDSR STAR	J	Descend via	RICHMOND	NCT control RV up to 45° and ↓ 060
	REBAS OAK	J T	X REBAS @ 070		
		P	X REBAS @ 040		
OAK HWD (SFOE)	AANET STAR	J T	Descend via	GROVE	NCT control vectors, speed adjustments, and ↓ 040
	REBAS OAK	T P	X REBAS @ 040		
OAK HWD (OAKE)	AANET STAR	J T	Descend via		
	SAU OAK		X 10 NW SAU @ 050		
SJC (SFOW)	BRIXX STAR		Descend Via	BOULDER	SUTRO & RICHMOND must protect SJC arrivals handed off to BOULDER
	SAU SFO		X SFO @ 120		
SJC NUQ PAO RHV SQL E16	PYE STAR or PYE V27 HADLY OSI	J*** T P	X STINS @ 050/090 (SFOW) @ 040/070 (SFOE)	SUTRO (SFOW) GROVE (SFOE)	NCT control for descent *** Wine country departure jets only
SJC (SFOE)	FRLON STAR	J T	Descend via	BOULDER	SUTRO must protect SJC arrivals handed off to BOULDER
	BRINY STAR or PYE BRINY OSI		X FATHM or 20S PYE @110		NCT control RV up to 45° left or right & ↓ 070
NUQ (SFOW)	BRIXX STAR		Descend via		Sequence with SJC Arrivals
	CHBLI CORKK BRIXX		Cross CORKK @ 140 descend and maintain 120		
NUQ (SFOE)	PYE BRINY OSI		X 20S PYE @ 110		NCT control RV up to 45° left or right & ↓ 070
MRY OAR SNS WVI CVH	PYE V27 SHOEY	J T	X STINS @ FL200 or lower filed	SUTRO	
		T P	X STINS @ 070	SUTRO (SFOW) BOULDER (SFOE)	
BAB MCC MHR LHM PVF GOO	Direct	J T	↓ 120		NCT control

Table 1-9 (continued). From Area North (Sectors 40, 41) to NCT west of ILA.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
HAF	PYE V27 STINS	T	X STINS @ 070	SUTRO (SFOW) BOULDER (SFOE)	
		P	X STINS @ 050 (SFOW) @ 040 (SFOE)	SUTRO (SFOW) GROVE (SFOE)	
Departures from Wine Country (SFOW)	RV 090	J T	@ 100	RICHMOND	
	OAK		↑ FL190 or lower filed altitude		Cross NCT Boundary AOA 110 NCT control RV
Departures from Wine Country (SFOE)	SFO			SUTRO	

Table 1-10. From NCT to Area North (Sectors 29, 40, 41) west of ILA.

From Airport/Sector	Route	ACFT	Altitude	Requirements
SFO (SFOW)	GNNRR or MOLEN SID	J	↑ 100	
SFO OAK HWD HAF SQL (SFOW)	GRTFL or DEDHD or RV 360	T P	↑ 100	ZOA control
	ENI or RV 340	J	↑ FL190 or lower filed altitude	
	GRTFL or DEDHD or RBL			
	SGD	T P	↑ 060 or lower filed altitude	
OAK HWD (SFOW)	ENI	T P	↑ 060	
HAF SQL	V199 or PYE	J T P		
SJC NUQ PAO RHV E16 (SFOW)	V199 ENI	T P	↑ 080 or lower filed altitude	
SFO OAK HWD PAO SQL NUQ RHV E16 (SFOE)	SFO RV340	J	↑ FL190	
		T		
RICHMOND SUTRO	↓ Wine Country via V27 PYE from west of SAU	J T P	SFOW @060 SFOE @050	ZOA control
	↓ Wine Country via Direct from east of SAU		@ 050	
ELKHORN PARADISE	Direct First Fix	J T P	↑ 120	
	Wine Country via filed route		↓ 140	ZOA control vectors, speed, and descent to 080 west of SAC VOR
RICHMOND	STS		↓ 120	ZOA control

Table 1-10 (continued). From NCT to Area North (Sectors 29, 40, 41) west of ILA.

From Airport/Sector	Route	ACFT	Altitude	Requirements
BOULDER SUTRO RICHMOND (SFOW) APC/CA35/O69	VNYRD STAR	J T	X VNYRD @ 100	ZOA control
BOULDER SUTRO RICHMOND (SFOW) HES/STS/DVO	VNYRD STAR	J T	↓ 100	ZOA control Stacks approved
SUTRO RICHMOND (SFOE) HES/STS/DVO	REBAS STAR	J T		
SUTRO RICHMOND BOULDER (SFOE) APC/CA35/O69	REBAS STAR	J T	X REBAS @ 070	
RICHMOND SUTRO	LIN, TIPRE, SYRAH, HRNER	J T	↑ FL190	ZOA control
RICHMOND SUTRO	SAC, ORRCA, MOGEE, HRNER			
SUU CCR DWA EDU O41 VCB HWD LVK MOD NUQ PAO RHV SQL SCK	ORANG SHIMR			
RICHMOND SUTRO	RBL, MACHU, BTG, HRNER			
RICHMOND SUTRO Landing RNO RWY 17	ORRCA STAR	J		
	TRUCK FMG	T		
RICHMOND SUTRO Landing RNO RWY 35	TARVR STAR	J T		
PARADISE	RV 110 or FTHIL SID	J T P		ZOA control RV left of course or direct FRA
SFO OAK HWD PAO SQL NUQ RHV E16 (SFOE)	RBL, GRTFL OR DEDHD (non-oceanic aircraft only)	J		

Table 1-11. From Area North (Sector 42) to NCT east of ILA.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
SMF	TUDOR STAR	J T	↓ 120	ELKHORN	No pilot discretion descent NCT control AOB FL230
	Direct		↓ 090		NCT control AOB FL230
		P	↓ 070		

Table 1-11 (continued). From Area North (Sector 42) to NCT east of ILA.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
SAC MCC MHR LHM PVF GOO	Direct	J T	↓ 120 or level at lower filed altitude	ELKHORN	NCT control AOB FL230
		P	↓ 090 or lower filed altitude		
BAB	Direct	J T P	↓ 090 or lower filed altitude		
	HI TACAN or HI ILS	J	Cleared for approach		
	U2s or RQ4s		↓ FL200		
From China/Maxwell MOA	RV towards AUN		AOA 130		

Table 1-12. From NCT to Area North (Sector 42) east of ILA.

From Airport/Sector	Route	ACFT	Altitude	Requirements
ELKHORN	Direct First Fix	J T P	↑ FL190 or lower filed altitude	ZOA control
	↓ CIC via direct		↓ 060 or lower filed altitude	
	CHINA MOA	J	↑ FL190	RV E of TUDOR STAR
	MAXWELL MOA			RV N of ILA

Table 1-13. From Area East (Sector 44) to NCT north of LIN.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
SMF	SLMMR STAR (RNAV)	J T	Descend Via	ELKHORN	ZOA control speeds of 280 kts or less NCT control AOB FL190 ZOA control direct POZUR ↓ 120 (only when needed for spacing)
SUU	Direct PEELS SUU	J T	↓ 160		
BAB MCC MHR SAC	Direct	J T P	↓ 120		
MHR	AMRVR STAR (RNAV)	J	Descend via	PARADISE	NCT control

Table 1-13 (continued). From Area East (Sector 44) to NCT north of LIN.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
SFO (SFOW)	MOD CEDES	T P	@FL200 or lower filed altitude		
SFO (SFOE)	SAC V6 RYMAR				
OAK (SFOW) HWD	MOD SUNOL				
OAK (SFOE)	SAC V494 POPES SGD V87 REBAS				
CCR	SAC REJOY	J T P			
SJC NUQ PAO RHV SQL E16	MOD BORED KLIDE	T			
	MOD BUSHY	P			
CXP MEV RTS	Direct	J T P	↓ 140		
RNO (RWY 17)	On or E of FMG163.FMG	J T	↓ 160		ZOA control speeds of 280 kts or less NCT control for descent AOA 140
		P	↓ 140		
	V392 FMG or TRUCK FMG	T P	↓ 130		
	ORRCA STAR	J DH8D	Descend via or ↓ 160		
RNO (RWY 35)	TARVR STAR	J DH8D	Descend via or ↓ 140		ZOA control for speeds of 280 kts or less
	SPOON		↓ 140		
	FMG (From south)	T P	↓ 140		
	V494 HUYJO FMG		↓ 130		
RNO (RWY 17) Departing TRK	TRUCK FMG or MOWGL DP HALLE	J T P	@ 130		NCT control
RNO (RWY 35) Departing TRK	TRUCK FMG	T P			
	SPOON	J	@ 140		

Table 1-14. From NCT to Area East (Sector 44) north of LIN.

From Airport/Sector	Route	ACFT	Altitude	Requirements
SUU CCR DWA EDU O41 VCB HWD LVK MOD NUQ PAO RHV SQL SCK	ORANG SHIMR	J T	↑ FL190 or lower filed altitude	ZOA control
SMF	RVRCT / SCTWN or direct DOSCO	J T P		
Filed over MVA, OAL or DUDES	Direct			
BAB	Direct First Fix			

Table 1-14 (continued). From NCT to Area East (Sector 44) north of LIN.

From Airport/Sector	Route	ACFT	Altitude	Requirements
ELKHORN/PARADISE Landing RNO (RWY 17)	ORRCA STAR	J	↑ FL190 or lower filed altitude	ZOA control
	V392 FMG or TRUCK FMG	T P		
	SWR TRUCK FMG			
ELKHORN/PARADISE Landing RNO (RWY 35)	TARVR STAR	J T		
	SWR V494 HUYJO FMG	P		
ELKHORN/PARADISE Landing TVL or TRK	Direct or filed route	J T P	AOA 130	ZOA control for descent
NUGGET SILVER	On Route or First Fix on Route	J T P	↑ FL190 or lower filed altitude	

Table 1-15. From Area East (Sector 34) to NCT south of LIN.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
SFO (SFOW)	DYAMD STAR	J	Descend via	CEDAR	NCT control for vectors west of LAANE
SFO (SFOE)	ALWYS STAR				
SFO (SFOW)(SFOE)	MOD STAR (Non-RNAV)		↓ FL200		
SFO (DAR)	YOSEM STAR		Descend via		NCT control for vectors west of ZOMER
OAK	OAKES STAR			SUNOL	ZOA control speeds 260 to 300 kts NCT control speeds west of OAKES/BIFFY
HWD					
SUU	DUCKE LIN OAKEY		↓ FL200	PARADISE	
	BMBER STAR			SUNOL	NCT control speeds only
BAB MCC MHR SAC	LIN Direct				NCT control for RV right and speeds North of TURLO AOB FL230 A/C must be East of a TURLO-LIN line
WINE COUNTRY (SFOW)	VNYRD STAR		Descend via	CEDAR	
WINE COUNTRY (SFOE)	REBAS STAR				

Table 1-16. From Area East (Sector 45) to NCT north of FMG.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
RNO (RWY17)	LIBGE FMG or FMG	J T P	↓ 140		
	ANAHO STAR	J T		NUGGET	
	KLUBS or WINRZ STAR	J	Descend Via		
RNO (RWY35)	FMG	J T P	↓ 140		Nugget PO WADOL STAR to Silver
	EELZA WADOL STAR	J	Descend Via		
CXP MEV RTS	Direct	J T P	↓ 140		

Table 1-17. From NCT to Area East (Sector 45) north of FMG.

From Airport/Sector	Route	ACFT	Altitude	Requirements
NUGGET SILVER	On Route or Direct first fix clear of NFA RAPCON	J T P	↑ FL190 or lower filed altitude	Vectored to join assigned route prior to exiting NCT airspace when filed below 120

Table 1-18. From Area East (Sector 46) to NCT southeast of FMG.

Destination	Route	ACFT	Altitude	Handoff To	Requirements
RNO (RWY17)	FMG	P	↓ 140	SILVER	
		J T	↓ 160		
	RYANN STAR or J92 FMG				
	SCOLA STAR	J	Descend Via		
RNO (RWY35)	FMG	T P	↓ 140		
CXP MEV RTS	Direct	J T P	↓ 140		

Table 1-19. From NCT to Area East (Sector 46) southeast of FMG.

From Airport/Sector	Route	ACFT	Altitude	Requirements
NUGGET SILVER	On Route or Direct first fix outside NCT airspace clear of NFA RAPCON and no further east than YERIN or LIDAT	J T P	↑ FL190 or lower filed altitude	Vectored to join assigned route prior to exiting NCT airspace when filed below 150

Attachment 4 List of Changes

Change	Date	Description	Author
--	15SEP2016	Initial Release	ZOA FAB
CHG01	03APR2018	Rewrite for new sectors	ZOA FAB
CHG02	28JUL2018	Addition of BRIXX, Flight Data, Various route changes	ZOA FAB
CHG03	15JUL2021	Rewrite for ZOA update	ZOA FAB
CHG04	03NOV2022	Updated for new RNO procedures and runway number change	ZOA FAB
CHG05	30NOV2023	Update Expo to Paradise, Sector 11 to 16	ZOA FAB
CHG06	25JAN2024	Replace HARTT/MYBAD STARs with KLUBS/WINRZ STARs	ZOA FAB
CHG07	11JUL2024	Add wine country STARs, SFO SEGUL DP, update P-ACP, formatting, routing updates	ZOA FAB
CHG08	07AUG2025	Update OAK/HWD STARs	ZOA FAB