ZOA Class D Airports
Standard Operating Procedure
Version 1.10

List of Changes

VERSION	DATE	DESCRIPTION
1.0	15FEB2019	Initial Release
1.1	17FEB2020	Grammatical Fixes
1.2	31DEC2020	Updated HWD_TWR Frequency
1.3	07FEB2022	Removed vox channels. APC altitude update. Added TRK.
1.4	24FEB2022	SQL/SAC/NUQ altitude changes for 900ft rule change.
1.5	16JUN2022	Update formatting, re-organize procedure sections, add generic VFR procedures, include info about tower equipment, update headings and altitudes, remove FAB references, remove notes related to verbal coordination for flight data
1.6	14JUL2022	Correct SQL initial altitude and calm wind runways
1.7	23FEB2023	Update tower equipment description, fix typos
1.8	30NOV2023	Update references from Expo to Paradise
1.9	28NOV2024	Add procedures for simulating lack of FDIO, add PKWA procedures, add common IFR/VFR procedures for all towers, unify verbiage/formatting, remove SVFR procedures, add GC/LC jurisdiction information, add LAHSO information for APC/STS, add multiple runway crossing information for CCR/HWD/SCK, update additional authorized headings, update departure/arrival procedures for various airports, add preferred VFR procedures for PAO/SQL, add NUQ/PAO extensions procedures
1.10	26DEC2024	Remove PKWA procedures - published as standalone SOP

Section 1. General Procedures

1-1 Purpose

This Standard Operating Procedure (SOP) outlines the procedures to be used by controllers working Class D ATCT positions within ZOA ARTCC. By specifying the standard hand off points, departure and arrival routes, coordination between adjacent facilities may be greatly reduced.

1-2 Distribution

This SOP is distributed to all members of the Oakland ARTCC on VATSIM.

1-3 Cancellation

All previous procedures are canceled.

1-4 Definitions

a. Towers underlying NCT: HWD, LVK, MER, MHR, MOD, NUQ, PAO, RHV, SAC, SCK, SNS, SQL
b. Towers underlying ZOA: APC, CIC, RDD, STS, TRK

1-5 Equipment and Radar Procedures

a. All ATCTs in this SOP are simulated to be equipped with a Certified Tower Radar Display (CTRD) except for the MER and TRK ATCTs.
    i. The MER and TRK ATCTs cannot provide any sort of limited radar service and are purely "visual" towers.
    ii. Towers may use the "track" feature of their radar and can transfer/receive radar handoffs.
b. All ATCTs in this SOP are simulated to have Flight Data Input/Output (FDIO), except when coordinated.
    i. An overlying radar sector must be online, and both the radar sector controller and the ATCT controllers must agree to simulate the lack of FDIO.
    ii. The following airports can be simulated to lack FDIO: CIC, HWD, MER, PAO, RHV, SNS, SQL, and TRK.

1-6 IFR Procedures

a. IFR Departures
    i. When simulating a tower without FDIO, the IFR clearance must be obtained from the overlying sector and relayed to the aircraft.
        i. For towers underlying NCT, the phrase “cleared from <airport> to <destination> via standard clearance” is an abbreviated clearance that means tower must issue the applicable TEC route to the aircraft.
    ii. Towers underlying NCT and CCR ATCT must ensure aircraft depart within 2 minutes after obtaining a release.
    iii. Towers underlying ZOA must ensure aircraft depart within 3 minutes after obtaining a release.
    iv. If utilizing a release time, the aircraft must be airborne within a window of 2 minutes prior and 1 minute after the assigned time, in accordance with 7110.65 4-3-4 (e).
b. IFR Arrivals
    i. For towers with FDIO or towers with radar displays underlying NCT, there is no requirement for the overlying sector to coordinate arrival information.
    ii. When simulating a tower without FDIO or a tower underlying NCT without a radar display or CCR ATCT, the overlying sector must forward arrival information as specified in local procedure.

        NOTE- *If a tower underlying NCT has a radar display, and is simulated to have no FDIO, there is no requirement to coordinate arrival information.*

    iii. Towers underlying ZOA, CCR ATCT, MER ATCT, and LVK ATCT must advise the overlying sector of either “arrival”, “cancellation”, “missed approach” or “go around.”
    iv. Towers underlying NCT must advise the overlying sector of “missed approach” or “go around.”
    v. Towers with radar displays underlying NCT and CCR ATCT will receive radar handoffs for IFR arrivals, but need not accept it prior to NCT/SUU transferring communications.
    vi. Towers underlying ZOA may clear an aircraft executing an instrument approach for a visual approach without additional coordination provided the aircraft is within 10 nm of the airport and at or below 2500 ft above field elevation.
    vii. Towers underlying NCT may clear an aircraft executing an instrument approach for a visual approach to the same runway within 10 nm of the airport and up to 6000 ft above field elevation.
    viii. Towers must coordinate with the overlying sector when changing an aircraft’s landing runway (e.g. switch to a parallel runway or circling instructions).
    ix. The overlying sector must advise tower how an approach will terminate, if other than a full stop landing.

c. Visual Separation
    i. Towers underlying NCT are authorized to apply tower visual separation within 10 nm of the airport and up to 6000 ft above field elevation.
    ii. Towers underlying ZOA and CCR ATCT must have each application of tower visual separation authorized by ZOA/SUU.

1-7 VFR Procedures

a. VFR Departures
    i. Towers with radar displays must enter a VFR Flight Plan, issue a transponder code, and radar identify all departures requesting flight following.
    NOTE- *Towers do not advise aircraft of "radar contact"*
b. VFR Arrivals
    i. Towers with radar displays underlying NCT and CCR ATCT will receive radar handoffs for VFR arrivals, but need not accept it prior to NCT/SUU transferring communications.
    ii. Tower shall sequence the VFR aircraft without interrupting the overlying sector's IFR approach sequence.

1-8 Coordination Procedures

a. Tower must:
    i. Advise the overlying sector of the departure and arrival runway(s) in use.
    ii. Advise the overlying sector of the: current ATIS code, and when field conditions change to or from basic VFR minima.

1-9 Scratchpad Usage

a. Towers with radar displays underlying NCT airspace are authorized to use the following secondary scratchpad codes for aircraft operating within their airspace, as applicable.
    i. "2ER" Bay Tour
    ii. "LCL" for VFR aircraft with no specific destination.

Section 2. KAPC Napa County Airport

2-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Napa Clearance Delivery	APC_DEL	Napa Clearance Delivery	127.850
Napa Ground	APC_GND	Napa Ground	121.700
Napa Tower	APC_TWR	Napa Tower	118.700
Napa ATIS	KAPC_ATIS		124.050

2-2 General

a. Runways 19L/R are the calm wind runways.
b. Ground control has jurisdiction over all taxiways, except taxiways E/F between runways 01L/R and 19L/R.
c. Land and hold short operations (LAHSO) are authorized for arrivals on runway 24, hold short runway 19R. The available landing distance is 3670 feet.

2-3 Departures

a. APC ATCT obtains releases from ZOA Area North for all IFR departures.
b. Issue the filed departure procedure or assign an appropriate departure procedure to IFR departures.
c. IFR departures must be assigned an altitude of 5,000 ft or requested lower altitude.
    i. Aircraft requesting altitudes above 5,000 ft must be advised to expect filed altitude 10 minutes after departure.
d. Aircraft requesting VFR-on-top must be instructed to maintain VFR-on-top, if not on top at 4,000 maintain 4,000 and advise.
e. Successive departing aircraft must be established on courses that diverge by at least 45 degrees prior to communication transfer to the center.

2-4 Arrivals

a. Aircraft conducting an instrument approach must be instructed to fly the published missed.
b. Aircraft unable to complete a landing from a visual approach should be instructed to enter the traffic pattern for landing.

Section 3. KCCR Buchanan Field

3-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Concord Clearance Delivery	CCR_DEL	Concord Clearance Delivery	118.750
Concord Ground	CCR_GND	Concord Ground	121.900
Concord Tower	CCR_TWR	Concord Tower	119.700
Concord ATIS	KCCR_ATIS		124.700

3-2 General

a. Runways 19L/R are the calm wind runways.
b. Ground control has jurisdiction over all taxiways and inactive runways, except between active runways.
    i. When runway 32L is in use, local control has jurisdiction over taxiway A and runway 01R/19L between taxiways J and B.
c. Multiple runway crossings are authorized at taxiways B, C, E, F, H, J, K, M, runways 01L/19R and 01R/19L when crossing runways 14L/32R and 14R/32L, and runway 14L/32R when crossing runways 01L/19R and 01R/19L.

3-3 Departures

a. CCR ATCT obtains releases from SUU South Sector for all IFR departures.
b. Issue the Buchanan DP and the appropriate TEC route, if applicable, to IFR departures.
c. IFR departures must be assigned an altitude of 4,000 ft MSL or requested lower altitude.
    i. Aircraft requesting altitudes above 4,000 ft MSL must be advised to expect filed altitude 5 minutes after departure.
d. Aircraft requesting VFR-on-top must be issued the Buchanan DP, PITTS transition, maintain 4,000, if not top at 4,000 maintain 4,000 and advise.
e. Aircraft requesting IFR patterns must be issued the Buchanan DP, REJOY transition.

3-4 Arrivals

a. SUU must forward arrival information approximately 15 nm from the airport, in accordance with 7110.65 4-7-11 (a).
b. Aircraft conducting an instrument approach must be instructed to fly the published missed.
c. Aircraft unable to complete a landing from a visual approach should be instructed to enter the traffic pattern for landing.

Section 4. KCIC Chico Municipal Airport

4-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Chico Ground	CIC_GND	Chico Ground	121.900
Chico Tower	CIC_TWR	Chico Tower	121.000
Chico ATIS	KCIC_ATIS		119.675

4-2 General

a. Runways 31L/R are the calm wind runways.
b. Ground control has jurisdiction of all taxiways except taxiways D, E, and F between runway 13L/31R and 13R/31L.

4-3 Departures

a. CIC ATCT obtains releases from ZOA Area North for all IFR departures.
b. Issue the Chico DP to IFR departures.
c. IFR departures must be assigned an altitude of FL230 or requested lower altitude.
    i. Aircraft requesting altitudes above FL230 must be advised to expect filed altitude 10 minutes after departure.
d. Successive departing aircraft must be established on courses that diverge by at least 45 degrees prior to communication transfer to the center.

4-4 Arrivals

d. ZOA must forward arrival information at least 10 minutes prior to the airport estimate, in accordance with 7110.65 4-7-6 (a).
e. Aircraft conducting an instrument approach must be instructed to fly the published missed.
f. Aircraft unable to complete a landing from a visual approach should be instructed to enter the traffic pattern for landing.

Section 5. KHWD Hayward Executive Airport

5-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Hayward Clearance Delivery	HWD_DEL	Hayward Clearance Delivery	128.050
Hayward Ground	HWD_GND	Hayward Ground	121.400
Hayward Tower	HWD_TWR	Hayward Tower	120.200
Hayward ATIS	KHWD_ATIS		126.700

5-2 General

a. Runways 28L/R are the calm wind runways.
b. Ground control has jurisdiction of all taxiways except taxiways B, C, D, E, and F between runways 10L/28R and 10R/28L.
c. Multiple runway crossings are authorized at taxiways C, D, E, and F.
d. Tower must protect IFR arrivals on approach to OAK Runway 30 while they are in the HWD Class D surface area.

5-3 Departures

a. HWD ATCT obtains releases for all IFR departures from:
    i. SFOW/OAKE: Grove
    ii. SFOE: Richmond
b. Issue a turn left/right to heading 170°, radar vectors first fix to IFR departures. The appropriate TEC route must be issued if applicable.
c. IFR departures must be assigned an altitude of 2,000.
    i. Aircraft requesting altitudes above 2,000 must be advised to expect filed altitude 5 minutes after departure.
d. Tower must ensure that aircraft turn to the assigned departure heading within 1 NM of the runway.
e. Instruct all VFR aircraft enroute to San Francisco to remain outside of the San Francisco Class B and Oakland Class C Airspace until advised and to contact NorCal Approach.

NOTE- *Tower instructs right crosswind departures to proceed toward and remain east of the Three Crosses below 1,500 ft until clear of Oakland Class C airspace.*

5-4 Arrivals

a. Tower must issue a turn left/right to heading 170°, maintain 2,000, to all unplanned IFR missed approaches.
b. Advise all visual approach go-arounds to remain in the traffic pattern or coordinate with Grove (SFOW/OAKE) or Richmond (SFOE) for climb-out instructions.
c. Upon approval from NCT, the following headings are authorized as alternate missed approach headings:
    i. Runway 28: 140° clockwise to 250°
    ii. Runway 10: 135° clockwise to 240°

Section 6. KLVK Livermore Municipal Airport

6-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Livermore Ground	LVK_GND	Livermore Ground	121.600
Livermore Tower	LVK_TWR	Livermore Tower	118.100
Livermore ATIS	KLVK_ATIS		119.650

6-2 General

a. Runways 25L/R are the calm wind runways.
b. Ground control has jurisdiction of all taxiways except taxiways C and G between runways 7L/25R and 7R/25L.

6-3 Departures

a. LVK ATCT obtains releases for all IFR departures from:
    i. Runway 25: Grove (SFOW) or Richmond (SFOE)
    ii. Runway 7: Valley
b. Issue the Livermore DP to all IFR departures. The appropriate TEC route must be issued if applicable.
c. IFR departures must be assigned an altitude of 4,000.
    i. Aircraft requesting altitudes above 4,000 must be advised to expect filed altitude 5 minutes after departure.
d. Unless visual separation is applied, do not release a departure when an IFR arrival or VFR practice approach is inside of the final approach fix.

6-4 Arrivals

a. Tower must issue the published missed approach to all unplanned IFR missed approaches.
b. Advise all visual approach go-arounds to remain in the traffic pattern. Issue one of the following to those unable to stay in the pattern:
    i. Runway 25: fly heading 255°, maintain 4,000
    ii. Runway 07: fly heading 075°, maintain 4,000

Section 7. KMER Castle Airport

7-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Castle Ground	MER_GND	Castle Ground	133.575
Castle Tower	MER_TWR	Castle Tower	118.175
Castle ATIS	KMER_ATIS		124.475

7-2 General

a. Runway 31 is the calm wind runway.
b. Headings of 001° clockwise 360° are authorized after coordination as initial departure or missed approach headings.

7-3 Departures

a. MER ATCT obtains releases from Valley sector for all IFR departures.
b. Issue runway heading, radar vectors first fix to IFR departures. The appropriate TEC route must be issued if applicable.
c. IFR departures must be assigned an altitude of 7,000.
    i. Aircraft requesting altitudes above 7,000 must be advised to expect filed altitude 5 minutes after departure.
d. Tower must not release a departure when an IFR arrival or VFR Practice Approach has passed the FAF inbound, unless visual separation is applied.

7-4 Arrivals

a. NCT must forward arrival information for IFR arrivals and VFR practice approaches approximately 15 nm from the airport, in accordance with 7110.65 4-7-11 (a).
b. Tower must issue runway heading and 2,000 ft to all unplanned IFR missed approaches.
c. Advise all visual approach go-arounds to remain in the traffic pattern or coordinate with Valley for climb-out instructions.

Section 8. KMHR Sacramento Mather Airport

8-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Mather Ground	MHR_GND	Mather Ground	121.850
Mather Tower	MHR_TWR	Mather Tower	120.650
Mather ATIS	KMHR_ATIS		118.325

8-2 General

a. Runways 22L/R are the calm wind runways. The VFR pattern is southeast of Runway 22L/04R.
b. Headings of 001° clockwise 360° are authorized after coordination as initial departure or missed approach headings.
c. Ground control has jurisdiction of all taxiways except taxiways between runways 4L/22R and 4R/22L.

8-3 Departures

a. MHR ATCT obtains releases from Paradise sector for all IFR departures and VFR jet departures.
b. Issue initial headings and altitudes in accordance with the below table to IFR departures. The appropriate TEC route must be issued if applicable.
    i. Aircraft requesting altitudes above the specified interim altitude must be advised to expect filed altitude 5 minutes after departure.

<table>
<tr><th>RUNWAY</th><th>ROUTE</th><th>ACFT</th><th>HEADING</th><th>ALTITUDE</th></tr>
<tr><td rowspan="2">Any</td><td>Southbound</td><td>P, T, J</td><td>150°</td><td>4,000</td></tr>
<tr><td rowspan="3">Northbound</td><td>P, T</td><td>360°</td><td>2,000</td></tr>
<tr><td>4</td><td rowspan="2">J</td><td>040°</td><td rowspan="2">4,000</td></tr>
<tr><td>22</td><td>090°</td></tr>
</table>

    ii. Tower must ensure departing aircraft turn to the assigned departure heading within 1 NM of the runway.

8-4 Arrivals

a. Tower must issue the following instructions to all unplanned IFR missed approaches:
    i. Runway 4: Heading 150°, maintain 2,000 feet
    ii. Runway 22: Heading 090°, maintain 3,000 feet.
b. Advise all visual approach go-arounds to remain in the traffic pattern or coordinate with Paradise for climb-out instructions.

Section 9. KMOD Modesto Harry Sham Field

9-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Modesto Ground	MOD_GND	Modesto Ground	121.700
Modesto Tower	MOD_TWR	Modesto Tower	125.300
Modesto ATIS	KMOD_ATIS		127.700

9-2 General

a. Runways 28L/R are the calm wind runways.
b. Headings of 001° clockwise 360° are authorized after coordination as initial departure or missed approach headings.
c. Ground control has jurisdiction of all taxiways except taxiways C, C1, and E between runways 10L/28R and 10R/28L.

9-3 Departures

a. MOD ATCT obtains releases from Valley sector for all IFR departures.
b. Issue initial headings and altitudes in accordance with the below table to IFR departures. The appropriate TEC route must be issued if applicable.
    i. Aircraft requesting altitudes above the specified interim altitude must be advised to expect filed altitude 5 minutes after departure.

RUNWAY	ROUTE	HEADING	ALTITUDE
Any	Northbound	360°	6,000
	Westbound	260°	
	Southbound	160°	

c. Tower must ensure that aircraft turn to the assigned departure heading within 1 NM of the runway.

9-4 Arrivals

a. Tower must issue heading 160° and 2,000 ft to all unplanned IFR missed approaches.
b. Advise all visual approach go-arounds to remain in the traffic pattern or coordinate with Valley for climb-out instructions.

Section 10. KNUQ Moffett Federal Airfield

10-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Moffett Ground	NUQ_GND	Moffett Ground	121.850
Moffett Tower	NUQ_TWR	Moffett Tower	119.550
Moffett ATIS	KNUQ_ATIS		124.175

10-2 General

a. Runways 32L/R are the preferred calm wind runways.
b. Ground control has jurisdiction of all taxiways except taxiways A, B, C, D, and E between runways 14R/32L and 14L/32R.
c. NCT has control in the Class D surface area 2,000 ft and above during SFOE/SJCE.
d. Upon approval from NCT, the following headings are authorized as alternate departure or missed approach headings:
    i. Runway 14: 105° clockwise to 130°
    ii. Runway 32: 295° clockwise to 345°
e. NUQ ATCT may coordinate with SJC for the use of the NUQ east traffic pattern that may penetrate the SJC ATCT delegated airspace.
f. NUQ ATCT delegates both the Lake Extensions to PAO ATCT as depicted in Section 10-5, when NUQ is open and both airports are VMC.
g. Upon request from PAO ATCT, NUQ ATCT releases control of the Amphitheatre Extension as depicted in Section 10-5.
h. Instruct VFR aircraft that will enter the PAO Class D surface area to maintain at or above 1,500 ft during SFOW and at or below 1,500 during SFOE/SCJE.

10-3 Departures

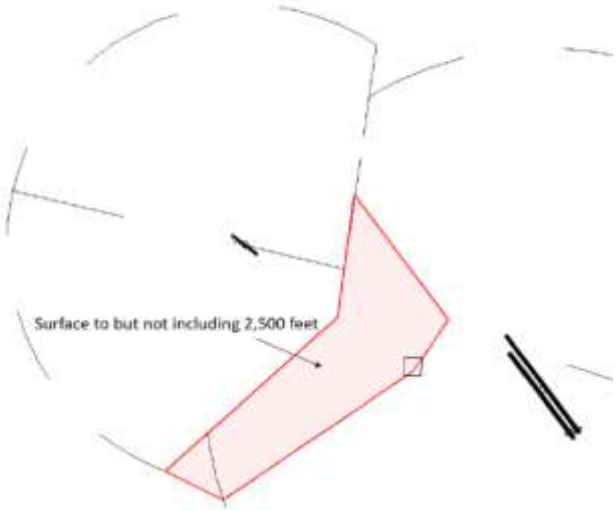
a. NUQ ATCT obtains releases for all IFR departures and VFR jet departures from:
    i. Runway 32: 345° – Toga; OSI DP – Woodside and APREQ with PAO ATCT
    ii. Runway 14: Licke and APREQ with SJC ATCT
b. Issue the appropriate DP or heading as described below to IFR departures. The appropriate TEC route must be issued if applicable.
    i. Runway 32: 345° or OSI DP
    ii. Runway 14: 130° or HOOKS DP
c. IFR departures must be assigned an altitude of 3,000.
    i. Aircraft requesting altitudes above 3,000 must be advised to expect filed altitude 5 minutes after departure.
d. NUQ must instruct all VFR departures to remain outside of SJC Class C airspace.
e. Tower must ensure that aircraft turn to the assigned departure heading within 1 NM of the runway.

10-4 Arrivals

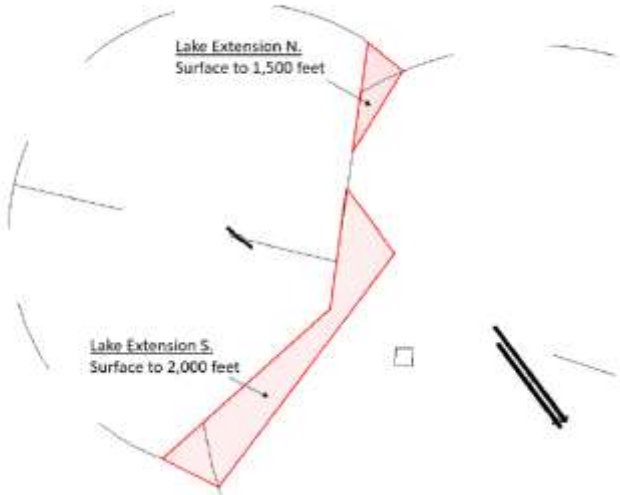
a. For aircraft requesting the overhead maneuver to runways 32, NCT will issue pattern altitude 1,500 ft and left turns. This procedure is not available to runways 14.
b. Tower must issue the following instructions to all unplanned IFR missed approaches:
    i. Runway 14: Heading 130°, maintain 3,000 feet
    ii. Runway 32: Heading 345°, maintain 3,000 feet.
c. Advise all visual approach go-arounds to remain in the traffic pattern or coordinate with NCT for climb-out instructions.

10-5 Diagrams

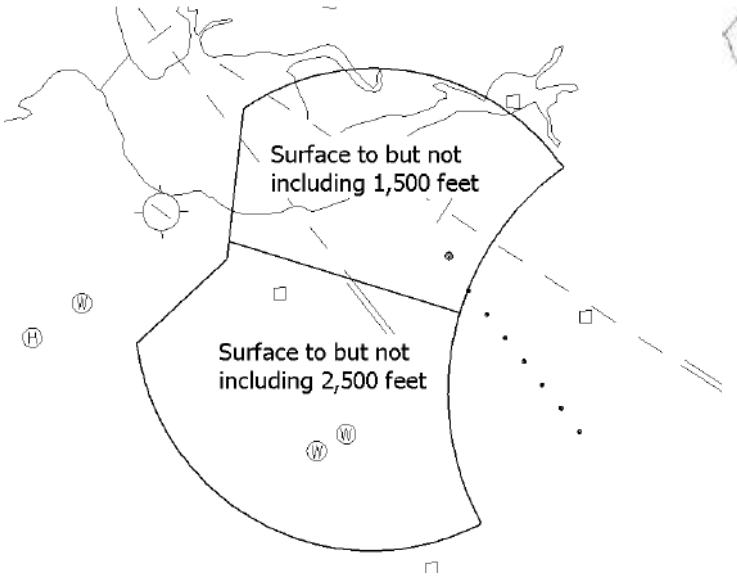
AMPITHEATRE EXTENSION:



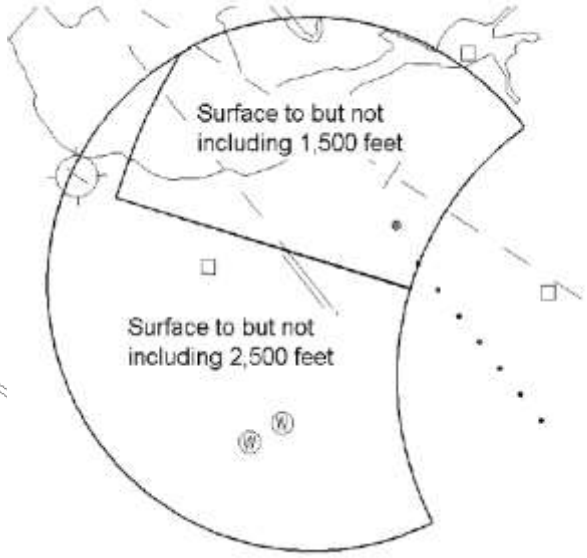
LAKE EXTENSIONS:



CLASS D SURFACE AREA (PAO Tower Open):



CLASS D SURFACE AREA (PAO Tower Closed):



Section 11. KPAO Palo Alto Airport

11-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Palo Alto Ground	PAO_GND	Palo Alto Ground	125.000
Palo Alto Tower	PAO_TWR	Palo Alto Tower	118.600
Palo Alto ATIS	KPAO_ATIS		135.275

11-2 General

a. Runway 31 is the preferred calm wind runway.
b. Local control is responsible for runway 31/13, taxiways A, B, C, E and the runway 13 run-up area. Local control coordinates taxi-backs along Z with ground control.
c. Ground control provides advisory service to aircraft operating in non-movement areas.
   EXAMPLE-
   (Runway 31) <Callsign>, runway 31 suggest Y, taxi via Y1, Z, advise run-up complete
   (Runway 13) <Callsign>, runway 13 suggest J, taxi via Y2, Z.
d. NCT is authorized to penetrate the southern portion of the PAO Class D surface area with IFR aircraft on instrument approach to SQL airport.
e. NUQ ATCT delegates both the Lake Extensions to PAO ATCT as depicted in Section 11-5, when NUQ is open and both airports are VMC.
f. Upon request from PAO ATCT, NUQ ATCT releases control of the Amphitheatre Extension as depicted in Section 11-5.
g. Local control must assign the preferential VFR departure/arrival procedures to pilots who are familiar. They are provided in this SOP for reference.
h. Instruct VFR aircraft that will transition the NUQ Class D surface area to proceed via Highway 101, or to remain west of the NUQ Runway 32 extended centerline.
i. Instruct VFR aircraft that will transition the NUQ Class D surface area to maintain at or below 1,500 ft during SFOE/SJCE.

11-3 Departures

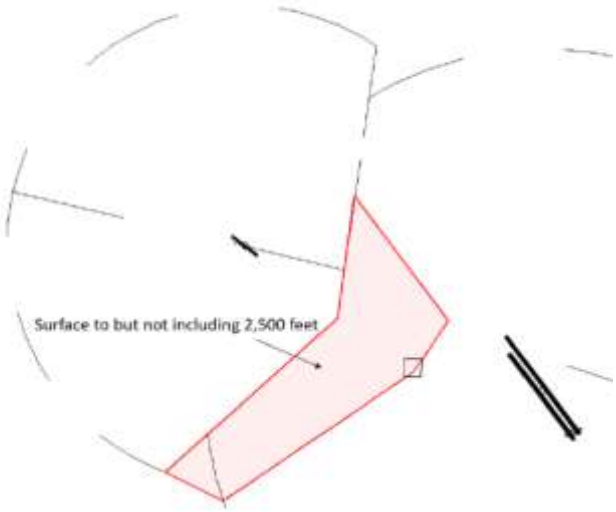
a. PAO ATCT obtains releases for all IFR departures from:
    i. SFOW/SJCW: Toga and APREQ from NUQ ATCT
    ii. SFOE/SJCE: Licke and APREQ from NUQ ATCT
b. Issue the appropriate DP and altitude as described below to IFR departures. The appropriate TEC route must be issued if applicable.
    i. Runway 31: right turn direct SJC VOR (runway 31 ODP) and 3,000 ft
    ii. Runway 13: left turn direct SJC VOR (runway 13 ODP) and 2,000 ft
    iii. Aircraft requesting altitudes above 2,000/3,000 must be advised to expect filed altitude 5 minutes after departure.
c. Preferred VFR Departures - Runway 31
    i. Right Dumbarton departure: turn right 10° until reaching the Dumbarton Bridge, then initiate right crosswind departure.
    ii. Left Dumbarton departure: turn right 10° until reaching the Dumbarton Bridge, then initiate left crosswind departure crossing the Bayshore Freeway (Highway 101) at or above 1,500 ft.
    iii. Straight out departure: turn right 10° and fly straight out.
    iv. Left/right downwind: turn right 10° until reaching 500 ft, then turn crosswind. Turn left downwind over the Bayshore Freeway (Highway 101).
    v. Right 45° departure: turn right 45° to fly over the middle of the bay.
    vi. Right crosswind departure: turn right 10° until reaching 500 ft, then turn right crosswind. Left crosswind departures are typically denied.
    vii. Right overhead 270°: turn right after take-off for 270° overhead departure. Cross the Bayshore Freeway (Highway 101) at or above 1,500 ft. Encouraged instead of left downwind.
d. Preferred VFR Departures - Runway 13
    i. Left crosswind departure: turn crosswind to remain outside NUQ Class D airspace.
    ii. Left overhead 270°: turn left after take-off for 270° overhead departure. Cross the Bayshore Freeway (Highway 101) at or above 1,500 ft. Encouraged instead of right downwind. Right crosswinds are typically denied.
    iii. Left/right downwind departure: turn crosswind to remain outside NUQ Class D airspace. Turn right downwind over the Bayshore Freeway (Highway 101).
    iv. Straight out departure: fly straight out, cross the Bayshore Freeway (Highway 101) at or above 1,500 ft.

11-4 Arrivals

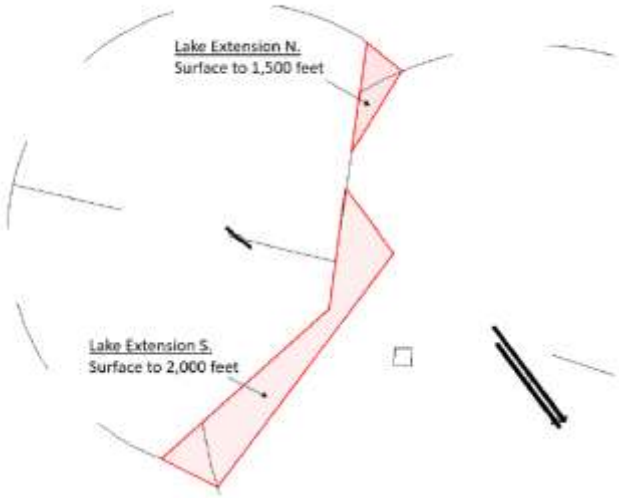
a. When the Amphitheatre Extension is not in effect, instruct VFR arrivals from the north/northeast to enter a right downwind and remain within 1 mile of the runway, and turn base no later than Shoreline Lake.
b. Tower must issue the published missed approach to all unplanned IFR missed approaches.
    i. Advise all visual approach go-arounds to remain in the traffic pattern.

11-5 Diagrams

AMPITHEATRE EXTENSION:



LAKE EXTENSIONS:



Section 12. KRDD Redding Municipal Airport

12-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Redding Ground	RDD_GND	Redding Ground	121.700
Redding Tower	RDD_TWR	Redding Tower	119.800
Redding ATIS	KRDD_ATIS		124.100

12-2 General

a. Runway 34 is the calm wind runway.
b. Ground control has jurisdiction of all taxiways except taxiways C and M under the runway 12 approach end, and taxiway E between runways 34/16 and 30/12.

12-3 Departures

a. RDD ATCT obtains releases from ZOA Area North for all IFR departures.
b. IFR departures must be assigned an altitude of FL230 or requested lower altitude.
    i. Aircraft requesting altitudes above FL230 must be advised to expect filed altitude 10 minutes after departure.
c. Successive departing aircraft must be established on courses that diverge by at least 45 degrees prior to communication transfer.

12-4 Arrivals

a. Aircraft conducting an instrument approach must be instructed to fly the published missed.
b. Aircraft unable to complete a landing from a visual approach should be instructed to enter the traffic pattern for landing.

Section 13. KRHV Reid-Hillview Airport

13-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Reid-Hillview Ground	RHV_GND	Reid-Hillview Ground	121.650
Reid-Hillview Tower	RHV_TWR	Reid-Hillview Tower	119.800
Reid-Hillview ATIS	KRHV_ATIS		125.200

13-2 General

a. Runways 31L/R are the preferred calm wind runways.
b. Ground control is responsible for all taxiways northeast of runway 31R/13L and run-up areas.
c. Ground control provides ramp/non-movement advisory services to inbound/outbound aircraft.
d. Headings 260° clockwise to 290° may be assigned as departure or missed approach headings from Runway 31L/R after verbal approval from NCT.

13-3 Departures

a. RHV ATCT obtains releases from Toga for all IFR departures after obtaining an approval from SJC ATCT.
    i. RHV IFR departures must be airborne within 10 minutes of SJC ATCT approval.
b. Issue the appropriate DP or heading as described below to IFR departures. The appropriate TEC route must be issued if applicable.
    i. Runway 13L/R: HENCE ODP
    ii. Runway 31L/R: Turn left heading 290°
c. IFR departures must be assigned an altitude of 4,000 or requested lower altitude.
    i. Aircraft requesting altitudes above 4,000 must be advised to expect filed altitude 5 minutes after departure.
d. Advise NCT upon recognition that an IFR aircraft has failed to turn to the assigned departure heading within 2 nm of the runway.
e. Instruct VFR aircraft heading towards SJC to remain outside of SJC Class C airspace until in contact with SJC Tower.

13-4 Arrivals

a. Tower must issue the published missed approach to all unplanned IFR missed approaches.
b. Advise all visual approach go-arounds to remain in the traffic pattern.
c. Advise SJC ATCT in addition to NCT immediately when a missed approach/go around occurs.

Section 14. KSAC Sacramento Executive Airport

14-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Executive Ground	SAC_GND	Exec Ground	125.000
Executive Tower	SAC_TWR	Exec Tower	119.500
Executive ATIS	KSAC_ATIS		125.500

14-2 General

a. Runway 20 is the preferred calm wind runway.
b. Ground control has jurisdiction of all taxiways except E, J, and W east of runway 02/20.
c. NCT has control of 2,000 ft and above within the SAC Class D surface area.
d. Headings of 001° clockwise 360° are authorized after coordination as initial departure or missed approach headings.

14-3 Departures

a. SAC ATCT obtains releases from Paradise for all IFR departures and VFR jet departures.
b. Issue initial headings and altitudes in accordance with the below table to IFR departures. The appropriate TEC route must be issued if applicable.
    i. Aircraft requesting altitudes above the specified interim altitude must be advised to expect filed altitude 5 minutes after departure.

RUNWAY	ROUTE	HEADING	ALTITUDE
12/20	West of/including V23	150°	2,000
	East of V23	090°	
02/30	West of/including V23	250°	
	East of V23	340°	

c. Issue initial headings in accordance as described below to VFR departures:
    i. North clockwise through West: on course
    ii. West clockwise through North (except runways 02/30 when SMF is north flow): 280°
    iii. West clockwise through North (runways 02/30 when SMF is north flow): 340°
d. Tower must ensure departures turn to the assigned departure heading within 1 NM of the runway.

14-4 Arrivals

a. Tower must issue heading 250° and 2,000 ft to all unplanned IFR missed approaches for runway 2. Unplanned IFR missed approaches to other runways must be coordinated with NCT for instructions.
b. Advise all visual approach go-arounds to remain in the traffic pattern or coordinate with Paradise for climb-out instructions.

Section 15. KSCK Stockton Metropolitan Airport

15-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Stockton Ground	SCK_GND	Stockton Ground	121.900
Stockton Tower	SCK_TWR	Stockton Tower	120.300
Stockton ATIS	KSCK_ATIS		118.250

15-2 General

a. Runways 29L/R are the calm wind runways.
b. Ground control has jurisdiction over all taxiways, excluding taxiways B and H between runways 11L/29R and 11R/29L, and excluding the California Army National Guard taxiway.
c. Multiple runway crossings are authorized at taxiways B/D9.
d. NCT has control of 2,000 ft and above within the SCK Class D surface area.
e. Headings of 001° clockwise 360° are authorized after coordination as initial departure or missed approach headings.

15-3 Departures

a. SCK ATCT obtains releases from Valley for all IFR departures.
b. Issue initial headings and altitudes in accordance with the below table to IFR departures. The appropriate TEC route must be issued if applicable.
    i. Aircraft requesting altitudes above the specified interim altitude must be advised to expect filed altitude 5 minutes after departure.

RUNWAY	ROUTE	HEADING	ALTITUDE
29L/R	TCY, LVK, C83, Monterey CX, Oakland CX, San Francisco CX, San Jose CX	200°	7,000
	Napa CX, Sacramento CX, Travis CX, and other westbound	RWY	
	O27, SCK, 1O3, Modesto CX, Mather CX, and other eastbound	050°	
11L/R	TCY, LVK, C83, O27, Modesto CX, Monterey CX, Oakland CX, San Francisco CX, San Jose CX, and other southbound	RWY	
	SCK, 1O3, Sacramento CX, Mather CX, Napa CX, Travis CX, and other northbound	050°	

c. Tower must ensure aircraft turn to the assigned departure heading within 1 nm of the runway.

15-4 Arrivals

a. Tower must issue the following instructions to all unplanned IFR missed approaches:
    i. Runway 11: Runway heading, maintain 3,000 ft
    ii. Runway 29: Runway heading, maintain 2,000 ft
b. Advise all visual approach go-arounds to remain in the traffic pattern or coordinate with NCT for climb-out instructions.

Section 16. KSNS Salinas Municipal

16-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Salinas Ground	SNS_GND	Salinas Ground	121.700
Salinas Tower	SNS_TWR	Salinas Tower	119.525
Salinas ATIS	KSNS_ATIS		124.850

16-2 General

a. Runway 26 is the calm wind runway.
b. Ground control has jurisdiction over all taxiways.
c. Upon approval from NCT, the following headings are authorized as alternate departure or missed approach headings:
    i. Runway 13: 105° clockwise to 120°
    ii. Runway 26/31: 228° clockwise to 336°

16-3 Departures

a. SNS ATCT obtains releases from Seca for all IFR departures.
b. Issue the Salinas DP to all IFR departures. The appropriate TEC route must be issued if applicable.
c. IFR departures must be assigned an altitude of 6,000.
    i. Aircraft requesting altitudes above 6,000 must be advised to expect filed altitude 5 minutes after departure.
d. Advise NCT upon recognition that an IFR aircraft has failed to turn to the assigned departure heading within 2 nm of the runway.

16-4 Arrivals

a. Tower must issue the published missed approach to all unplanned IFR missed approaches.
b. Advise all visual approach go-arounds to remain in the traffic pattern.

Section 17. KSQL San Carlos Airport

17-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
San Carlos Ground	SQL_GND	San Carlos Ground	121.600
San Carlos Tower	SQL_TWR	San Carlos Tower	119.000
San Carlos ATIS	KSQL_ATIS		125.900

17-2 General

a. Runway 12 is the calm wind runway. If local winds make compliance with this unsafe, the runway most aligned with the wind shall be used.
b. Ground control has jurisdiction over all taxiways.
c. Ground control provides ramp/non-movement advisory services to inbound/outbound aircraft.
d. Local control must assign the preferential VFR departure/arrival procedures to pilots who are familiar. They are provided in this SOP for reference.

17-3 Departures

a. SQL ATCT obtains releases for all IFR departures from:
    i. SFOW: Woodside and coordinate with PAO ATCT
    ii. SFOE: Sutro and coordinate with PAO ATCT
b. Issue the appropriate DP and altitude as described below to IFR departures. The appropriate TEC route must be issued if applicable.
    i. Runway 12: obstacle departure procedure, maintain 2,100 ft, expect assigned altitude 5 minutes after departure
    ii. Runway 30: noise abatement departure - “Fly runway heading until passing the diamond shaped waterway, then turn right and maintain heading 120° vector to <fix/route>. Keep your downwind within 2 miles of the airport. Maintain VFR at or below 1,100 until passing the OAK 165° radial, then climb and maintain 2,100. Expect <assigned altitude> 5 minutes after departure”
    iii. If the ceiling is below 1,100 ft or visibility is less than 3 nm, runway 30 is not available.
c. Tower must ensure aircraft turn to the assigned departure heading within 2 nm of the runway.

d. Preferred VFR Departures - Runway 30
    i. Crosswind “Belmont Slough”/”Oracle” Departure: turn crosswind to remain northwest of the diamond shaped waterway and follow the Belmont Slough. Remain northwest of KNBR radio towers.
    ii. Downwind Departures (“Coyote Hills”): climb straight out, parallel to Highway 101. Turn crosswind to remain northwest of the diamond shaped waterway. Delay downwind turn until reaching 800 ft MSL, make a left 45 degree turn at pilot’s discretion.
    iii. Woodside Departure: climb straight out, parallel to Highway 101. Turn crosswind to remain northwest of the diamond shaped waterway. Delay downwind turn until reaching 800 ft MSL, proceed on downwind until abeam Woodside Road prior to initiating a right turn.
    iv. Upwind ”Hillsdale” Departure: climb straight out, parallel Highway 101 until abeam the Hillsdale Shopping Center, then climb left on a southwesterly heading, remaining south of Highway 92.
e. Preferred VFR Departures - Runway 12
    i. Southbound/Westbound “Woodside” Departure: continue on as heading of 100 until abeam Woodside Road prior to initiating a right turn.
f. Crosswind Departure: begin left crosswind turn as soon as traffic permits.

17-4 Arrivals

a. Tower must issue the published missed approach except maintain 4,000 ft to all unplanned IFR missed approaches.
b. Advise all visual approach go-arounds to remain in the traffic pattern or coordinate with NCT for climb-out instructions.
c. Preferential VFR Arrivals - Runway 30
    i. From the north (“KNBR Arrival”): make entry via the Steinberger Slough (southeast of KNBR radio towers), then enter right downwind for runway 30.
    ii. From the northeast (“Cement Plant Arrival”): proceed overhead the cement plant, then enter right base runway 30.
    iii. From the southwest through northwest (“Overhead Arrival”): cross overhead midfield at or above 1,200 ft and enter right downwind for Runway 30.
d. Preferential VFR Arrivals - Runway 12
    i. From the north (“KNBR Arrival”): make entry via the Steinberger Slough (southeast of KNBR radio towers), then enter left base for runway 12.
    ii. From the northeast (“Cement Plant Arrival”): proceed overhead the cement plant, then enter right left downwind runway 12.
    iii. From the southwest through northwest (“Overhead Arrival”): cross overhead midfield at or above 1,200 ft and enter left downwind for runway 12.

Section 18. KSTS Sonoma County Airport

18-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Santa Rosa Ground	STS_GND	Santa Rosa Ground	121.900
Santa Rosa Tower	STS_TWR	Santa Rosa Tower	118.500
Santa Rosa ATIS	KSTS_ATIS		120.550

18-2 General

a. There is no preferred runway use program at STS. Use the runways most closely aligned with the wind unless an operational advantage is gained by using different runways.
b. Ground control has jurisdiction over all taxiways in the movement area and inactive runways, except for taxiway A north of H.
    i. Taxiways C, D, E, G, J, K, Q, R, Z are not part of the movement area.
c. Land and hold short operations (LAHSO) are authorized for arrivals on runway 02, hold short runway 14/32. The available landing distance is 4600 feet.

18-3 Departures

a. STS ATCT obtains releases from ZOA Area North for all IFR departures.
b. Issue the filed departure procedure or assign an appropriate departure procedure to IFR departures.
c. IFR departures must be assigned an altitude of 8,000 ft MSL or requested lower altitude.
    i. Aircraft requesting altitudes above 8,000 ft MSL must be advised to expect filed altitude 10 minutes after departure.
d. Successive departing aircraft must be established on courses that diverge by at least 45 degrees prior to communication transfer.

18-4 Arrivals

a. Aircraft conducting an instrument approach must be instructed to fly the published missed.
b. Aircraft unable to complete a landing from a visual approach should be instructed to enter the traffic pattern for landing.

Section 19. KTRK Truckee-Tahoe Airport

19-1 Positions Table

FACILITY	CALLSIGN	RADIO CALLSIGN	FREQUENCY
Truckee Ground	TRK_GND	Truckee Ground	118.300
Truckee Tower	TRK_TWR	Truckee Tower	120.575
Truckee ATIS	KTRK_ATIS		118.000

19-2 General

a. There is no preferred runway use program at TRK. Use the runways most closely aligned with the wind unless an operational advantage is gained by using different runways.

19-3 Departures

a. TRK ATCT obtains releases from ZOA Area East for all IFR departures.
b. Initial climb for IFR departures from TRK filed above 13,000 shall be 13,000.
    i. Aircraft requesting altitudes above 13,000 ft must be advised to expect filed altitude 10 minutes after departure.

19-4 Arrivals

a. ZOA must forward arrival information at least 7 minutes prior to the airport estimate, in accordance with 7110.65 4-7-6 (a).