

Fly Quiet Program Workshop

Evaluation of Proposed Program Elements

Technical Working Group Subcommittee
June 11, 2026

Three Questions Used to Evaluate FQP Elements

Framework used to evaluate proposed Fly Quiet Program elements.

1. Who Has Control?

Who influences the operation through their actions?

1. Is it Effective?

Is the element likely to provide meaningful noise reduction?

1. Who Benefits?

Which communities benefit?

Fly Quiet Program: Element Evaluation Summary

Element		SECTION 1: Control		SECTION 2: Effectiveness & Benefits				
Name	Type	Who Has Control?	Pilot Control Level (H/M/L/None)	Time of Day	How It Reduces Noise	Usage Volume (H/M/L)	Communities Benefiting	Overall Benefit (H/M/L)
Element 1	DEP							
Element 2	ARR							
Element 3	DEP							
Element 4	ARR							
Element 5	GBN							
Element 6	DEP							
Element 7	ARR							
Element 8	DEP							
Element 9	ARR							
Element 10	DEP							

Usage Volume: High (≥ 150 /day); Medium (50-149/day); Low (1-50/day)

Type: DEP = Departure Procedure; ARR = Arrival Procedure; GBN = Ground-Based Noise

Standard Element Evaluation Template

SECTION 1: CONTROL	
Who Has Control?	ATC / Airline / Pilot / Other
Pilot Control Level	High / Medium / Low / None
SECTION 2: EFFECTIVENESS & BENEFITS	
Time of Day	Day (7am-10pm) / Night (10pm-7am)
How it Reduces Noise	Higher altitude, over water, early turns, reduced thrust, etc.
Usage Volume	High / Medium / Low, H: ≥ 150 /day, M: 50-149/day, L: <50 /day
Communities Benefiting	Communities expected to benefit
Overall Benefit	High / Medium / Low (combines noise reduction, communities benefiting, and usage volume)
Clarifications	Additional information needed

Estimated Usage of SFO Procedures

Daily averages estimated based on 9 months of data (Jun 2025-Feb 2026) published in Airport Director's reports.

AVERAGE DAILY DEPARTURES				
GAP	SSTIK	NIITE	TRUKN R1	TRUKN R28
136 Range: 116-151	155 Range: 137-172	51 Range: 36-60	203 Range: 187-216	15 Range: 5-54

AVERAGE DAILY ARRIVALS			
BDEGA	DYAMD	SERFR	PIRAT
166 Range: 141-193 • Down the Bay: 54/day (46-63) • Peninsula: 112/day (87-131)	213 Range: 192-226	150 Range: 142-157	38 Range: 33-43

Community Coverage of Expected Benefits by FQP Element

Conceptual Example

City	Element 1	Element 2	Element 3	Element 4	Element 5	Element 6	Element 7	Element 8	Element 9	Element 10	TOTAL
	DEP	DEP	ARR	ARR	DEP	DEP	DEP	DEP	ARR	GBN	
Atherton											
Belmont											
Brisbane											
Burlingame											
Colma											
Daly City											
East Palo Alto											
Foster City											
Half Moon Bay											
Hillsborough											
Menlo Park											
Millbrae											
Pacifica											
Portola Valley											
Redwood City											
San Bruno											
San Carlos											
San Francisco											
San Mateo											
SS Francisco											
Woodside											
Cities Covered											

FQP 2.0 Proposed Elements (4/29/2026) with Additional Suggestions

- Shoreline Departures
- Oceanic Woodside Gate Crossing Altitude
- New: NIITE-HUSSH
- Nighttime Use of Runway 28R and offset approach to Runway 28R
- Gap departure Altitudes
- Gap SNTNA Departures
- Gap (Vectoring) Departures
- SSTIK Departure Procedure
- Early Turns to Arrive Runways 28L/R
- New: BDEGA Down the Bay
- Ground Engine Run-Ups
- Fleet Noise Quality Rating
- Noise Exceedance Rating

Shoreline Departures - DEP



SECTION 1: CONTROL

Who Has Control?	TBD: ATC / Airline / Pilot / Other
Pilot Control Level	TBD: High / Medium / Low / None
SECTION 2: EFFECTIVENESS & BENEFITS	
Time of Day	TBD: Day (7am-10pm) / Night (10pm-7am)
How it Reduces Noise	TBD: Avoid shoreline cities when turning right as soon as possible for TRUKN and NIITE 28R/L departures
Usage Volume	Medium ~75/day
Communities Benefiting	TBD: Brisbane? San Bruno, South San Francisco
Overall Benefit	TBD: High/ Medium / Low
Clarifications	TBD: TRUKN and NIITE are RNAV procedures that define the turn towards the Bay. Who controls a tighter turn: FAA or airlines when encoding the RNAVs into their Flight Management System?

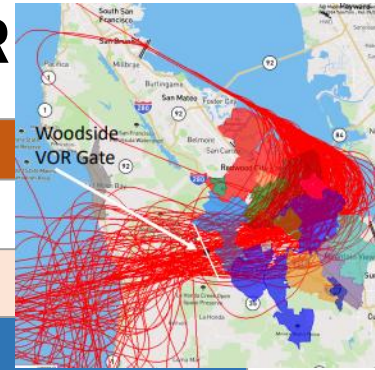
Oceanic Woodside Gate Crossing Altitude - ARR

SECTION 1: CONTROL

Who Has Control?	TBD: ATC / Airline / Pilot / Other
Pilot Control Level	TBD: High / Medium / Low / None

SECTION 2: EFFECTIVENESS & BENEFITS

Time of Day	Day (7am-10pm) & Night (10pm-7am)
How it Reduces Noise	A minimum altitude over Woodside may reduce noise slightly over Woodside area but leads to additional noise on downstream communities such as East Palo Alto and Menlo Park.
Usage Volume	Low ~ 40/day
Communities Benefiting	TBD: Woodside? Negatively affected: East Palo Alto, Menlo Park
Overall Benefit	TBD: High/ Medium / Low
Clarifications	TBD: Additional information needed?



NIITE-HUSSH - DEP

SECTION 1: CONTROL

Who Has Control?	TBD: ATC / Airline / Pilot / Other
Pilot Control Level	TBD: High / Medium / Low / None

SECTION 2: EFFECTIVENESS & BENEFITS

Time of Day	Night: restricted to 1am - 5am
How it Reduces Noise	NIITE-HUSSH West and NIITE-HUSSH South departures eliminate SSTIK departures. Ensuring that aircraft turn within 2 miles of GOBBS waypoint reduces noise over San Francisco.
Usage Volume	TBD: Low
Communities Benefiting	TBD: Brisbane, Colma, Daly City, Pacifica, San Bruno? San Francisco, South San Francisco
Overall Benefit	TBD: High/ Medium / Low
Clarifications	TBD: Historical usage of NIITE-HUSSH West and NIITE-HUSSH South



Nighttime Arrivals on Runway 28R: Separate Evaluation

Current Element	Proposed Structure
Nighttime Arrivals on 28R and Offset Arrival Approach to 28R	● Night Arrivals 28R ● Night Offset to 28R

Rationale

- Not all night arrivals may occur on 28R using an offset approach
- Therefore, the two items are best considered separately
- Also ATC may control the runway assignment and pilot may control whether to do an offset

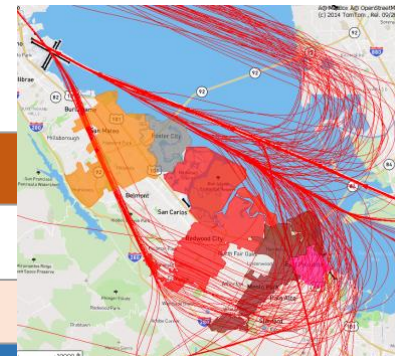
Night Arrivals 28R - ARR

SECTION 1: CONTROL

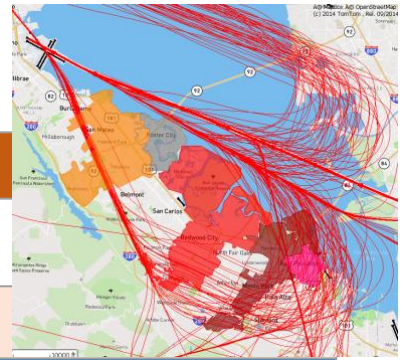
Who Has Control?	TBD: ATC / Airline / Pilot / Other
Pilot Control Level	TBD: High / Medium / Low / None

SECTION 2: EFFECTIVENESS & BENEFITS

Time of Day	Night (10pm-7am)
How it Reduces Noise	Move flights further offshore and away from shoreline communities
Usage Volume	TBD: High / Medium / Low, H: ≥ 150 /day, M: 50-149/day, L: < 50 /day
Communities Benefiting	TBD: Foster City, Redwood City? San Mateo?
Overall Benefit	TBD: High/ Medium / Low
Clarifications	TBD: Additional information needed?



Night Offset to 28R - ARR



SECTION 1: CONTROL

Who Has Control?	TBD: ATC / Airline / Pilot / Other
Pilot Control Level	TBD: High / Medium / Low / None
SECTION 2: EFFECTIVENESS & BENEFITS	
Time of Day	Night (10pm-7am)
How it Reduces Noise	Move flights further offshore and away from shoreline communities
Usage Volume	TBD: High / Medium / Low, H: ≥ 150 /day, M: 50-149/day, L: <50 /day
Communities Benefiting	TBD: Foster City, Redwood City? San Mateo?
Overall Benefit	TBD: High/ Medium / Low
Clarifications	TBD: Additional information needed?

Gap Departures: Reorganize by Departure Procedure

Current Elements	Proposed Structure
Gap departure Altitudes	Gap Oceanic
Gap SNTNA Departures	Gap SNTNA
Gap (Vectoring) Departures	Gap Early Turns

Altitude performances would be defined for each procedure and be specific to different aircraft types such as narrowbody 1, narrowbody 2, widebody 1, and widebody 2.

Rationale

- Different procedures may have different altitude requirements as specified by the FAA
- Different aircraft can climb differently based on their capabilities and weights
- Current Gap departure Altitudes element overlaps with Gap SNTNA and Gap Vectoring elements (double counting)

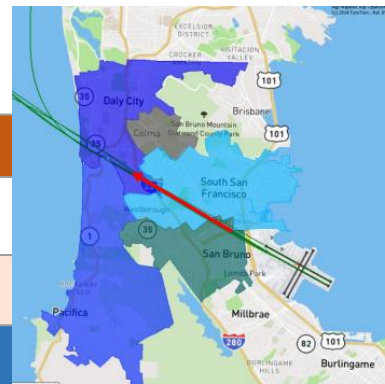
Gap Oceanic - DEP

SECTION 1: CONTROL

Who Has Control?	TBD: ATC / Airline / Pilot / Other
Pilot Control Level	TBD: High / Medium / Low / None

SECTION 2: EFFECTIVENESS & BENEFITS

Time of Day	TBD: Day (7am-10pm) / Night (10pm-7am)
How it Reduces Noise	TBD: Slightly higher altitudes Criteria: meet altitude thresholds at 4 different gates with different thresholds for different aircraft type categories
Usage Volume	Medium: ~ 40% of Gap departures = ~ 50-55/day
Communities Benefiting	TBD: Daly City, Pacifica, San Bruno, South San Francisco
Overall Benefit	TBD: High/ Medium / Low
Clarifications	TBD: Additional information needed?



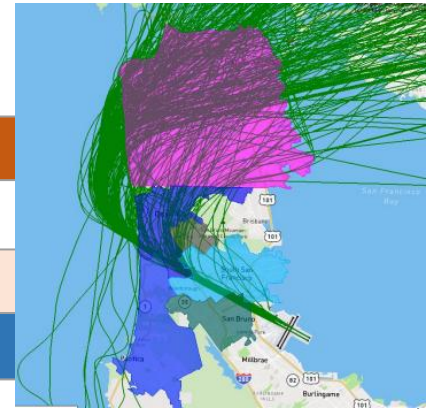
Gap SNTNA - DEP

SECTION 1: CONTROL

Who Has Control?	TBD: ATC / Airline / Pilot / Other
Pilot Control Level	TBD: High / Medium / Low / None

SECTION 2: EFFECTIVENESS & BENEFITS

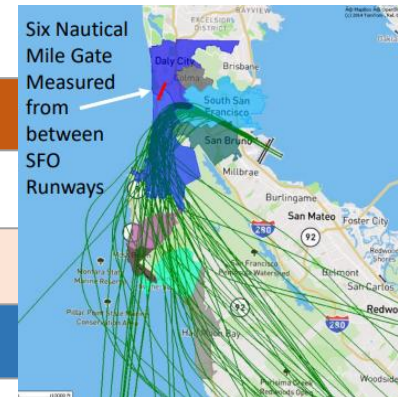
Time of Day	TBD: Day (7am-10pm) / Night (10pm-7am)
How it Reduces Noise	Avoids early, low-altitude turns over communities Slightly higher altitudes (similar to Gap Oceanic)
Usage Volume	Medium: ~ 60% of Gap departures = ~80/day
Communities Benefiting	TBD: Brisbane? Colma, Daly City, Pacifica, San Bruno, San Francisco, South San Francisco
Overall Benefit	TBD: High/ Medium / Low
Clarifications	TBD: Additional information needed?



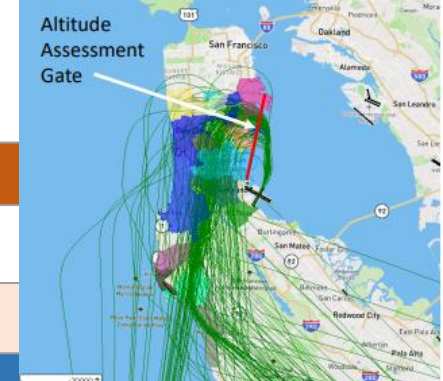
Gap Early Turns - DEP

SECTION 1: CONTROL

Who Has Control?	TBD: ATC / Airline / Pilot / Other
Pilot Control Level	TBD: High / Medium / Low / None
SECTION 2: EFFECTIVENESS & BENEFITS	
Time of Day	TBD: Day (7am-10pm) / Night (10pm-7am)
How it Reduces Noise	TBD: Higher altitude, over water, later turns, reduced thrust, etc.
Usage Volume	Low: ~ 2% of Gap departures = ~ 3/day
Communities Benefiting	TBD: Daly City, Montara (San Mateo County)? Pacifica, San Bruno, South San Francisco
Overall Benefit	TBD: High/ Medium / Low
Clarifications	TBD: Additional information needed?



SSTIK Departures - DEP



SECTION 1: CONTROL

Who Has Control?

TBD: ATC / Airline / Pilot / Other

Pilot Control Level

TBD: High / Medium / Low / None

SECTION 2: EFFECTIVENESS & BENEFITS

Time of Day

Day (7am-10pm) & Night (10pm-7am)

How it Reduces Noise

Encourage airlines to turn over the peninsula after minimum altitude

Usage Volume

High ~155/day

Communities Benefiting

TBD: Brisbane, Colma, Daly City, Pacifica, San Bruno? San Francisco, South San Francisco

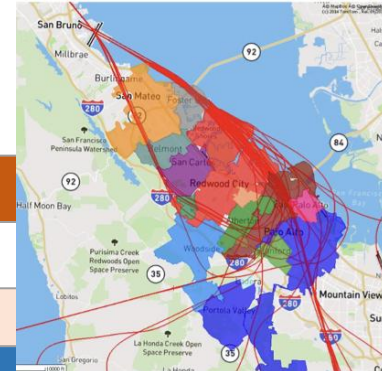
Overall Benefit

TBD: High/ Medium / Low

Clarifications

TBD: STIKK is an RNAV procedure that turns over the Peninsula at the STIKK waypoint (no specified altitude). Pilots must be cleared by ATC to go above 2100 ft. Determine whether pilot controls climb rate given that ATC controls the clearance timing.

Early Turns to Arrive 28L/R - ARR



SECTION 1: CONTROL

Who Has Control?	TBD: ATC / Airline / Pilot / Other
Pilot Control Level	TBD: High / Medium / Low / None

SECTION 2: EFFECTIVENESS & BENEFITS

Time of Day	TBD: Day (7am-10pm) / Night (10pm-7am)
How it Reduces Noise	Encourage airlines to align with runways 28L/R further out over the Bay to avoid planes turning into final approach across the Peninsula.
Usage Volume	Low
Communities Benefiting	TBD: Foster City, Belmont? Redwood City?
Overall Benefit	Low, 1% of the time
Clarifications	TBD: Early turn for safety (missed approaches, congestion) or pilots' requests for visual approach when they have the airport in sight? ATC vectors all Peninsula arrivals (after ARGGG for PIRAT, after EDDYY for SERFR, after BRIXX for BDEGA).

BDEGA Down the Bay - ARR



SECTION 1: CONTROL

Who Has Control? TBD: ATC / Airline / Pilot / Other

Pilot Control Level TBD: High / Medium / Low / None

SECTION 2: EFFECTIVENESS & BENEFITS

Time of Day Day (7am-10pm) & Night (10pm-7am)

How it Reduces Noise Move flights over the Bay instead of over the Peninsula.

Usage Volume High ~165/day

Communities Benefiting TBD: Atherton, East Palo Alto, Menlo Park, Portola Valley, Redwood City, Woodside

Overall Benefit TBD: High

Clarifications Unclear if there are usage patterns for domestic carriers. Foreign carriers are unlikely to use current Down the Bay. Usage may increase once RNP Down the Bay is operational.

Ground Engine Run-Ups - GBN

SECTION 1: CONTROL

Who Has Control?	Airline
Pilot Control Level	None

SECTION 2: EFFECTIVENESS & BENEFITS

Time of Day	TBD: Day (7am-10pm) / Night (10pm-7am)
How it Reduces Noise	TBD: SFO can fine airlines for violations (prohibited at night, requires permission during the day).
Usage Volume	TBD: High / Medium / Low, H: ≥ 150 /day, M: 50-149/day, L: <50 /day
Communities Benefiting	TBD: Burlingame? Millbrae
Overall Benefit	TBD: High / Medium / Low
Clarifications	TBD: How often? Other GBN sources to consider? APUs, taxiing, takeoff roll, or reverse thrust on landing (modern aircraft don't need reverse thrust because of new equipment)

Fleet Noise Quality Rating - TBD DEP

SECTION 1: CONTROL

Who Has Control?	Airline
Pilot Control Level	None

SECTION 2: EFFECTIVENESS & BENEFITS

Time of Day	Day (7am-10pm) & Night (10pm-7am)
How it Reduces Noise	Lower engine noise at takeoff and during climbing phase
Usage Volume	High, all departures ~650/day
Communities Benefiting	TBD: Primarily communities under departure flight paths up to some altitude level (typically 15,000 ft). Arrival communities are mainly affected by airframe noise, not engines, which are typically idle on descent.
Overall Benefit	High
Clarifications	Airline-controlled element

Noise Exceedance Rating: Discussion Item

Current Challenge

- Not operationally actionable because based on averages across aircraft and procedures
- May overlap with other Fly Quiet Program elements (e.g., Gap departures)
- Requires additional discussion

Potential Revised Approach

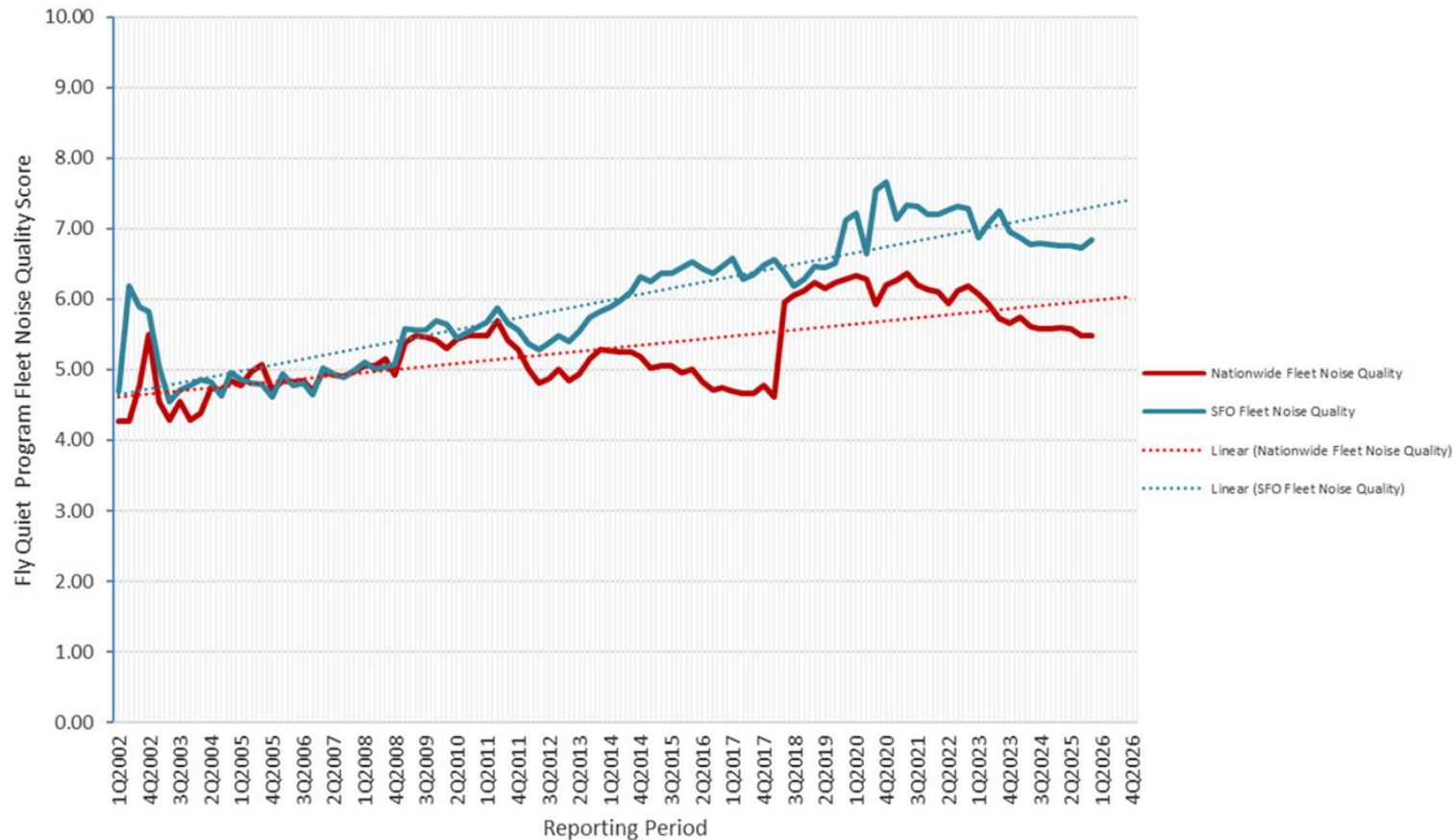
- Apply only to procedures not already covered by another FQP element
- Evaluate-by procedure and aircraft type category
- Use different scoring for daytime and nighttime

Examples for Discussion

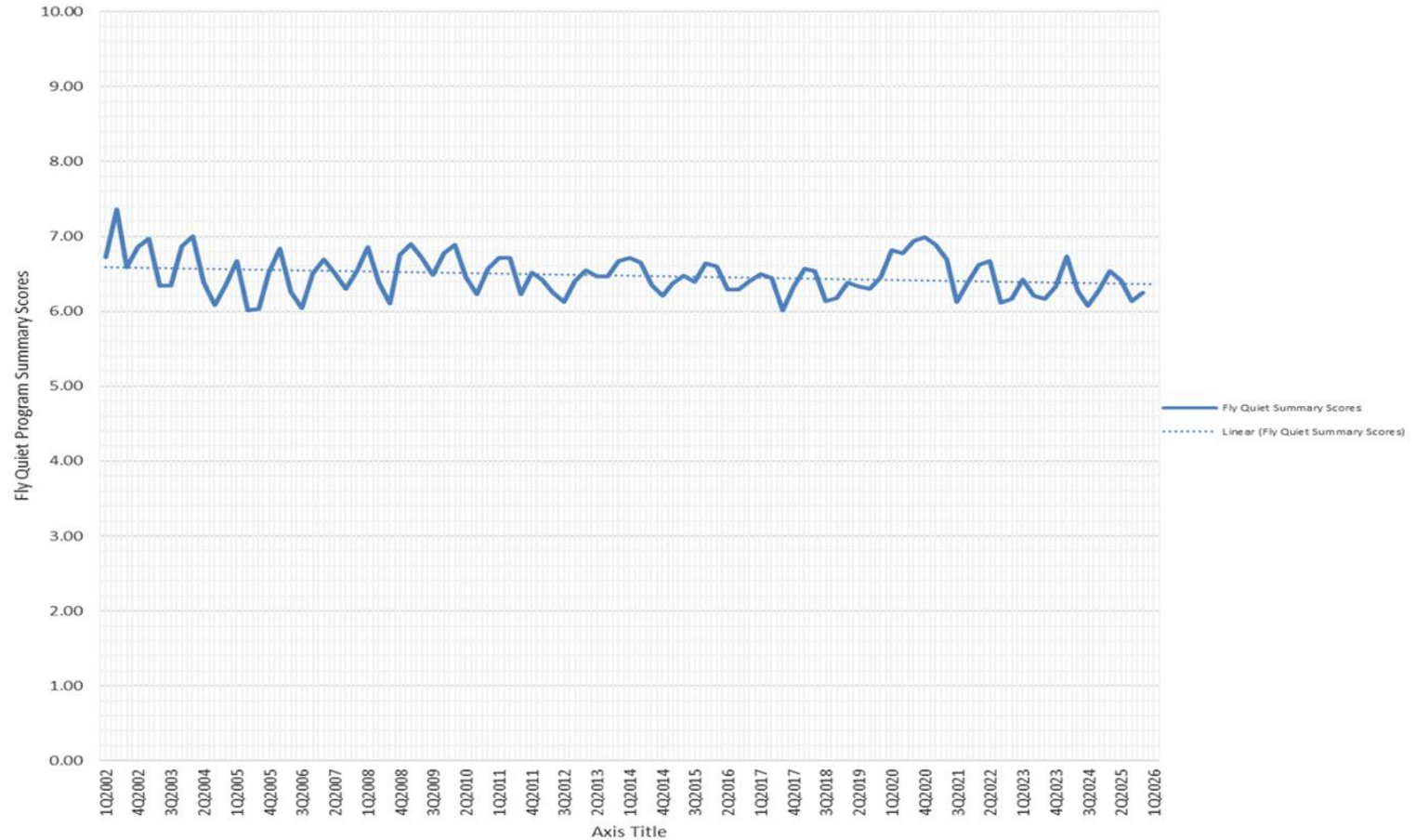
- Potential candidates: SERFR, BDEGA, PIRAT or other procedures not otherwise covered in a FQP element
- Applicable to operations below altitude threshold

Appendix

SFO Fleet Noise Quality Improvement 2002 - 2026



Fly Quiet Program Summary Scores 2002 - 2026



Fly Quiet Program 1.0

*each category is 10 Points

CATEGORY	METRIC	IMPACT
Fleet Noise Quality	Encourages airlines to operate newer, quieter aircraft, reducing the overall noise footprint around the airport.	✓ Quieter Aircraft Technology
Noise Exceedance Rating	Discourages operations that produce noise levels above established thresholds at monitoring locations.	✓ Flight Path Compliance ✓ Reduce Communities Impacted
Nighttime Preferential Runway Use	Encourages departures over the bay rather than over populated areas between 1:00 a.m. and 6:00 a.m. by incentivizing use of preference runways	✓ Reduce Nighttime Noise Exposure ✓ Reduce Communities Impacted
Shoreline Departure	Encourages aircraft to remain on the shoreline departure path rather than turning inland over residential areas, through the use of TRUKN and NIITE departure procedures	✓ Flight Path Compliance ✓ Reduce Communities Impacted
Gap Departure Rating	Directs aircraft toward the gap corridor northwest of the airport to minimize noise exposure over South San Francisco, San Bruno, Daly City, and Pacifica.	✓ Flight Path Compliance ✓ Reduce Communities Impacted
Foster City Arrivals	Encourages over-the-bay approaches instead of approaches over residential communities during nighttime hours.	✓ Reduce Nighttime Noise Exposure ✓ Reduce Communities Impacted