



# Meeting Announcement

## Technical Working Group

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**Wednesday, July 28, 2021**

**12:00 p.m. – 1:30 p.m.**

**\*BY VIDEO CONFERENCE ONLY\***

Please click the link below to join the webinar:

<https://smcgov.zoom.us/j/99940735610>

Or Dial-in:

US: +1(669)900-6833 Webinar ID: 999 4073 5610

\*\*Please see instructions for written and spoken comments at the end of this agenda.

### **AGENDA**

#### **Call to Order**

#### **Public Comment on Items NOT on the Agenda**

### **AGENDA ITEMS**

#### **1. NIITE/HUSSH Update and Staff Direction Next Steps**

- a. SFORT Chair - FAA meeting of June 1, 2021
- b. SFORT Chair – Congresswomen Speier meeting July 14, 2021

Attachments:

- i. SFORT questions of April 26, 2021
- ii. Beth White e-mail of June 1, 2021

#### **2. Ground-Based Augmentation System (GBAS)– Innovative Procedure**

- a. SFO review timeline and current status
- b. Selection of Noise Measurement Locations for Validation of CFPP Noise Modeling

Attachments:

- i. SFORT comments of May 19, 2021
- ii. SFO Presentation of July 28, 2021

#### **3. FAA Community Workshops and Staff Direction on Next Steps**

Attachments:

- i. FAA Workshop Invitation and Slide Deck

#### 4. Adjourn

##### **\*\*Instructions for Public Comment during Videoconference Meeting**

During videoconference of the Technical Working Group subcommittee meeting, members of the public may address the Roundtable as follows:

##### **Written Comments:**

Written public comments may be emailed in advance of the meeting. Please read the following instructions carefully:

1. Your written comment should be emailed to [amontescardenas@smcgov.org](mailto:amontescardenas@smcgov.org).
2. Your email should include the specific agenda item on which you are commenting.
3. Members of the public are limited to one comment per agenda item.
4. The length of the emailed comment should be commensurate with two minutes customarily allowed for verbal comments, which is approximately 250-300 words.
5. If your emailed comment is received by 12:00 pm on the day before the meeting, it will be provided to the Roundtable and made publicly available on the agenda website under the specific item to which comment pertains. The Roundtable will make every effort to read emails received after that time but cannot guarantee such emails will be read during the meeting, although such emails will still be included in the administrative record.

##### **Spoken Comments:**

Spoken public comments will be accepted during the meeting on Items NOT on the Agenda, and at the end of each Agenda Item. It is up to the Chairperson to increase the frequency of public comments, such as after each Agenda Item. Please read the following instructions carefully:

1. The July 28, 2021 Subcommittee meeting may be accessed through Zoom online at <https://smcgov.zoom.us/j/99940735610>. The meeting ID: 999 4073 5610. The meeting may also be accessed via telephone by dialing in +1-669-900-6833, entering meeting ID: 999 4073 5610, then press #.
2. You may download the Zoom client or connect to the meeting using the internet browser. If you are using your browser, make sure you are using current, up-to-date browser: Chrome 30+, Firefox 27+, Microsoft Edge 12+, Safari 7+. Certain functionality may be disabled in older browsers including Internet Explorer.
3. You will be asked to enter an email address and name. We request that you identify yourself by name as this will be visible online and will be used to notify you that it is your turn to speak.
4. When the Roundtable Chairperson calls for the item on which you wish you speak click on “raise-hand” icon. You will then be called on and unmuted to speak.
5. When called, please limit your remarks to the time limit allotted.

Note: To arrange an accommodation under the Americans with Disabilities Act to participate in this public meeting, please call (650) 363-4220 at least 2 days before the meeting date.

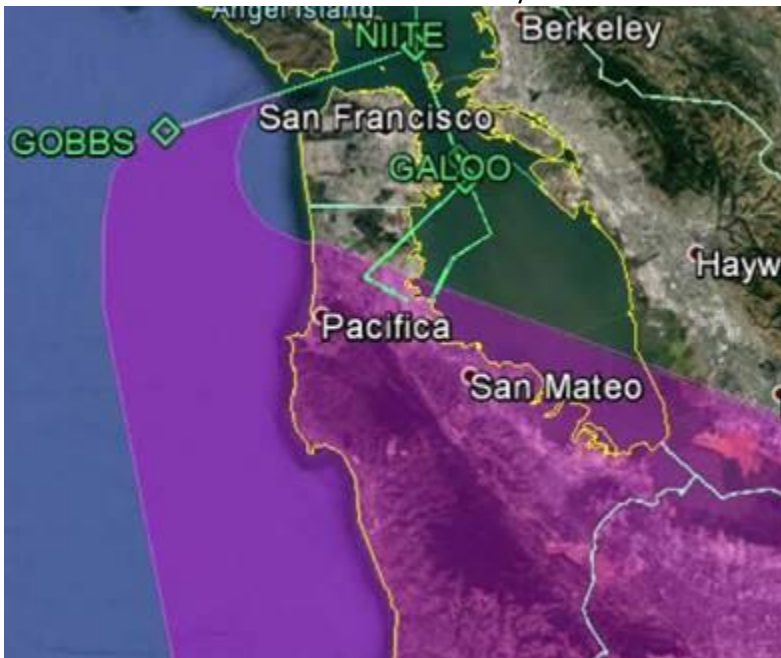
4/19/21

Marina Landis (FAA),

Following up on the San Francisco International Airport Community Roundtable meeting of March 26 Technical Working Group (TWG) meeting where several questions required follow-up. Below is my summary of the questions as I heard them:

1. Technical Working Group Meeting (June 26, 2021) Agenda Items  
NIITE/HUSSH

- a. For the south transition of this procedure, is GOBBS a fly by or fly over waypoint? If GOBBS is a fly by waypoint, can it be made a fly over waypoint to prevent aircraft from turning prior to the waypoint and heading over land at a lower altitude than if they were at or past the GOBBS waypoint and then turned.
- b. After the GOBBS waypoint what are the options staying over the ocean when headed south/southeast within the existing procedures vs. creating a new procedure. The goal is to allow aircraft to gain additional altitude before flying over land without significant noise from air brakes over land.
- c. Can the FAA provide the noise modeling results in grid format and details from the environmental review process.
- d. What is the anticipated range of altitudes and airspeeds of aircraft in the purple area of your graphic below when aircraft initially cross over land?



2. Runway 28L/R

- a. Can the representative from NCT discuss how they educate and reinforce to controllers on the importance of using a single stream to Runway 28R when traffic permits, such as times at night during increased sensitive from bayside communities? The Roundtable would like to understand how this standard operating procedure is enforced and seeks ways of improving its use.

Michele Rodriguez  
San Francisco International Airport/Community Roundtable Coordinator  
[Mrodriguez2@smcgov.org](mailto:Mrodriguez2@smcgov.org)  
650-241-5180

Thanks Michele,

I apologize for not understanding the protocol of what will be presented and who will present it – but wanted to offer a thought to make sure we give this context and help keep it moving forward.

First – would it be helpful to frame up the actual Select Committee request? Confirm that it was to create an over water flight path thereby reducing overflights of the peninsula. Then detail the key points we have addressed to meet that intent:

- The FAA can accommodate that operation from 1am to 5 am.
- The FAA will follow the NITTE and then fly to the GOBBS waypoint before turning toward the fixes that are filed for their destination.
- The FAA will achieve this through automation, controller training and a letter of agreement between the facilities.
- This is not a new procedure so it will not need to go through that IFP Gateway process
- The FAA believes it will take approximately 6 months to put this automation and training in place.

Then – perhaps as an attachment – have the answer to the questions that were addressed at the TWG - specifically the concern that we would be crossing the shoreline at or above 13,000' and that we would not be creating any new overflight – those fixes exist and are flown today.

Again, my apologies if I am bungling over a procedure or framework that you need to follow – just wanted to offer to provide some structure around the request and questions. I know it has been a long journey and sometimes resetting the context is helpful to help us move to the next step.

Thanks!

Beth

**(Received June 1, 2021)**

## **Comments on Community Flight Package – Innovative Procedure**

**By San Francisco International Airport Community Roundtable dated 5/19/21**

### **Presentation**

Provide in verbal presentation:

- a. Wide bodies 30% why not feasible vs. narrow body explanation
- b. Why SEL, not N Above or CNEL won't tell the whole story.
- c. Why air brakes number cannot be provided because of level of assumption, the software does not predict this would have to trick the ADET into believing.

### **ARCHI/EDDY Package**

1. On Page 3, there is a sample points table showing SEL for existing and proposed. Make all noise values to the tenth of a dB by rounding so it is easier for people to compare. This goes for all other similar tables of noise values throughout.
2. Add a column that shows the delta change (+/-) in tenths.
3. All noise values throughout should be shown to a tenth of a dB.
4. For the sample points, please include any waypoints where you see a green or purple band of noise level change adjacent. For example, in the ARCHI package, you selected a sample point of AXMUL – but that looking at the SEL contour figure – that is a waypoint that doesn't show a change in noise level nearby. CEPIN, DUMBA and ARCHII would be more appropriate. It may be easier to just list all waypoints in that procedure as sample points and put the values – especially since we are talking about 6-8 total.
5. Glossary: Add definitions of VFR/MVFR/IFR/LIFR.
6. The package provides a link to [noise.flysfo.com](http://noise.flysfo.com) but does not say how to get to the GIS information to view in detail. Link broken.



San Francisco  
International  
Airport

GBAS

# San Francisco International Airport GBAS Overlay and Innovative Procedure

SFO Roundtable Technical Working Group  
July 28, 2021



# Topics Covered

1. Current GBAS Project Timeline
2. United Airlines Simulator Event and Upcoming Flight Evaluation
3. Possible Noise Monitoring Locations
4. Review of latest CFPPs
5. Questions

For Community Evaluation Only - Not Intended for Navigation

<b>GLS A RWY 28R (EDDYY)</b>	<b>Revision: 1</b>
	28JUN21

Google Earth

GLS Instrument approach to runway 28R originating southeast of the airport, starting at the EDDYY waypoint.

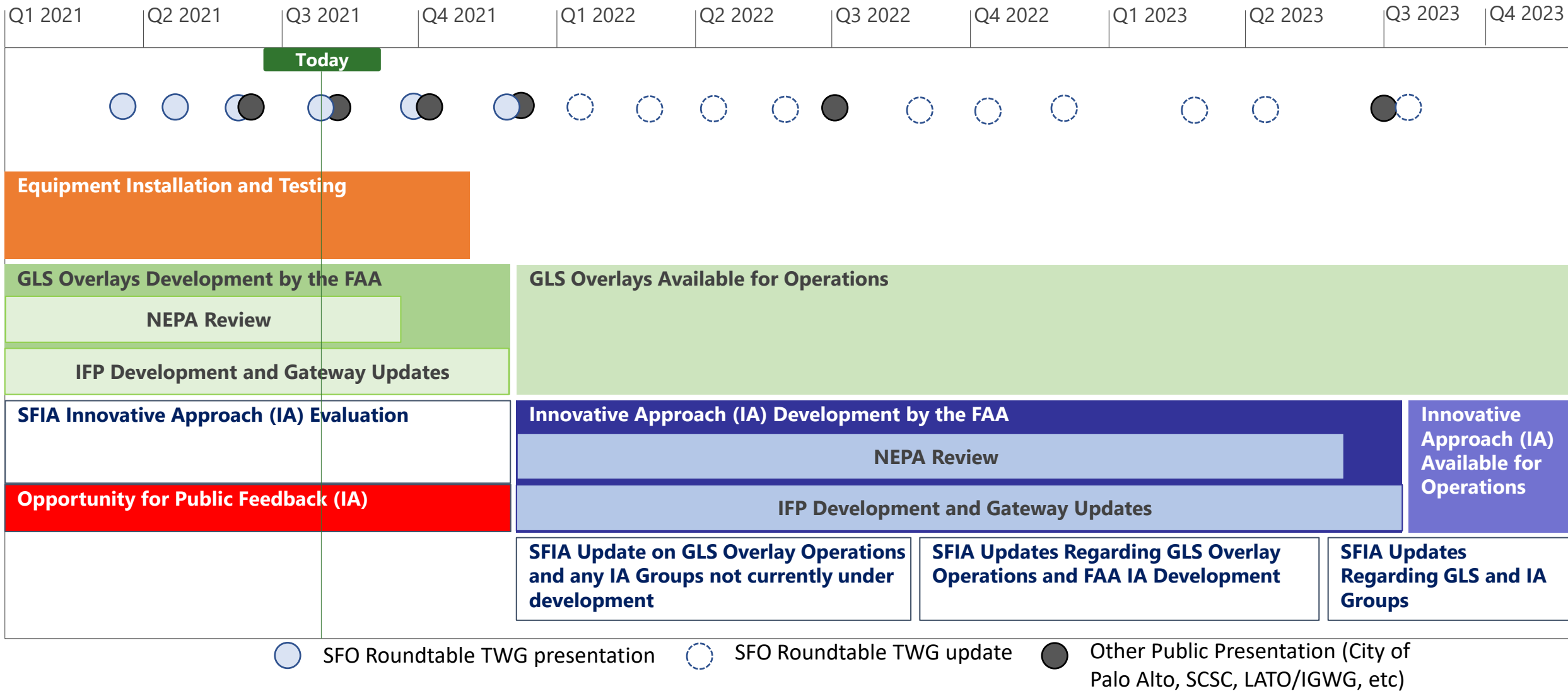
The approach is laterally identical to the existing RNAV (GPS) Y 4wy 28R approach but is elevated by a vertical 3.15 Degree Final approach with higher minimum altitudes along the remainder of the intermediate and initial approach segments until reaching EDDYY

<p><b>Project Goals</b></p> <ul style="list-style-type: none"> <li>✓ Noise reduction</li> <li>✓ ILS Redundancy</li> <li>✓ Efficiency</li> <li>☐ Reduce Delays</li> </ul>
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<http://www.faa.gov>



# SFO GBAS Estimated Schedule and Planned Outreach





# Important SFO GBAS Milestones

**02DEC21** – Earliest start date for GLS Overlay Approach Procedures

**SEP21** – Anticipated date for FAA Instrument Procedure Gateway Update to introduce GLS Overlay Procedures

**JUL/AUG/SEP/OCT21** – Opportunity for UAL Flight Evaluation

**DEC21** – Target date for SFO to request FAA Development of TWG Recommended Innovative GLS Procedures

## SFO SAN FRANCISCO/SAN FRANCISCO INTL

Notify me of changes to SFO

Charts (58) **IFP Production Plan (16)** IFP Coordination (9) IFP Documents (NDBR) (53)

IFP Production Plan - Current IFPs under Development or Amendments with Tentative Publication Date and Status.

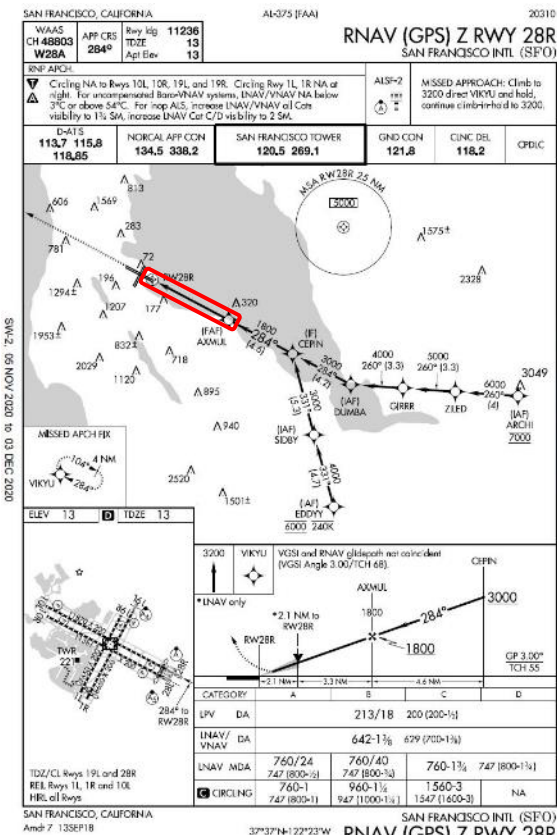
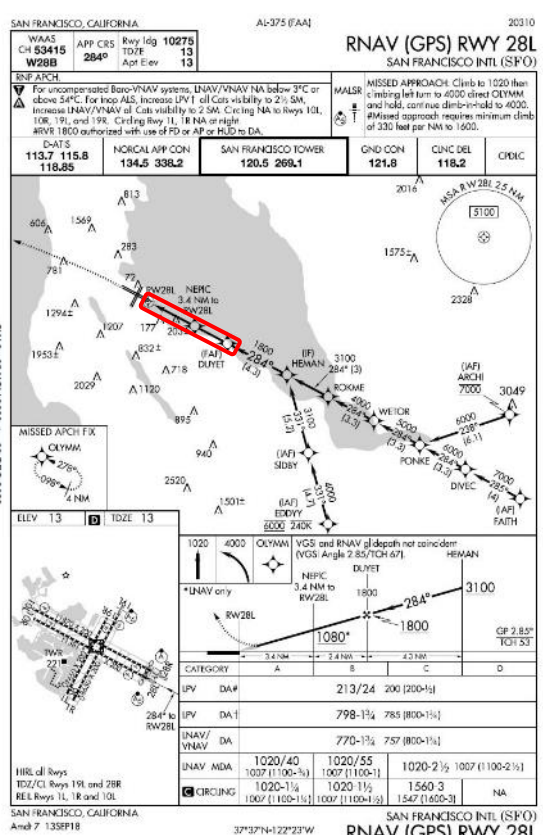
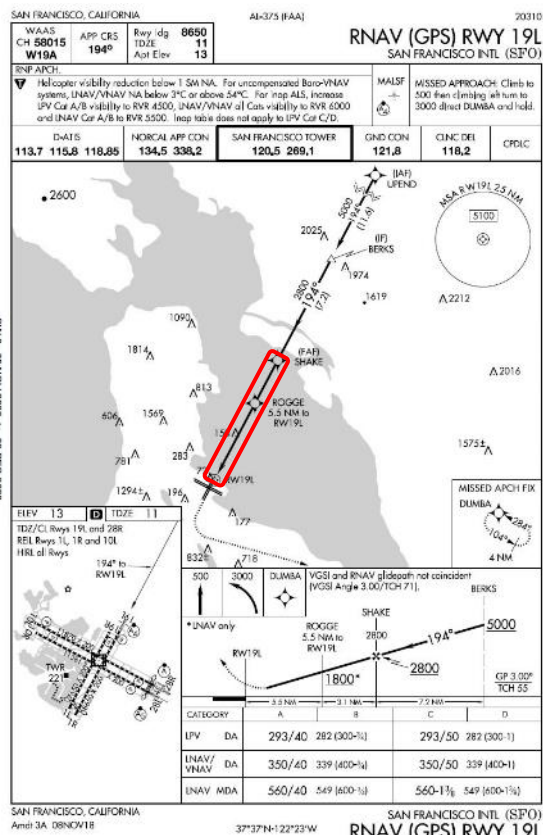
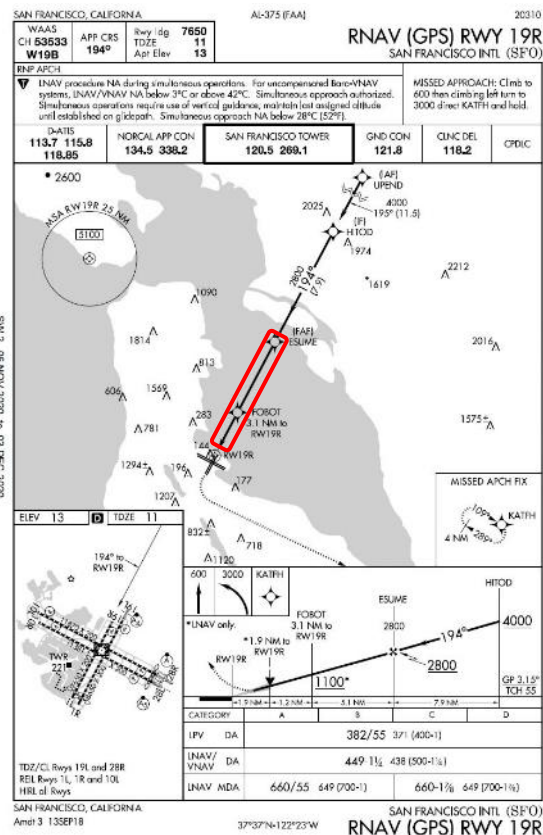
Filter Options

Showing results 1 - 16 of 16

Procedure	Airport Name	Airport ID	City/State	Scheduled Pub Date	Status	Actual Pub Date	
GLS RWY 19R, Orig	SAN FRANCISCO INTL	SFO (KSFO)	SAN FRANCISCO, CA	12/2/2021	Pending		Email FAA
GLS RWY 28L, Orig	SAN FRANCISCO INTL	SFO (KSFO)	SAN FRANCISCO, CA	12/2/2021	Pending		Email FAA
GLS RWY 19L, Orig	SAN FRANCISCO INTL	SFO (KSFO)	SAN FRANCISCO, CA	12/2/2021	Pending		Email FAA
GLS RWY 28R, Orig	SAN FRANCISCO INTL	SFO (KSFO)	SAN FRANCISCO, CA	12/2/2021	Pending		Email FAA
ILS or LOC RWY 19L, AMDT 23	SAN FRANCISCO INTL	SFO (KSFO)	SAN FRANCISCO, CA	12/2/2021	Pending		Email FAA
RNAV (GPS) RWY 19L, AMDT 4	SAN FRANCISCO INTL	SFO (KSFO)	SAN FRANCISCO, CA	12/2/2021	Pending		Email FAA
RNAV (GPS) RWY 19R, AMDT 4	SAN FRANCISCO INTL	SFO (KSFO)	SAN FRANCISCO, CA	12/2/2021	Pending		Email FAA

<https://www.faa.gov/air-traffic/flight-info/aeronav/procedures/application/?event=procedure.results&tab=productionPlan&nasrlid=SFO#searchResultsTop>

# SFO GLS Overlay Approaches



## GLS RWY 19R

- RNAV (GPS) RWY 19R
- GPA: 3.15°
- Opportunity: 5%
- CSPR: TBD

## GLS RWY 19L

- RNAV (GPS) RWY 19L
- GPA: 3.00°
- Opportunity: 5%
- CSPR: TBD

## GLS RWY 28L

- RNAV (GPS) RWY 28L
- GPA: 2.85°
- Opportunity: 95%
- CSPR: Yes

## GLS RWY 28R

- RNAV (GPS) Z RWY 28R
- GPA: 3.00°
- Opportunity: 95%
- CSPR: Yes

## Flight Simulator Evaluation of SFO GLS Approaches

UAL, Boeing, Honeywell and the SFO GBAS Project team met at the UAL Flight Technical Center in Denver, CO on 22JUN21 to conduct simulator evaluations of Innovative GLS Procedure Concepts and an existing procedure

- GLS DB RWY 28R (Encoded as RNP 0.30)
- RNAV (GPS) Z Rwy 28R
- GLS A RWY 28R (Encoded as RNP 0.30)

Procedures were tested to evaluate aircraft configuration, thrust and speed management along with general flyability



# UAL Flight Simulator Evaluation - Results

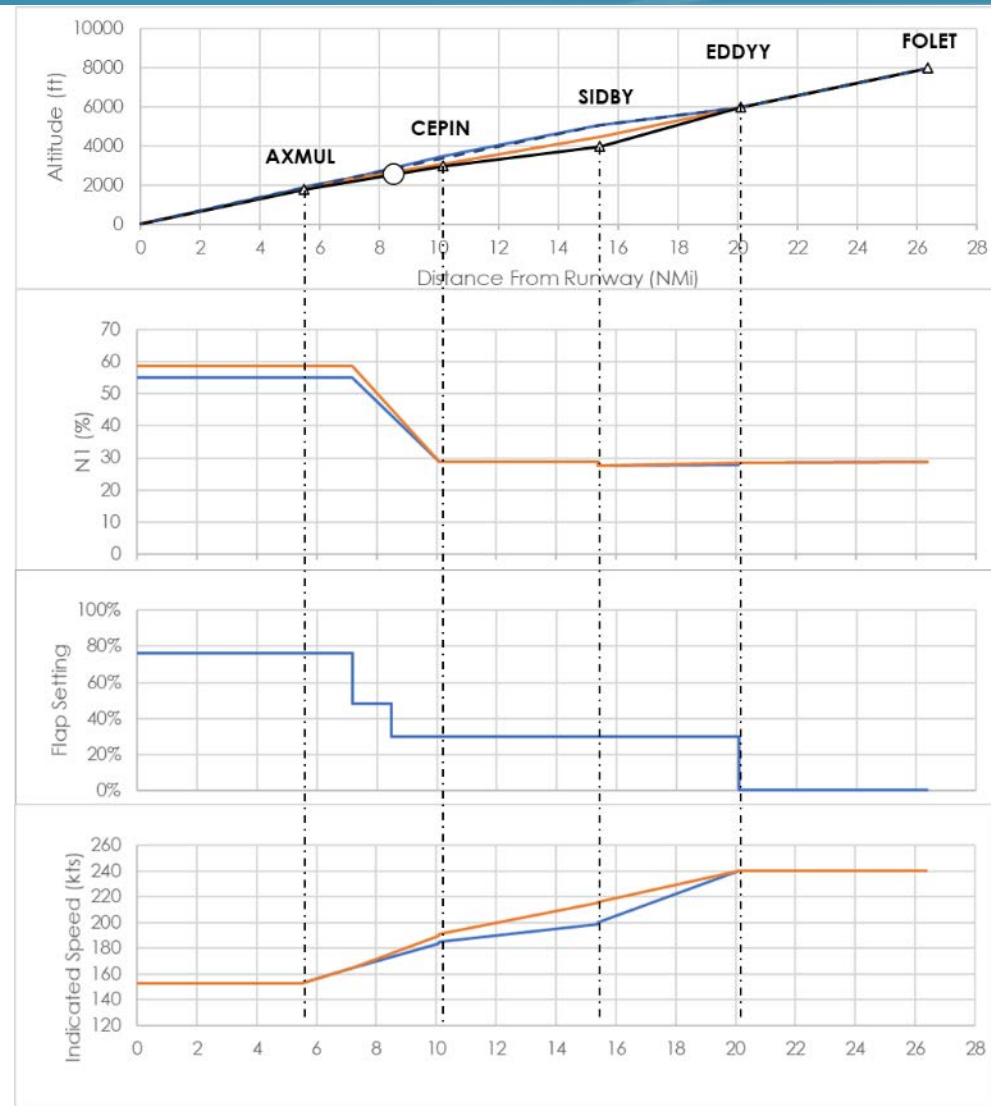
## Flight Simulator Findings

GLS-DB Rwy 28R Innovative Approach Concept (Down the Bay) was stable and was modified to prevent usage of supplemental aerodynamic deceleration (speed brakes)

RNAV (GPS) Z Rwy 28R was relatively challenging for flight crew to reduce speed immediately after EDDYY and requires more significant flap or aerodynamic deceleration devices to be used

GLS A Rwy 28R innovative concept was easier to achieve the speed reduction

Flight evaluation of RNAV (GPS) Z and GLS A can proceed



— RNAV (GPS) Z RWY 28R  
 — GLS A RWY 28R

## Flight Evaluation of SFO GLS Approaches



**United Airlines has offered to support the community evaluation of both the overlay and innovative GLS approach concepts by performing evaluation flights for the purposes of noise data collection<sup>\*</sup>, <sup>\*\*</sup>**

The flights will occur between July and October of 2021, with results made available via <https://noise.flysfo.com>

The Flight Procedures Subcommittee, aided by the SFO GBAS Project Team, will use the information from the test flights to

1. Verify that overlay GLS approaches will not introduce “new” noise when compared to current approaches
2. Evaluate initial AEDT v3D / BADA 4 SEL noise predictions (presented in the CFPPs) vs noise monitor results
3. Make adjustments to the AEDT v3D / BADA 4 noise predictions where applicable

*\*UAL flight test information may not precisely reflect the current AEDT/BADA modeling assumptions*

*\*\*SFO GBAS Project team may not be able to modify the BADA 4 models to take advantage of detected noise results due to differences in aircraft weight, pilot technique, ambient conditions and data samples per procedure*

# Planned Noise Monitoring Locations for UAL Flight Evaluation

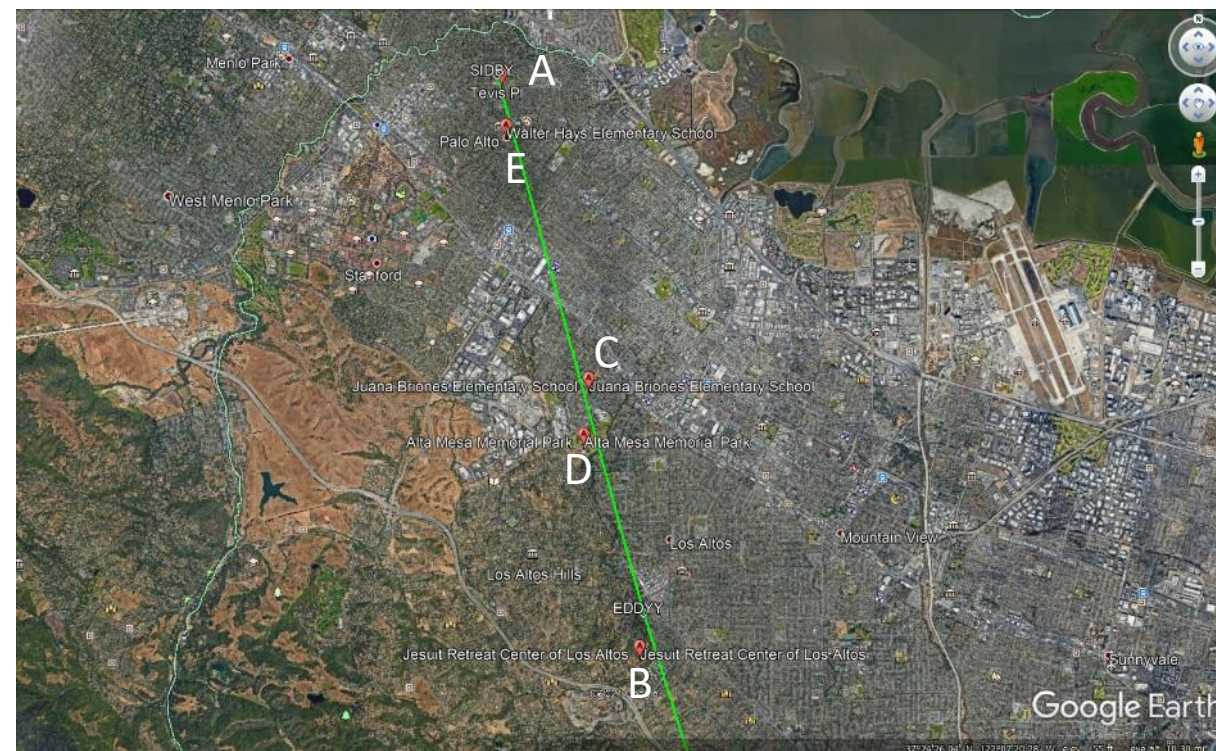
## Recommended Locations

- A. Location on Tevis Pl, Palo Alto (near SIDBY)
- B. Jesuit Retreat Center of Los Altos (Prior to EDDYY)

## Additional Potential Locations

- C. Juana Briones Elementary School, Orme St, Palo Alto
- D. Alta Mesa Memorial Park, Arastradero Rd, Palo Alto
- E. Walter Hayes Elementary School, Palo Alto

Seeking feedback from SFO TWG on locations



# Evaluating Environmental Effects of SFO GLS

## FAA is evaluating GLS Overlay approaches for environmental effects

- GLS overlay approaches are being evaluated in their current form, identical to existing RNAV (GPS) approaches\*\*

## SFO GBAS Project Team has uploaded new CFPPs for Innovative GLS Procedure Concepts

- The SFO GBAS Project team is uploading Community Flight Procedure Packages (CFPPs) to evaluate the difference between Innovative GLS Approach concepts and the nearest existing approaches
  - 11 CFPPs (1 for each Innovative GLS Approach and Starting Point)
  - 4 Aircraft Types
- The CFPPs will continue to be updated based on flight evaluation results, potential changes to the procedures or additional supporting information

\*\* Any additional airspace changes identified by the select committee will be tracked by FAA and considered in a separate FAA AWC packet evaluation  
 Page 15

For Community Evaluation Only - Not Intended for Navigation

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Google Earth

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The approach is laterally identical to the existing RNAV (GPS) Y Rwy 28R approach but is elevated by a vertical 3.18 Degree final approach with higher minimum altitudes along the remainder of the intermediate and initial approach segments until reaching EDDYY

**Project Goals**

- ✓ Noise reduction
- ✓ ILS Redundancy
- ✓ Efficiency
- Reduce Delays

<https://noise.flysfo.com/>

<https://noise.flysfo.com/2021/05/14/gbas-innovative-approach-procedures/>

# Questions



<https://noise.flysfo.com>



# Backup Material

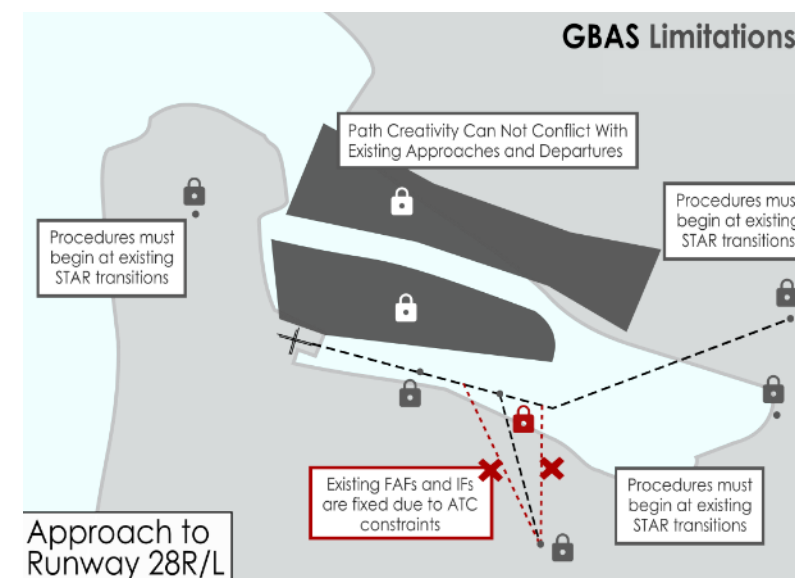
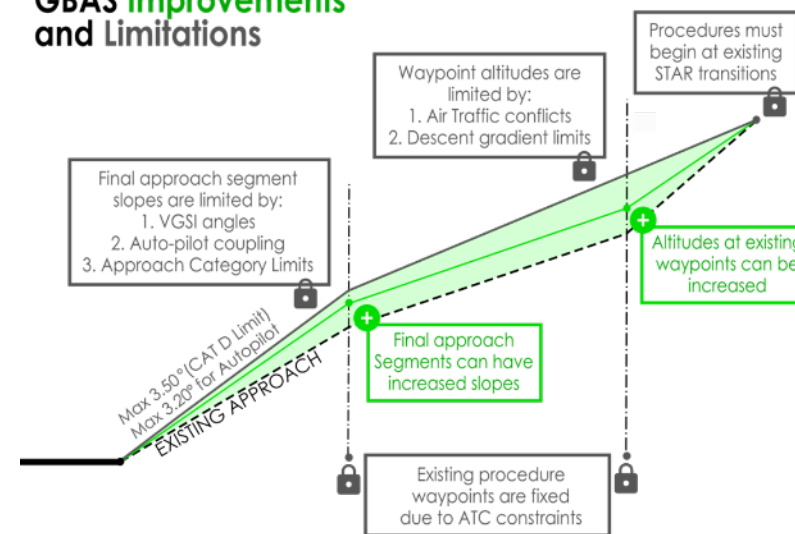


# GBAS Innovative Approach Evaluation Status

## SFO GBAS Project Team Has 7 Innovative GLS Concepts For Evaluation

- Developed through a flight procedures subcommittee to identify criteria, ATC and flyability challenges
- 23 initial concepts were reduced to 7
- Resulted in two “groups” of concept approaches to pursue
- Group 1 focusses on what can be published and flown within the next 5 years
  - 28R – 4 Concepts
  - 28L – 1 Concept
  - 10R – 1 Concept
  - 10L – 1 Concept
- Group 2 procedures may have more substantial noise benefits, but will require further coordination for FAA to implement

### GBAS Improvements and Limitations





The Federal Aviation Administration (FAA) is hosting the "Northern California Airspace Virtual Public Information Workshop," conducted via Zoom, on Tuesday, July 20, 2021, from 6:00-8:00 p.m. Pacific Time, and again on Wednesday, July 21, 2021, from 1:00-3:00 p.m. Pacific Time.

## Topics and Panelists

The FAA is taking this opportunity to discuss the operations, challenges, and constraints in and around the airspace in the Northern California region. Given the complexity of this airspace, it is essential to discuss these issues holistically.

Panelists will include representatives from the FAA, San Francisco International Airport, Oakland International Airport, and Mineta San Jose International Airport, airline and cargo carriers, and representatives from the Airline Pilots Association.

Several high-profile items will be covered at this workshop, such as the NIITE/HUSSH, BRIXX, and SERFR flight procedures that were part of the Select Committee Report.

## Questions and Answers

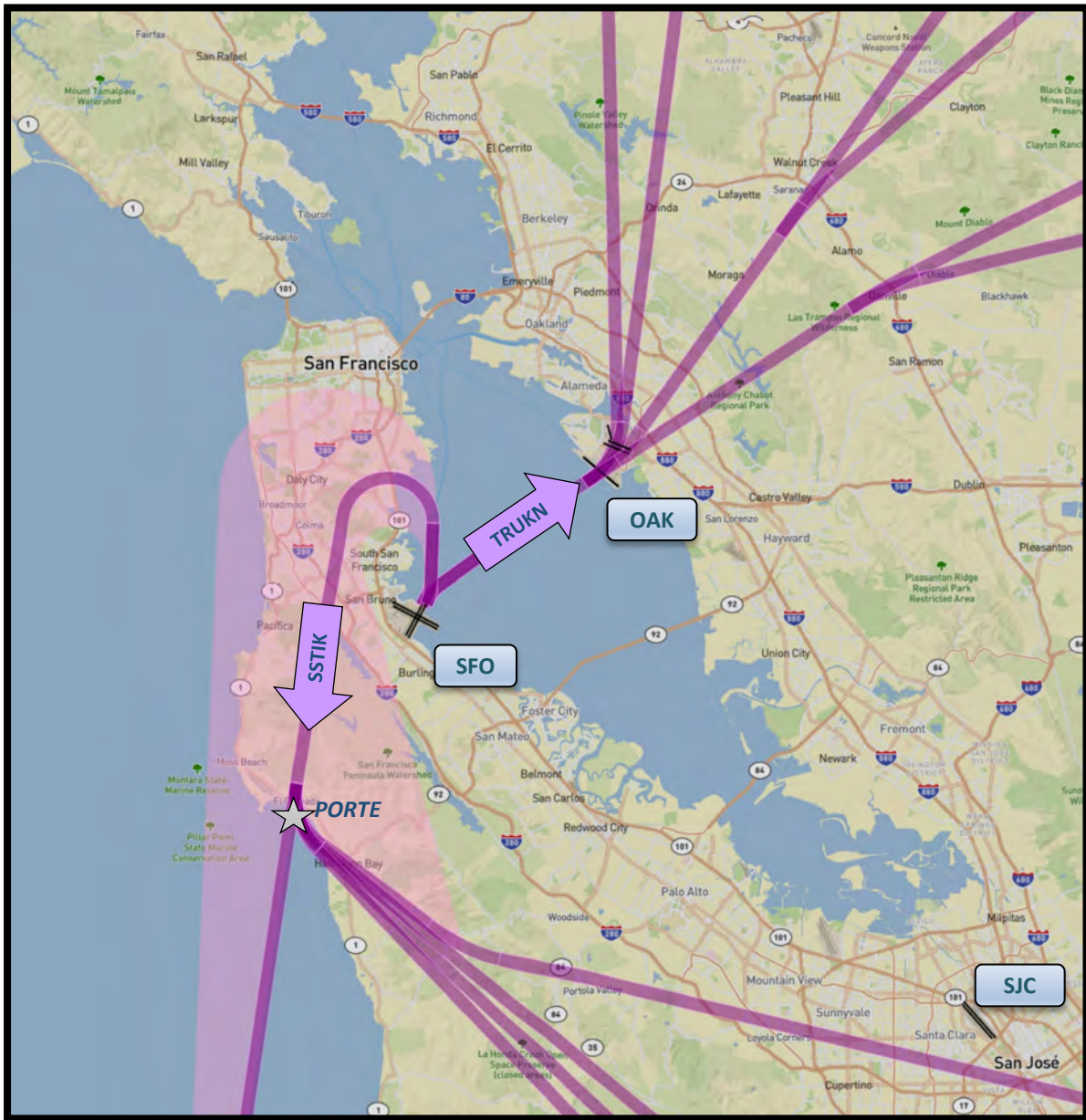
A live Question & Answer session will be conducted using the Zoom Q&A feature. In addition, the FAA will respond to questions relevant to the workshop topics.

This virtual public information workshop is not part of any environmental review process conducted pursuant to the National Environmental Policy Act; it is informational only.

## Sign Up to Attend

In order to attend the virtual meeting, you must register in advance. Please copy/paste the Workshop Home page website address: [https://www.faa.gov/air\\_traffic/community\\_involvement/norcal\\_ew/](https://www.faa.gov/air_traffic/community_involvement/norcal_ew/) into your browser. From the Home page, please click on the links provided to complete the registration form.

# How To Read Flight Procedure Boards



**TRUKN**

**Procedure** – All procedures use a five-letter designation. Two departure procedures are shown on this board: the “TRUKN “ and the “SSTIK”



**PORTE**

**Waypoint** – Represents a latitude/longitude point aircraft fly to while on a procedure. Waypoints also use five-letter designations. This waypoint is pronounced “PORT”.

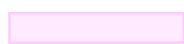


Departures

**PBN Procedure** – Represents procedures that use satellite navigation.



Arrivals

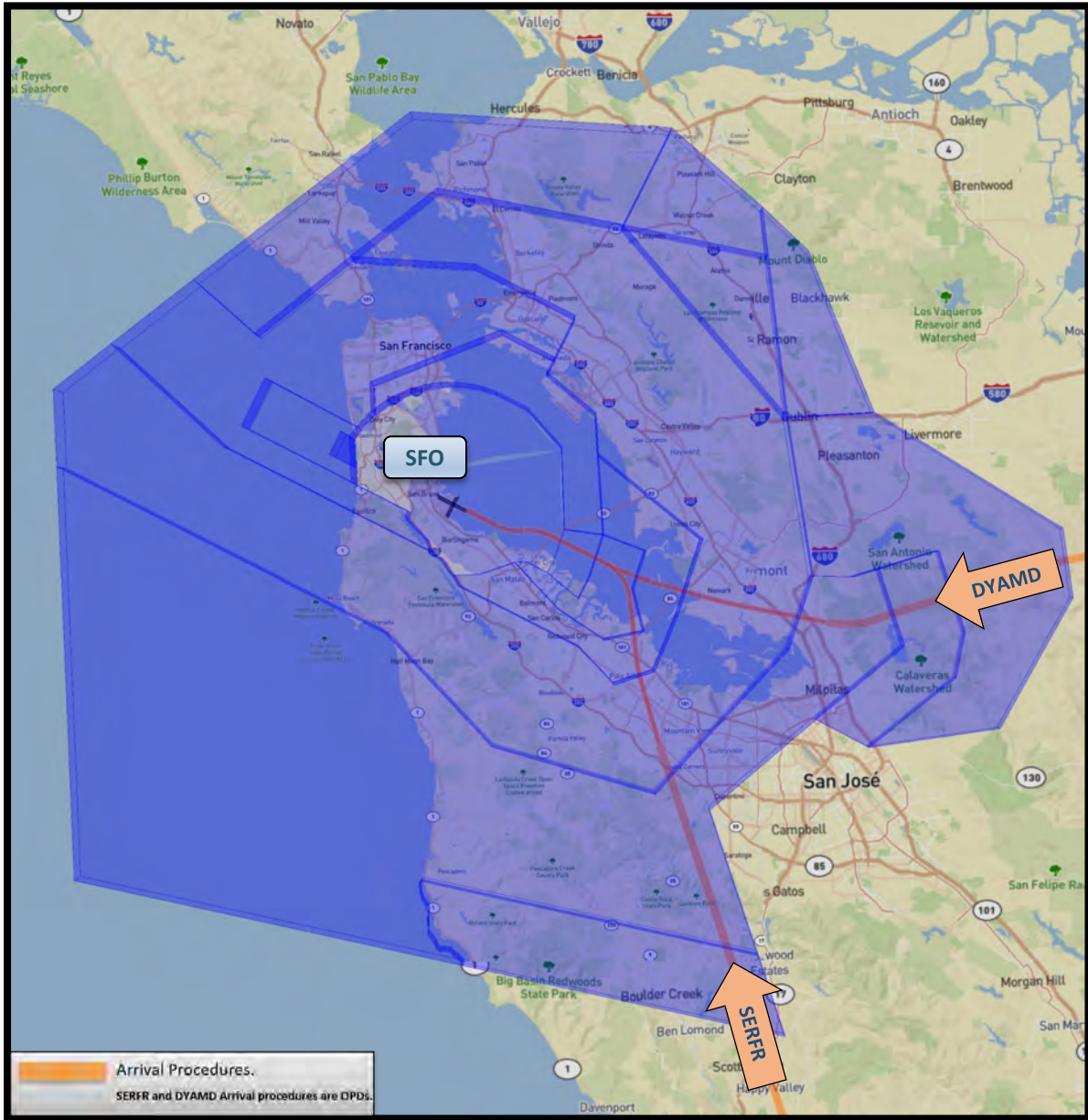


**Dispersed Path Area** – Notional representation of the area that aircraft may fly when air traffic controllers give pilots headings to follow (vectors).

ATC: Air Traffic Control  
 Vector: ATC-issued compass heading  
 RNAV: Area Navigation



# What is the SFO Class B Redesign?



## Procedure

- Redesign of airspace to contain the procedures the Bay area.
- Redesign allows for use of Optimized Profile Descent (OPD) procedures to be more fully utilized, including DYAMD and SERFR.
- Aircraft have the ability to fly the approach at idle power.
- There are 5 published arrival procedures designed with OPD at SFO.

## Background

- FAA held public workshops in 2017 per National Environmental Policy Act outreach requirements.
- FAA received and responded to public comments.
- Redesign does not change existing procedures.
- Redesign more fully accommodates precise procedures within highly controlled airspace.

## Status

- Redesign implemented in August 2018.



# What is the CNDEL Departure?

## Procedure

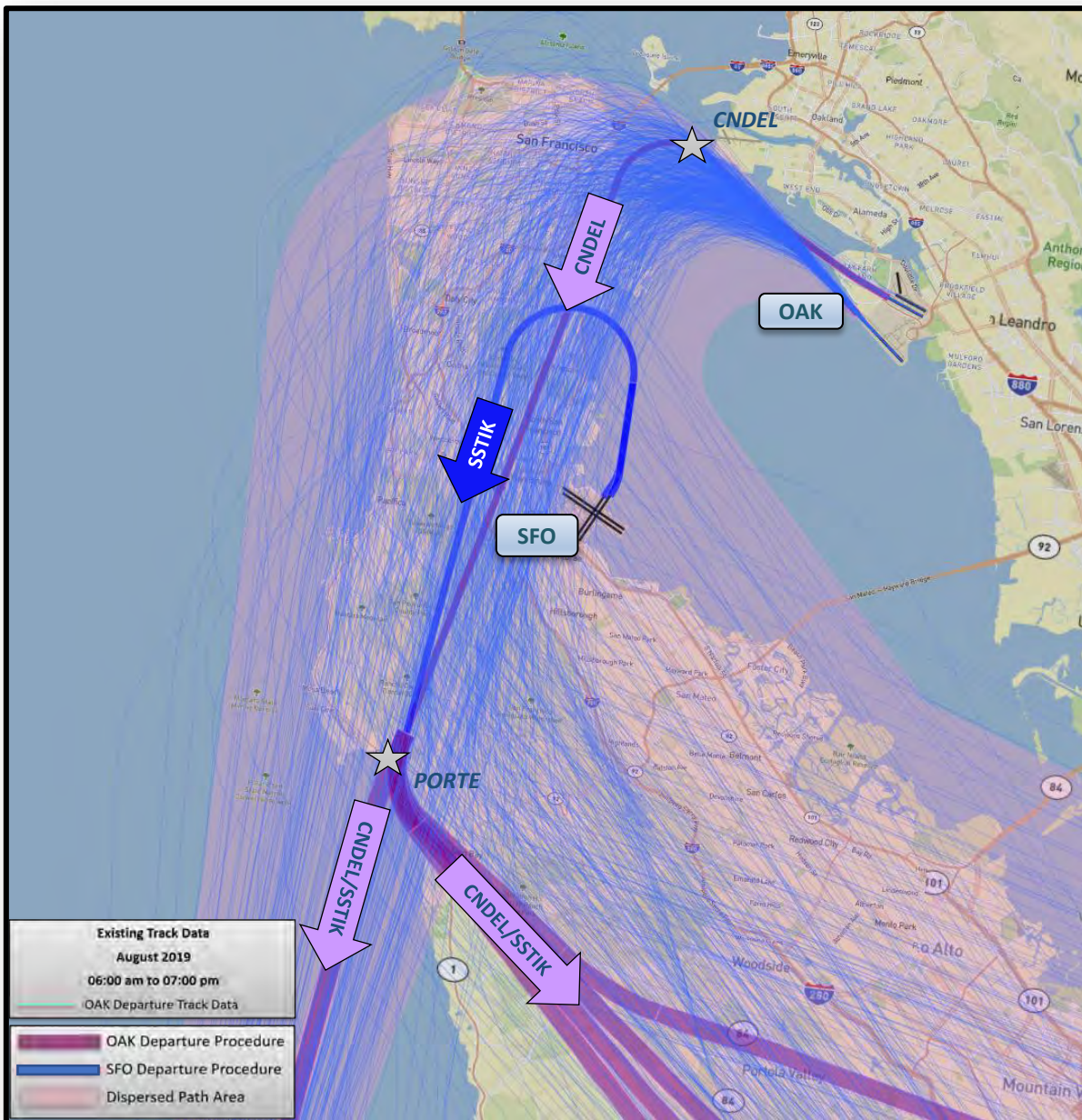
- Procedure used by aircraft departing OAK.
- Aircraft depart to the north, then turn to the south, then continue to the south or southeast.

## Background

- The request was for aircraft to remain on CNDEL until at least CNDEL waypoint.
- During typical daily operations, aircraft are vectored off the departure due to complexity and volume.
- Once airborne, SFO SSTIK departures and OAK CNDEL departures are flying toward each other.
- Aircraft departures from SFO and OAK must be merged into a single stream before the PORTE waypoint.

## Status

- Aircraft will remain on the CNDEL departure when air traffic conditions allow



# What is the SUNNE Departure?



## Procedure

- Procedure used by OAK departures.
- Fly down the Bay on a navigational heading of 120 degrees to the SUNNE waypoint.
- When the proposed NIITE and HUSSH are used for 1 am – 5 am departures, use of the SUNNE will be limited due to conflicting air traffic.

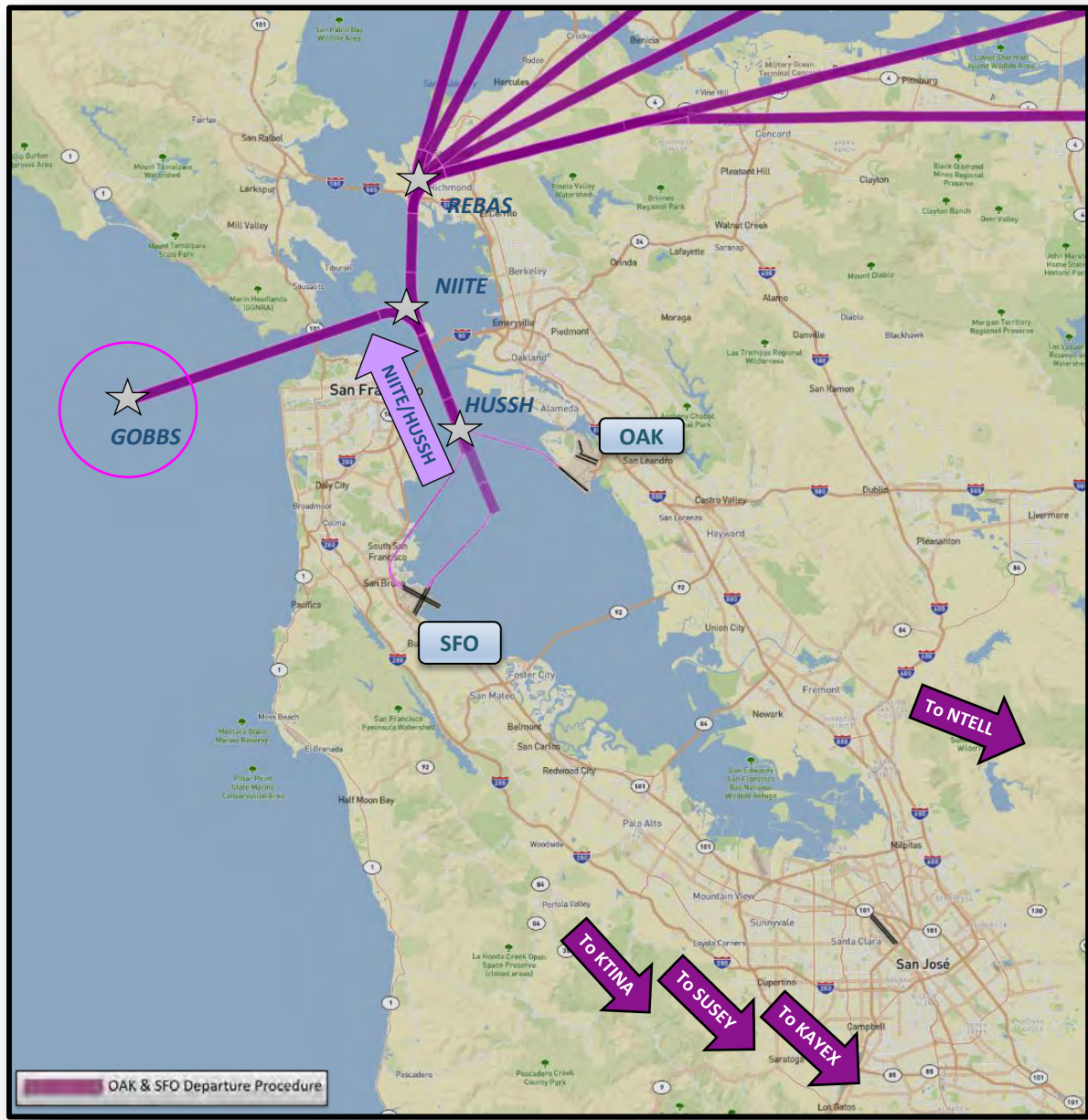
## Background

- The request was to fly down the bay as much as possible at night.
- Created to allow the procedure to be inputted to an aircraft's Flight Management System.
- Used to the maximum extent for 1 am – 6 am departures.
- Primarily used by aircraft departing on Runway 30.
- Aircraft are sometimes altitude restricted over the Bay after takeoff due to other departure procedures from SFO and SJC.

## Status

- Implemented in January 2021.

# What is the NIITE/HUSSH Departure Proposal?



## Procedure

- Procedures from SFO (NIITE) and OAK (HUSSH) used by departures at night for noise abatement.
- Depart from SFO and OAK and fly over the Bay as much as possible during nighttime hours.
- Fly to the NIITE waypoint in the Bay, then northeast to REBAS or west over the Golden Gate Bridge to GOBBS.
- When the NIITE/HUSSH proposal is used for 1 am - 5 am departures, use of the SUNNE will be restricted due to conflicting air traffic.
- After crossing GOBBS, eastbound aircraft will be at or above 13,000 feet altitude.

## Background

- The request was to fly over the Bay as much as possible at night.
- FAA met with airports and airport community groups numerous times to discuss procedure implementation.
- FAA agreed these procedures could be used between 1:00 am – 5:00 am.
- Aircraft using NIITE and HUSSH to GOBBS would typically be cargo flights.
- Aircraft from SFO and OAK are merged into a single stream prior to the NIITE waypoint.

## Status

- Implementation pending additional stakeholder input.



# What is BDEGA In-Trail Spacing?

## Procedure

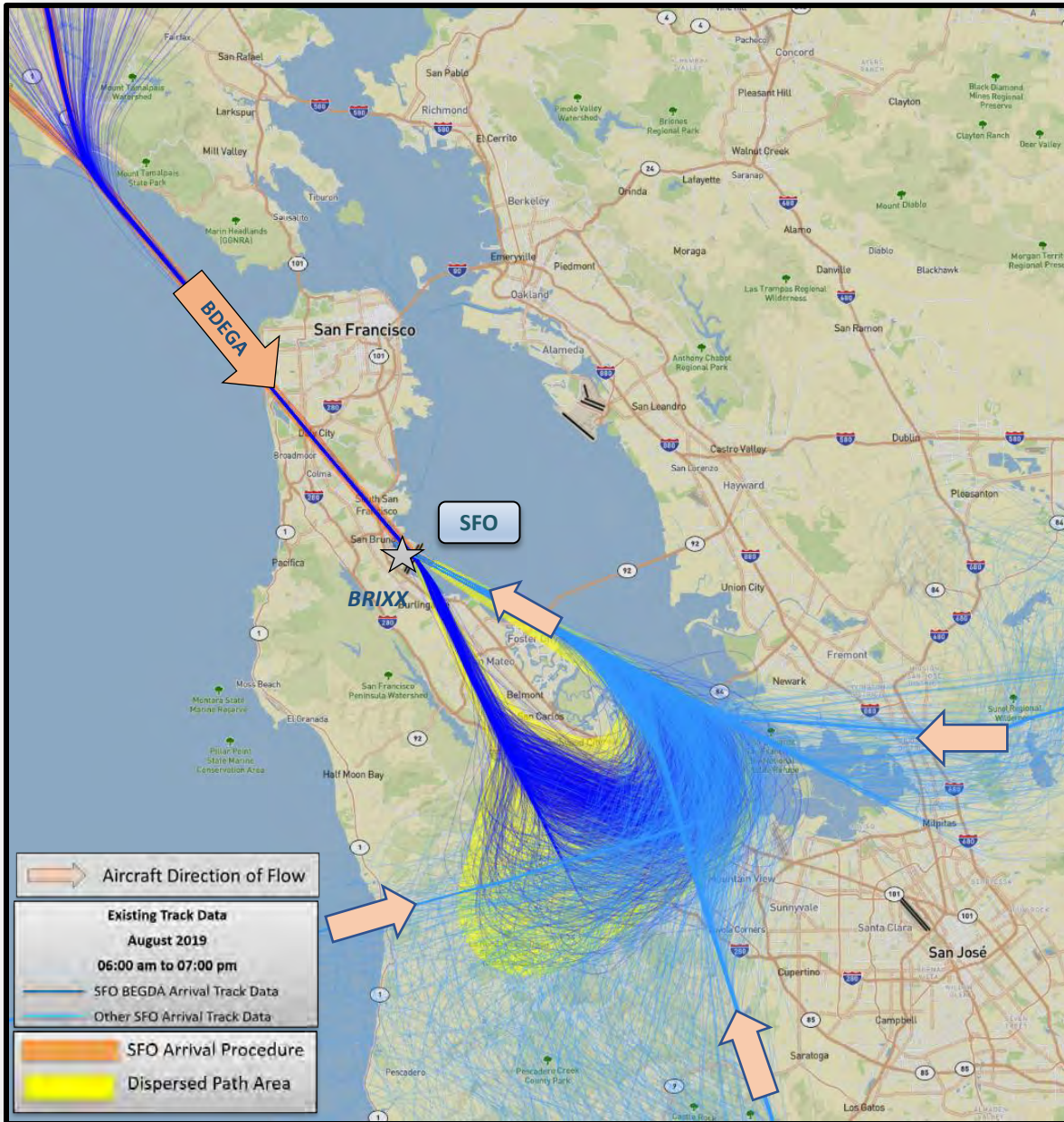
- Procedure for SFO arriving aircraft.
- SFO arrivals from the north fly to a waypoint, then are vectored to the approach.

## Background

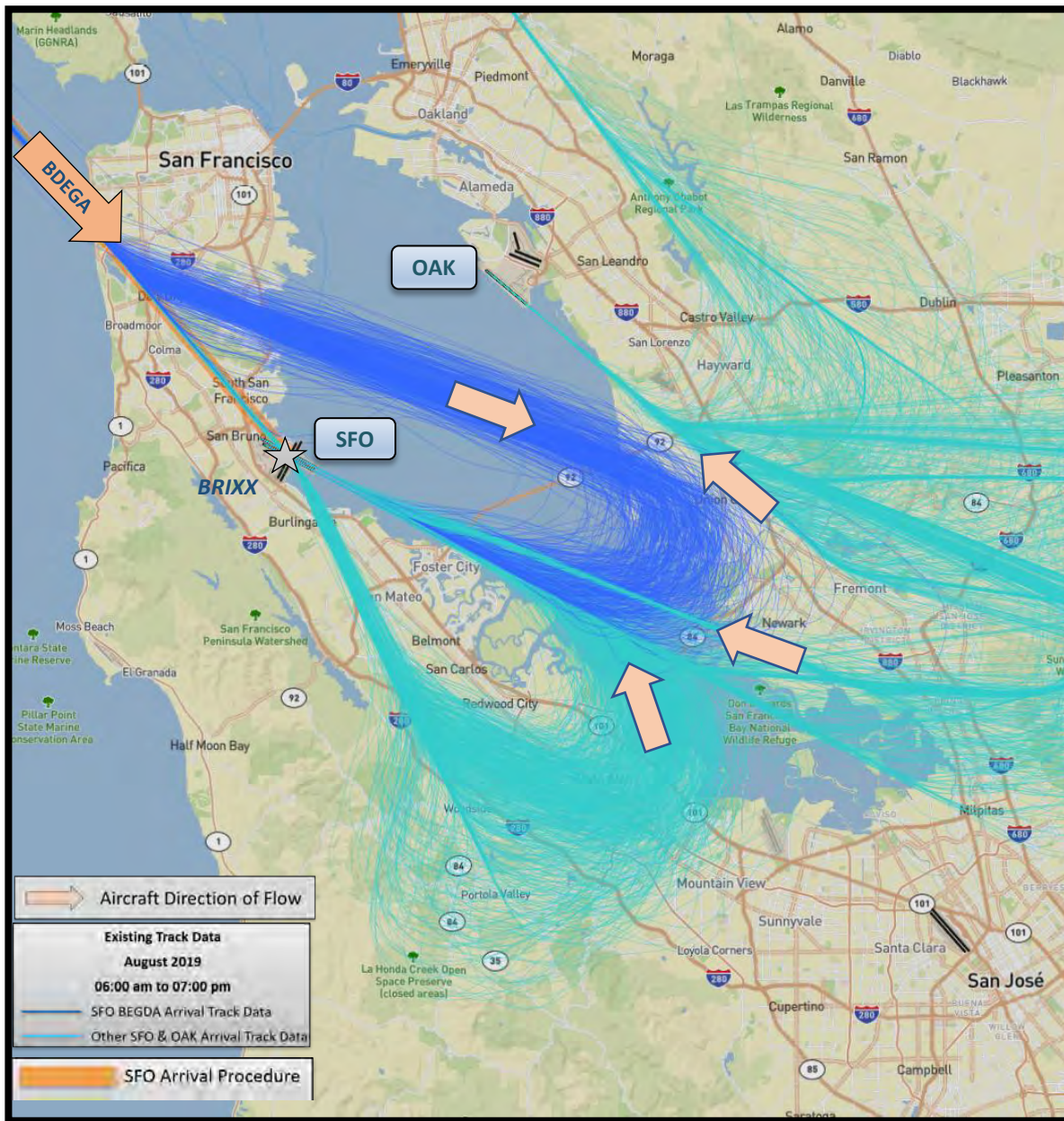
- The request was to increase spacing between aircraft that fly over the peninsula on the BDEGA arrival.
- In-trail spacing of aircraft is a minimum distance of 5 nautical miles (NM).
- Increasing the spacing beyond 5 NM would delay aircraft arriving to SFO throughout the country.

## Status

- Aircraft on the BDEGA arrival will continue to use the 5 NM minimal spacing in order to not disproportionately delay those aircraft.



# What is the Down the Bay procedure?



## Procedure

- SFO arrivals from the north fly to a waypoint, then are vectored over the bay for an approach.

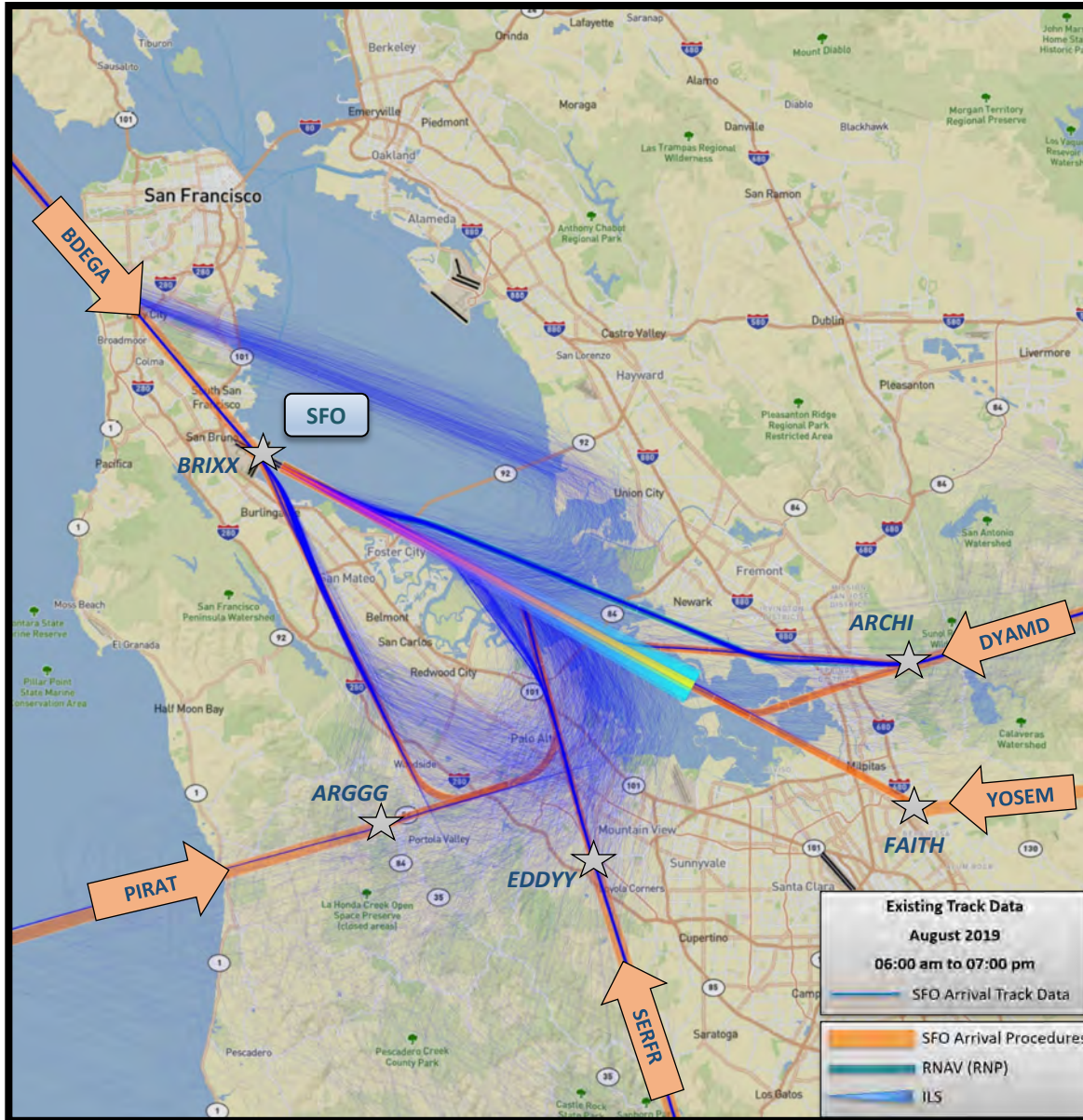
## Background

- The request was to increase use of the “Down the Bay” for aircraft arriving to SFO.
- Northern California TRACON updated its Standard Operational Procedures (SOP) in 2017 to strengthen language for use of procedure.
- An SFO “Down the Bay” arrival is opposite direction to OAK arrivals
- The “Down the Bay” procedure is used when it is safe to do so.

## Status

- FAA conducts annual Air Traffic Controller refresher training on SOP requirements.

# What is Time Based Flow Management (TBFM)/Sequencing?



## Procedure

- Provides for time-based spacing of aircraft at higher altitudes so that less vectoring is needed closer to the airport.
- When TBFM is implemented, it is used as a scheduling/metering tool for all arrivals at an airport.

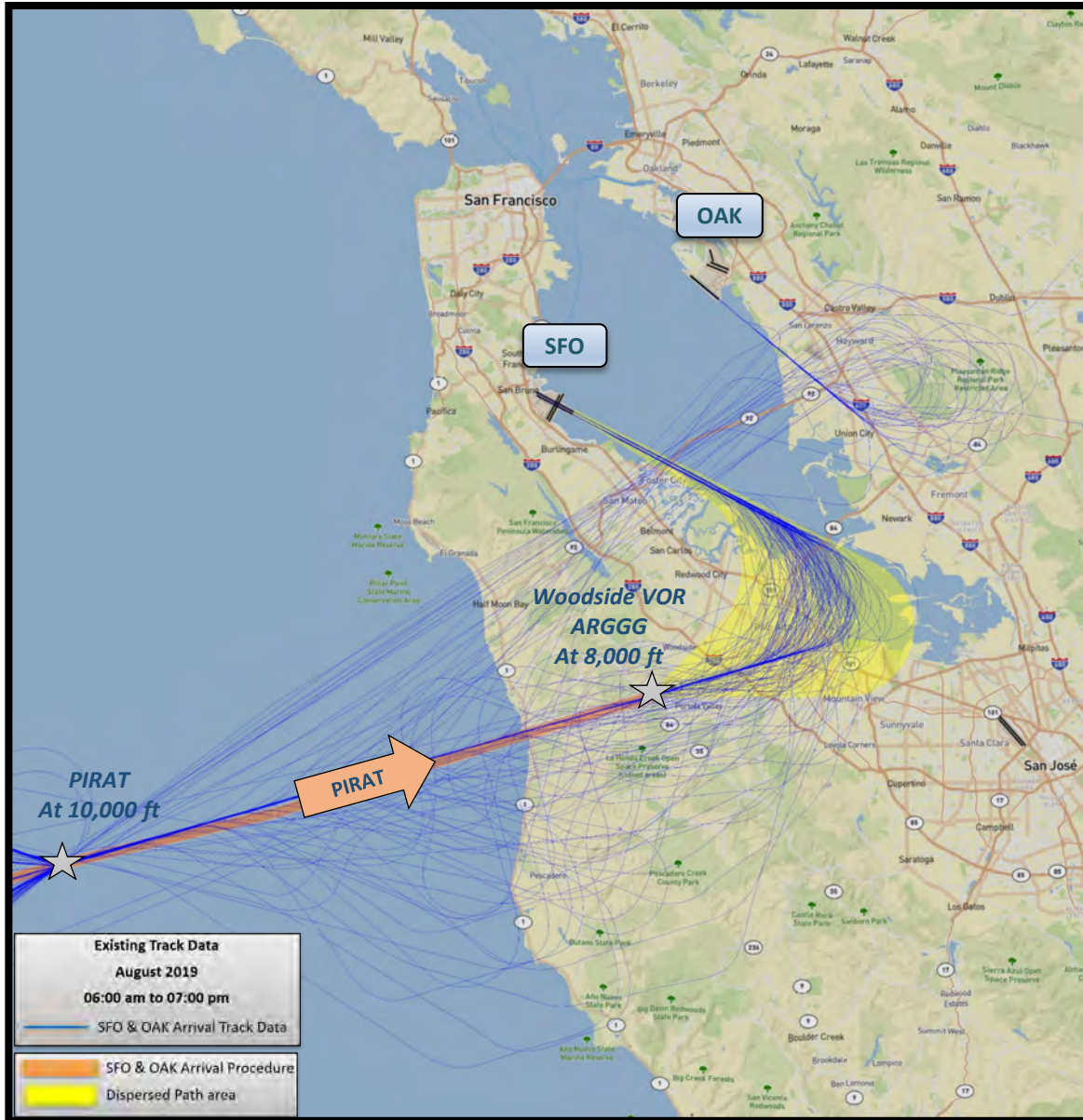
## Background

- The request was to implement TBFM for aircraft on the BDEGA arrival.
- Aircraft arriving from all directions are merged into one stream.
- Use of TBFM would need to be applied to all arrivals.

## Status

- TBFM currently used for SFO arrivals under most circumstances.
- TBFM is also used for the other airports, including OAK and SJC.
- TBFM is used for all arrivals at an airport, not for a singular arrival flow.

# What is the PIRAT Arrival?



## Procedure

- Arrival procedure for oceanic flights to SFO and OAK.
- Aircraft cross the PIRAT waypoint at 10,000 feet.
- SFO arrivals fly the procedure to the ARGGG waypoint, then are vectored to the final approach.
- ARGGG waypoint located near the Woodside VOR.

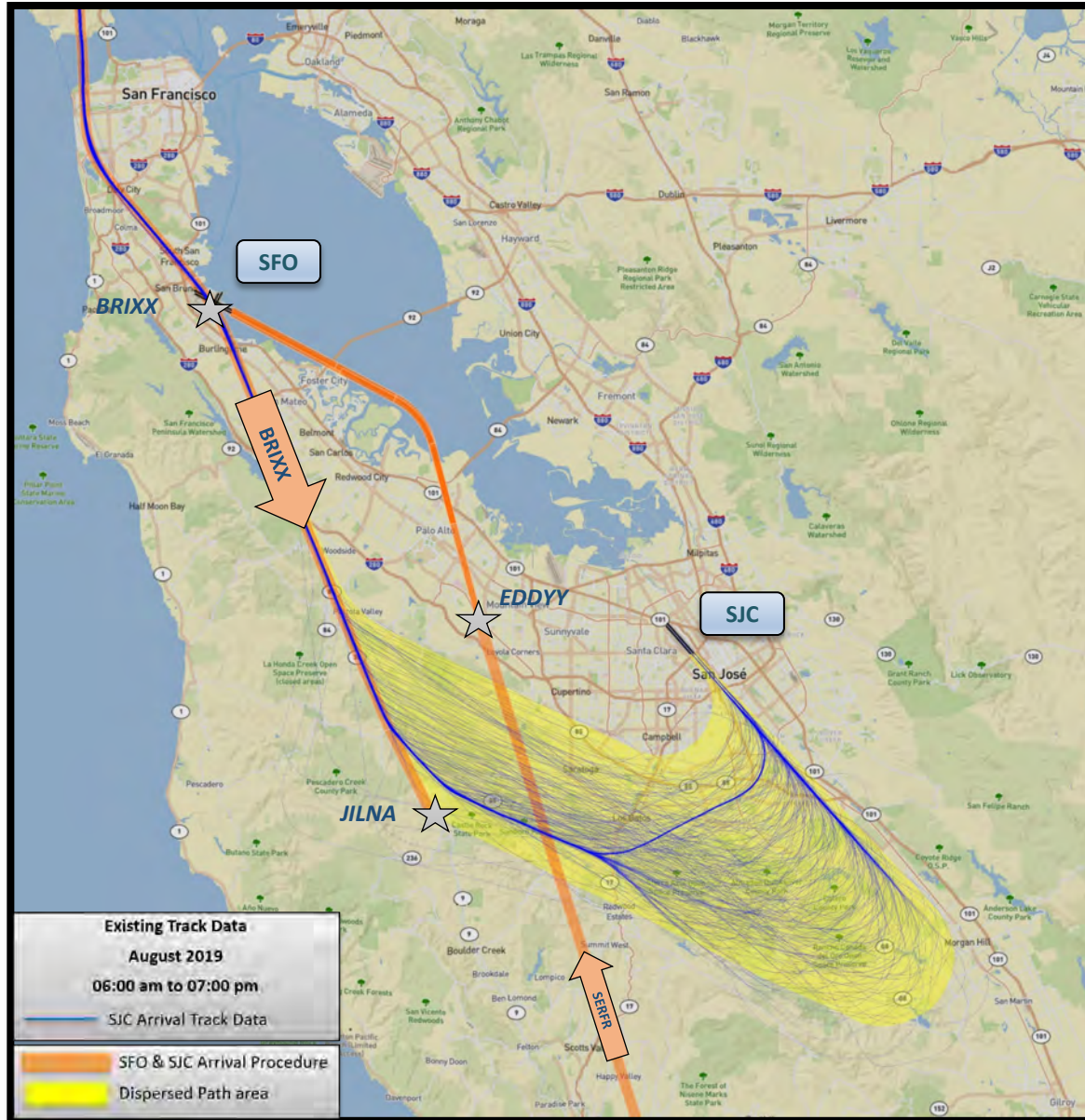
## Background

- The request to design an arrival that followed the historic noise abatement procedure of crossing Woodside VOR at or above 8,000 feet.
- The PIRAT arrival was designed for oceanic arrivals to OAK and SFO.
- The PIRAT replaced the private approach, called the Ocean Tailored Arrival, used by one airline.

## Status

- The procedure was implemented in April 2019.

# What is the BRIXX Arrival?



## Procedure

- Arrival procedure for flights from the north to SJC.
- Aircraft fly procedure to the BRIXX waypoint, then may be vectored to the final approach.
- Aircraft on the BRIXX arrival are kept above SFO arrivals.

## Background

- Latest amendments address safety issues by providing more separation between SERFR and BDEGA arrivals to SFO and BRIXX arrivals to SJC.
- The FAA did this by relocating the JILNA waypoint.
- FAA briefed SJC Airport Commission in May 2021.

## Status

- BRIXX THREE implemented in June 2021.

# What is the RNAV Visual to SFO Runway 28L?



## Procedure

- Aircraft would approach the airport to land on Runway 28L similar to the TIP TOE procedure, using advanced navigation combined with visual cues.
- Aircraft must be equipped to fly a Required Navigation Procedure (RNAV).

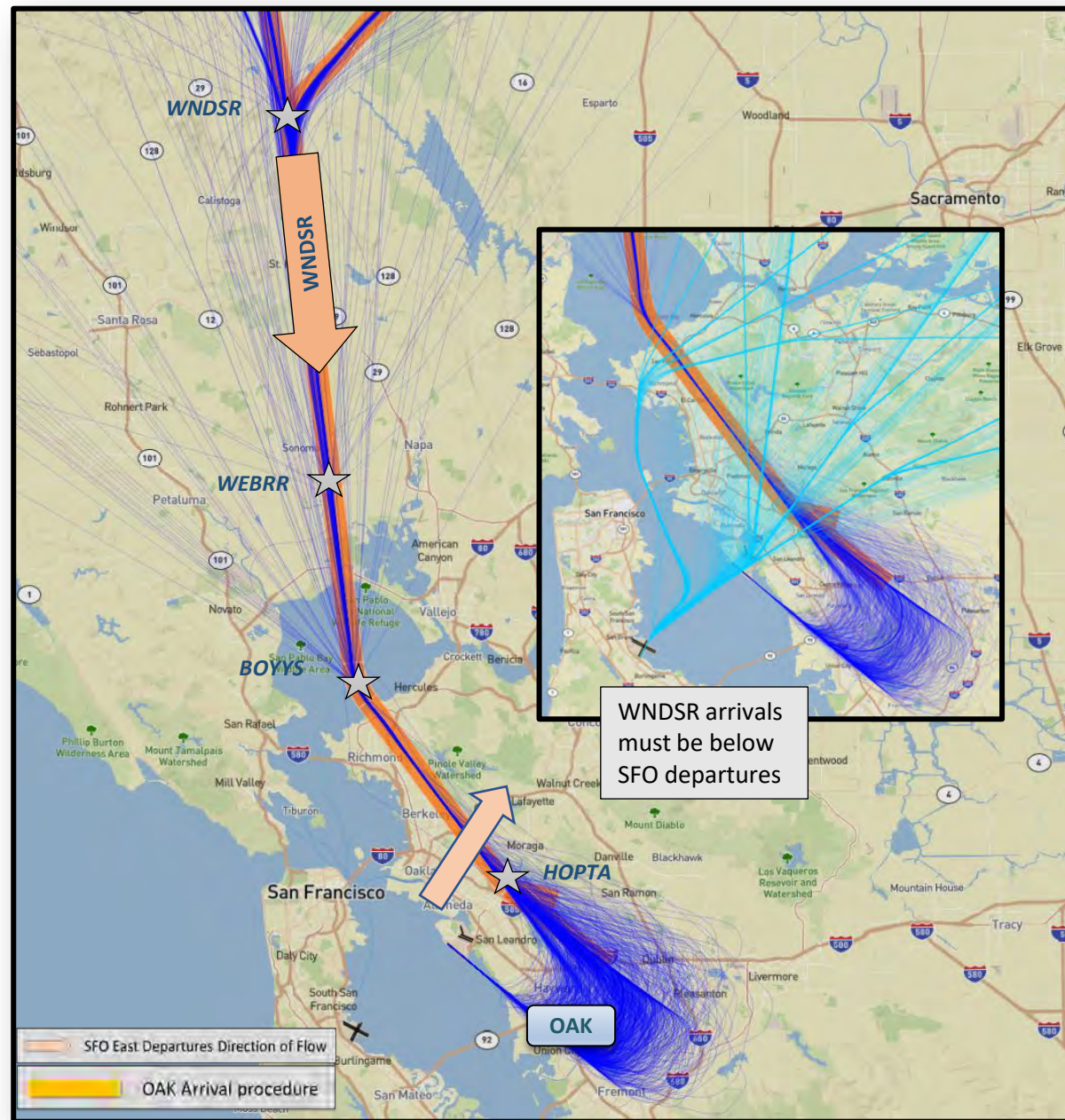
## Background

- The request was to create a published procedure using RNAV to replicate the TIP TOE visual approach.
- FAA orders require there be a compelling safety reason and no other viable instrument flight procedure options before developing an RNAV visual overlay approach.

## Status

- Explore ways to implement procedure through ongoing collaboration.
- Aircraft still fly the TIP TOE.

# What is the WNSDR Arrival?



## Procedure

- Arrival procedure for aircraft arriving from the north to OAK.

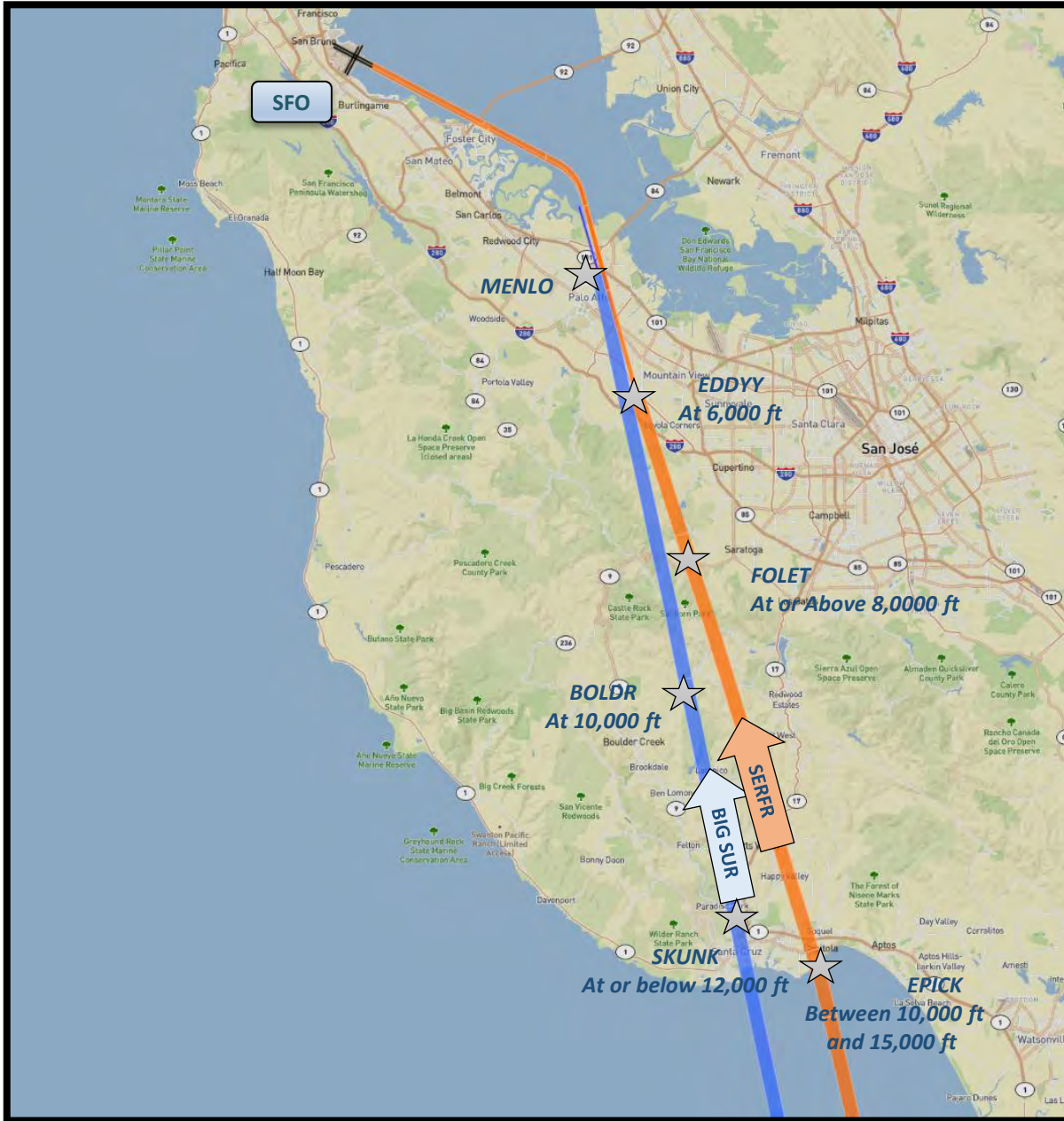
## Background

- The request from the Oakland Noise Forum was to move the WNSDR arrival to the east over less populated areas.
- The FAA explored a variety of options to address the operational safety issues with the current WNSDR route
- This procedure requires air traffic controllers to actively separate aircraft from Bay Area departures and Napa Valley arrivals.

## Status

- The WNSDR procedure as published will continue to be used.
- Controllers use speed and/or altitude assignments and vectors to separate aircraft on the WNSDR procedure from aircraft on other procedures.

# What are the BIG SUR and SERFR Arrivals?



## Procedure

- Arrival procedure to SFO for aircraft arriving from the south.
- The SERFR was designed as an Optimized Profile Descent (OPD), allowing aircraft to descend using idle power, reducing the historic stair-step descent. Aircraft are cleared to the EDDYY waypoint, then are vectored for landing by Air Traffic Control.

## Background

- The request was to amend the SERFR procedure to use a similar flight path as the BIG SUR arrival, with specific procedure requirements.
- FAA reviewed details of each requested requirement, completing safety analysis on each.
- Moving SERFR to overlay BIG SUR did not meet safety criteria.

