FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties

FAA & Select Committee Working Meeting

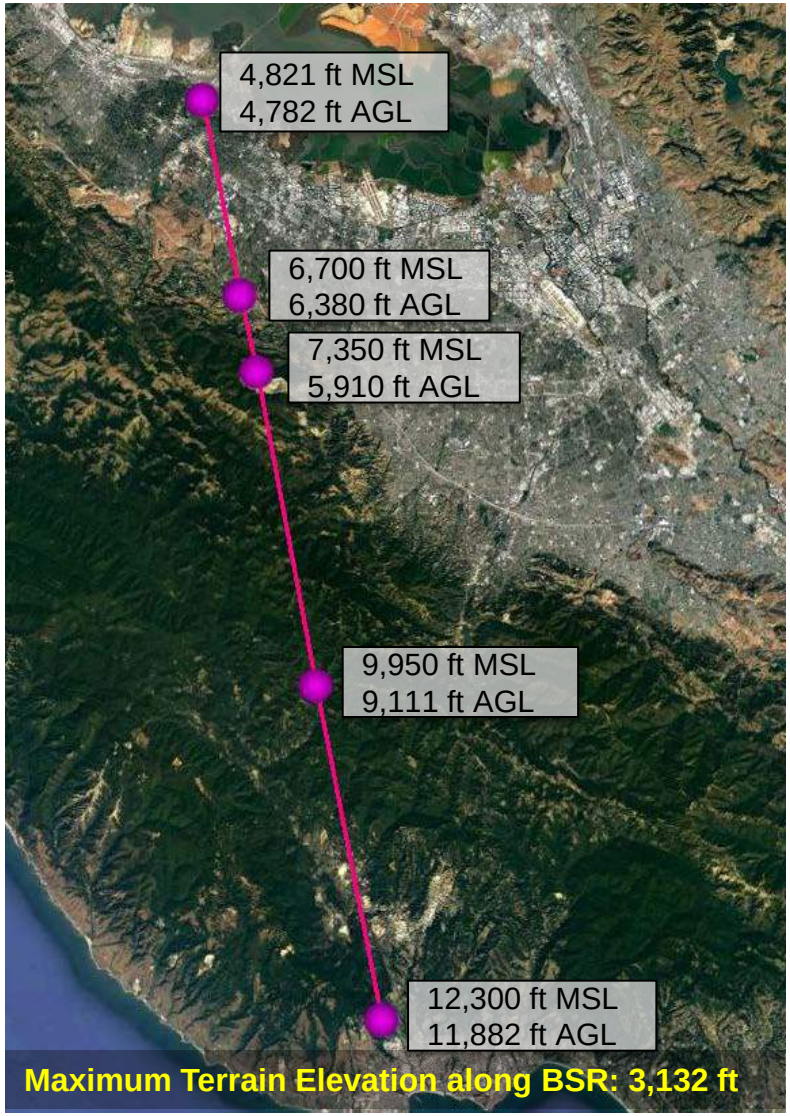
August 18, 2016

Discussion Overview

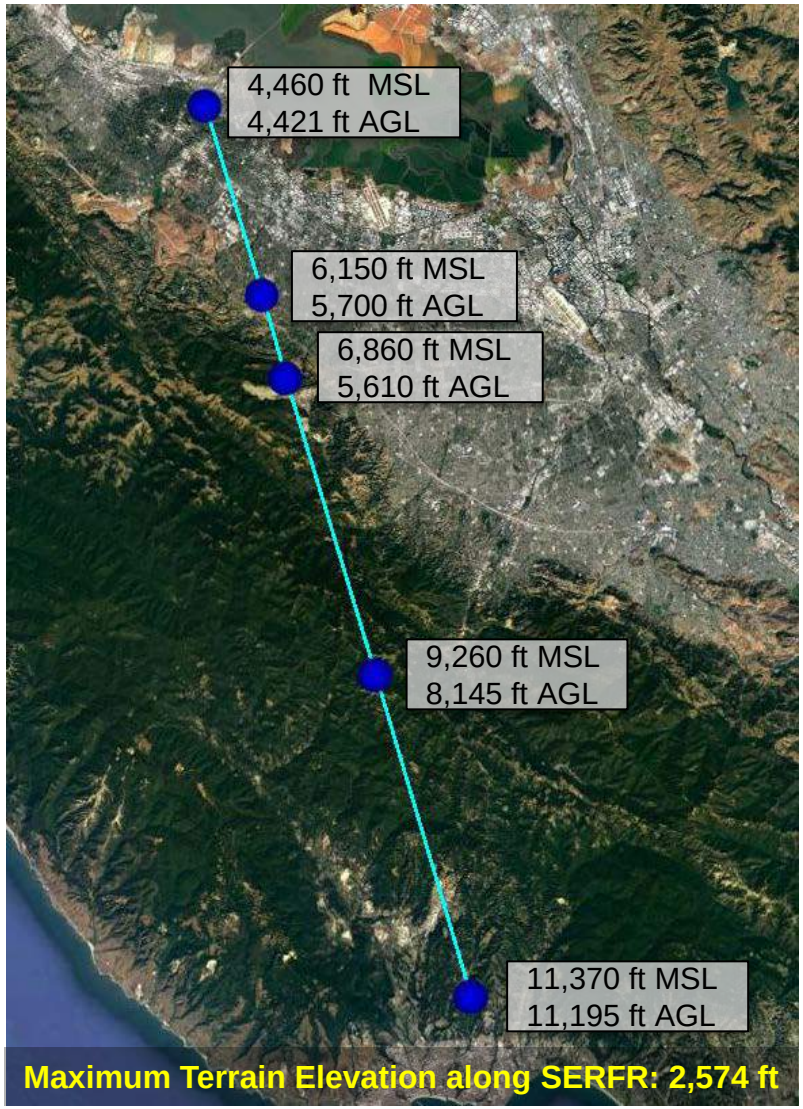
- **Transition the SERFR STAR Back to the BSR Ground Track Prior to EPICK (#2)**
- **Improve Aircraft Set Up and Sequencing Between Facilities (#6)**

2. Transition the SERFR STAR Back to the BSR Ground Track Prior to EPICK

Average altitude on the BSR (July 2014)



Average altitude on the SERFR (July 2015)



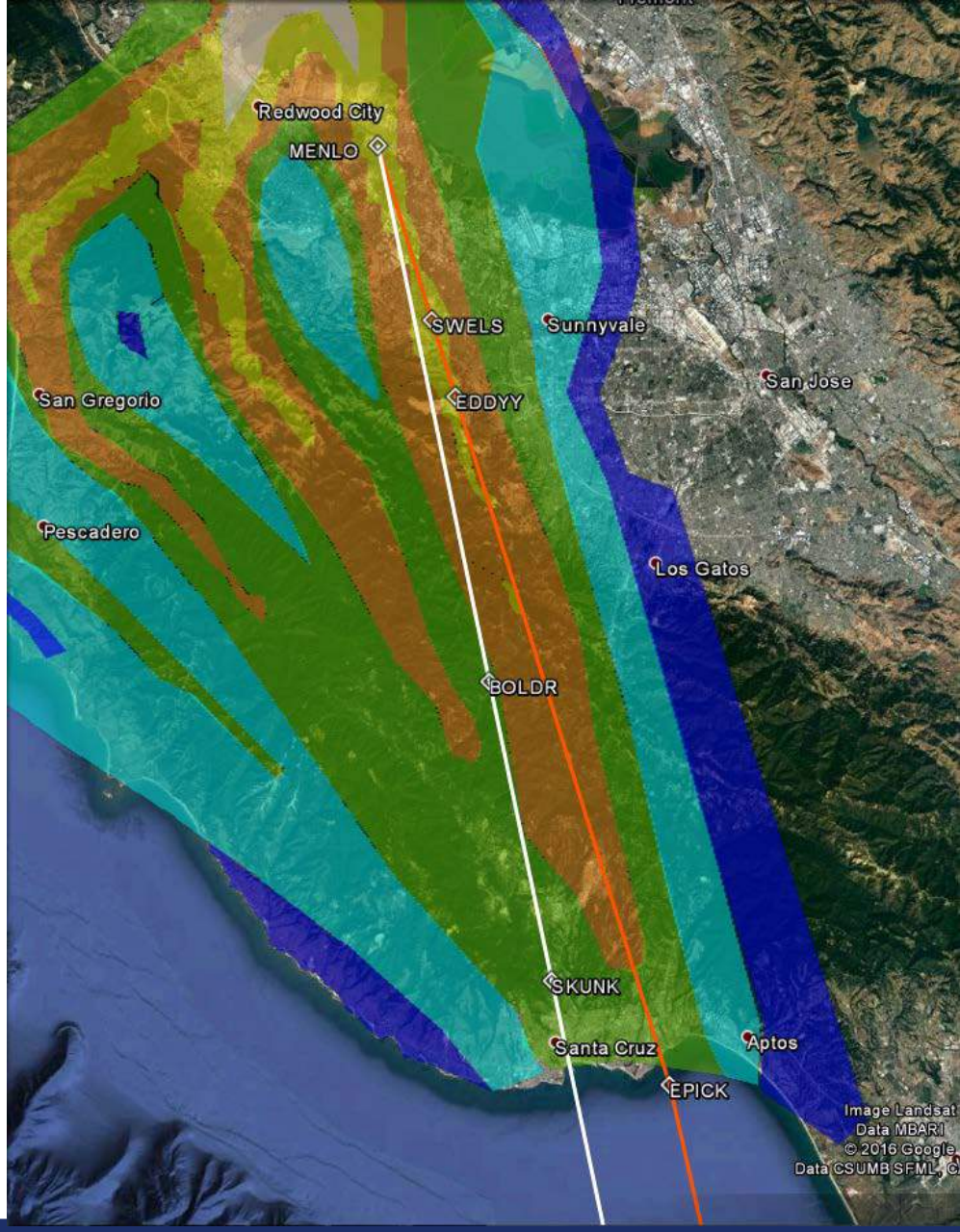
Overview

- **For this presentation:**
  - The DAVYJ STAR is a notional look at optimizing an approach over the BSR ground track.
  - The altitudes of the optimized DAVYJ STAR are likely higher then the SERFR STAR, but lower than BSR STAR.
  - Fully optimized, DAVYJ is not contained within the current SFO Class B.
  - The OPD of the DAVYJ STAR would be wholly contained within the proposed amendment to SFO Class B.

Provisional Noise Analysis

- **The noise levels of the notional DAVYJ were modelled consistent with current FAA Policy.**
  - Traffic is based upon 60 random days from the past year
  - Takes into account terrain
  - The ~50% of SERFR flights which are vectored off the ground track were modelled using 4 distinct flight paths
  - Noise modelled of the current SERFR operations was compared against:
    - DAVYJ with SERFR altitudes
    - DAVYJ with BSR altitudes

Noise modelling of the current SERFR tracks



Key

- SERFR ground track
- Notional DAVYJ ground track

Noise levels:

- x ≥ 45 dBA DNL
- 40 dBA DNL ≤ x< 45 dBA DNL
- 35 dBA DNL ≤ x< 40 dBA DNL
- 30 dBA DNL ≤ x< 35 dBA DNL
- 25 dBA DNL ≤ x< 30 dBA DNL
- 20 dBA DNL ≤ x< 25 dBA DNL

Noise modelling of the notional DAVYJ, with BSR altitudes (higher)

Key

- SERFR ground track
- Notional DAVYJ ground track

Noise levels:

- x ≥ 45 dBA DNL
- 40 dBA DNL ≤ x< 45 dBA DNL
- 35 dBA DNL ≤ x< 40 dBA DNL
- 30 dBA DNL ≤ x< 35 dBA DNL
- 25 dBA DNL ≤ x< 30 dBA DNL
- 20 dBA DNL ≤ x< 25 dBA DNL

Noise modelling of the notional DAVYJ, with SERFR altitudes (lower)

Key

- SERFR ground track
- Notional DAVYJ ground track

Noise levels:

- x ≥ 45 dBA DNL
- 40 dBA DNL ≤ x< 45 dBA DNL
- 35 dBA DNL ≤ x< 40 dBA DNL
- 30 dBA DNL ≤ x< 35 dBA DNL
- 25 dBA DNL ≤ x< 30 dBA DNL
- 20 dBA DNL ≤ x< 25 dBA DNL

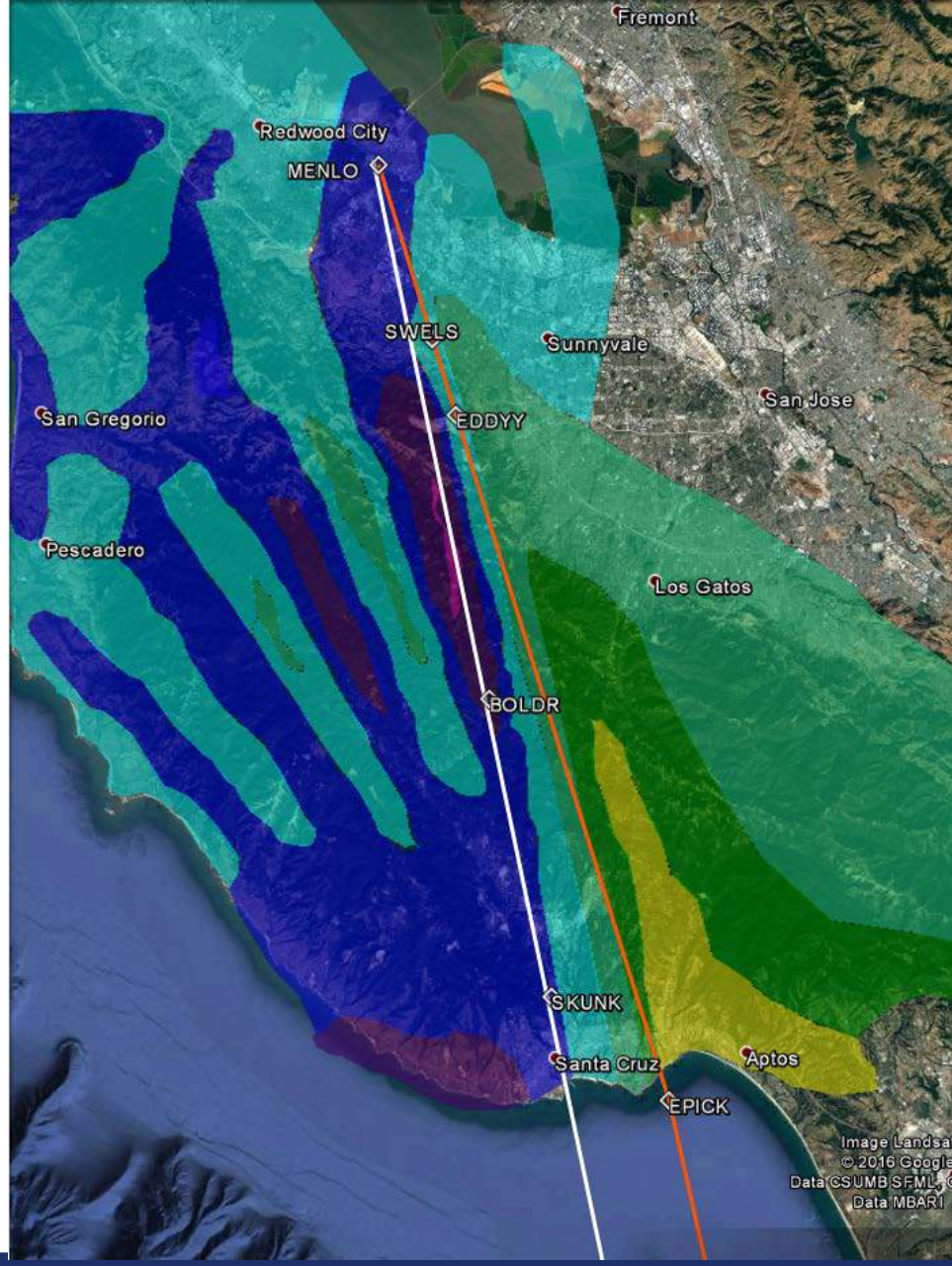
Noise changes associated with notional DAVYJ, with SERFR altitudes

Key

- SERFR ground track
- Notional DAVYJ ground track

Change in Noise levels:

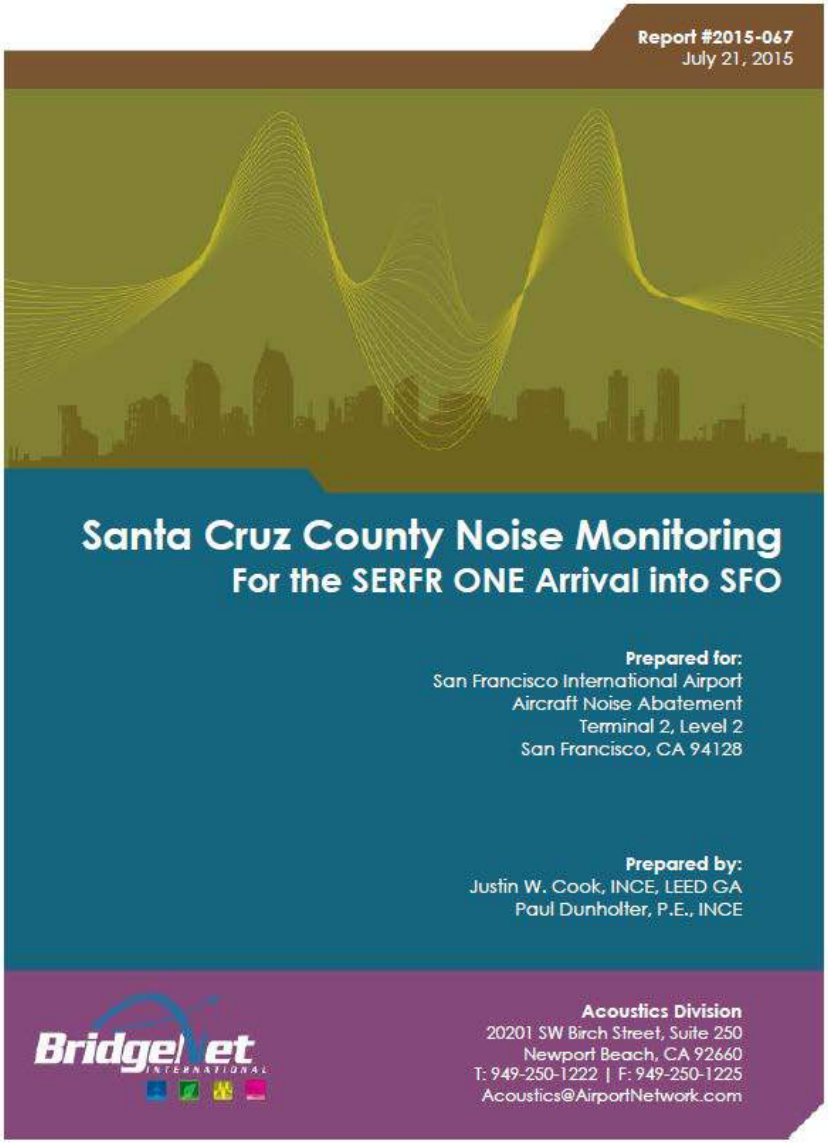
- increase of 8 – 10 dBA DNL
- increase of 5 – 7 dBA DNL
- increase of 2 – 4 dBA DNL
- no change or a change of ± 1 dBA DNL
- decrease of 2 - 4 dBA DNL
- decrease of 5 - 7 dBA DNL
- decrease of 8 – 10 dBA DNL



Summary

- **Provisional Noise Analysis Results indicate:**
  - The noise from the current SERFR tracks in the mid and south peninsula is the range of 25 – 44 dB DNL.
  - The noise shifts when the track is moved west.
  - Lower altitudes on the notional DAVYJ produces a larger noise footprint.

Noise modelling verses measuring



Report #2015-067
July 21, 2015

Santa Cruz County Noise Monitoring
For the SERFR ONE Arrival into SFO

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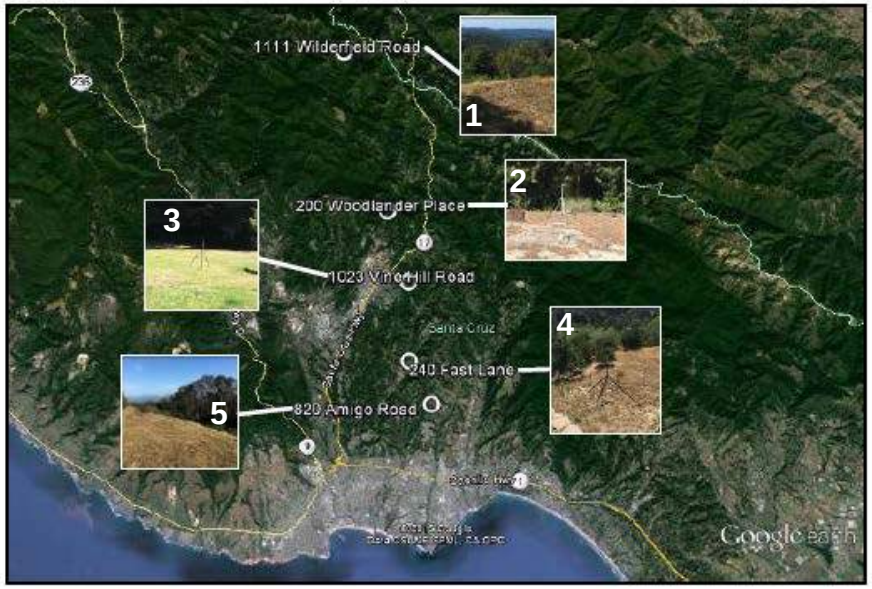


Figure 1 – Noise Monitoring Locations

	Address	CNEL		
		SFO Santa Cruz Monitoring Report Based on 16 days of data	NorCal EA 2014 values Based on a years worth of data	NorCal EA 2019 values Data estimated from the Terminal Area Forecast
1	1111 Wilderfield Rd, Los Gatos	38	40-41	41-42
2	200 Woodlander Place, Scotts Valley	38	38-39	39-40
3	1023 Vine Hill Road, Santa Cruz	35	37-38	38-39
4	240 Fast Lane, Santa Cruz	34	36-37	36-37
5	820 Amigo Road, Soquel	34	35-36	35-36

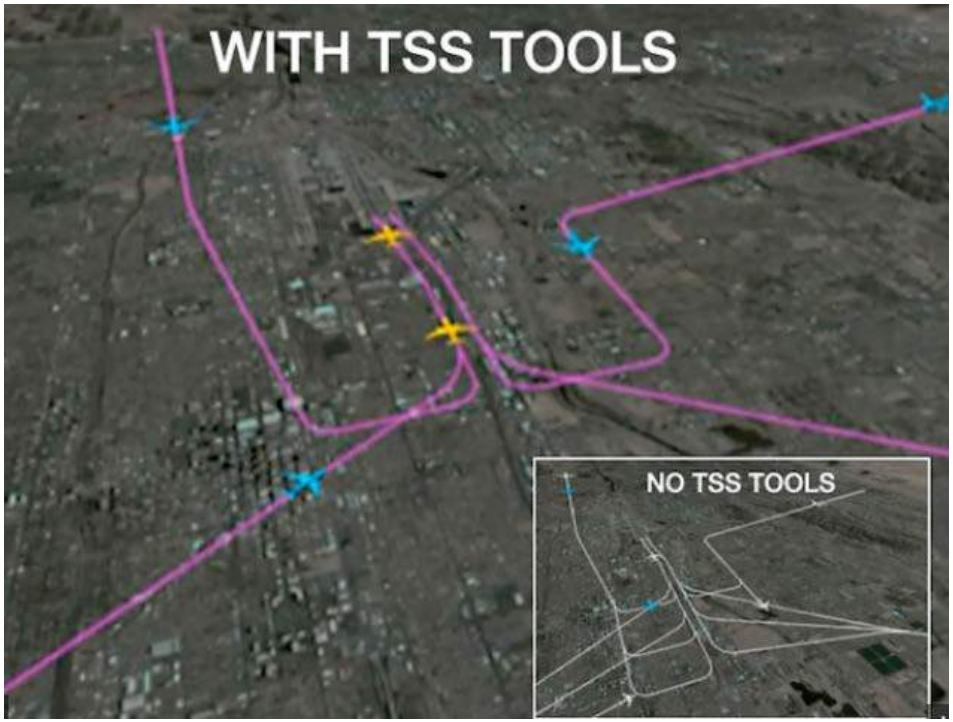
6. Improve Aircraft Set Up and Sequencing Between Facilities

Set Up and Sequencing

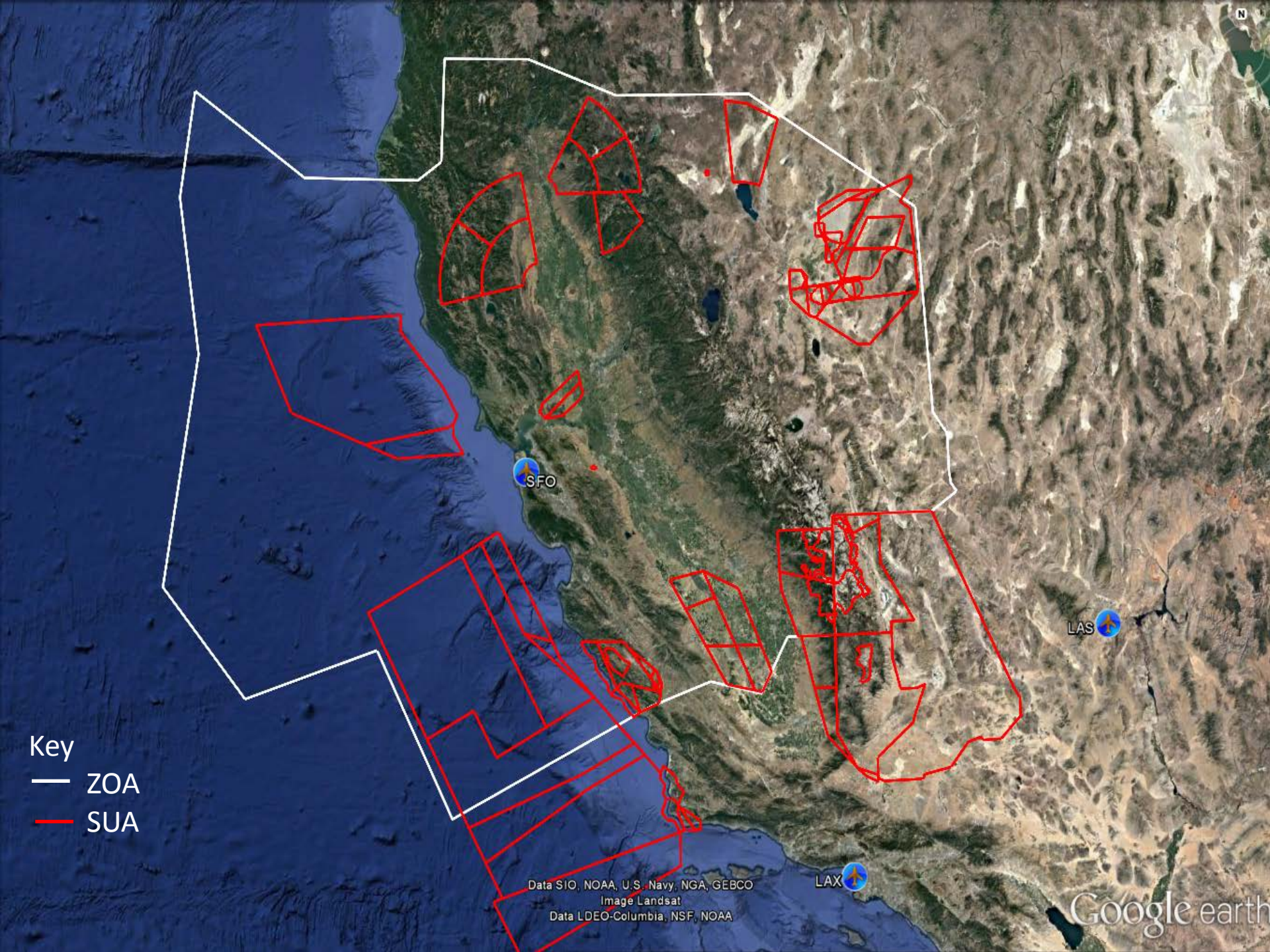
- **Currently, operations in terminal airspace involve turn-by-turn, speed-by-speed, and altitude-by-altitude instructions to the pilot.**
- **Terminal controllers rely heavily upon vectoring for merging and spacing aircraft onto the final approach course.**
- **Consequently, the benefits of Performance Based Navigation (PBN) procedures are not being achieved.**
  - Benefits include reduced noise, emissions and flying miles.

Set Up and Sequencing

- **Terminal Sequencing and Spacing (TSS)**
  - Will reduce the number of course and altitude changes currently required for sequencing.
  - Will provide information to controllers about the speeds to assign for aircraft to achieve an OPD.
  - Will lessen the frequency of communications required between controllers and pilots.



Special Use Airspace (SUA)


SFO
LAS
LAX
Key
ZOA
SUA
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat
Data LDEO-Columbia, NSF, NOAA
Google earth