Response to Recommendations from the SJC Ad Hoc Advisory Committee on South Flow Arrivals

May 2019

Table of Contents

Introduction

Background

This document is the Federal Aviation Administration's (FAA) formal response to the verbal information consistently provided during sessions with the Norman Y. Mineta San Jose International Airport (SJC) Ad Hoc Committee on South Flow arrivals (SJC Ad Hoc Committee). During these sessions, the FAA indicated that the majority of recommendations made by the SJC Ad Hoc Committee were not feasible.

The Northern California (NorCal) airspace is highly complex; traffic arrives and departs from several major airports, smaller regional airports and military facilities. Arrival and departure procedures within this airspace are all interconnected and interdependent, and were designed to improve safety and efficiency within the National Airspace System (NAS). The FAA's initial verbal responses of 'non-feasible' remain unchanged and are reflected in this response.

Longstanding issues with, as well as changes to, instrument approach and departure procedures have generated noise concerns for some San Francisco Bay Area residents. In response, the SJC Ad Hoc Committee was established to explore possible solutions. The SJC Ad Hoc Committee focused on noise concerns on Santa Clara County residents that occur when weather conditions over the airfield require SJC to operate in a "south flow" configuration. The SJC Ad Hoc Committee's meetings began in November 2017 and concluded in May 2018. While the FAA was not a member of the committee, the Agency did ensure individuals with specific subject matter expertise were in attendance and available to provide requested information. However, the FAA did not vote during SJC Ad Hoc Committee's sessions.

In May 2018, Glen K. Hendricks, former Mayor of Sunnyvale and Chair of the 14-member SJC Ad Hoc Committee, presented the FAA with a 30-page report entitled, "Report of the Ad Hoc Advisory Committee on South Flow Arrivals". This report contained 13 recommendations and 49 appendix recommendations. These 62 recommendations included requests for the FAA to identify and adjust specific procedures and/or relocate specific waypoints. The SJC Ad Hoc Advisory Committee report also requested the FAA provide a methodology for evaluating proposed procedures and the associated noise on underlying communities, as well as an estimated timeline.

The FAA complied with the SJC Ad Hoc Committee's request, and conducted a detailed analysis and a preliminary feasibility study of the committee's proposed recommendations. The study focused on flight procedure criteria and the flyability of proposed routes. The FAA also assessed impacts the proposals could have on operations at surrounding airports and air traffic control procedures that serve those airports.

Potential adjustments to airspace are considered to address resident concerns, as NorCal airspace is integral to the NAS. To the extent the FAA determines a new requested procedure is initially feasible, flyable, and operationally acceptable from a safety point of view, any action to implement the proposal would constitute a new federal action. Therefore, the Agency would conduct formal environmental and safety reviews, as well as enhanced community outreach, as appropriate.

The FAA remains committed to engaging in meaningful dialogue with regard to community noise concerns, and will continue working collaboratively with airport sponsors, communities and members of Congress to address a wide range of noise concerns. However, the FAA's willingness to do so, including participating in meetings, does not reopen the FAA's August 7, 2014 Environmental Assessment or its August 7, 2014 Final Decision for the Northern California Optimization of Airspace and Procedures in the Metroplex (NorCal OAPM). The FAA's August 7, 2014 Record of Decision constituted a final order of the Administrator subject to review by the Courts of Appeals of the United States in accordance with the provisions of 49 U.S.C. section 46110.

In November 2014, the FAA began its phased implementation of the NorCal OAPM serving air traffic flows into and out of the four study airports: San Francisco International Airport (SFO), Oakland International Airport (OAK), Sacramento International Airport (SMF), and SJC. The NorCal OAPM did not require any ground disturbance or increase in the number of aircraft operations within the NorCal Metroplex area. In total, the General Study Area included 11 entire counties and portions of 12 additional counties. There are 84 procedures included in the NorCal OAPM, including 32 new Area Navigation (RNAV) procedures, 18 new RNAV Standard Instrument Departures (SIDs), and 14 new RNAV Standard Terminal Arrivals (STARs). In addition, 28 conventional SIDs, 22 conventional STARs, and two RNAV STARs are carried forward as part of the NorCal OAPM. The FAA began its phased implementation of the 32 new RNAV procedures in November 2014 and concluded on April 30, 2015.

As part of the NorCal OAPM post implementation, the FAA is willing to consider amendments and/or new procedures for operational or safety needs. As part of this effort, the FAA will conduct formal environmental and safety reviews, coordinate and seek feedback from existing and/or new community roundtables, members of affected industry, and the National Air Traffic Controllers Association before moving forward with the amendment process. Thereafter, the FAA will implement procedures; conduct any required airspace changes and additional negotiated actions, as needed.

National Environmental Policy Act

In addition to its mandate to ensure the safe and efficient use of the NAS, the FAA complies with the requirements of the National Environmental Policy Act (NEPA). Although not specifically detailed within this response, the FAA's timelines, processes, and standards for evaluating noise impacts associated with potential proposed amendments to currently published procedures will be followed before implementing any airspace or procedure changes. This is consistent with FAA Order 1050.1F (effective July 16, 2015). Further, even though there may be no legal requirement to do so, the FAA will undertake its enhanced community outreach efforts, as appropriate.

This document does not constitute either a final decision of the FAA or a reopening of the FAA's August 7, 2014 final decision for the NorCal OAPM.

Timelines

This response provides guidelines for the recommendations presented in the SJC Ad Hoc Committee's May 2018 report. These timelines incorporate a number of established Federal processes and sub-processes. To understand the timelines presented in this document, some background to these processes is necessary. This section provides that background.

Non-Rule Making:

Non-rule making processes do not result in the amendment to any Code of Federal Regulations (CFR) or amend any other document which is included by reference in a CFR.

a. Air Traffic Facility Actions: These actions provide specific directions for the local air traffic control facility. These actions *could be* a change to a facility's Standard Operating Procedures (SOP), to Letter of Agreements (LOA) between facilities or part of regular Air Traffic Controllers training to increase awareness of certain issues.

   The steps are as follows:

   - Initial proposal: The Air Traffic Facility proposes an amendment to their SOP, to an LOA with another Air Traffic Facility or training requirements. This initial proposal is vetted within the Air Traffic Facility.
     Timelines: few weeks for training proposal.
     1 – 8 months for an SOP change.
     1 – 18 months for an LOA change.
   - The LOA is sent for review and approval.
     Timelines: few weeks.

   Total time: a few weeks – more than 1 year.

b. Creation/Amendment of an instrument flight rules procedure: Amending or creating a new instrument flight rule procedure is an example of a non-rule making process. Given the variables involved with each of the following steps, the timelines provided are only intended to capture the average time taken for each step. Although not specifically referenced within the following section, and even if there is no legal requirement to do so, the FAA remains willing to address community noise concerns. As a result, the FAA undertakes its community outreach efforts and considers potential adjustments to address community noise concerns while remaining mindful that all arrival and departure procedures within the Northern California airspace are interconnected, interdependent and designed to improve safety and efficiency within the National Airspace System (NAS). To the extent the FAA determines a new requested procedure is initially feasible, flyable, and operationally acceptable from a safety point of view, then the FAA will conduct its formal environmental and safety reviews for this new federal action.

The steps in the instrument flight rules procedure processes are as follows:

- Initial Feasibility/Analysis of the procedure: The proponent of the procedure does initial research into the details and justifications for the new/amended procedure. This stage is completed once the proponent places the request and the associated justification into the Instrument Flight Procedures (IFP) Information Gateway.
  Timeline: 45 days.

- FAA Order 7100.41A: Performance Based Navigation (PBN) processing: This is the required process for all new and amended PBN procedures and/or routes, Area Navigation (RNAV)/Required Navigation Performance (RNP) Standard Instrument Departures (SIDs), RNAV Standard Terminal Arrivals (STARs) and RNAV routes. The FAA Order 7100.41A breaks down the design and implementation process into 5 stages:
  - Preliminary Activities: This includes a baseline analysis to identify expected benefits and develop conceptual procedures and/or routes for the proposed project.
  - Design Activities: This includes the creation of a working group in order to design a procedure/route that meets the project goals and objectives. The environmental review is included in this stage.
  - Development and Operational Preparation: The intent of this stage is to complete all pre-operational items necessary to implement the procedures and/or routes. This phase includes training, issuing notifications, automation, updating radar video maps, and processing documents. This phase ends when procedures and/or routes are submitted for publication.

- Implementation: The purpose of the implementation phase is to implement the procedures and/or routes as designed. This phase starts with confirmation by the Full Working Group ("FWG") that all required pre-implementation activities have been completed and ends when the procedures and/or routes are published and implemented.
- Post-Implementation Monitoring and Evaluation: The purpose of the post-implementation monitoring and evaluation phase is to ensure that the new or amended procedures and/or routes perform as expected and meet the goals and objectives finalized during the design activities phase. Post implementation activities include collecting and analyzing data to ensure that safe and beneficial procedures and/or routes have been developed.

Timeline: > 1 year.

- IFP Validation Team review: If approved, the IFP request will be forwarded to the IFP Prioritization Team, who assigns a priority for the project and a proposed chart date. Due to existing charting requirements, as well as the demand for NextGen procedures, there are currently projected charting dates scheduled through 2024.
  Timeline: 30 days.

- Development of proposed chart: This is the actual preparation of the chart/s.
  Timeline: 45 days.

- Quality Control Review.
  Timeline: Variable.

- Project is coded for Flight Management Systems.
  Timeline: 10 days.

- Flight Inspection.
  Timeline: 50 days.

- Flight Standards Review: this is only required for some procedural development projects.
  Timeline: 21 days.

- Proposed Procedure/s are sent for publication and distribution.
  Timeline: 38 to 60 days.

Total time: >1.5 years.

FAA Response to SJC Ad Hoc Committee Recommendations

Fly More Dispersed Western Approach

1. **The Ad Hoc Advisory Committee requests the FAA to explore options and procedure changes that will still allow for the safe landing of aircraft at SJC AND return to a more dispersed distribution of aircraft. (Using the success criteria listed below).**

   Dispersion of the existing air traffic can mean different things in each of the impacted cities. Directionally the Committee recommends that the FAA drive towards: 1) do not route airplanes over narrow rails; 2) reversion to ground noise patterns prior to 2012 in the same geographic proportions as before.

   Note: Each city defined its success criteria for achieving dispersion of aircraft over its city.

   FAA Response:

   The following paragraphs will address each individual cities' concerns topically:

   In response to the request to disperse existing air traffic, dispersion can only be achieved via radar vectors. Aircraft that are to receive radar vectors to either the Instrument Landing System (ILS) or the Visual approach are not bound by JESEN or ZORSA waypoints (nor would they be to PUCKK if it still existed) – these aircraft may be radar vectored by the approach controller at any time. Controllers issue the necessary radar vectors to aircraft to facilitate the sequence to the airport. For some aircraft, that means departing ZORSA on a heading. Other aircraft may receive a radar vector closer to, or farther from, the airport.

   For safety and efficiency, controllers vector aircraft based on certain limitations: to maintain approved separation minima with other aircraft and airspace, within their delegated airspace, at a safe altitude, such that the aircraft will be able to join the final approach course in a safe, stable manner. This last point is dependent on many factors including weather, aircraft type, aircraft limitations (weight), aircraft speed and altitude. Because each aircraft operates differently, it is generally a safer and more efficient practice to vector aircraft on a standard downwind from which all aircraft types can safely turn to join the final approach course. While it is true that smaller aircraft would likely be able to join the final from a closer downwind (e.g., PUCKK), it is not necessarily true that consistently vectoring smaller aircraft to a closer downwind would lead to an efficient operation. Working aircraft in a repeatable, predictable manner results in fewer sets of communications between pilot and controller. This in turn enhances safety by minimizing the potential for miscommunication.

   All air traffic controllers are required to control traffic in accordance with a proscribed set of rules. However, the techniques controller A uses may not necessarily be the same as controller B to achieve the same result. For example, Controller A may issue a heading for aircraft to depart from the ZORSA waypoint due to its predictability; and controller B may prefer to vector smaller aircraft on a downwind closer to the final. Both methods separate the aircraft in accordance with the same proscribed set of rules.

There may be a misunderstanding regarding the level of 'control' a pilot has when flying to an airport. First, the pilot has sole command of an aircraft at all times. If at any time a pilot feels that an instruction from Air Traffic Control (ATC) jeopardizes safety, or is outside the limits of the aircraft or pilot's capabilities, it is the sole discretion of the pilot to refuse said instruction and notify ATC. However, if capable, an aircraft's pilot must comply with ATC instruction. When an aircraft is receiving radar vector services, the aircraft's heading, altitude and/or speed is mandated by ATC. When an aircraft is cleared for an instrument approach (e.g., ILS or RNAV), the pilot may have some discretion on speed control, and limited discretion on heading/altitude. Aircraft that are cleared for a visual approach, with some exceptions, are largely free to maintain a heading toward the airport, a level or lower altitude and speed of their choosing. Due to the discretion that visual approaches allow, the availability of a visual approach to an aircraft is largely dependent on other aircraft in the immediate vicinity, as well as weather considerations. This has always been, and will be for the foreseeable future, the nature of these types of services.

Regarding the request to disperse aircraft in the manner that existed before 2012, radar vector services are one method controllers can use to safely guide an aircraft safely from point A to point B. For SJC south flow operations, it is currently the only method for bringing aircraft from their respective STAR to the ILS final approach course.

The FAA is willing to explore a charted visual approach for both the east and west sides of SJC while operating in a south flow configuration. However, until such a procedure(s) is fully designed and vetted by approved FAA criteria, we cannot determine its feasibility. Nor can we commit to how frequently such a procedure would be used should it be published.

To the extent that residents have aircraft noise complaints, the FAA defers to SJC to assess and consider the requested noise-monitoring program in Santa Clara County.

Explore Other Approaches

2A. The Ad Hoc Advisory Committee requests the FAA maintain the use of the eastern vectoring for south flow arrivals as much as operationally feasible. This is an important tool in the controller's toolkit.

FAA Response:

Aircraft that approach SJC from the east downwind - approximately 8 percent of all Runway 12L/R arrivals for 2018 - are not flying a published procedure. Instead, they receive radar vectors from ATC. The ability to vector aircraft on the east downwind to join the final is confined by the high terrain of the Diablo Range. Furthermore, the east downwind is largely dependent on sequencing, (i.e., available gaps in traffic on the west downwind.) While this option is not always available, its use may aid in reducing traffic complexity and may be in the controller's best interest to utilize.

2B. The Ad Hoc Advisory Committee requests the FAA study the usage of the eastern vectoring for south flow arrivals for the past 5 years and provide an explanation for any changes, increases and/or decreases.

FAA Response:

Over the past five years, there have been no significant changes in the use of the east downwind. For more detailed information on this topic, please to reference Appendix A.

2C. The Ad Hoc Advisory Committee requests the FAA to document why, when, and how an eastern vectoring is used into SJC during south flow.

FAA Response:

The east downwind is used when traffic, weather and aircraft performance permit. As described in response 2A., the east downwind does not provide vertical or lateral guidance to the aircraft. The precipitous terrain often causes severe turbulence making the east downwind unavailable. Vectoring aircraft on the east downwind is not used as frequently as the west downwind due to the lack of a published procedure.

2D. The Ad Hoc Advisory Committee requests the FAA to explore a Chartered Visual Approaches from the east and west. See item V in Appendix A.

FAA Response:

The FAA is willing to consider this if the city/airport sponsor acts as the proponent for this change and enters it into the IFP Gateway. However, until such a procedure is fully designed and vetted by approved FAA criteria, we cannot commit its feasibility. Nor can the FAA commit to how frequently such a procedure would be used, if published.

Modify Procedures to Reduce the Per Flight Ground Noise Generated by Aircraft

3. The Ad Hoc Advisory Committee requests the FAA initiate a full procedure evaluation to implement item E and F, the purpose being to implement the concept of item D.

FAA Response:

Please refer to the FAA's response to Noise Mitigation List, sections D, E and F.

Implement FAA Policy Changes

4. **Implement aircraft noise monitoring (by appropriate entity) in areas throughout Santa Clara County to measure the effectiveness of noise mitigation solutions. Noise data captured by sound monitoring should be used by the FAA to validate the modeling tools the FAA uses as part of its environmental impact evaluations.**

   FAA Response:

   The FAA does not use noise monitoring to validate its modeling tools on an individual project basis and defers to SJC to assess and consider the requested noise-monitoring program in Santa Clara County.

5. **The Ad Hoc Advisory Committee on South Flow Arrivals is aware that for each new potential aviation route into the San Francisco Metroplex a noise simulation and prediction is/was required. The Committee requests that the FAA provide those simulation results that include predicted noise levels and all other associated data.**

   Further, The Committee requests that when the FAA posts a procedure for public comment at the Instrument Flight Procedures (IFP) gateway, environmental analyses, including noise assessments, pertaining to that procedure shall be posted along with it, and at the same time.

   FAA Response:

   The FAA's thorough and detailed noise studies and analysis for the NorCal OAPM are reflected in both the Draft and August 7, 2014 Final Decision as well as accompanying technical reports. The FAA will not reopen the August 7, 2014 Final Decision for the NorCal OAPM. The materials can be found at: https://www.faa.gov/nextgen/snapshots/metroplexes/?locationId=14.

   The IFP Gateway is a communication tool the FAA uses to disseminate information about proposed changes to flight procedures from civil aviation organizations, affected military and civil air traffic control facilities, and airport owners and sponsors. The website is intended only for an aeronautical audience who can provide technical aeronautical comments. The website is not intended to fulfill obligations under NEPA and/or other applicable environmental regulations, or to solicit comments about environmental impacts of proposed changes to flight procedures.

6A. The Committee is requesting that the FAA improve the notification mechanisms to better alert potential affected communities when procedures are being reviewed. Simply posting to the FAA's IFP Gateway website at the National level is not sufficient to provide clear, layman understandable language and transparent information to the public. There needs to be better regional and local outreach process that informs public officials and members of the public when changes are being proposed in their region.

FAA Response:

The IFP Gateway is a communication tool the FAA uses to disseminate information about proposed changes to flight procedures from civil aviation organizations, affected military and civil air traffic control facilities, and airport owners and sponsors. The website is intended only for an aeronautical audience who can provide technical aeronautical comments. The website is not intended to fulfill obligations under NEPA and/or other applicable environmental regulations, or to solicit comments about environmental impacts of proposed changes to flight procedures.

To the extent this is a request for noise modeling, the recommendation was addressed in the NorCal OAPM documents, which can be found at https://www.faa.gov/nextgen/snapshots/metroplexes/?locationId=14. If there are any modifications to the NorCal OAPM procedures, this would constitute a new federal action, and the FAA would undertake its enhanced community outreach, as appropriate.

6B. The Committee is requesting the FAA to ask all affected Airlines to participate along with FAA, SJC, and interested public constituents when discussions regarding existing and proposed flight path changes are being considered for adoption.

FAA Response:

The FAA will defer to SJC to reach out to their airline partners to address the above request. If the FAA is invited to join this dialogue, and resources are available, we will participate as appropriate. We ask that any such request include topics of discussion in advance, so that we have time to prepare any required information.

Avoid Noisy Flight Maneuvers

7. The Committee is requesting the FAA review these suggestions and provide a written response about the feasibility of implementation.

FAA Response:

Please refer to the respective FAA responses to the SJC Ad Hoc Advisory Committee Noise Mitigation List.

Implement Noise Management Measures at SJC

SJC A. The Committee recommends that the San Jose Airport respond to the following recommendations and provide a response on feasibility of implementation. Prioritized items DD through LL.

FAA Response:

The FAA defers to SJC, as this is not the FAA's purview.

Explore Single Regional Noise Reporting System

8A. The Ad Hoc Advisory Committee requests the FAA to initiate a study to look at creating or adopting a single Aircraft Noise Reporting System for the area, including, but not limited to: Ease of reporting by the public; transparent agency analysis; agency response; and publicly access reporting results. The user interface for this system should minimize the number of "clicks" required to log a complaint.

FAA Response:

Please refer to responses 1 and 4.

8B. The Ad Hoc Advisory Committee requests that the FAA initiate a study to use the information collected in 8A to identify and analyze noise trends that should be addressed.

FAA Response:

Please refer to responses 1 and 4.

Noise Mitigation List

A. Limit speed to a minimum necessary for safety on approach.

At 220kts, Airframe noise = Engine noise for departures. Since engine noise on arrivals is almost certainly lower than on departures for any given speed, the guidance would be to reduce the airframe noise as much as possible (until it reaches the engine noise): to do this, fly slower and cleaner.

FAA Response:

Aircraft vectoring and speed control is a specialized tactical decision used by highly trained and experienced controllers to establish and maintain the sequence of aircraft to the airport. Due to safety considerations, the FAA cannot support a restriction on when ATC may or may not use a vital component of its sequencing tools.

B. Limit speed to a maximum necessary for safety on approach when airplanes are 4000' or lower.

FAA Response:

In addition to the response provided in Noise Mitigation List, section A, aircraft performance and speed requirements are unique to each aircraft and are affected differently by weather, weight, fuel, pilot preference and configurations. Due to safety considerations, the FAA cannot support a unilateral restriction on aircraft speed.

C. Have planes glide to landing to eliminate noise from engines and minimize use of lift devices (flaps, slats) and braking devices.

FAA Response:

The SJC Ad Hoc Committee's request to return to a more dispersed distribution of aircraft is dependent on radar vectors. A glide is not compatible with radar vectors; a radar vector consists of a heading and altitude to maintain, must comply with minimum altitude requirements, and often times are assigned a speed to maintain as well. Additionally a glide would remove all predictability as to what the aircraft would do.

Related to the note in the Ad Hoc Committee Noise Mitigation List, the only time ATC knows with certainty that a pilot is in control of their aircraft (rather than Flight Management Software(FMS)) is when the controller issues an instruction that removes that aircraft from an instrument procedure.

D. Raise altitude along the approach, provided airplanes do not have to fly dirtier or use jet thrust.

FAA Response:

Raising the altitude along the approach is explained in greater detail in responses E and F. However, this would not eliminate the need for some aircraft to receive radar vectors. For these vectored aircraft, as explained above in C., maintaining a heading and altitude, and oftentimes an assigned speed is necessary. Aircraft configuration/engine thrust is at the sole discretion of the pilot in order to safely comply with ATC instructions.

E. Return ZORSA to 3,200' and make it a minimum altitude, provided airplanes do not have to fly dirtier or use jet thrust.

FAA Response:

As currently published, aircraft cross ZORSA waypoint at 3,000'. During various SJC Ad Hoc Committee meetings the FAA attended, FAA representatives indicated that creating a crossing restriction of 3,200' at ZORSA may have been feasible. However, based upon further review, the FAA determined that aircraft must be at 3,000' or lower 1.25 Nautical Miles (NM) past ZORSA, to maintain separation with SFO arrival aircraft at 4,000' at that point. All arrival and departure procedures within the NorCal airspace are interconnected and interdependent, and were designed to improve safety and efficiency within the NAS. The FAA cannot support this recommendation.

F. Relax the altitude requirements at HITIR from exactly 4000' to at or above 4000'.

FAA Response:

HITIR waypoint was originally published in 2011 with a crossing restriction of 3,600', and was raised to 4,000' as part of OAPM, which remains today. Based upon an initial review, it appears that changing the HITIR altitude restriction to at or above 4,000' may be feasible; however, this is subject to the FAA Order 7100.41 process and environmental review. The FAA is willing to begin the process, if a member of the SJC Ad Hoc Advisory Committee serves as the proponent for this change and inputs this request into the IFP Gateway.

G. Allow planes to arrive at HITIR at altitudes and speeds that allow them to reach the Bay without flying dirty or using thrust.

FAA Response:

Aircraft on the SJC south flow downwind are below altitudes used for aircraft destined for SFO. Vectors are essential for these SJC aircraft as they necessitate level flight. Please refer to the FAA's response to Noise Mitigation List, section C. Aircraft configurations (flaps, speed brakes, etc.) are not dictated by ATC, rather those settings are at the sole discretion of the pilot in order to safely comply with ATC instructions.

To the extent the Committee requests aircraft "reach the Bay without flying dirty or using thrust" for the ILS approach, this can only be accomplished through the creation of an Optimized Profile Descent (OPD) RNAV approach. This appears to contradict numerous other SJC Ad Hoc Committee requests to return to a more dispersed distribution of aircraft. The FAA is willing to review the request, if a member of the SJC Ad Hoc Advisory Committee serves as the proponent and inputs the request into the IFP Gateway. However, this would shift aircraft noise from one community to another. The FAA cannot support creation of such a procedure without consensus from all affected communities.

H. The FAA should initiate R&D to enable ATC procedures that would encourage vectored airplanes to descend at a glide.

FAA Response:

Please refer to the FAA responses to Noise Mitigation List, sections C and G.

I. Have planes gradually descend along a smooth descent flight pattern to limit stepping and the need for engine changes to maintain altitude.

FAA Response:

Please refer to the FAA responses to Noise Mitigation List, sections C and G.

J. Design arrival and departure procedures to minimize noise.

Establish noise monitors in entire low altitude areas around airport.

Compare noise as measured on the ground under varying weather conditions for procedures when 1) flown by pilots and 2) flown by flight management systems. Report results, along with 3) the modeled noise prediction(s).

FAA Response:

The goal of OPD RNAV procedures is to enhance safety and efficiency within the NAS, as well as minimize environmental impact (including minimizing noise) and maximize fuel efficiency. OPD RNAV procedures are also part of the FAA Order 7100.41 process. Further information can be found in the FAA response to Noise Mitigation List, section C.

The FAA defers to SJC to assess and consider the requested noise concern program in Santa Clara County.

K. Optimize all arrival and approach procedures for noise assuming the weather expected when the procedures are to be deployed. Bring focus to the 75% of flights that do not fly the RNP approach.

FAA Response:

FAA procedures are optimized to FAA regulations during the FAA Order 7100.41 process.

L. Move RNP path North (over Bay not over other cities) to reduce noise. Also disperse flights along rails (Western rail and turning rail.) Better yet, eliminate the RNP path which would eliminate the rail.

FAA Response:

This recommendation would shift aircraft noise from one community to another. The FAA cannot support creation of such a procedure without consensus from all affected communities.

The FAA does not agree with the recommendation to eliminate the RNP path, as it provides the added safety of reliability and repeatability to the sequencing of aircraft into SJC.

M. Move flights from the SW in their Northern turn over the Bay. Current, published flight path exists, but is no longer frequently used.

FAA Response:

As explained in Noise Mitigation List, section L, this recommendation would shift aircraft noise from one community to another. The FAA cannot support creation of such a procedure without consensus from all affected communities.

N. Create a new path that approaches airport from the East.

FAA Response:

The FAA does not support the establishment of an approach from the east as it would be extremely difficult due to the terrain, and would shift aircraft noise to a different community.

P. Where does the community want the planes to fly?

FAA Response:

The FAA has no comment regarding this recommendation.

Q. Manually disperse flights paths to pre-2012 levels, or create and publish multiple flight paths that will accomplish similar dispersion such as reverting the waypoints back to pre-2012 waypoints/flight paths.

FAA Response:

Given the demand for increasing numbers of air carrier operations, repeatable and predictable flight paths are essential for safety and capacity. The benefits of published procedures versus radar vectors are:

- Predictability – Knowing where aircraft will be allows for better planning and airspace management.
- Repeatability – The ability to assign a published procedure that guides aircraft to the runway simplifies the scenario, as well as reduces frequency congestion.

At this time, the FAA's current level of technology does not allow for the creation of multiple optimized flight paths for the dispersal of aircraft. Published OPDs allow aircraft to fly in a repeatable, predictable manner resulting in fewer sets of communications between pilot and controller. This in turn enhances safety by minimizing the potential for miscommunication.

R. Create additional flight paths to the West of current paths by vectoring planes toward different locations along the Bay.

FAA Response:

Radar vectoring is dependent upon an aircraft's location relative to other aircraft, and the respective approach towards which the aircraft is being vectored. Extending or modifying an aircraft's downwind when not needed presents the following complications:

- Succeeding aircraft may run out of room when vectored. Additionally, SFO traffic (SERFR, Final) and rising terrain on both sides of SJC further constrain available airspace for aircraft vectoring.
- Level flight will likely increase, which is contradictory to the SJC Ad Hoc Advisory Committee's stated goals.

S. On the STAR Arrival procedures, recast ZORSA and HITIR as fly-by waypoints. Relocate HITIR to be as close to JESEN as possible or perhaps eliminate it. If design criteria prohibit this, terminate the STAR procedures at JESEN.

FAA Response:

This recommendation is not supported by the FAA. The waypoints ZORSA and HITIR provide structural integrity and separation between SJC and SFO arrivals, as well as SJC arrivals and SJC departures. Without this structure in place, proceduralized separation would be lost and would create a safety issue.

T. Modify the NextGen system to automatically disperse flights. Automated dispersion addresses safety, efficiency, and noise.

FAA Response:

This recommendation is not supported by the FAA, as it may cause unsafe situations in poor weather conditions.

U. Define multiple flight paths across the historic corridor and rotate planes between them.

FAA Response:

This recommendation is not supported by the FAA, as it may cause unsafe situations in poor weather conditions.

V. Define a western charted visual flight approach with the turn over the Bay. Define an eastern charted visual flight approach.

FAA Response:

Please refer to the FAA response to 2D.

W. Revert the final waypoint on the STAR procedure to PUCKK. (On JAWWS TWO) This was the final waypoint for SJC south flow in 2012.

FAA Response:

The JAWWS STAR was a conventional procedure that did not allow for an idle descent like modern OPD STARs. The JAWWS STAR ended at PUCKK intersection, however PUCKK waypoint was too close to the airport to be tied into a proceduralized downwind. This conventional procedure did not provide the benefits of an OPD (predictability and repeatability). Please refer to the FAA response to Noise Mitigation List, section Q for additional information.

X. Revert the final waypoint on the STAR procedure to JESEN (on JAWWS THREE). Remove HITIR, ZORSA and flight headings after JESEN from airplanes' Flight Management Systems databases. Encourage ATC to disperse flights.

FAA Response:

This recommendation is not supported by the FAA. The waypoints ZORSA and HITIR provide structural integrity and separation between SJC and SFO arrivals, as well as SJC arrivals and departures. Without this structure in place, proceduralized separation would be lost and would create a safety issue.

Please refer to the FAA response to item 1 related to "encouraging ATC to disperse flights."

Y. Give planes more flexibility around hitting the waypoints.

FAA Response:

When not required for safety or separation, aircraft have some flexibility around "hitting" waypoints. FAA Order 7100.41 governs the requirements for whether or not a waypoint can be a fly-by or a fly-over. Existing waypoints provide structural integrity and separation between SJC and SFO arrivals, as well as SJC arrivals and departures. Without this structure in place, proceduralized separation would be lost.

Z. Move or eliminate waypoints.

FAA Response:

Without additional detail this recommendation is difficult to address. As published, the current procedures are safe and efficient. South flow operations at SJC are not preferable and used primarily during poor weather conditions. Over the past eight years, data indicates south flow operations have been used less than 25 percent per year. This is due to the complexity of SFO and OAK arrivals, as well as the terrain to the east of SJC.

AA. Define different approach paths for large and medium-to-small planes. An approach path could be created after JESEN suitable for medium-to-small planes. ZORSA could be used by large planes.

FAA Response:

This recommendation is not supported by the FAA. Please refer to the FAA response to Noise Mitigation List, section R.

At this time, the FAA's current level of technology does not allow for the creation of multiple optimized flight paths for the dispersal of aircraft. When an aircraft enters Northern California TRACON (NCT) airspace with the intention of landing at one of the airports it serves, ATC is required to advise the aircraft, which approach procedure to expect for the respective airport. Due to the highly dynamic nature of air traffic control, current FAA tools do not allow for this predictability.

BB. Define two sets of procedures – one for when efficiency is demanded (which is more noisy), one for when efficiency is not required (which is less noisy).

FAA Response:

This recommendation is not supported by the FAA due to complexity of the airspace, predictability of current procedures, and terrain. In addition, the FAA's current level of technology does not allow for the creation of multiple optimized flight paths to disperse aircraft. As stated, south flow operations are primarily used during poor weather conditions and are not the preferential flow at SJC. South flow operations were used less than 25 percent over the past eight years.

CC. Discourage narrow, concentrated (single line) flight paths. Stop eliminating discretionary paths.

FAA Response:

Please refer to the FAA response to Noise Mitigation List, section Q.

DD. Change curfew hours to 10:00 pm - 6:30 am (from 11:30 pm - 6:30 am) perhaps just when using South flow is being used.

FAA Response:

The FAA defers to SJC, as this is not the FAA's purview.

EE. Increase noise curfew violation fines.

FAA Response:

The FAA defers to SJC, as this is not the FAA's purview.

FF. Base landing fees on noise generated during arrival.

FAA Response:

The FAA defers to SJC, as this is not the FAA's purview.

GG. Require Airbus 320 family to install "wake vortex generators"

FAA Response:

The FAA defers to SJC, as this is not the FAA's purview.

HH. Require flights landing during the noise curfew to report online what is causing them to violate the noise curfew in advance of their landing.

FAA Response:

The FAA defers to SJC, as this is not the FAA's purview.

II. Provide incentives to airlines to fly quieter.

FAA Response:

The FAA defers to SJC, as this is not the FAA's purview.

JJ. Remove the displaced runway designation at SJC in order to make use of full runway so that reverse flow might not need to be used so often.

FAA Response:

Displaced thresholds for an airport's runways are not arbitrarily put in place. They are generally the result of an obstruction, such as a building(s), that encroaches upon the final approach path. In order to mitigate this, the altitude that aircraft must fly to safely pass over the top of these obstructions must be raised. Additionally, to maintain the appropriate glideslope angle while factoring in this higher altitude requires that aircraft land farther down the runway than the runway end, resulting in a displaced threshold.

KK1. GBAS (Ground-Based Augmentation System) is a system that augments the primary airport systems and provides enhanced management of all phases of approach, landing, departure and surface operations. It can result in differentiated landing positions on a runway.

FAA Response:

The FAA defers to SJC, as this is not the FAA's purview.

KK2. Trigger South flow operations when wind is at 6 knots, or 7 knots, or 8 knots, or 9 knots, or 10 knots. (Use highest safe value).

FAA Response:

The standard wind speed across the NAS that requires a runway change (i.e., change to south flow operations) is 5 knots or more. An increase to this threshold requires a waiver to FAA directive. At this time, SJC does not meet the requirements to qualify for such a waiver.

LL. Monitor noise North, East and West of the airport at various distances from the airport on an ongoing basis.

FAA Response:

The FAA defers to SJC to assess and consider the requested noise-monitoring program in Santa Clara County.

MM. FAA to change its procedure development process to introduce optimization of proposed flight plates for noise, even for changes that are not judged to be 'significant'

FAA Response:

The FAA is committed to designing safe, efficient, optimized procedures that comply with FAA Orders and Polices. FAA Order 7100.41A *Performance Based Navigation* (PBN) *Implementation Process* details the required processes for all new and amended PBN procedures and/or routes, RNAV/RNP SIDs, STARs and RNAV routes. In accordance with NEPA requirements, an environmental review is included in this process.

NN. ATC must provide information to pilot sooner.

FAA Response:

ATC is a dynamic art performed by highly trained, specialized professionals required to consider constantly shifting scenarios that are very hard to predict with accuracy the farther into the future they get. This, coupled with the very real problem of frequency congestion, results in controllers issuing instructions when needed, as needed.

OO. Model all changes prior to implementation in order to minimize noise impact on residents. Assume varying weather conditions. Ground noise monitors should be used to validate the models.

FAA Response:

The FAA achieves this through the FAA Order 7100.41 process, which includes an environmental review.

The FAA defers to SJC to assess and consider the requested noise-monitoring program in Santa Clara County.

PP. Route more SFO arrivals through the BDEGA East over the Bay so that there are fewer BDEGA West arrivals from the North. If moving SFO traffic provides more space for SJC, utilize this for dispersion purposes.

FAA Response:

Due to the complexity and confined airspace (OAK to north and east, SFO final to south), aircraft vectored off the BDEGA STAR and down the Bay are largely dependent upon the volume of OAK arrivals and SFO DYAMD STAR arrivals from the east.

As a result of the Select Committee on South Bay Arrivals and SFO Roundtable recommendations, the NCT updated its SOP to reinforce language that accommodates vectoring BDEGA STAR aircraft "down the Bay" as much as operationally feasible.

QQ. Have SERFR South arrivals join DYAMD or fly a similar route parallel to and/or above DYAMD. If moving SFO traffic provides more space for SJC, utilize this for dispersion purposes.

FAA Response:

A similar recommendation was made by the Select Committee on South Bay Arrivals in November 2016. The FAA advised the Committee that this recommendation was not feasible due to the volume of aircraft already using the DYAMD STAR. In addition, moving SERFR STAR aircraft to the DYAMD STAR would likely shift a large amount of aircraft noise to a different community.

RR. Have SFO oceanic arrivals from the West join BDEGA over the ocean West of the Golden Gate Bridge rather than use MENLO.

SJC South Flow would then only compete with BDEGA West arrivals.

Vector BDEGA West arrivals to maximize vertical and lateral separations for aircraft flying in opposite directions (BDEGA flights going North and SJC flights going South). If moving SFO traffic provides more space for SJC, utilize this for dispersion purposes.

FAA Response:

A similar recommendation was made by the Select Committee on South Bay Arrivals. The FAA advised the Committee that this recommendation was not feasible, as it would likely result in a shift in aircraft noise. These aircraft would behave like any other BDEGA STAR arrival, with many of the aircraft flying down the peninsula as they do now.

Aircraft must join an approach's glide slope beyond a certain point. SFO RWY 28L/R arrivals are currently vectored above SJC arrivals to achieve vertical separation. Lateral separation (usually at least 3 miles) may be reduced only after *divergence* (not opposite direction) is established.

SS. Allow SJC to use some SFO airspace when SFO changes their landing pattern, since SFO flights are at high altitudes when they are close to SJC.

FAA Response:

SFO departure aircraft utilize RWY 10L/R approximately three percent of the year. When aircraft depart these runways towards SJC south flow aircraft on the downwind, the result is very similar to an Opposite Direction Operation, which is highly restricted by FAA regulations.

TT. Create technical working group to study each of the proposals in conjunction with the FAA. Present findings and recommendations during ad hoc committee meetings for full discussion and final recommendations.

FAA Response:

The FAA is committed to continuing its collaborative work with existing appropriate committees and roundtables about aircraft noise.

UU. Ask the FAA to share what the airlines requested when they asked for new procedures.

FAA Response:

The FAA cannot commit to this and recommends the SJC AD Hoc Committee follow up with the airline stakeholders to fulfill this request.

VV. Ask the FAA to share the Environmental Assessment report (data, analyses, and conclusions) for the changes in the SJC south flow procedures.

FAA Response:

The FAA's thorough and detailed noise studies and analysis for the NorCal OAPM are reflected in the Draft and August 7, 2014 Final Decision as well as accompanying technical reports. The FAA will not reopen the August 7, 2014 Final Decision for the NorCal OAPM. These materials can be found at:
https://www.faa.gov/nextgen/snapshots/metroplexes/?locationId=14.

WW. Ask the FAA if the SJC south flow flights that are vectored north to turn over Palo Alto come in and out of SJC airspace.

FAA Response:

SJC Class C Airspace, in general, is surface to 4,000 ft. MSL. SJC Airport Traffic Control Tower (ATCT) is delegated airspace from the surface to 2,500 ft. MSL. There is no requirement for Class C airspace to fully contain a procedure, nor a radar vector. Aircraft entering Class C airspace (protected airspace) must have certain equipment capabilities; they can expect certain services while operating within the airspace.

Aircraft are vectored to the final by NCT controllers, and are fully contained within the NCT sector designated for SJC south flow arrivals. Any deviation of an aircraft from a controller's sector would first require the appropriate coordination with the controller of the adjacent sector.

Appendix A

SJC East Side Arrival Analysis

SJC East Side Arrivals

	2014	2015	2016	2017	2018
January					
Days with South Flow Ops	9	14	24	29	20
Number of Tracks Landing 12L/R	22	189	2,171	2,341	1,262
Number / Percentage of East Side Arr	3 / 13.6%	19 / 10.1%	180 / 8.3%	136 / 5.8%	69 / 5.5%
February					
Days with South Flow Ops	15	11	14	23	19
Number of Tracks Landing 12L/R	1,410	819	578	2,758	171
Number / Percentage of East Side Arr	105 / 7.4%	90 / 11.0%	51 / 8.8%	177 / 6.4%	19 / 11.1%
March					
Days with South Flow Ops	20	15	21	18	17
Number of Tracks Landing 12L/R	1,254	379	1,589	1,041	2,268
Number / Percentage of East Side Arr	114 / 9.1%	42 / 11.1%	122 / 7.7%	65 / 6.2%	191 / 8.4%
April					
Days with South Flow Ops	11	20	14	18	18
Number of Tracks Landing 12L/R	346	759	495	1,304	296
Number / Percentage of East Side Arr	31 / 9.0%	124 / 16.3%	61 / 12.3%	99 / 7.6%	25 / 8.4%
May					
Days with South Flow Ops	7	20	13	14	16
Number of Tracks Landing 12L/R	181	562	618	808	566
Number / Percentage of East Side Arr	21 / 11.6%	68 / 12.1%	62 / 10.0%	58 / 7.2%	59 / 10.4%
June					
Days with South Flow Ops	16	19	17	15	20
Number of Tracks Landing 12L/R	455	404	333	220	908
Number / Percentage of East Side Arr	67 / 14.7%	67 / 16.6%	39 / 11.7%	35 / 15.9%	82 / 9.0%
July					
Days with South Flow Ops	14	19	20	19	17
Number of Tracks Landing 12L/R	578	432	474	167	436
Number / Percentage of East Side Arr	78 / 13.5%	78 / 18.1%	58 / 12.2%	24 / 14.4%	58 / 13.3%
August					
Days with South Flow Ops	20	17	17	16	16
Number of Tracks Landing 12L/R	701	382	534	69	537
Number / Percentage of East Side Arr	79 / 11.3%	42 / 11.0%	70 / 13.1%	12 / 17.4%	55 / 10.2%
September					
Days with South Flow Ops	15	8	20	16	17
Number of Tracks Landing 12L/R	462	640	639	543	393
Number / Percentage of East Side Arr	53 / 11.5%	86 / 13.4%	69 / 10.8%	47 / 8.7%	25 / 6.4%
October					
Days with South Flow Ops	14	15	22	19	17
Number of Tracks Landing 12L/R	737	160	2,258	121	357
Number / Percentage of East Side Arr	73 / 9.9%	25 / 15.6%	137 / 6.1%	19 / 15.7%	36 / 10.1%
November					
Days with South Flow Ops	18	14	17	19	16
Number of Tracks Landing 12L/R	1,144	197	874	1,679	129
Number / Percentage of East Side Arr	95 / 8.3%	10 / 5.1%	59 / 6.8%	114 / 6.8%	7 / 5.4%
December					
Days with South Flow Ops	17	25	23	18	15
Number of Tracks Landing 12L/R	2,914	1,130	1,302	23	1,255
Number / Percentage of East Side Arr	326 / 11.2%	78 / 6.9%	60 / 4.6%	11 / 47.8%	67 / 5.3%

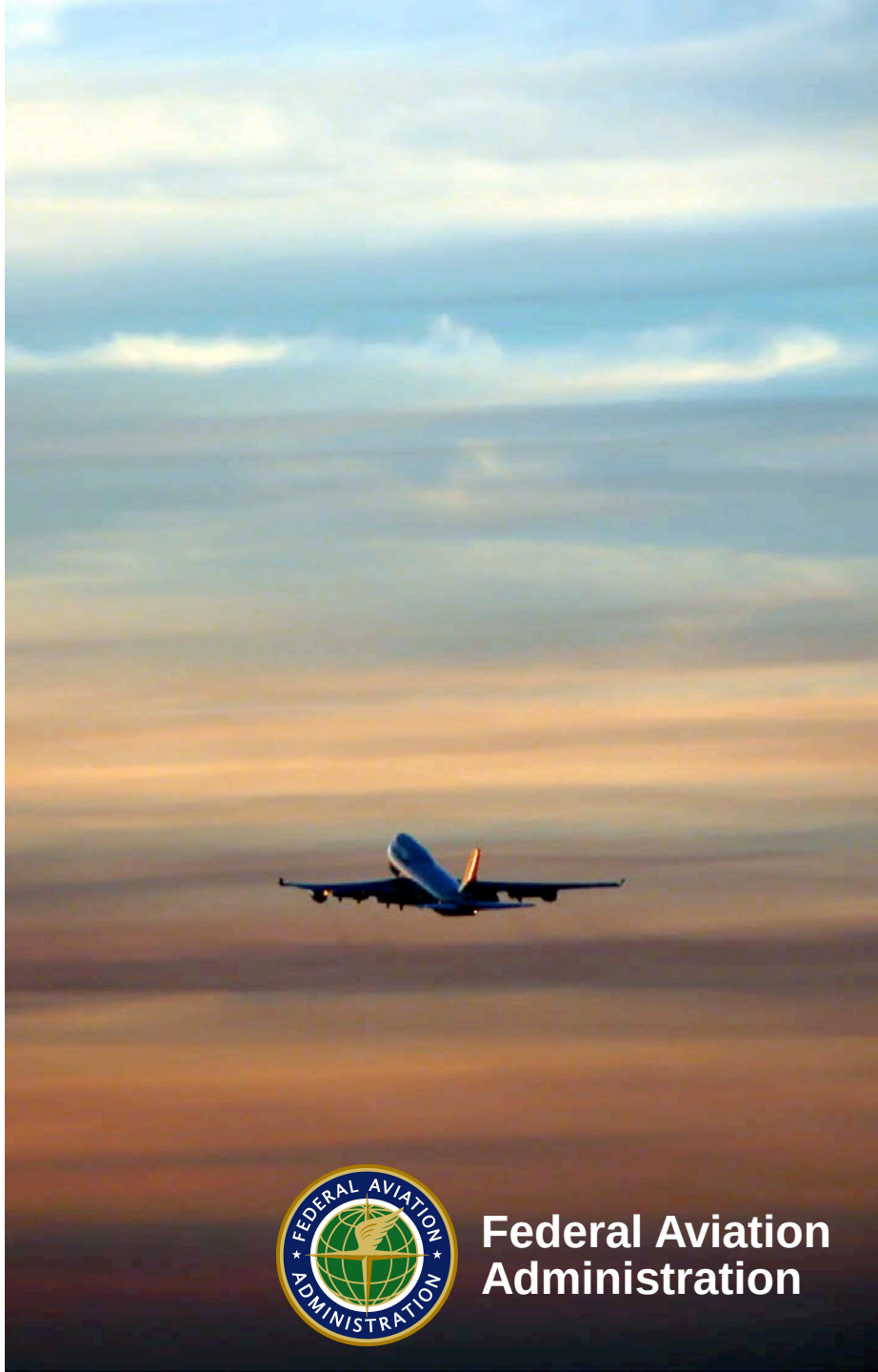
Appendix B

FAA presentation at the March 23, 2018 meeting pertaining to

SJC Ad Hoc Committee's February 29, 2018 document.

San Jose Ad Hoc Advisory Committee on South Flow Arrivals

FAA Data regarding February 28, 2018 Request, Questions, and Next Steps



Data Analysis

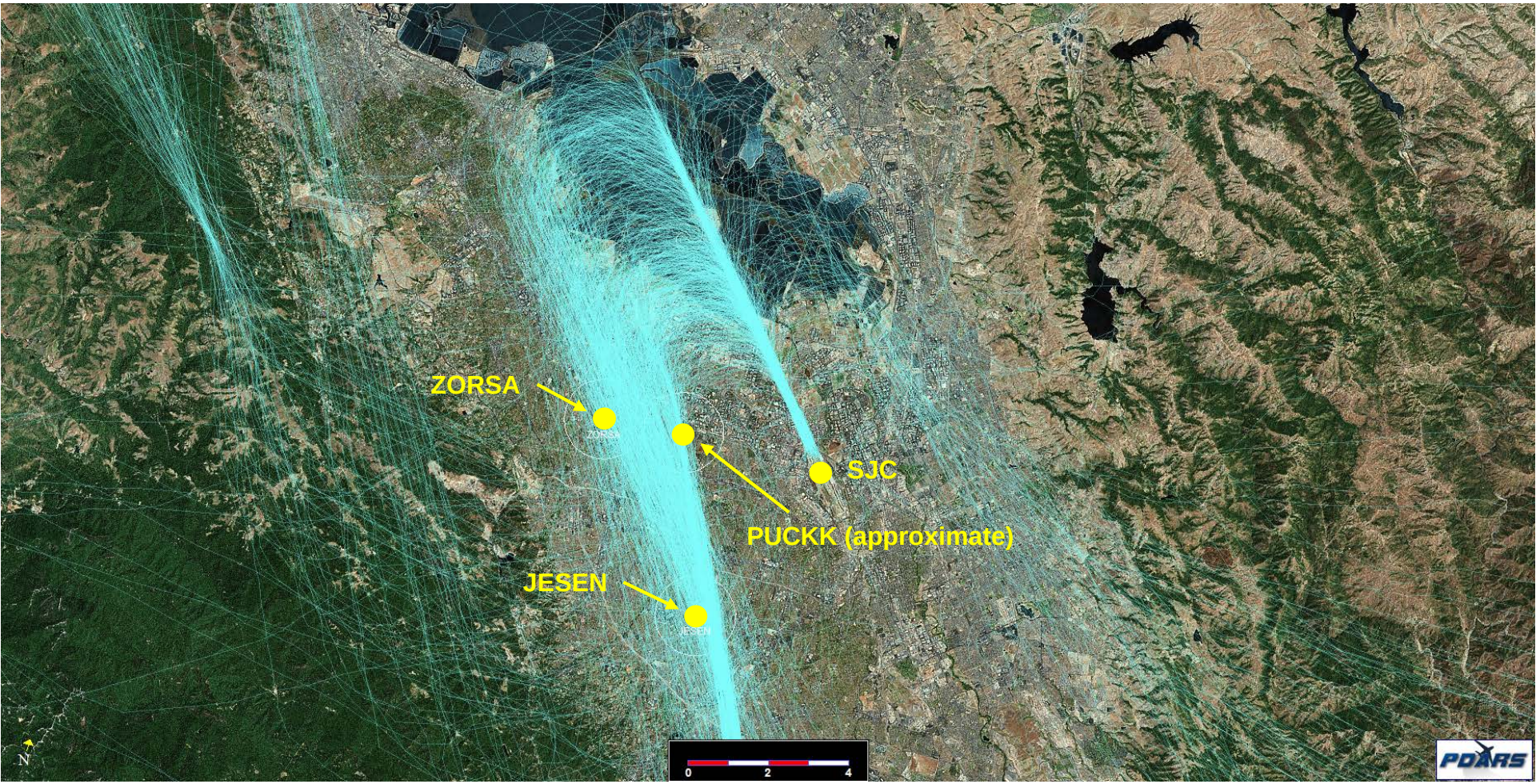
The FAA received the Ad Hoc Advisory committee on South Flow Arrivals Requests, Questions and Next Steps, dated February 28, 2018 on March 5, 2018.

Northern California TRACON (NCT) radar data was analyzed in response to these Requests and Questions.

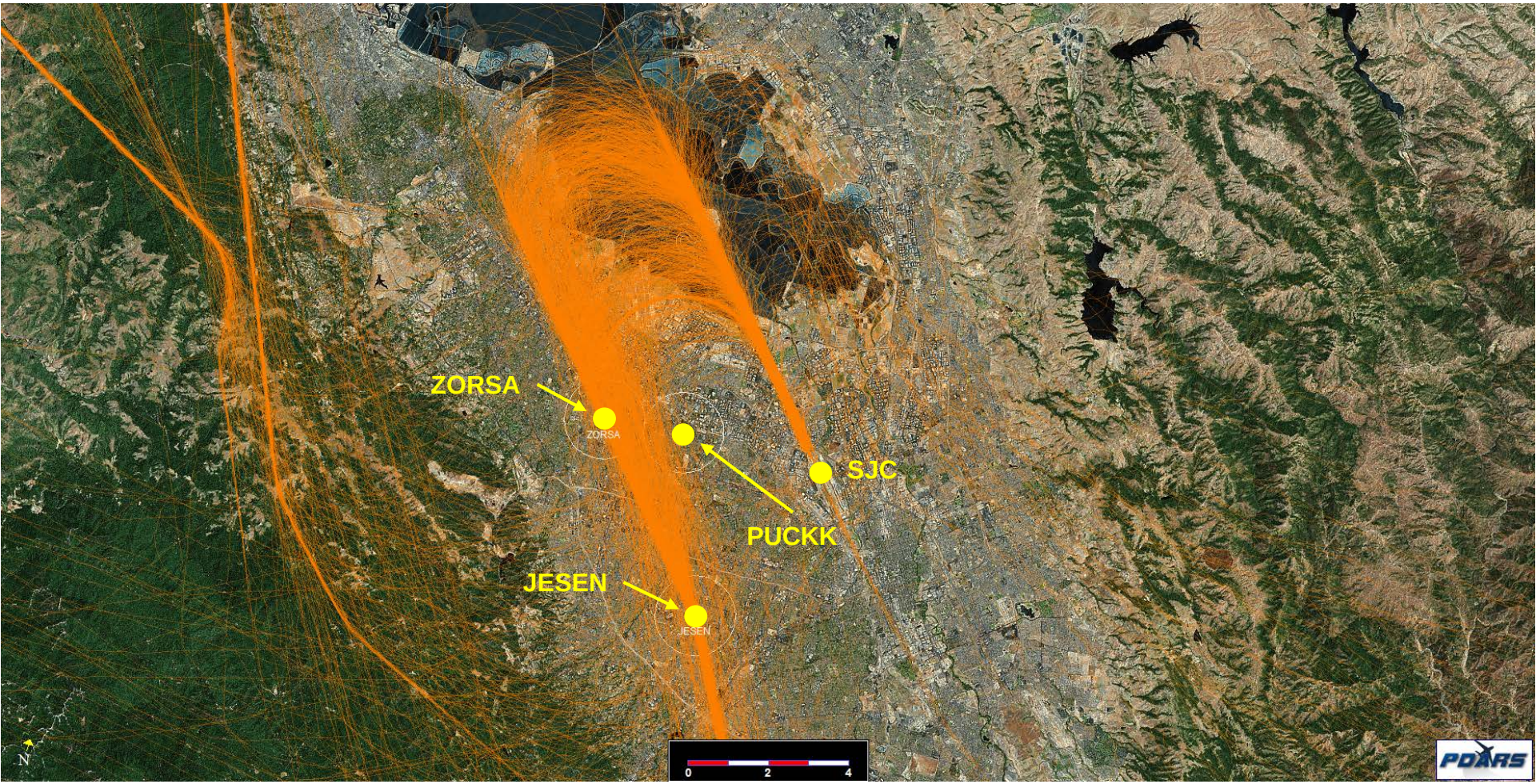
A number of months were reviewed, with the following selected for their similarity in time of year and, more importantly, similar traffic count during San Jose Airport (SJC) South Flow operations.

- February, 2011 – 1,111 SJC South Flow arrival aircraft
- March, 2016 – 1,589 SJC South Flow arrival aircraft
- January, 2018 – 1,262 SJC South Flow arrival aircraft

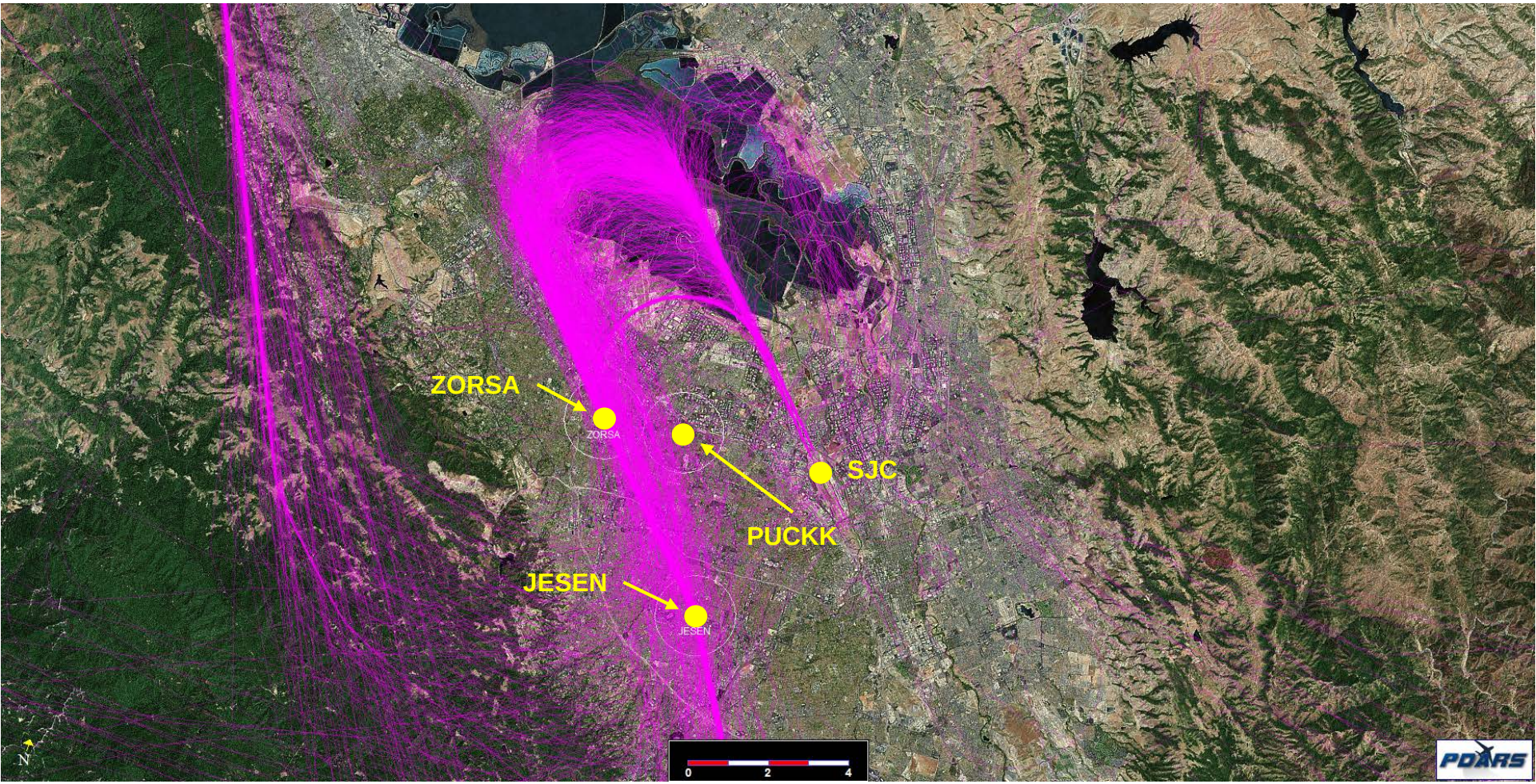
SJC 2011 South Flow
1,111 Arrivals



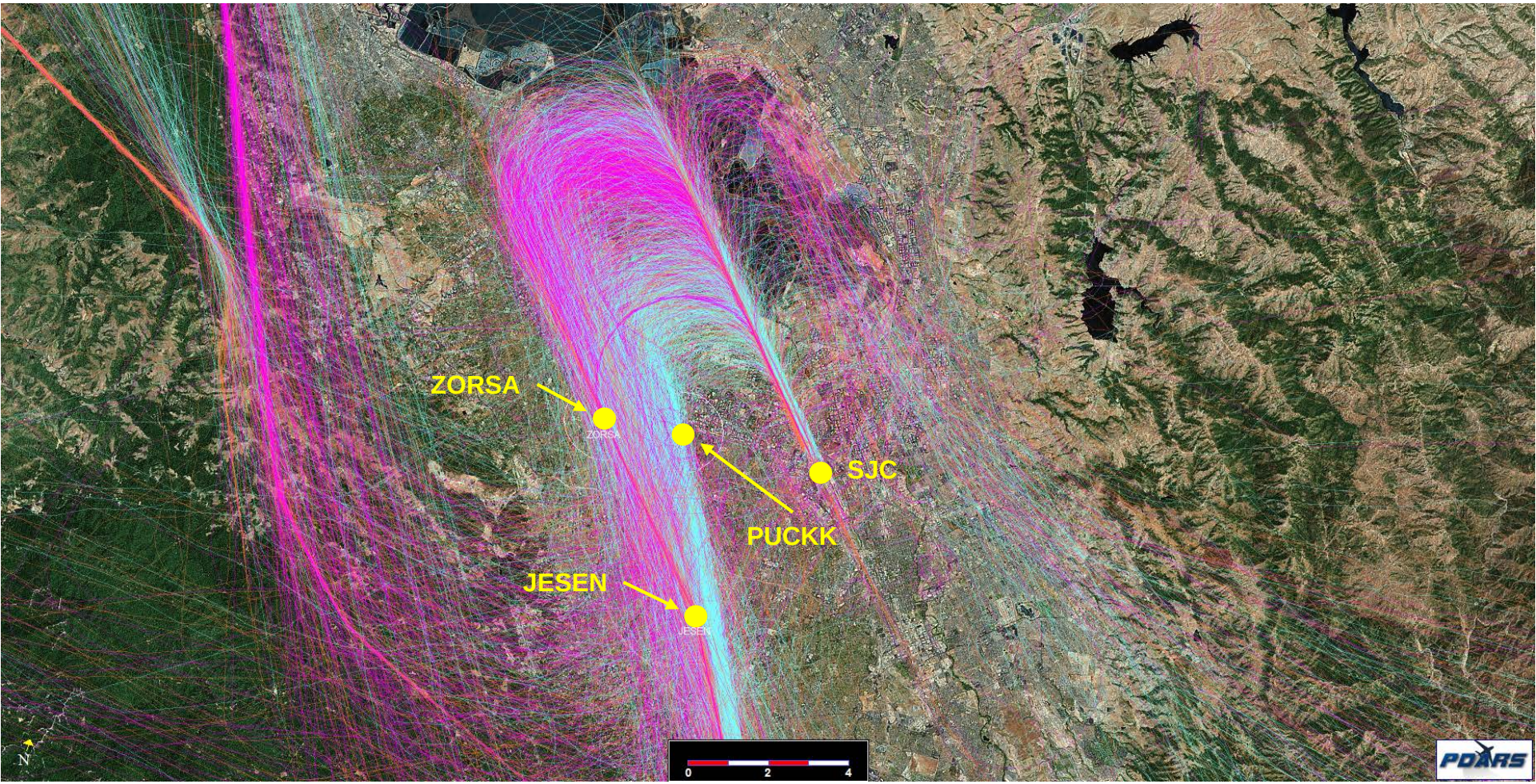
SJC 2016 South Flow
1,589 Arrivals



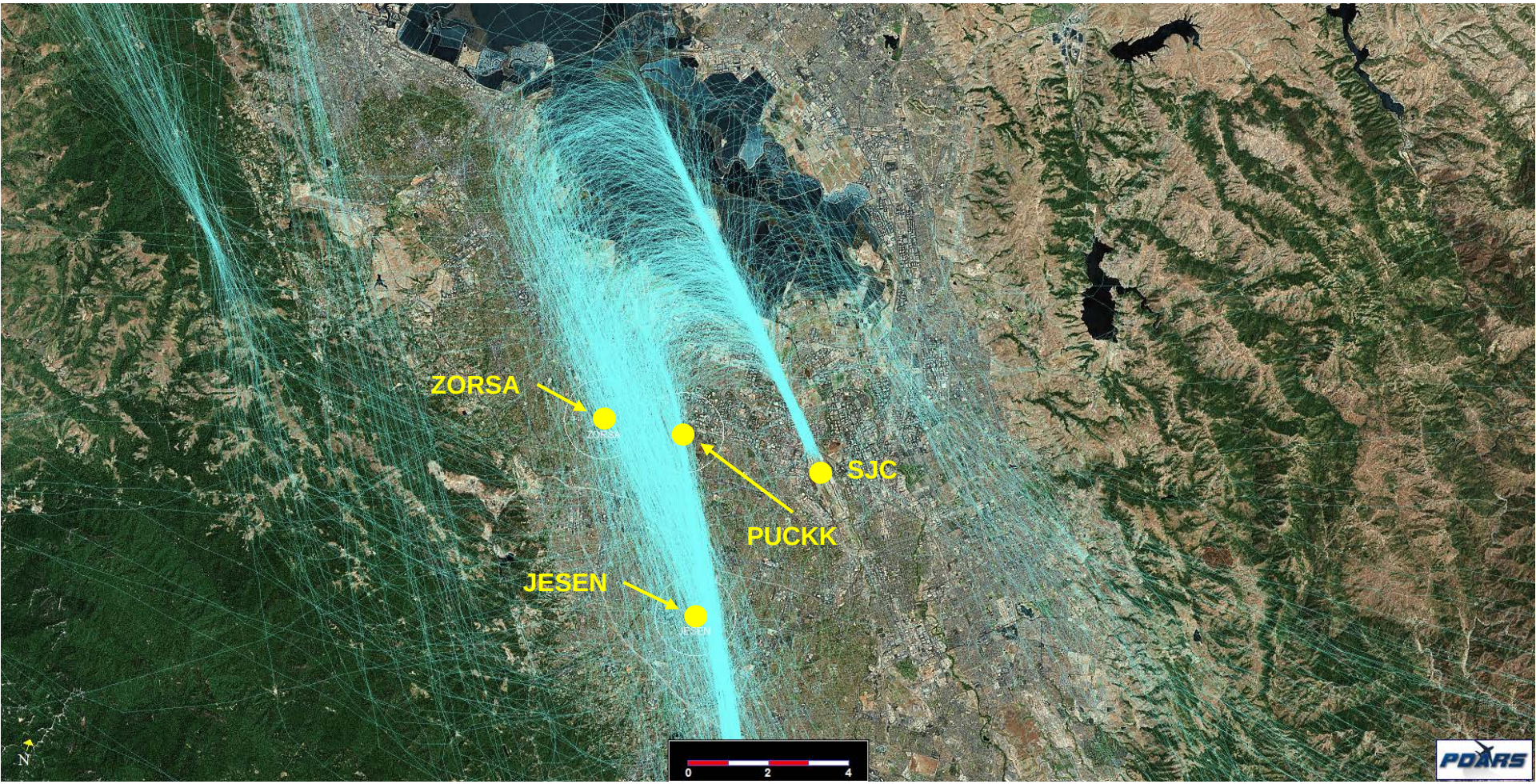
SJC 2018 South Flow
1,262 Arrivals



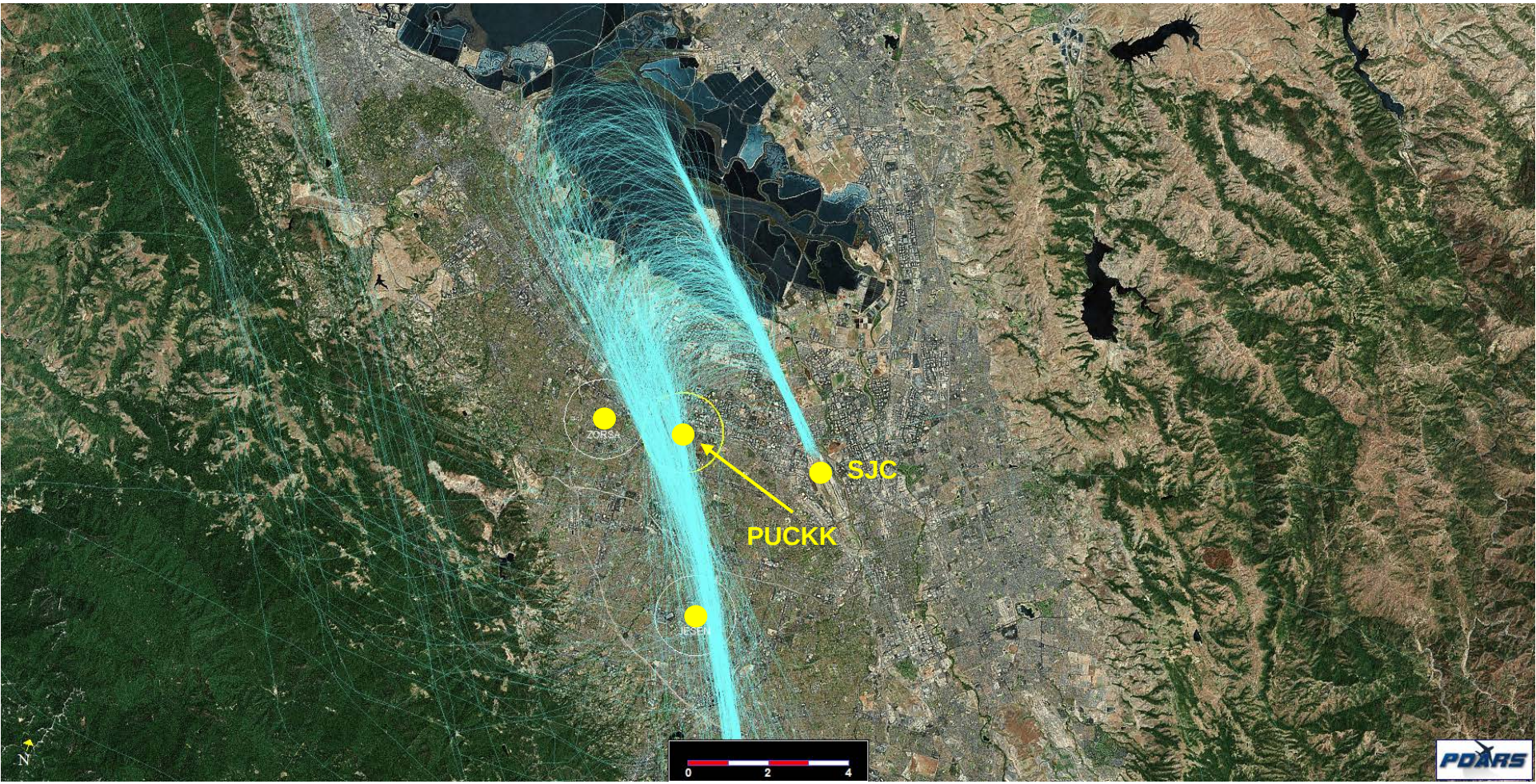
SJC South Flow
‘11, ‘16 and ‘18 Arrivals



SJC 2011 South Flow (repeated)
1,111 Arrivals



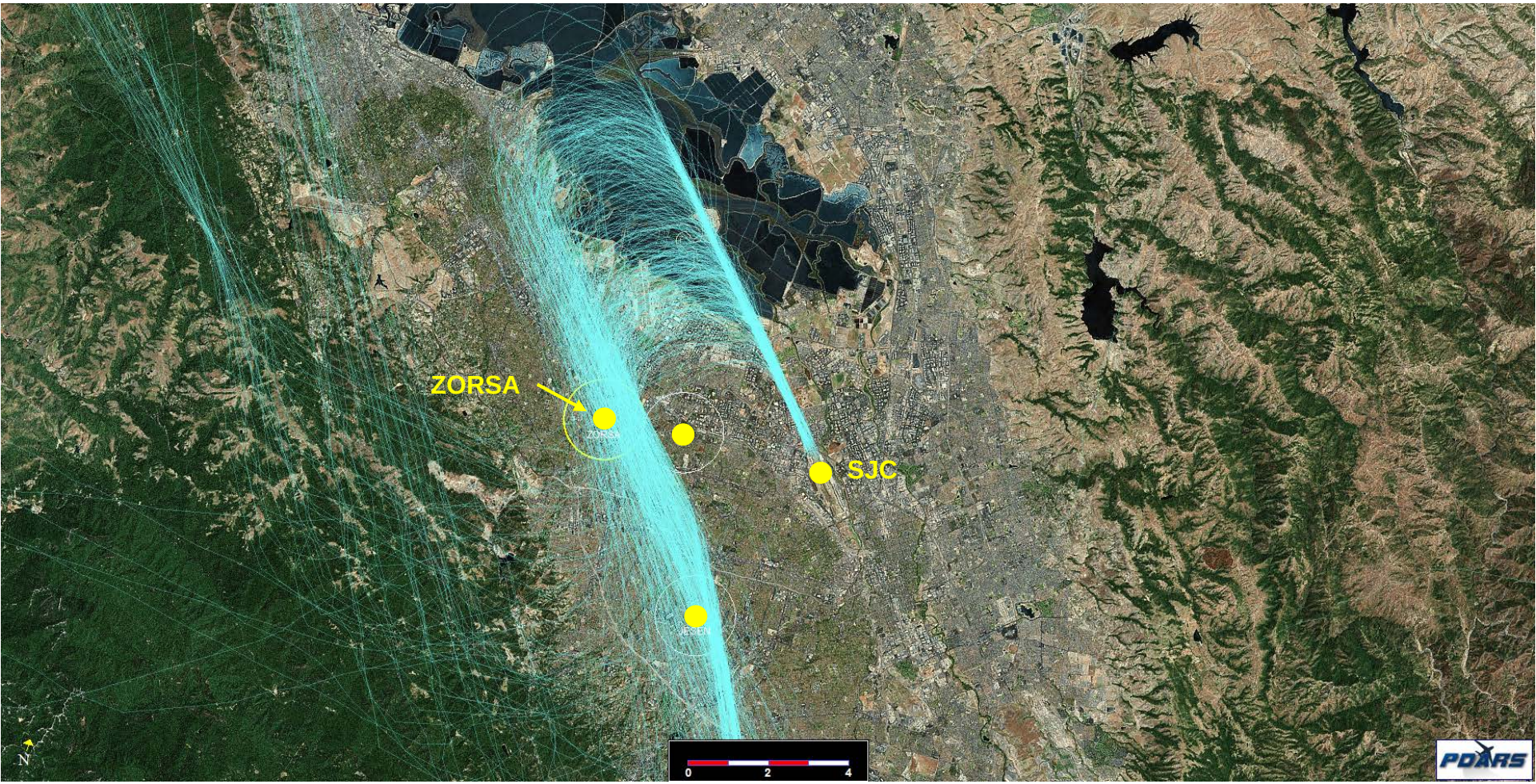
SJC 2011 South Flow
1,111 Arrivals



Tracks through 1 NM radius circle around PUCKK = 506 (45.5%)

Federal Aviation Administration

SJC 2011 South Flow
1,111 Arrivals

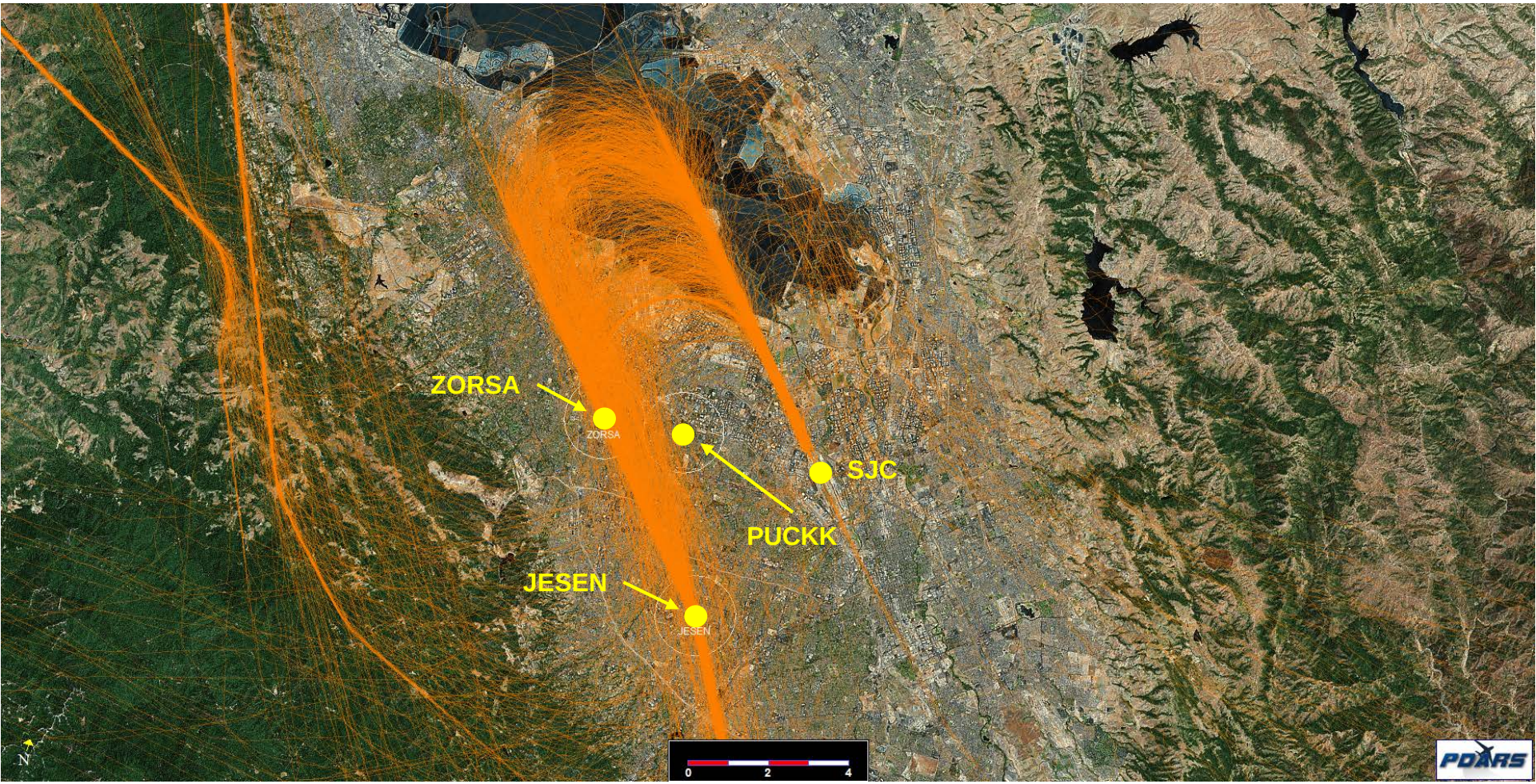


Tracks through 1 NM radius circle around ZORSA = 502 (45.2%)

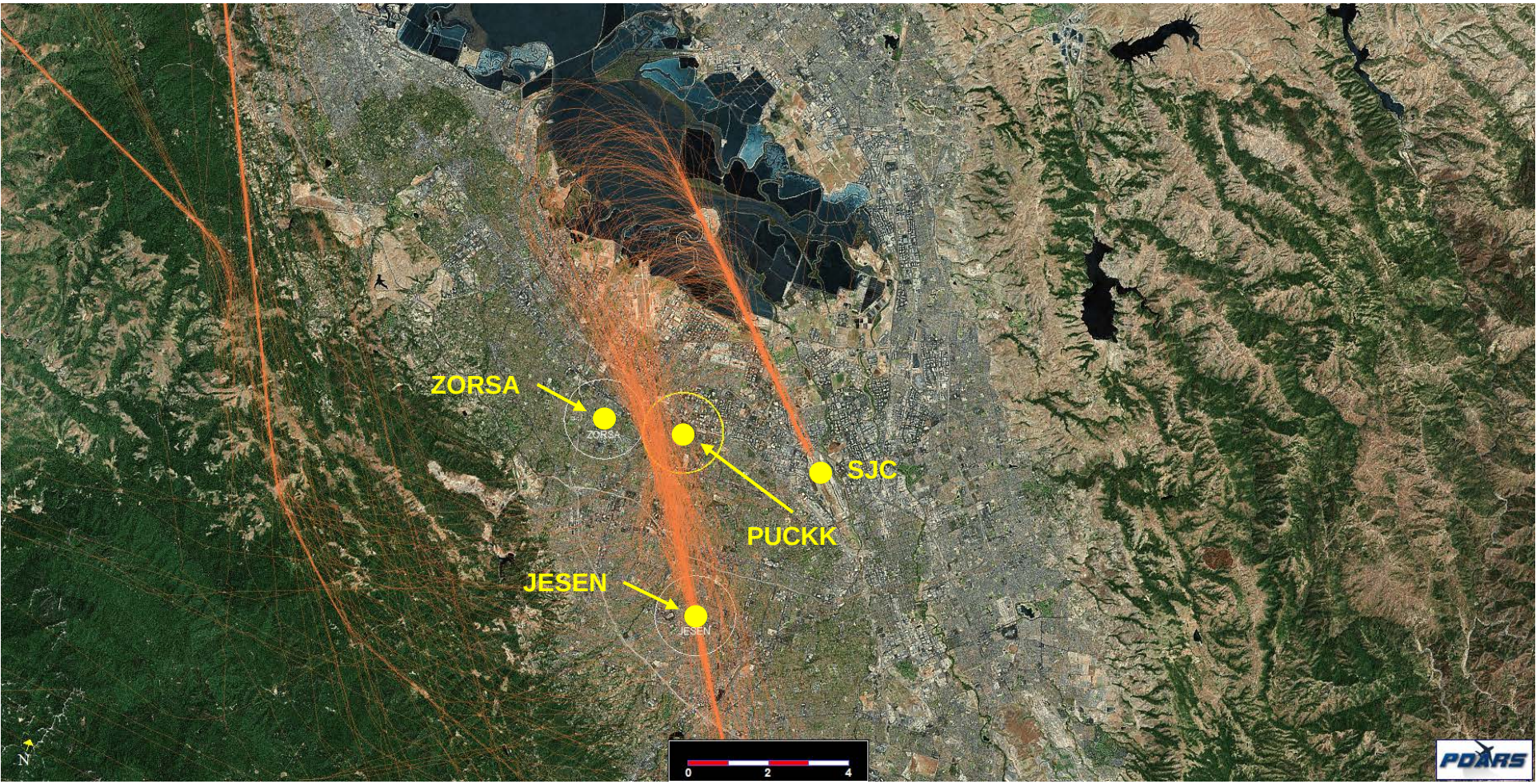
Average Altitude passing ZORSA = 2,730 feet MSL

Federal Aviation Administration

SJC 2016 South Flow (repeated)
1,589 Arrivals



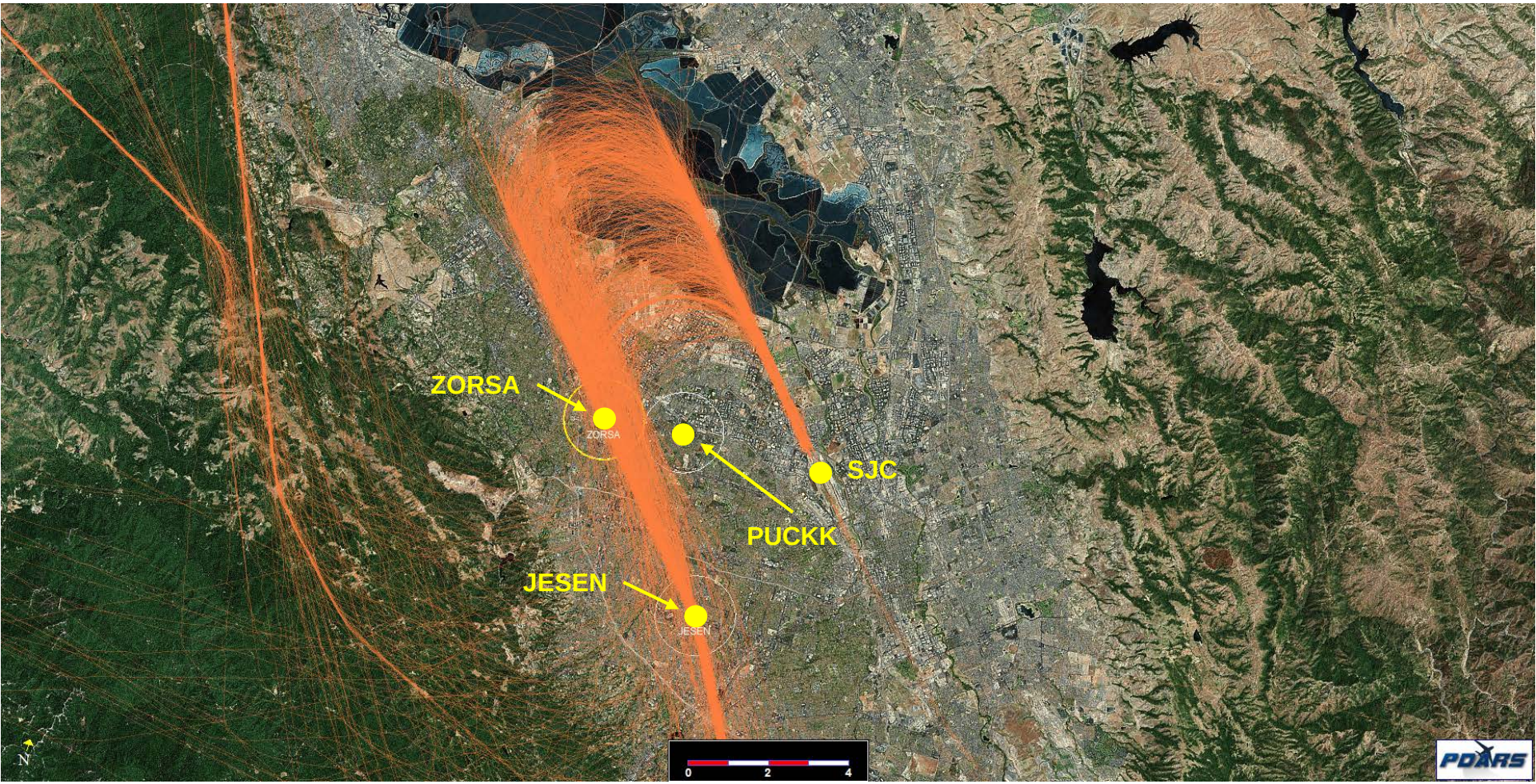
SJC 2016 South Flow
1,589 Arrivals



Tracks through 1 NM radius circle around PUCKK = 205 (12.9%)

Federal Aviation Administration

SJC 2016 South Flow
1,589 Arrivals

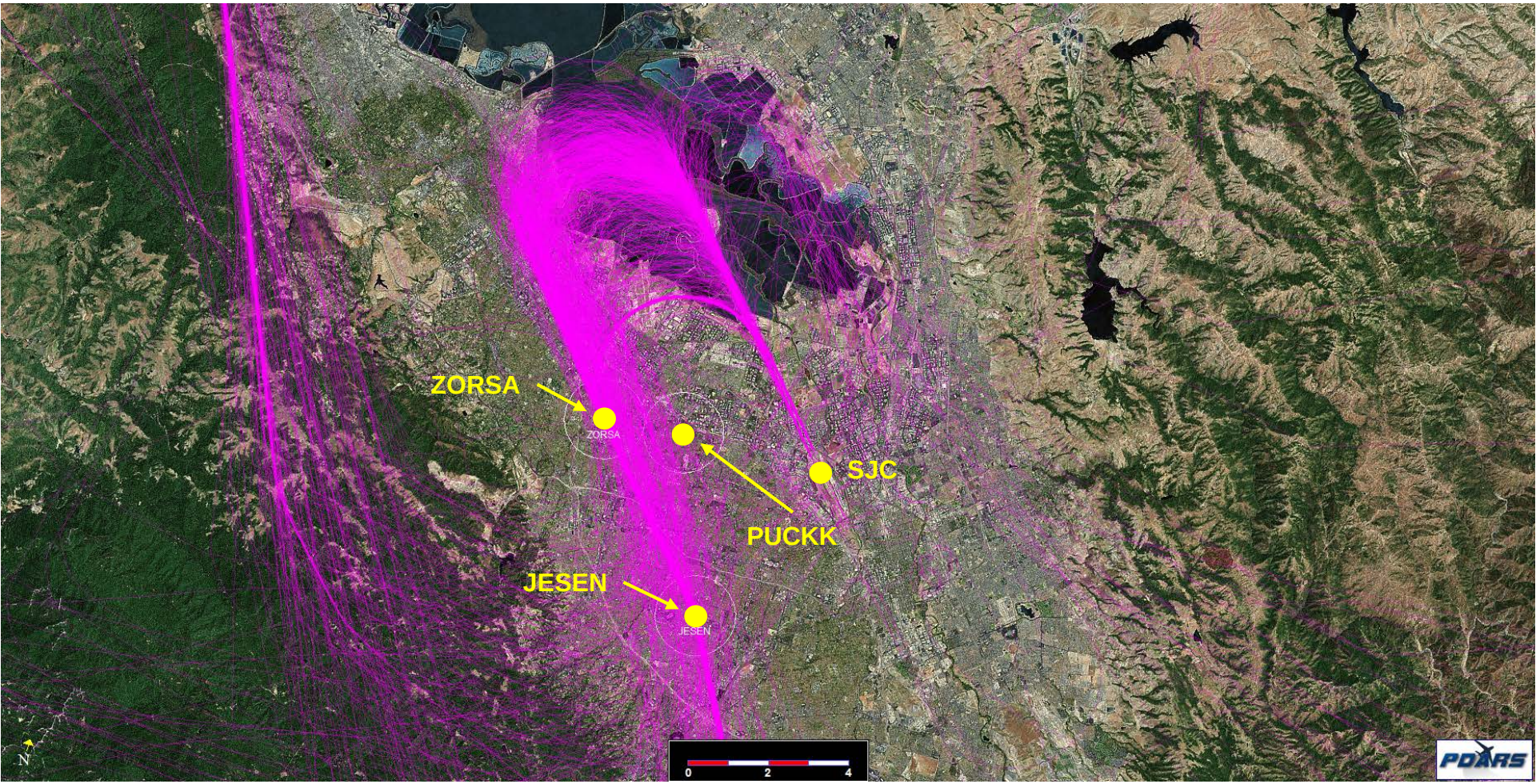


Tracks through 1 NM radius circle around ZORSA = 1,196 (75.3%)

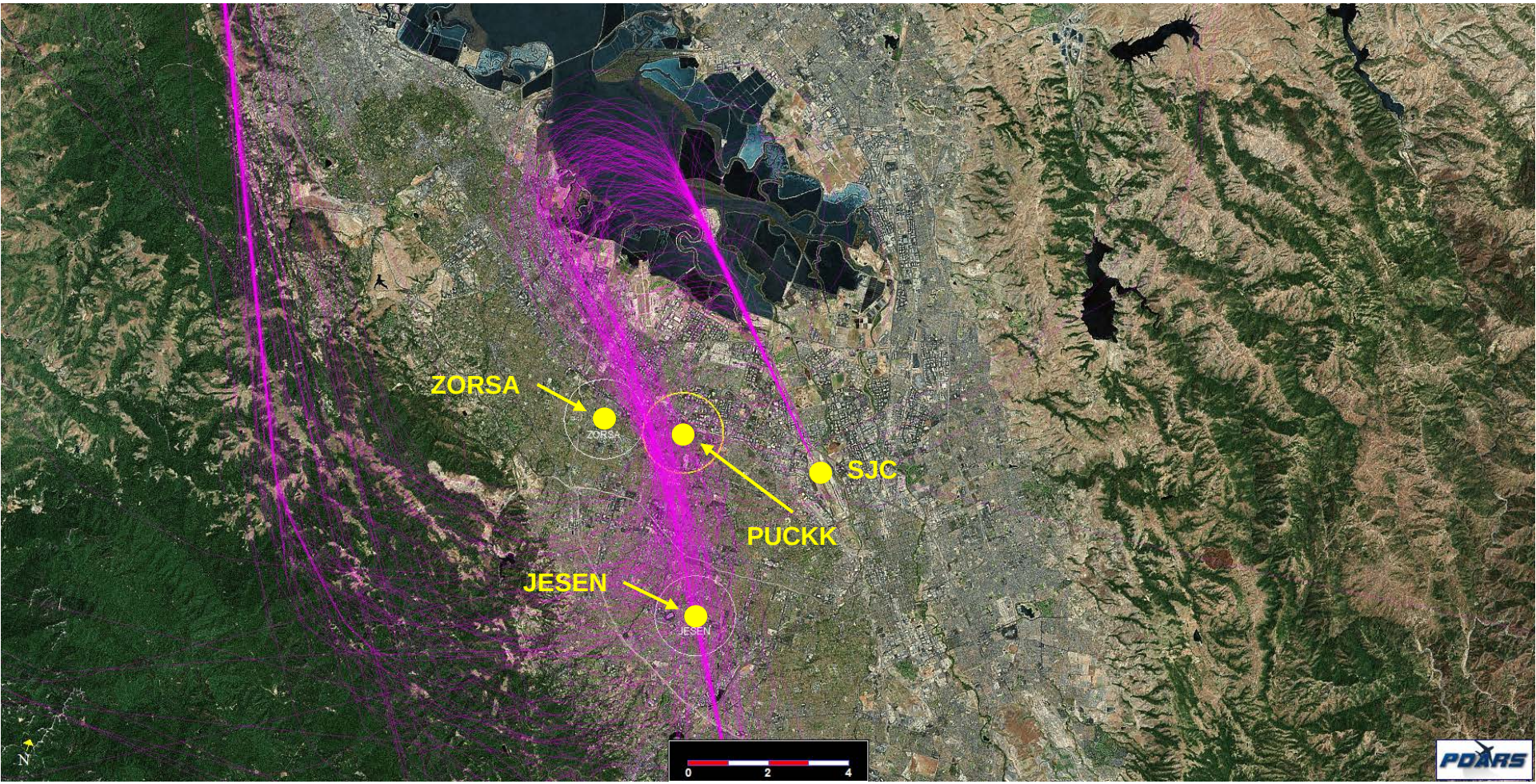
Average Altitude passing ZORSA = 3,040 feet MSL

Federal Aviation Administration

SJC 2018 South Flow (repeated)
1,262 Arrivals



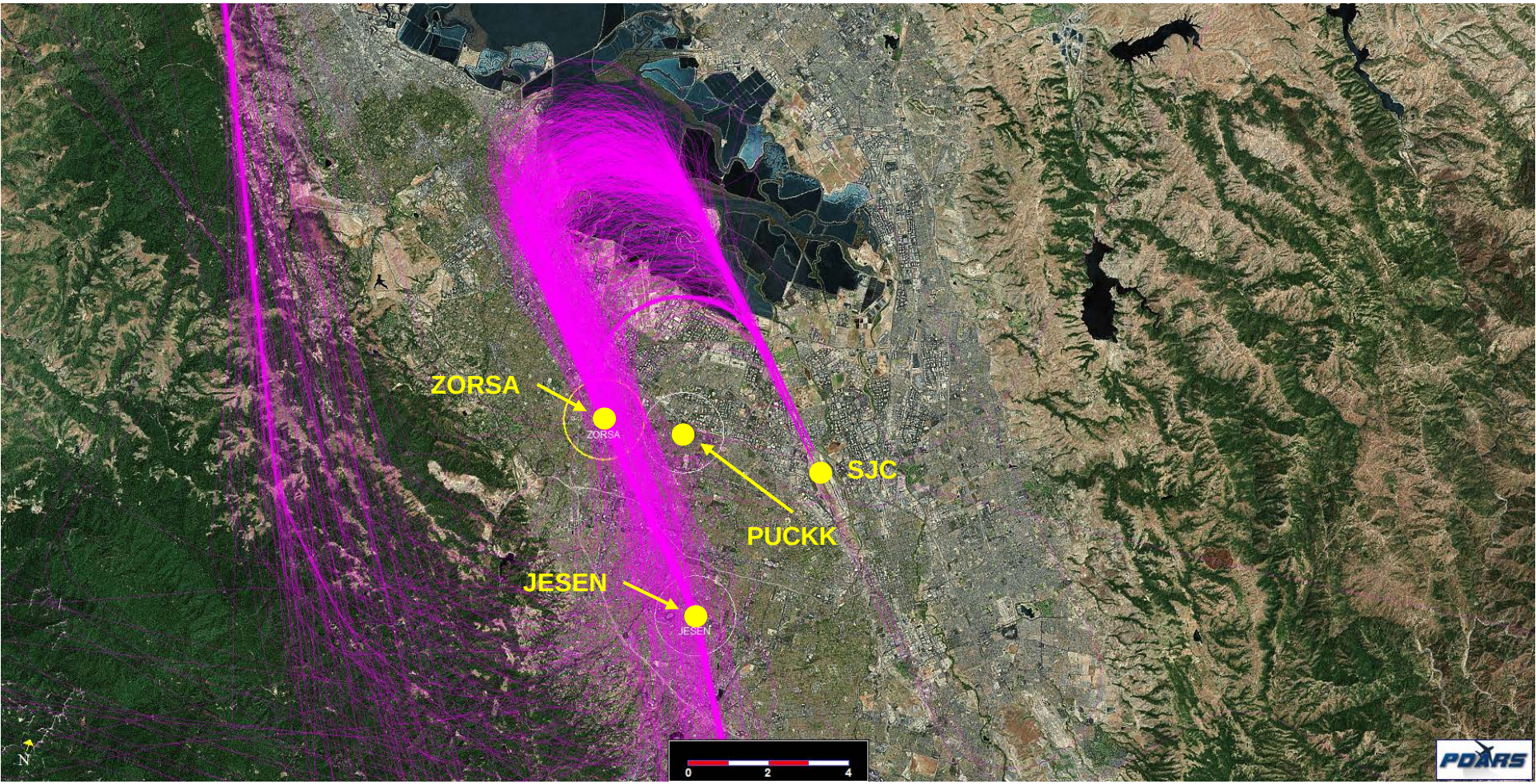
SJC 2018 South Flow
1,262 Arrivals



Tracks through 1 NM radius circle around PUCKK = 156 (12.4%)

Federal Aviation Administration

SJC 2018 South Flow
1,262 Arrivals

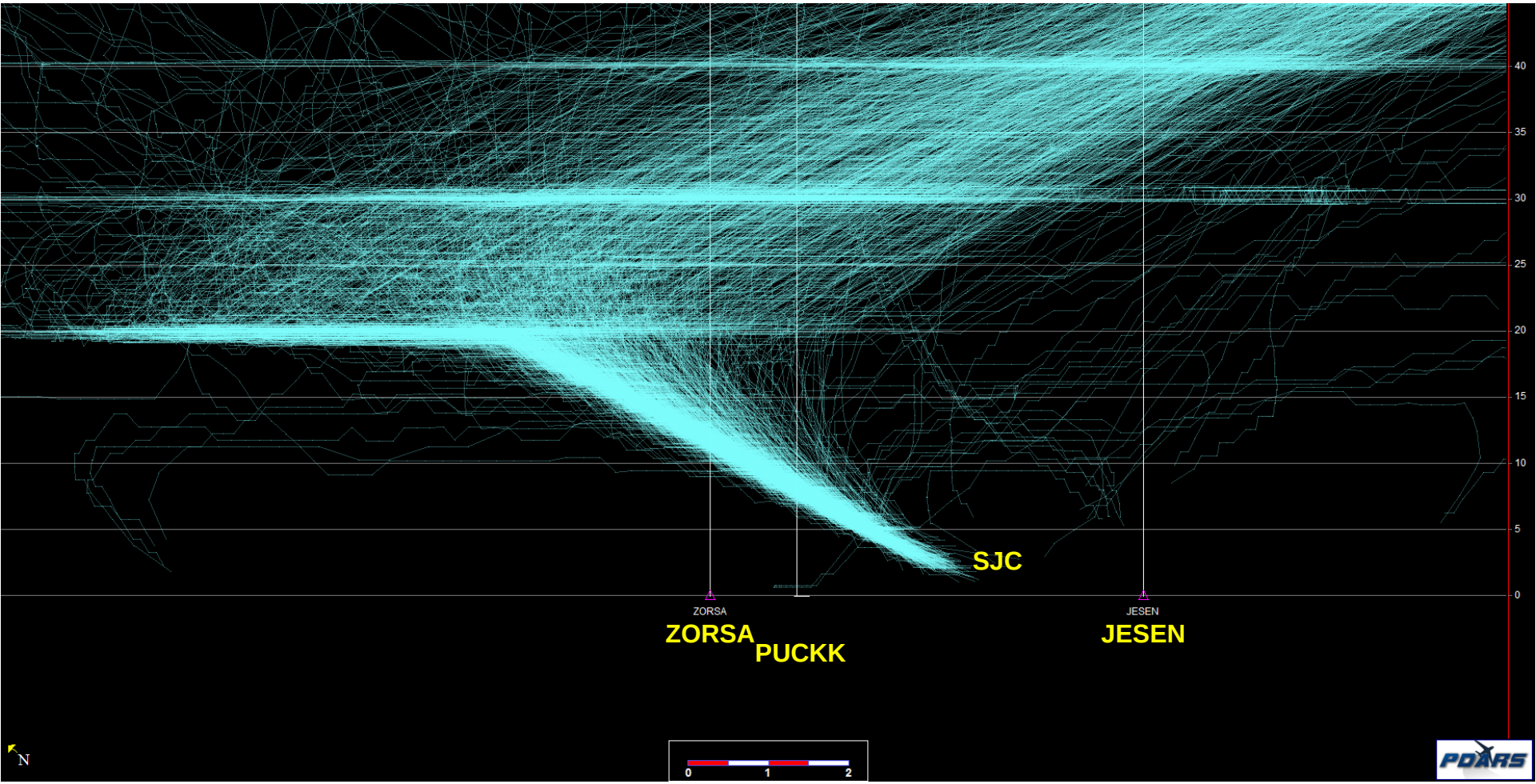


Tracks through 1 NM radius circle around ZORSA = 1,043 (82.6%)

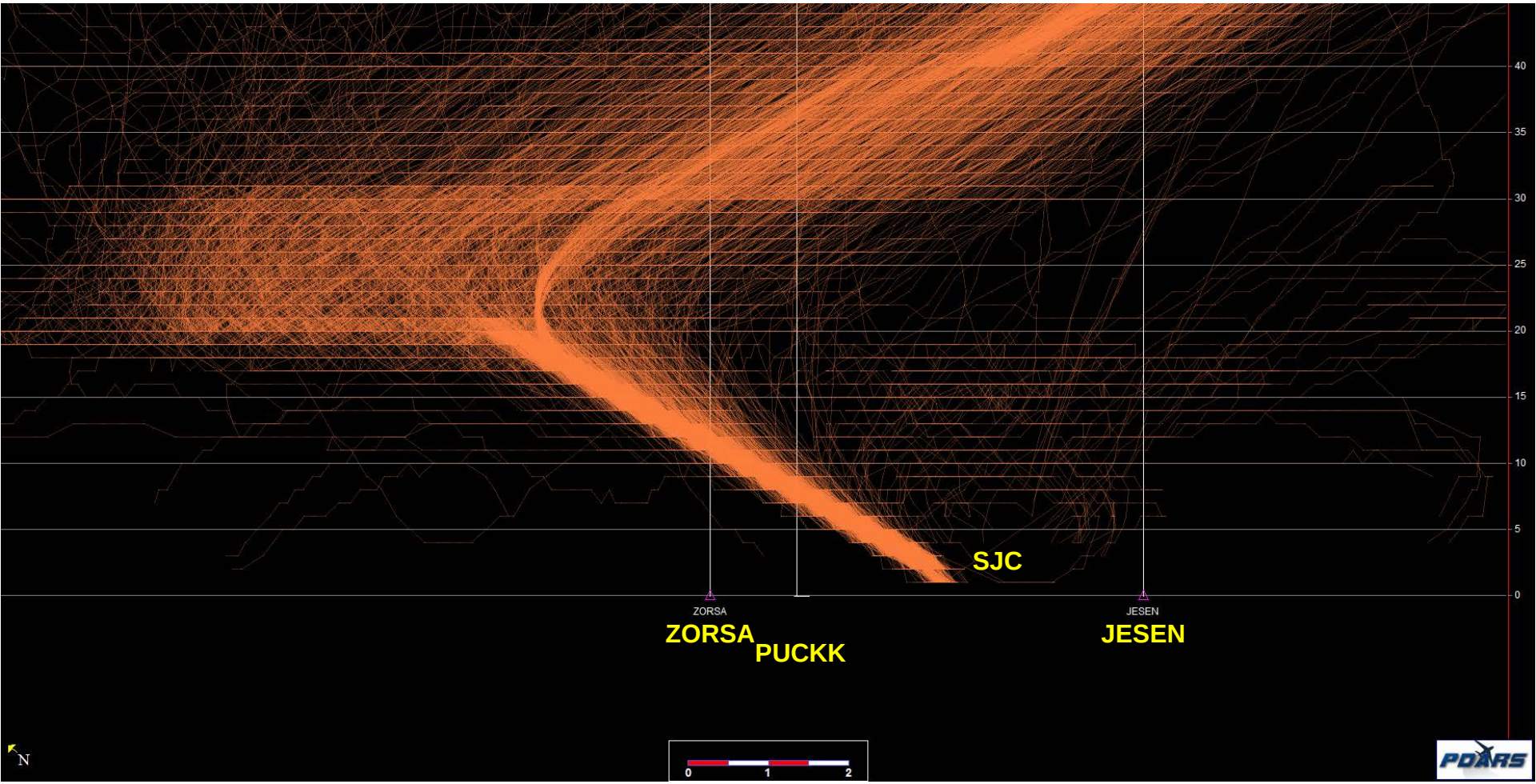
Average Altitude passing ZORSA = 3,080 feet MSL

Federal Aviation Administration

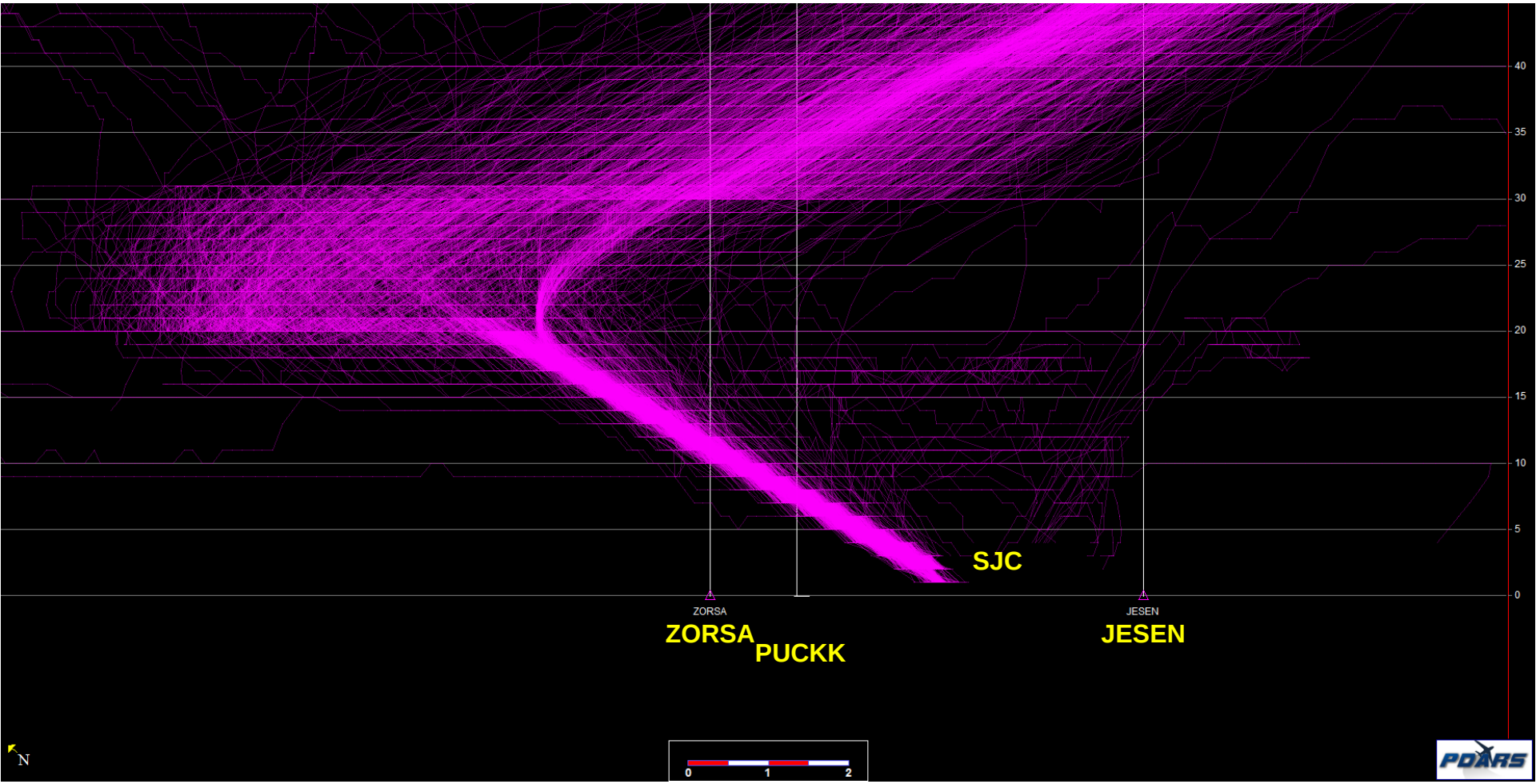
SJC 2011 South Flow
1,111 Arrivals



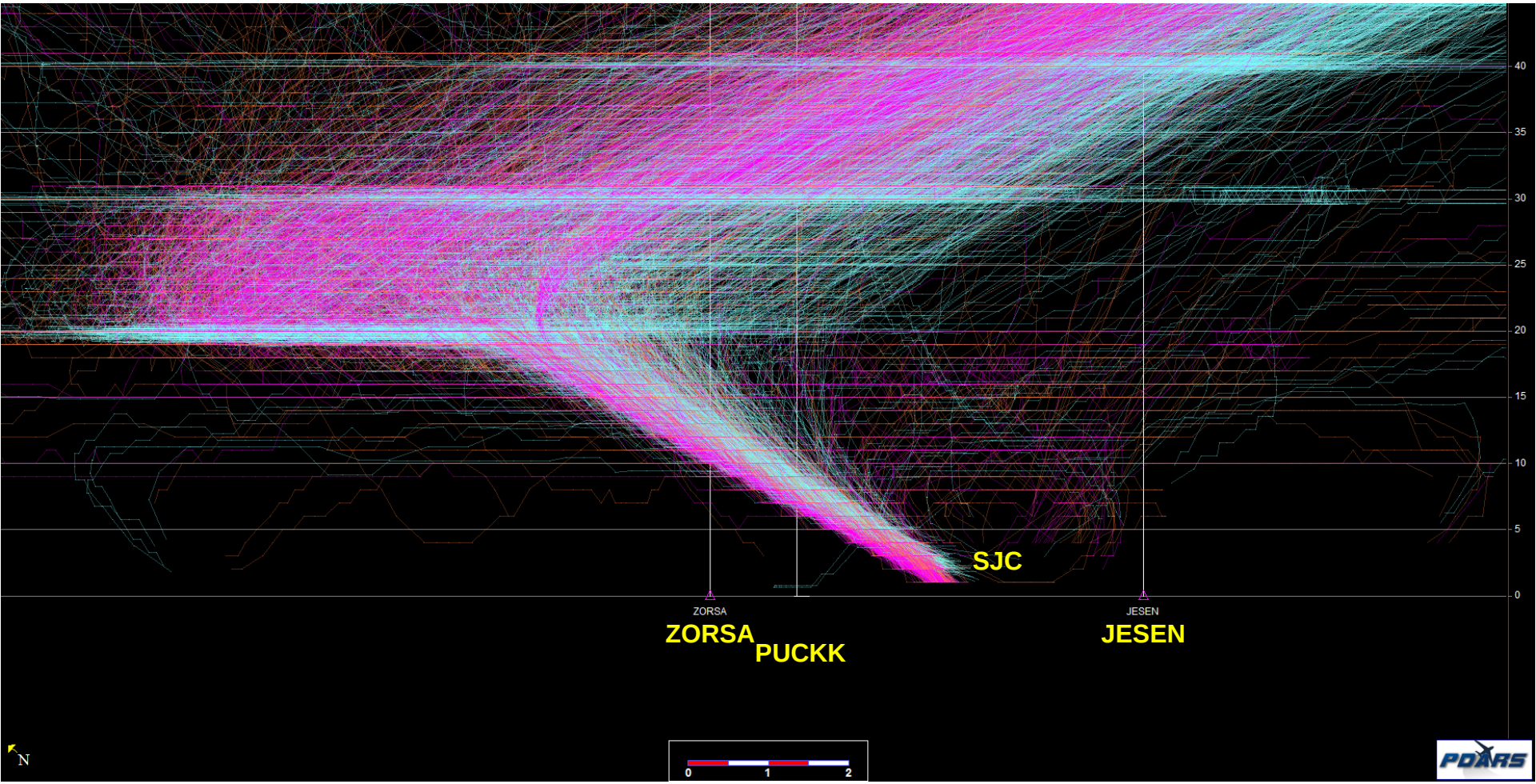
SJC 2016 South Flow
1,589 Arrivals



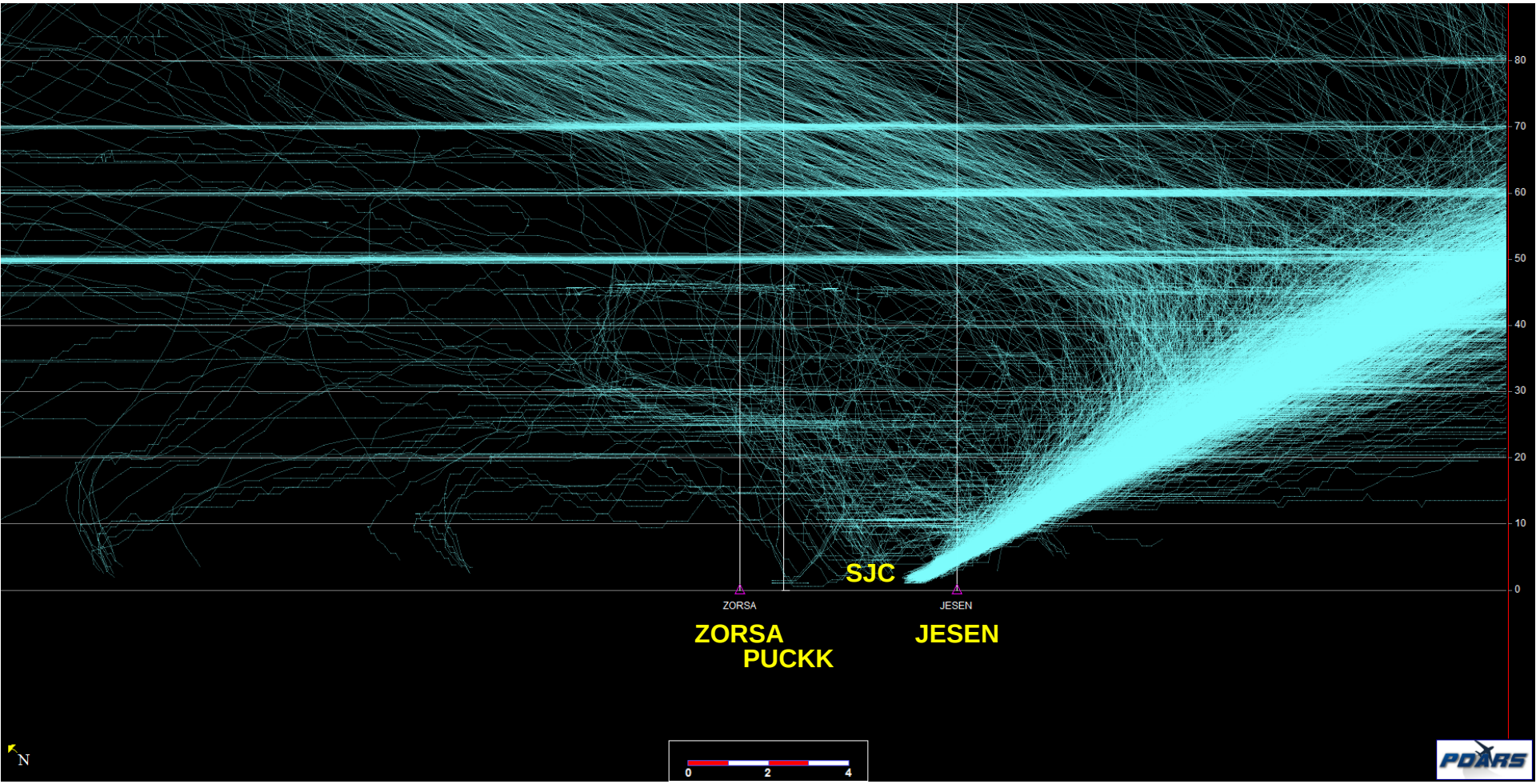
SJC 2018 South Flow
1,262 Arrivals



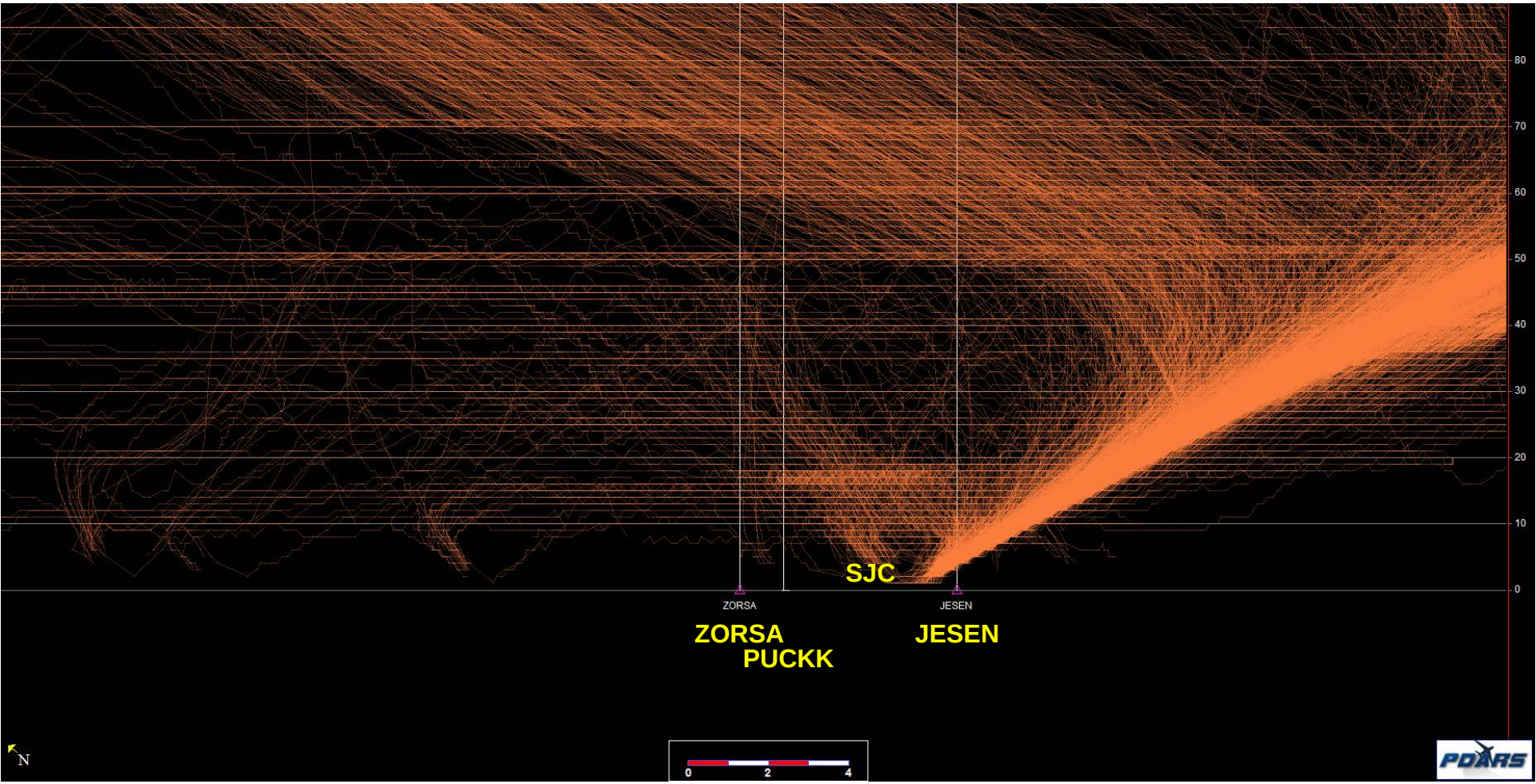
SJC South Flow
‘11, ‘16 and ‘18 Arrivals



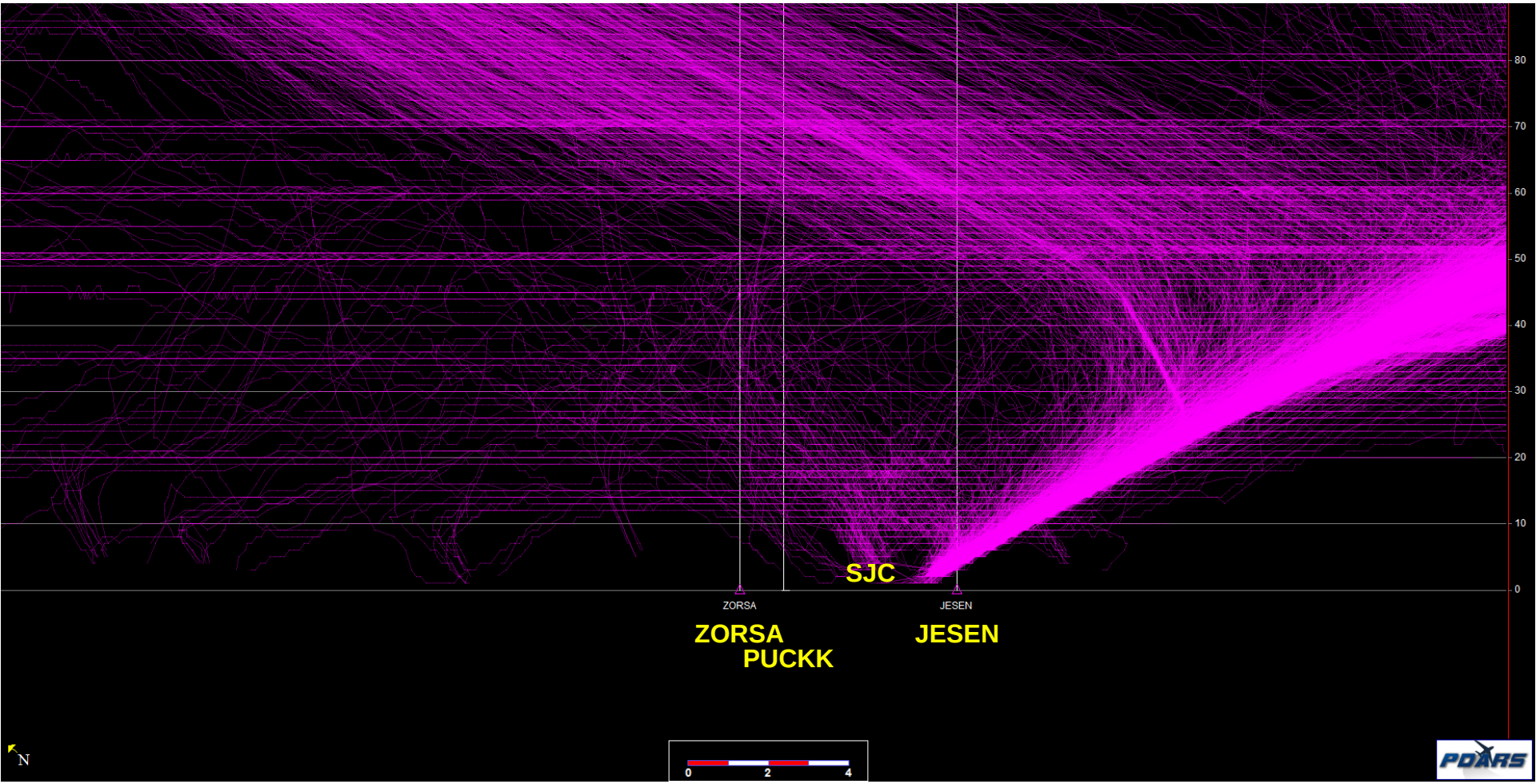
SJC 2011 North Flow
3,758 Arrivals



SJC 2016 North Flow
4,541 Arrivals



SJC 2018 North Flow
5,776 Arrivals



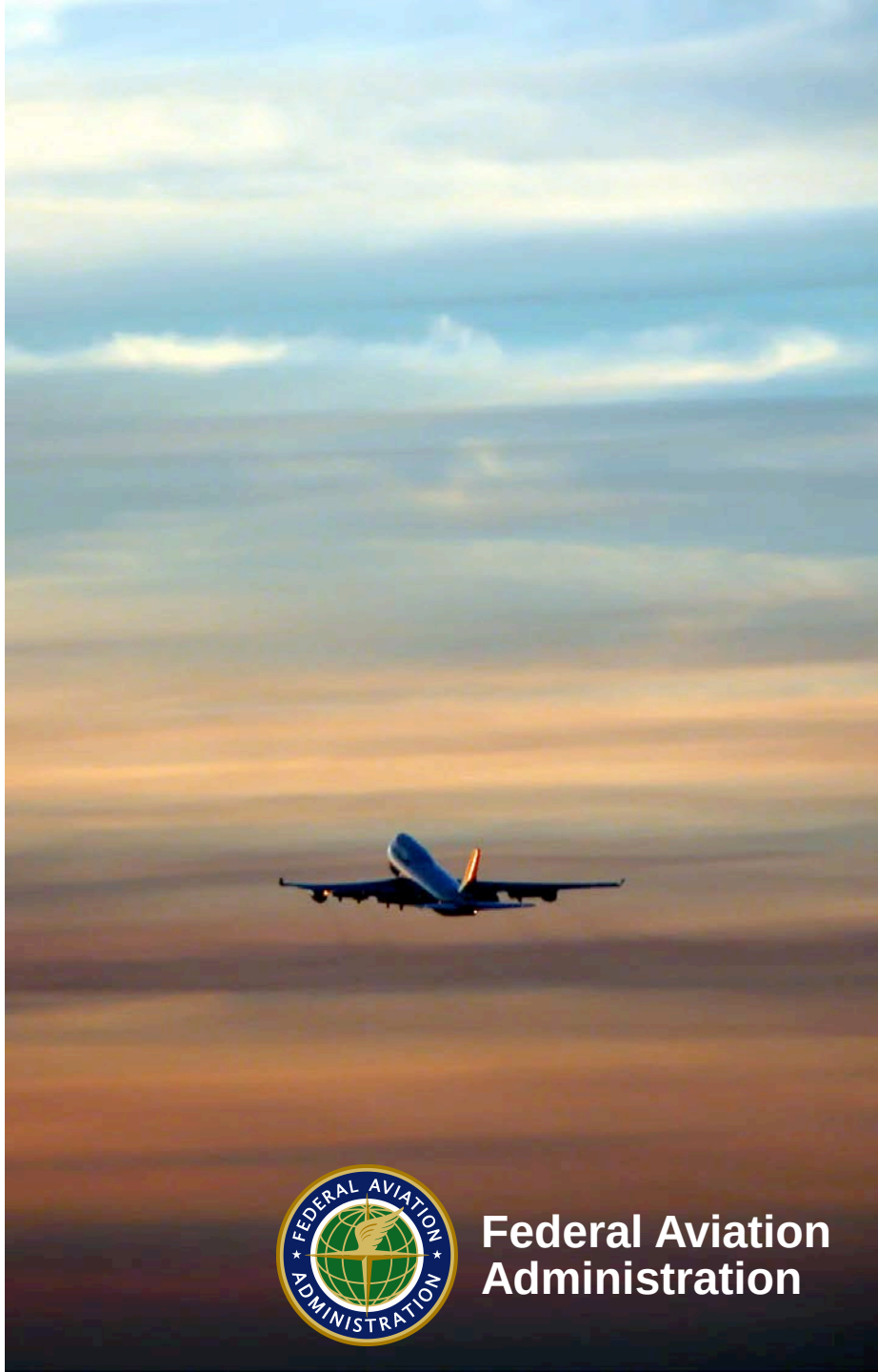
Appendix C

FAA presentation at the April 13, 2018 meeting pertaining to

the SJC Ad Hoc Committee Noise Mitigation list.

San Jose Ad Hoc Advisory Committee on South Flow Arrivals

Committee Meeting: April 13, 2018



Data Analysis

The Ad Hoc Advisory Committee on South Flow Arrivals met on March 23, 2018. The following data analysis is in response to questions posed to the FAA during the meeting.

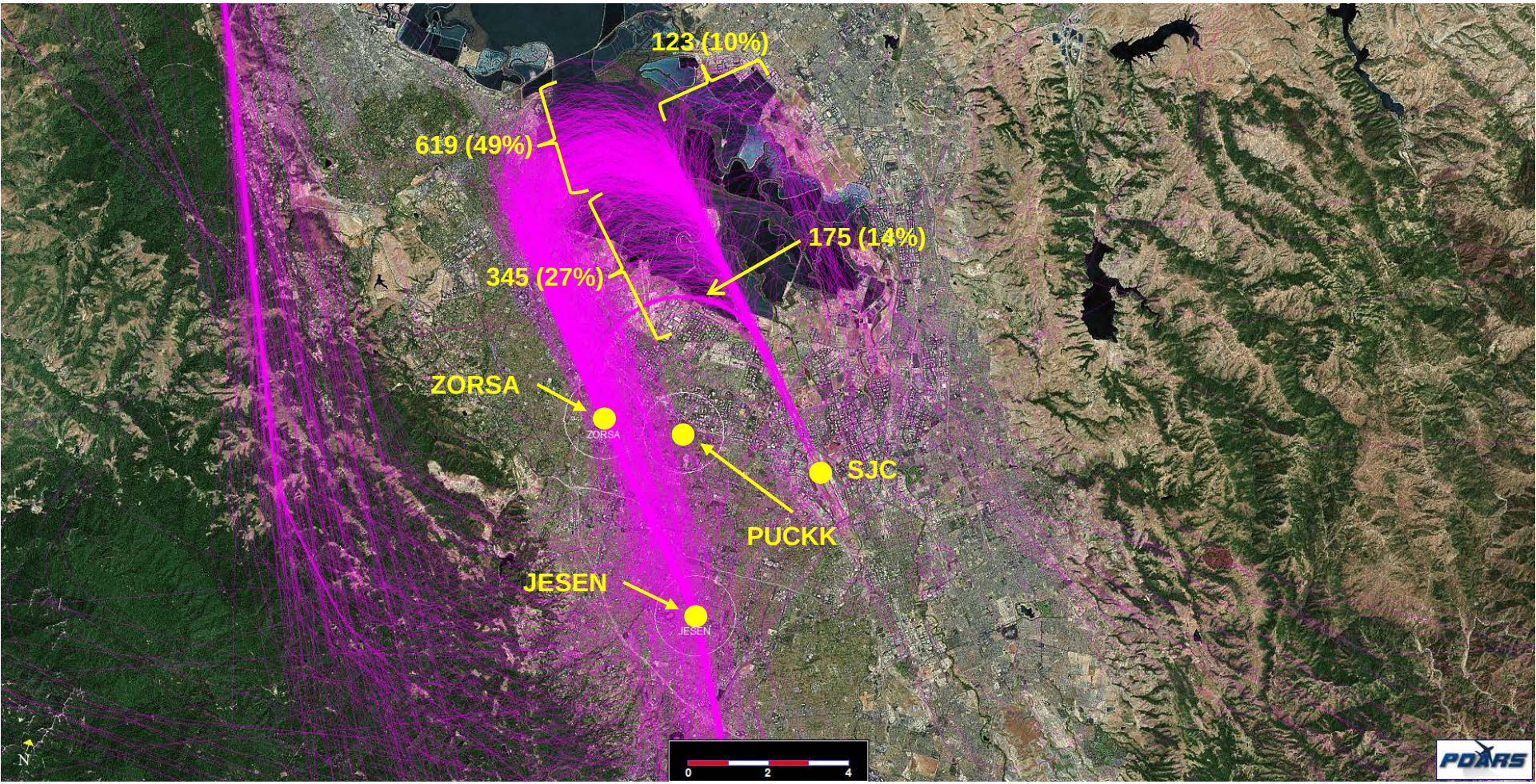
Northern California TRACON (NCT) radar data was analyzed in response to these Requests and Questions.

A number of months were reviewed, with the following selected for their similarity in time of year and, more importantly, similar traffic count during San Jose Airport (SJC) South Flow operations.

- February, 2011 – 1,111 SJC South Flow arrival aircraft
- January, 2018 – 1,262 SJC South Flow arrival aircraft

* For brevity, and because of it's similarity to the 2018 data, the 2016 has been removed.

SJC 2018 South Flow
1,262 Arrivals
(Static Image)



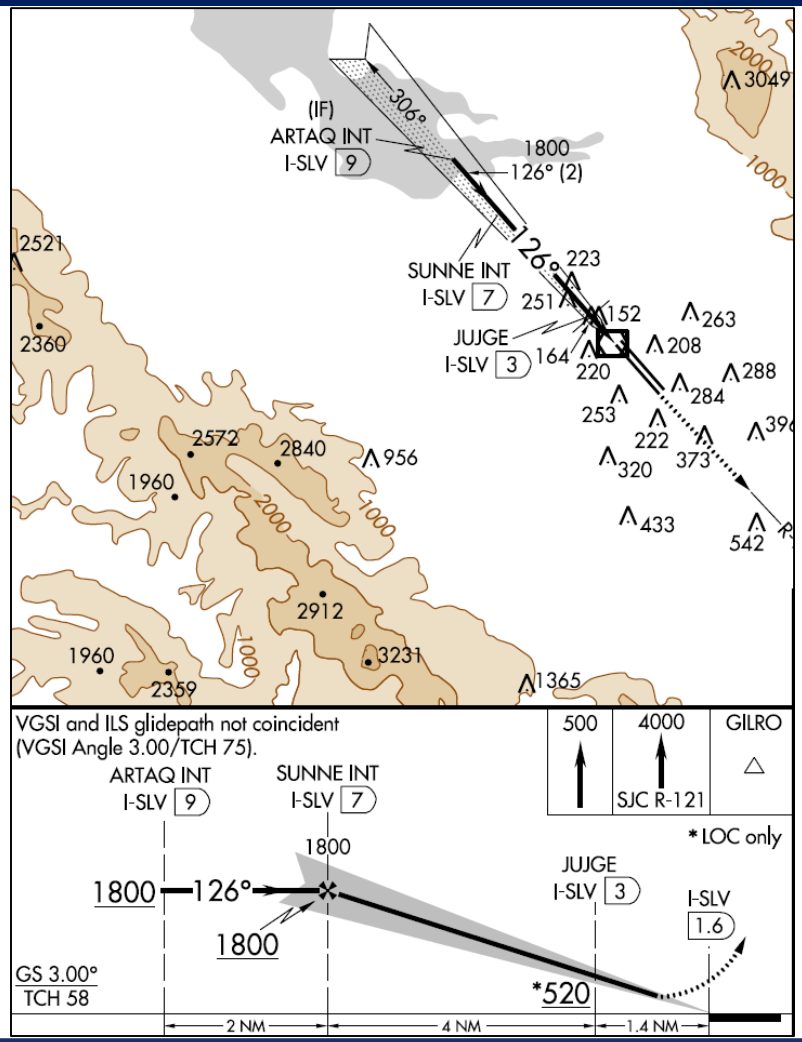
SJC South Flow
ILS Runway 12R (edited)

The image to the right is a version (edited for clarity) of the ILS RWY 12R approach plate in to SJC. Note the following:

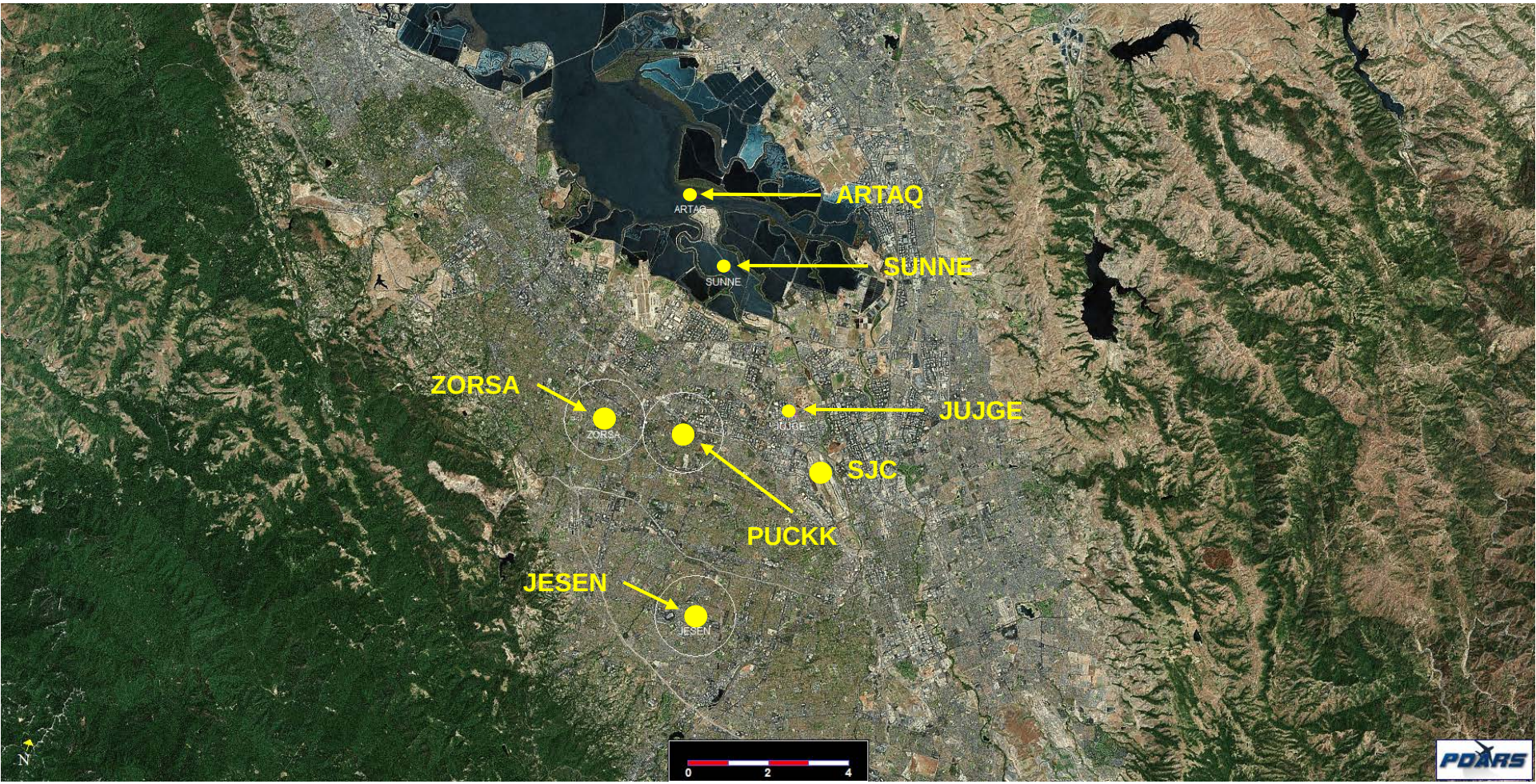
- **Glideslope (GS) of 3.00°**
- **Final Approach Fix (FAF) SUNNE**
  - **Altitude of At or Above 1,800 ft MSL (1800)**
- **Intermediary Fix (IF) ARTAQ**
  - **Altitude of At or Above 1,800 ft MSL (1800)**

The glideslope, which aircraft must be underneath to properly intercept, is depicted by the rising (right to left) line in the lower portion of the image, between SUNNE and JUJGE. If that line is extrapolated beyond SUNNE, the horizontal line between ARTAQ and SUNNE, at altitude 1800 feet, will intercept the glideslope from underneath.

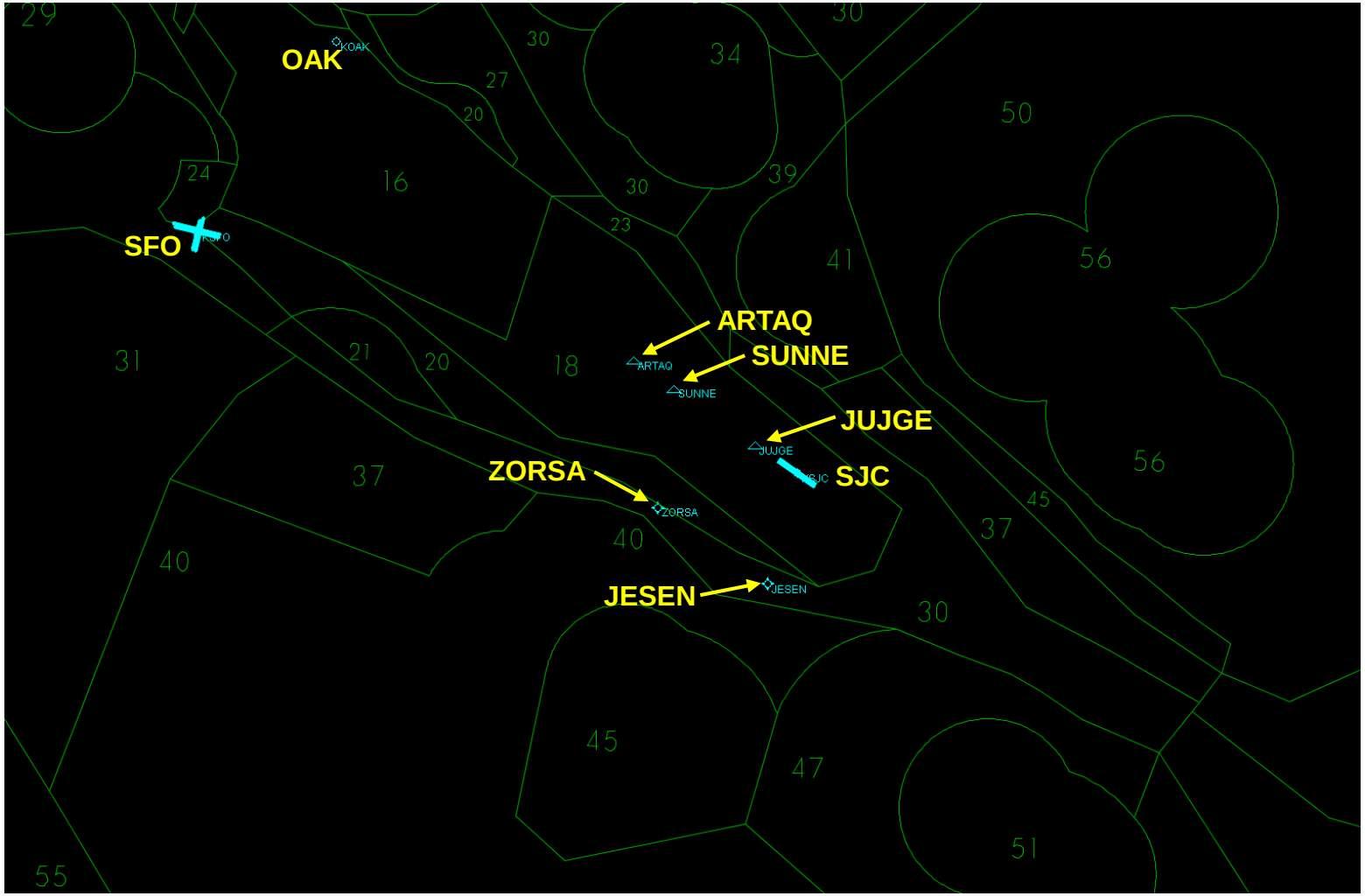
Aircraft are required to be 'established' on the ILS at least 1 NM outside (or before) the FAF SUNNE in normal weather. During low-visibility weather, aircraft must be established on the ILS at least 2 NM outside the FAF.



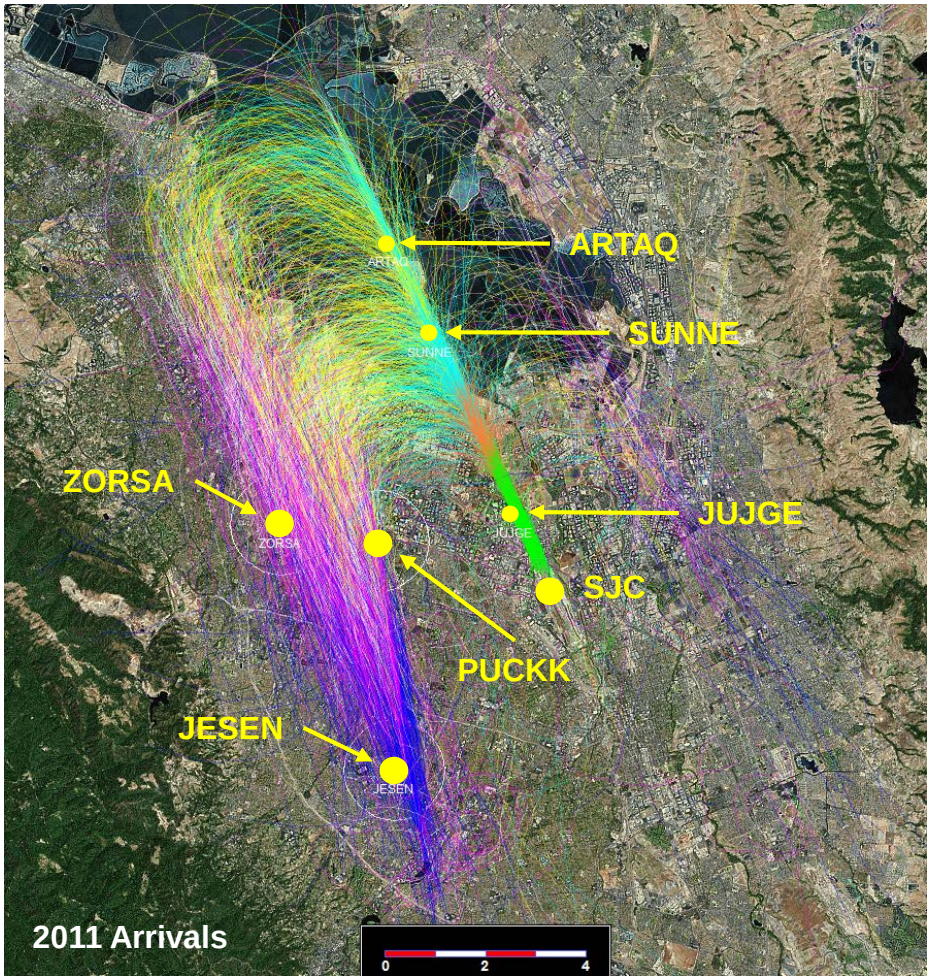
SJC South Flow
ILS Fixes

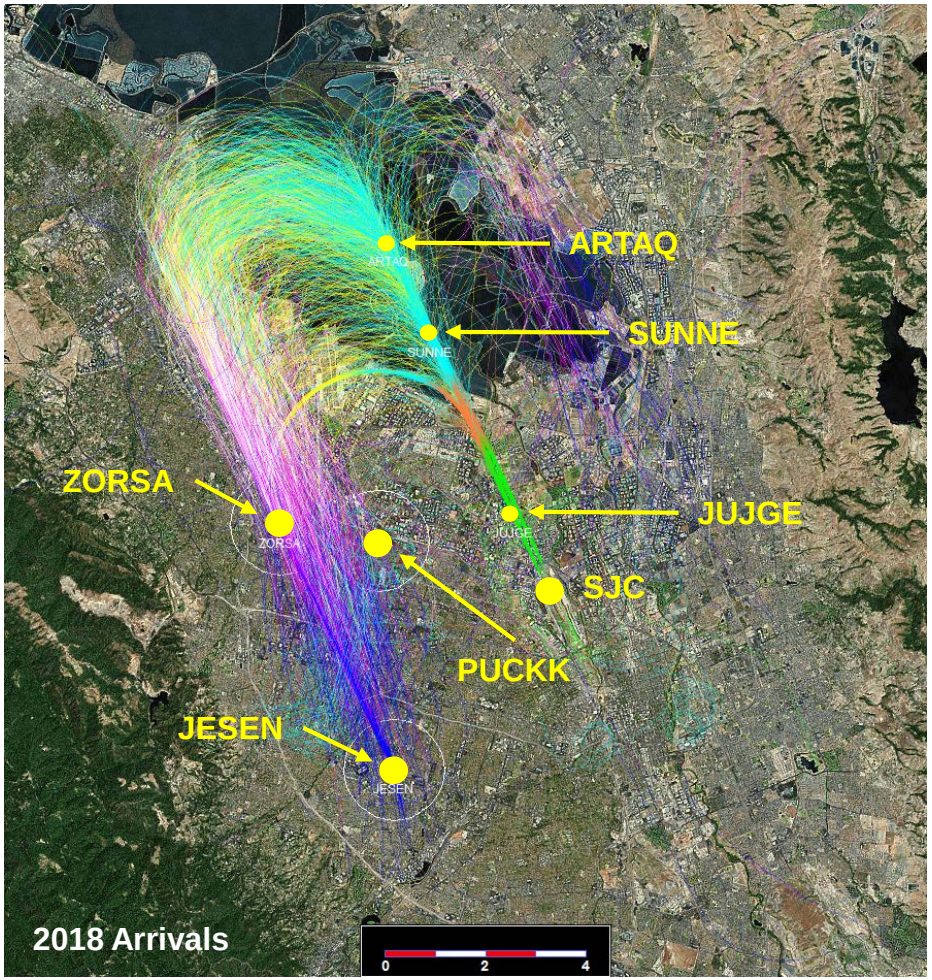


SJC Area
MVA Map (In 100's of feet)



SJC South Flow
Arrivals by Altitude
(Static Image)



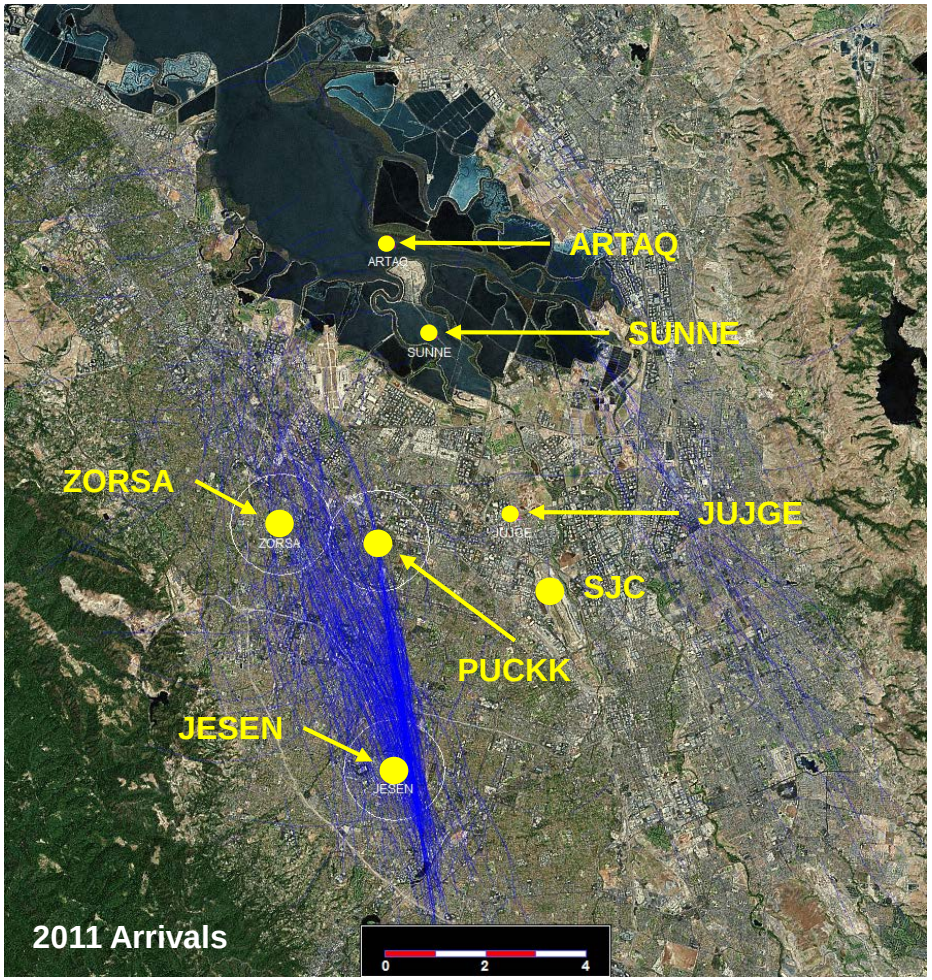


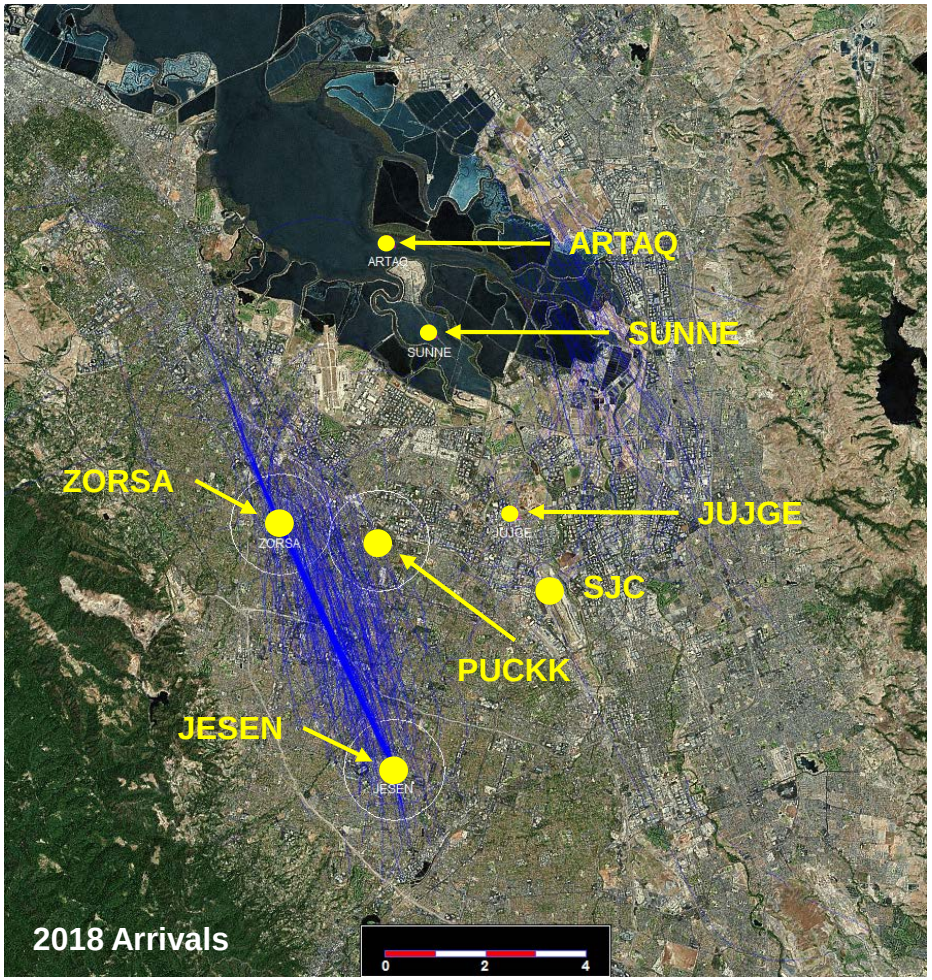
Altitude in Feet MSL

- 0 – 1,000
- 1,000 – 1,500
- 1,500 – 2,000
- 2,000 – 2,500
- 2,500 – 3,000
- 3,000 – 3,500
- 3,500 – 4,500

Federal Aviation Administration

SJC South Flow
Arrivals by Altitude
(Static Image)





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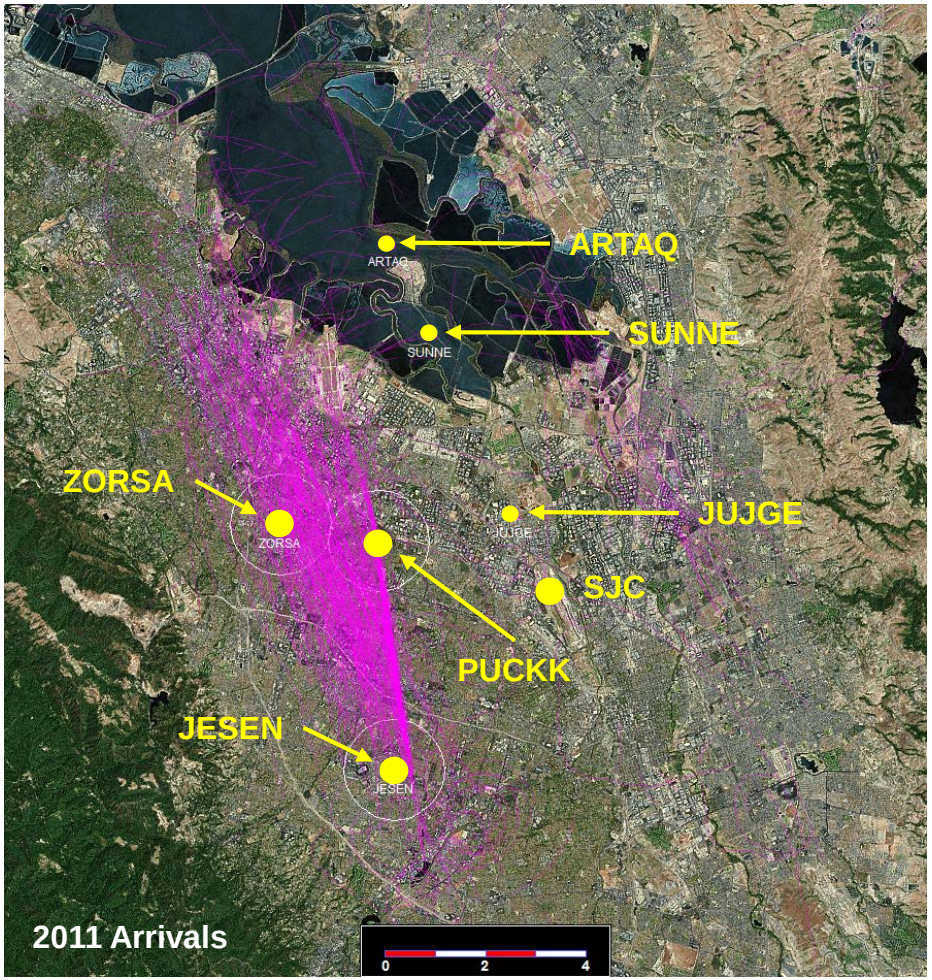
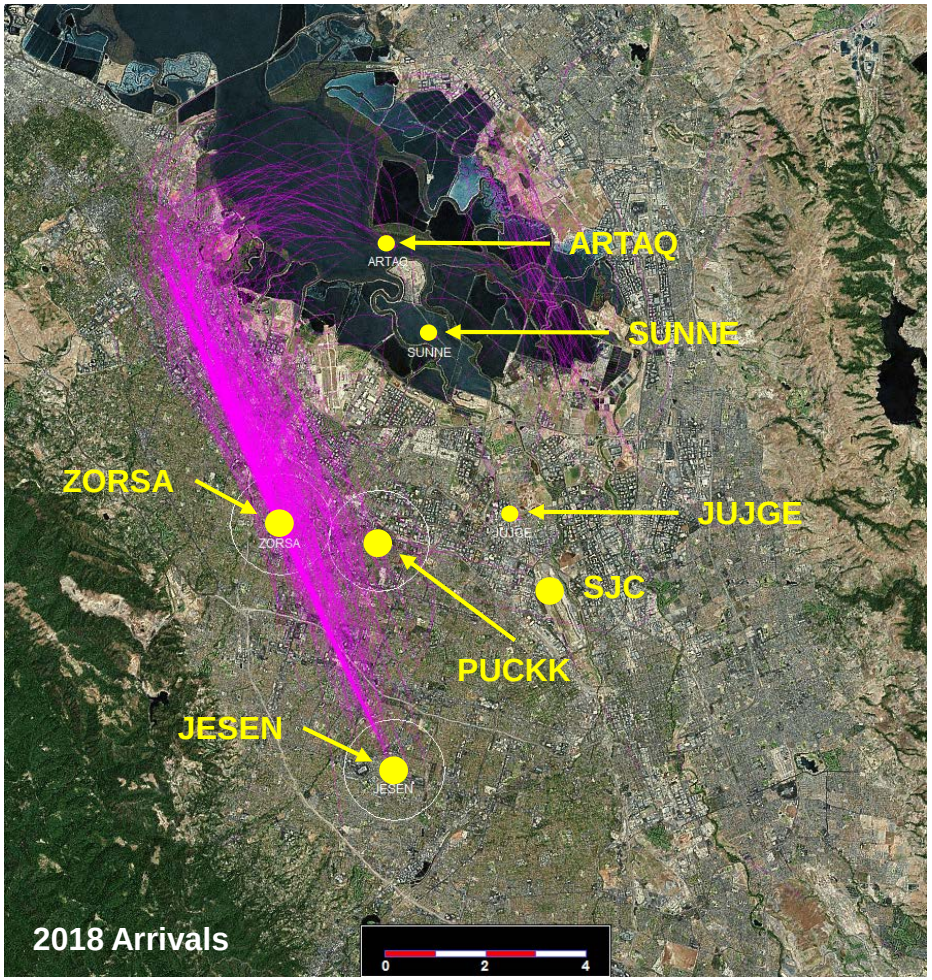
Federal Aviation Administration

SJC South Flow
Arrivals by Altitude
(Static Image)





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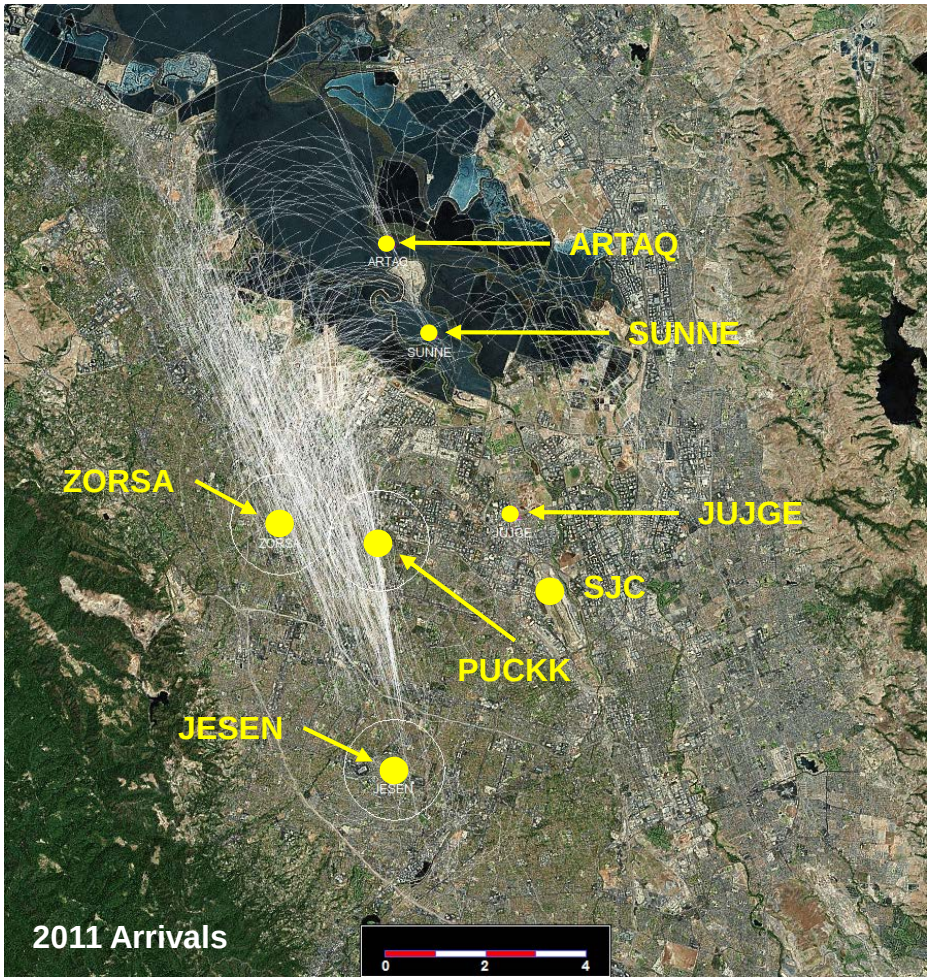
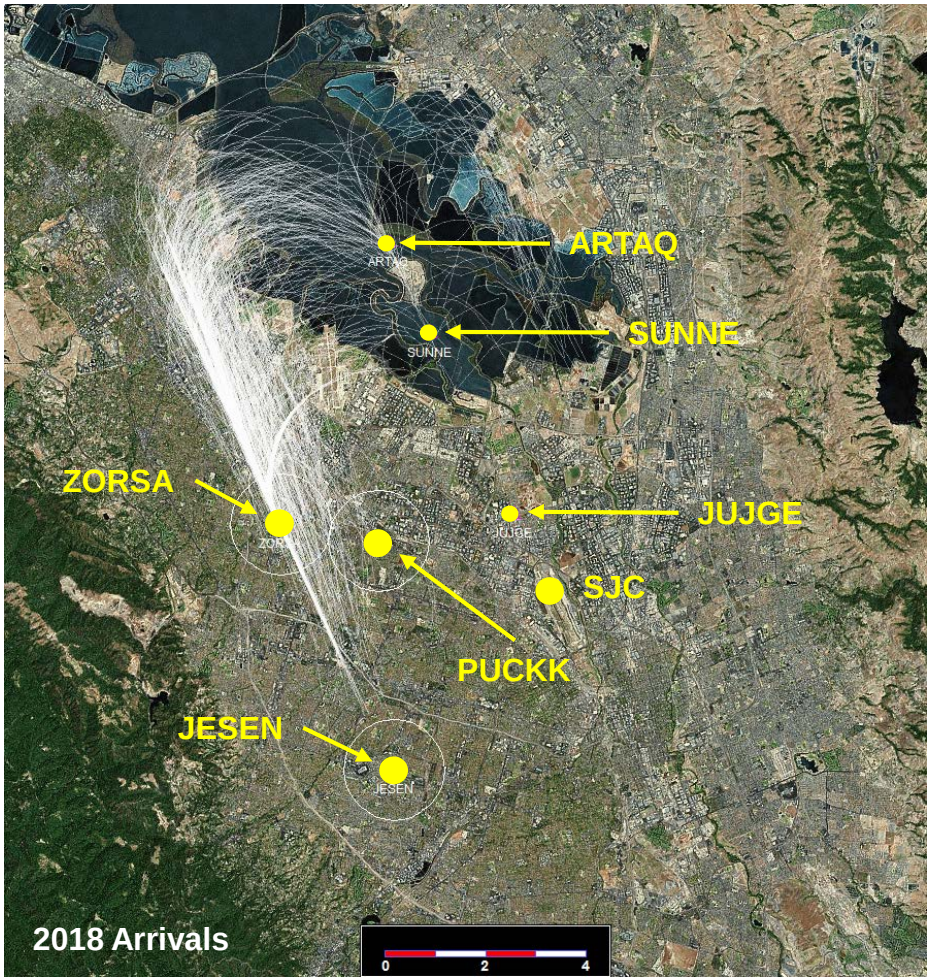
Federal Aviation Administration

SJC South Flow
Arrivals by Altitude
(Static Image)





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Federal Aviation Administration

SJC South Flow
Arrivals by Altitude
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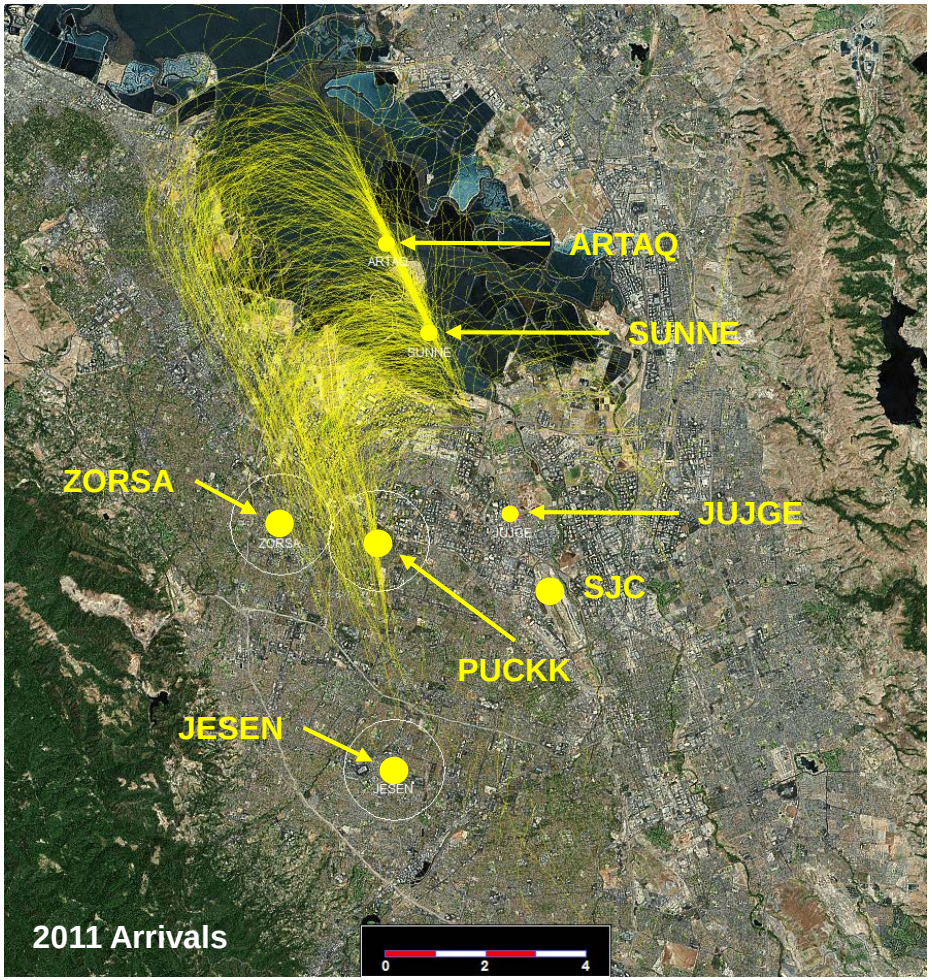

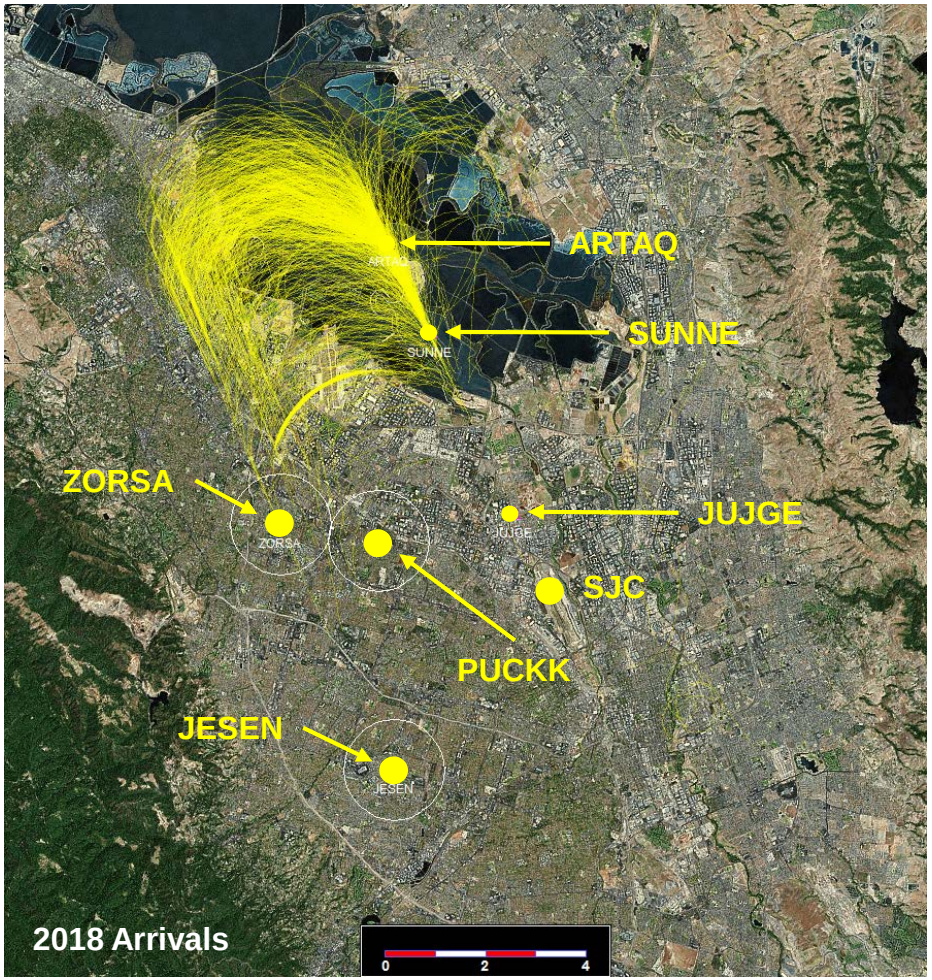

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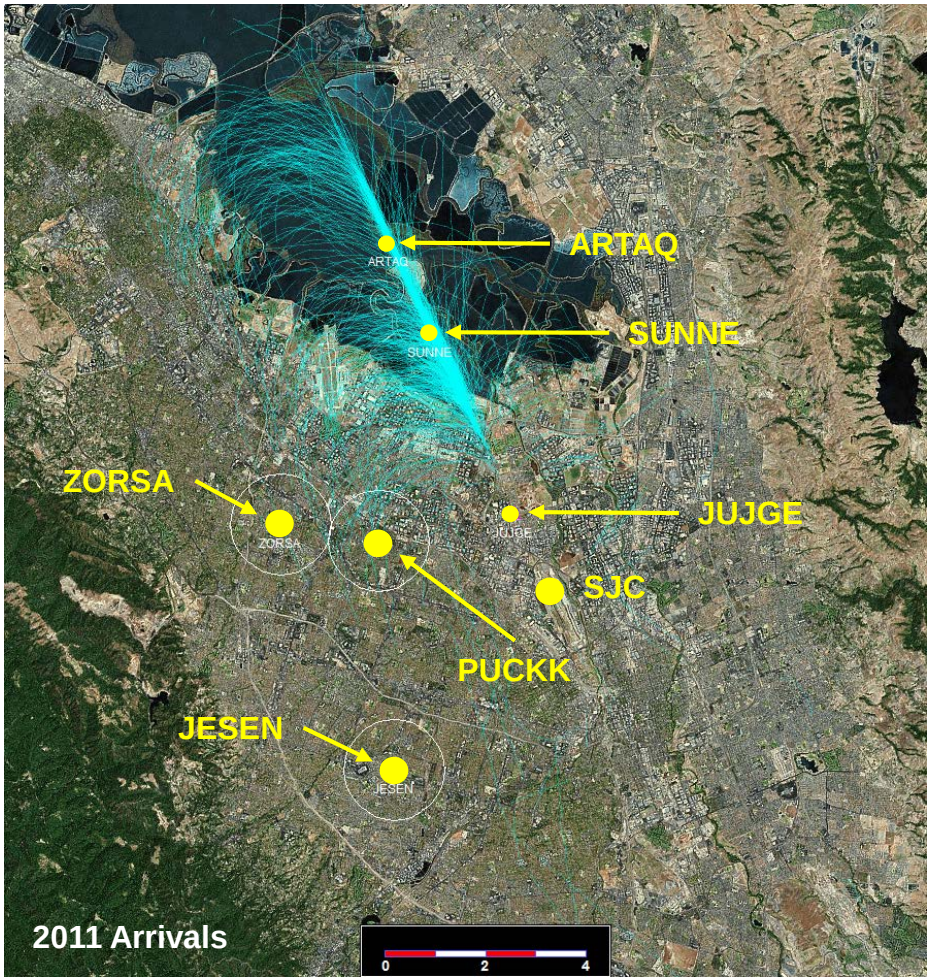
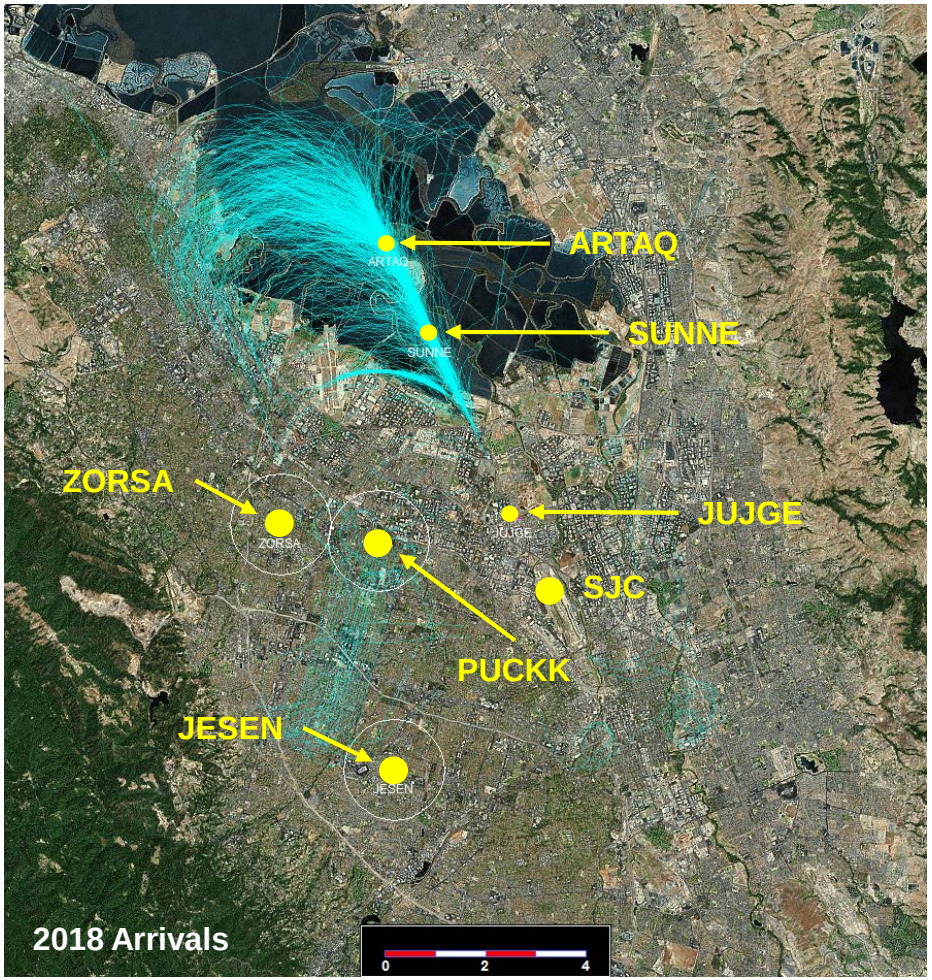
Federal Aviation Administration

SJC South Flow
Arrivals by Altitude
(Static Image)





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Federal Aviation Administration

SJC South Flow
Arrivals by Altitude
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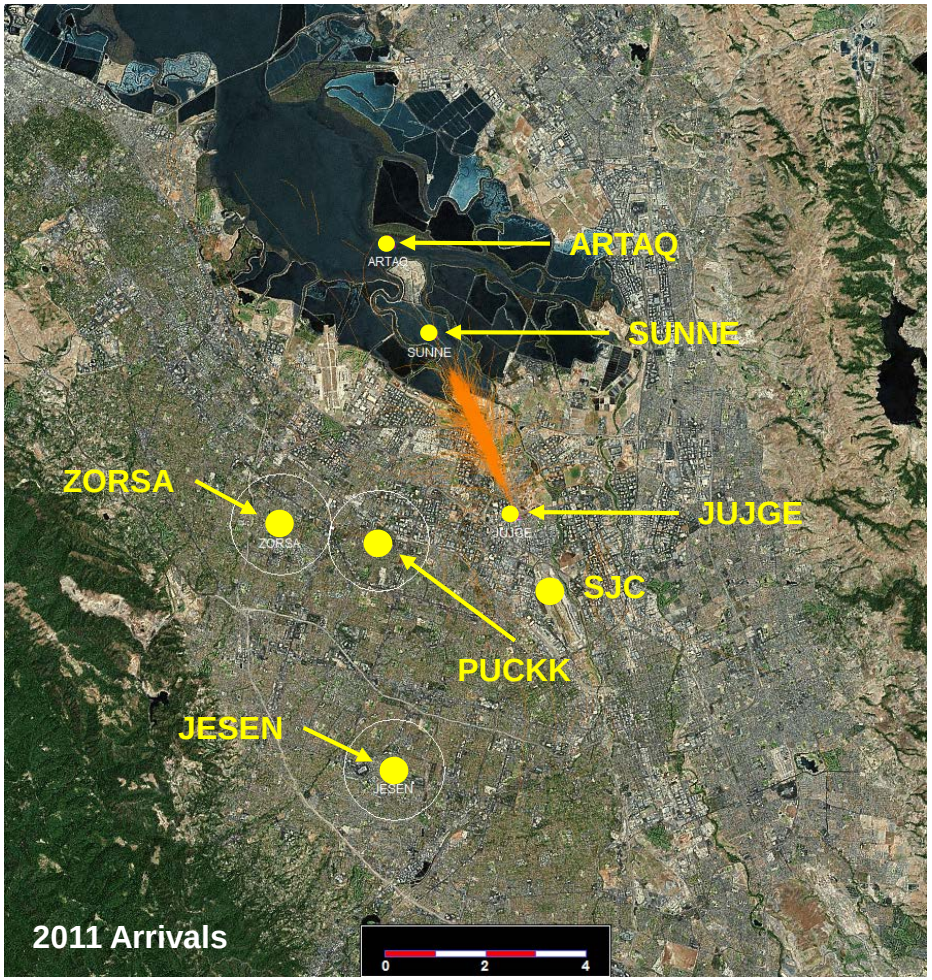

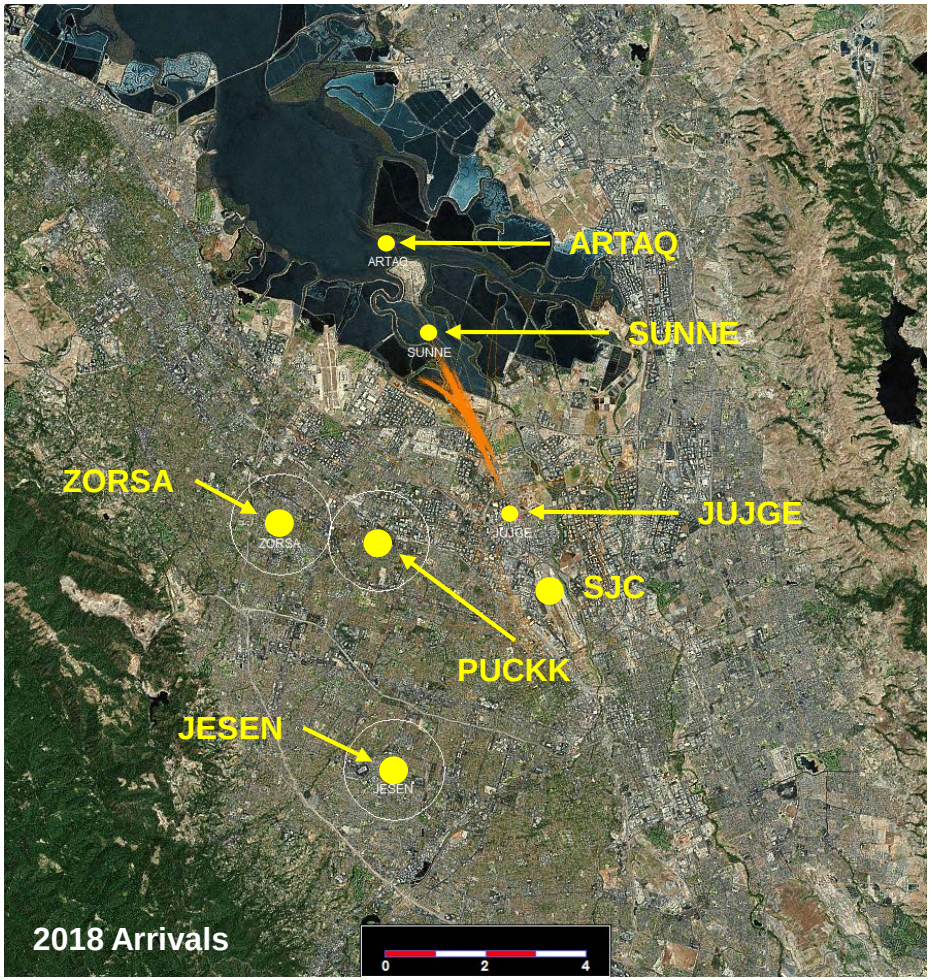

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Federal Aviation Administration

SJC South Flow
Arrivals by Altitude
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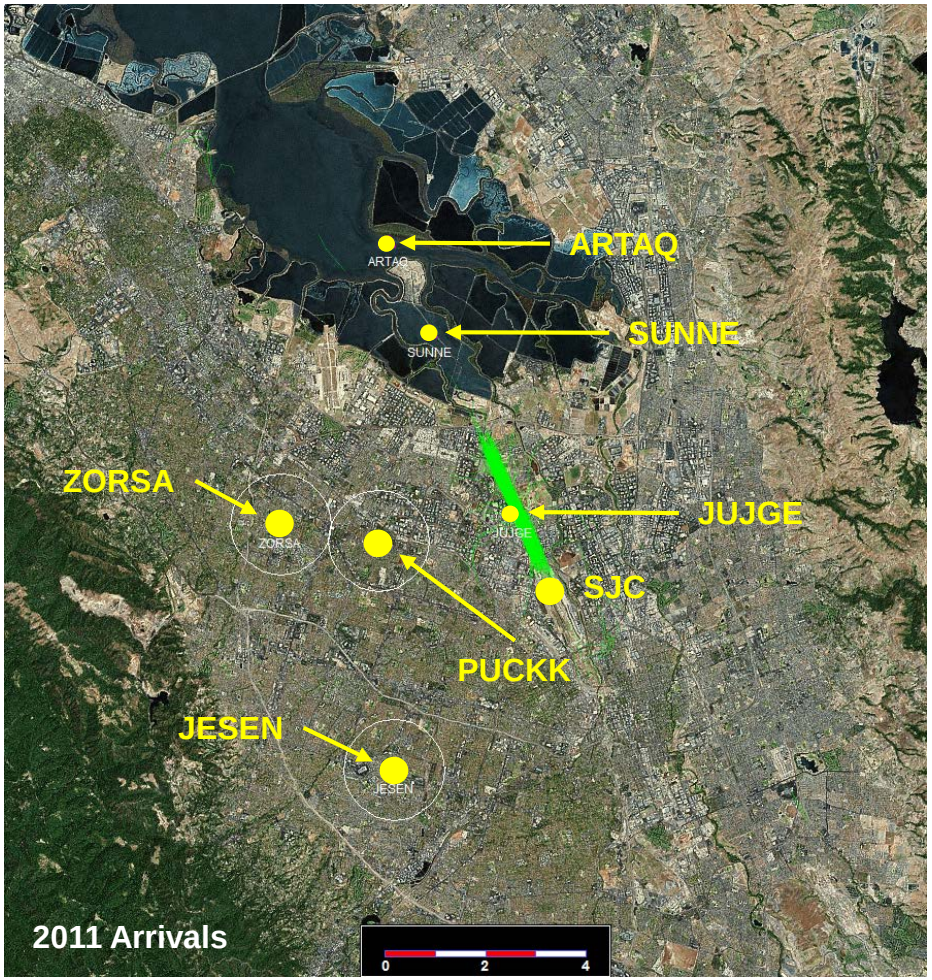

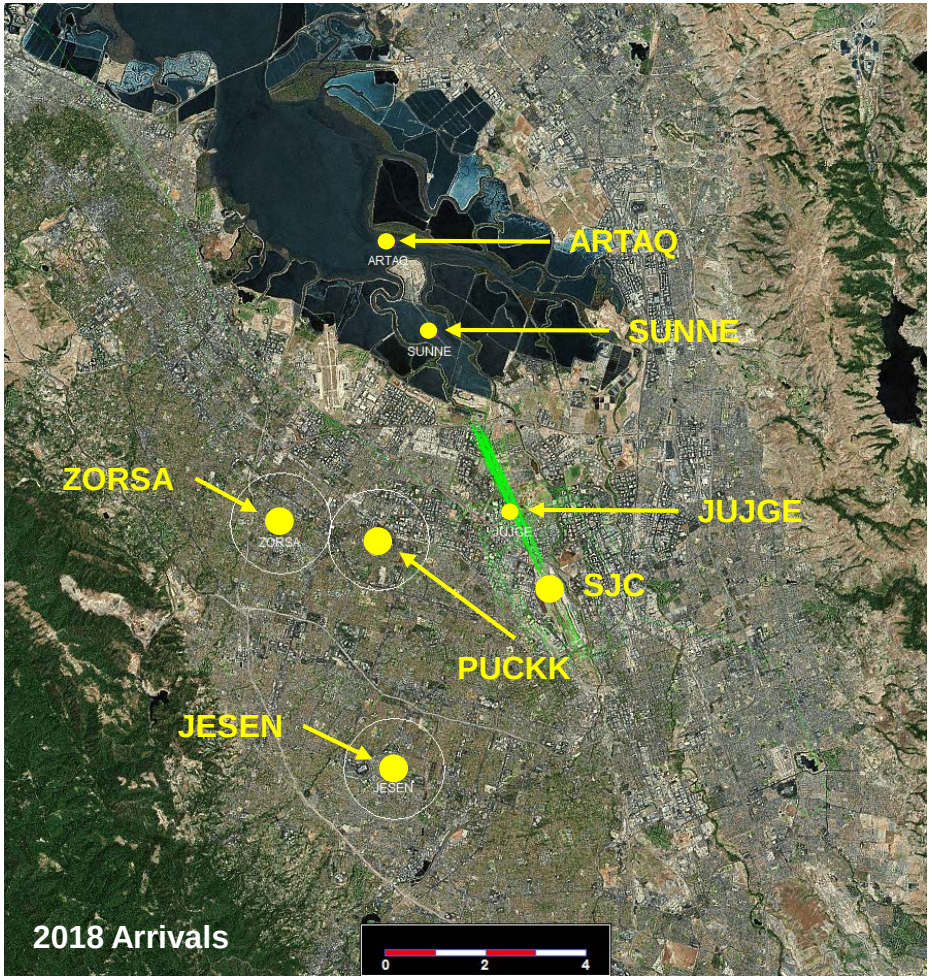

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Federal Aviation Administration

Data Analysis

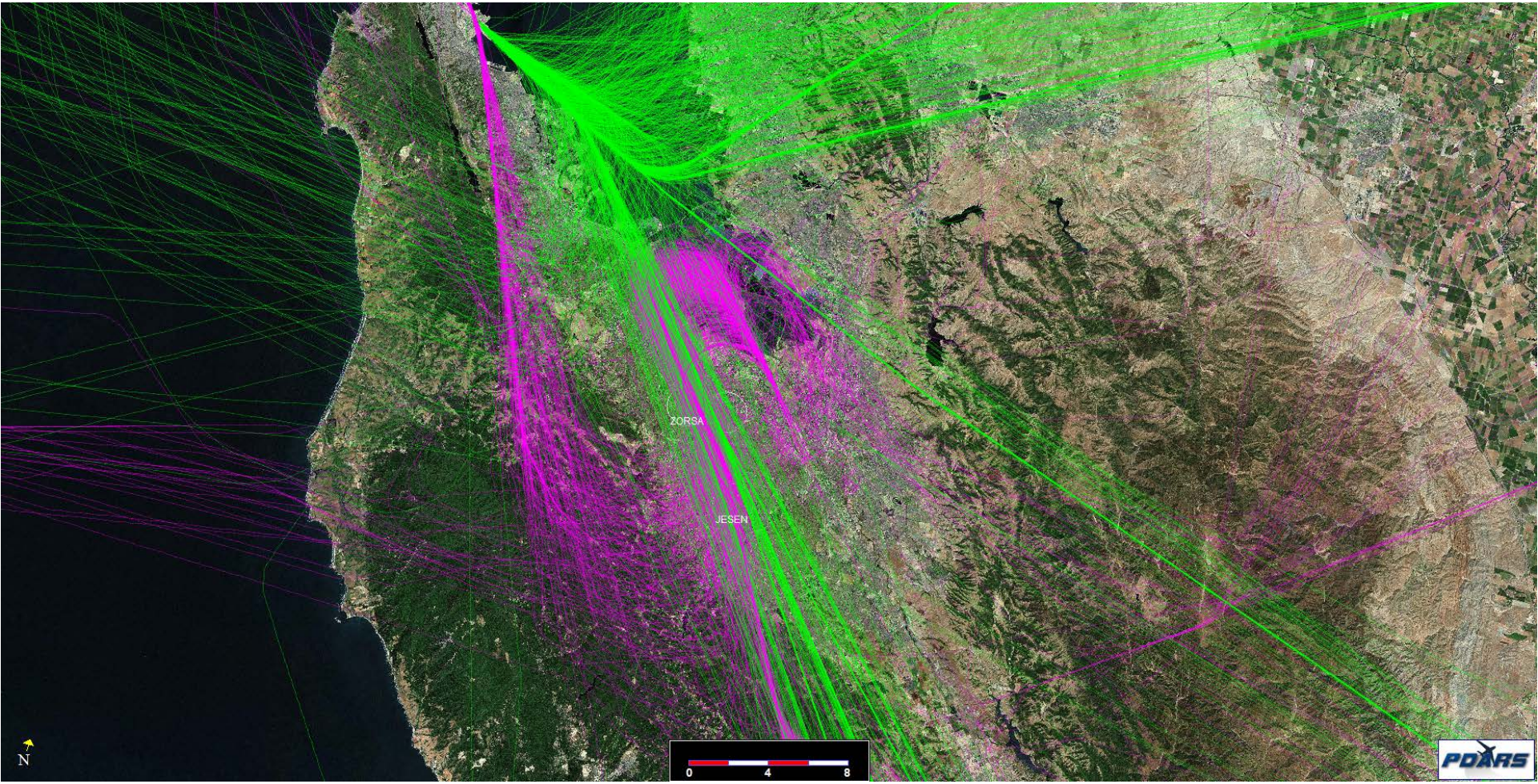
The Ad Hoc Advisory Committee on South Flow Arrivals met on March 23, 2018. The following data analysis is in response to questions posed to the FAA during the meeting.

Northern California TRACON (NCT) radar data was analyzed in response to these Requests and Questions.

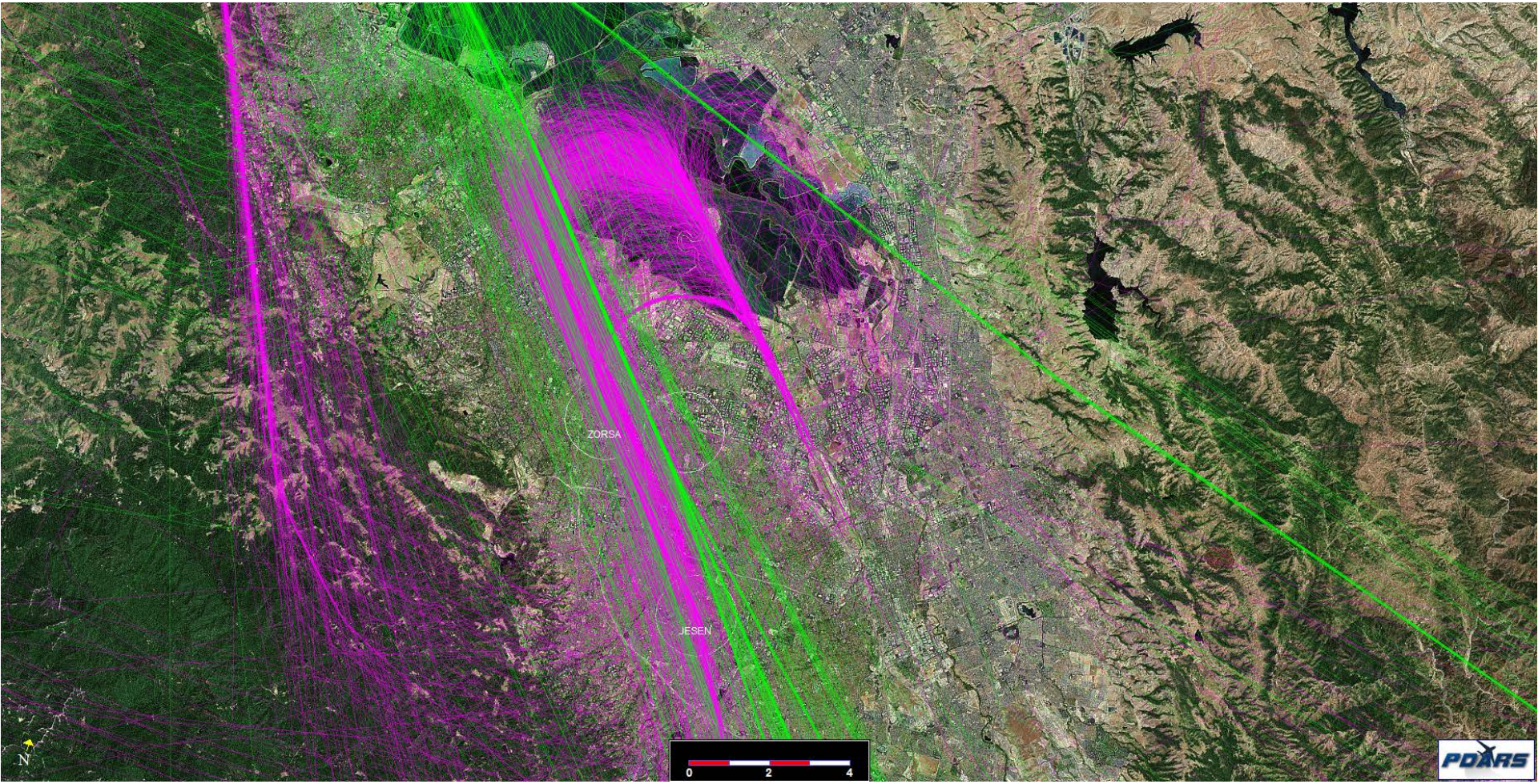
The following analysis compares the January, 2018 SJC data to SFO Runway 10 L/R departure data.

- January, 2018 – 1,262 SJC South Flow arrival aircraft
- March, 2018 – 1,124 SFO Runways 10 departure aircraft
- January, 2018 – 17,904 SFO Runways 28 arrival aircraft

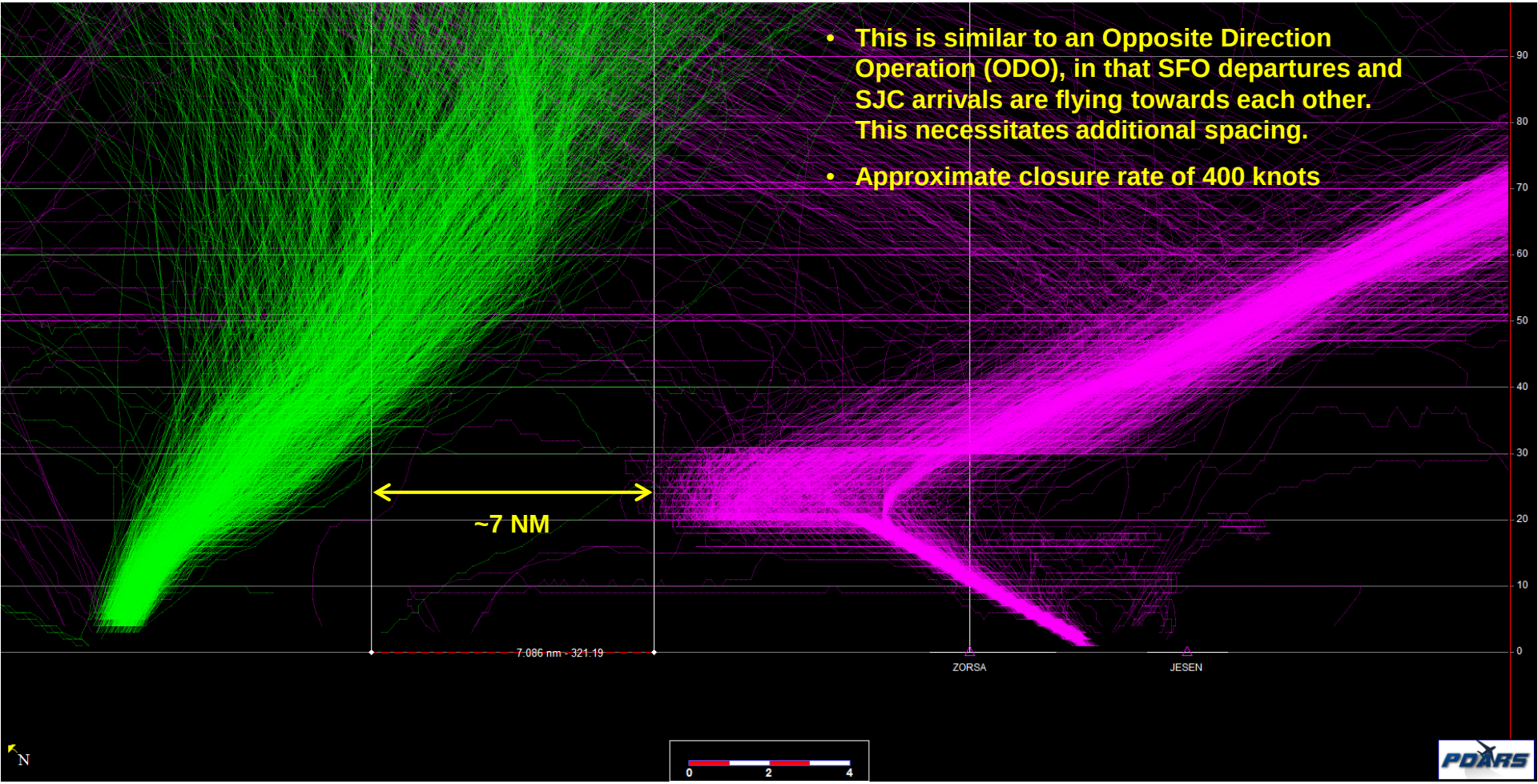
SJC Runway 12 L/R Arrivals
SFO Runway 10 L/R Departures
(Static Image)



SJC Runway 12 L/R Arrivals
SFO Runway 10 L/R Departures
(Static Image)

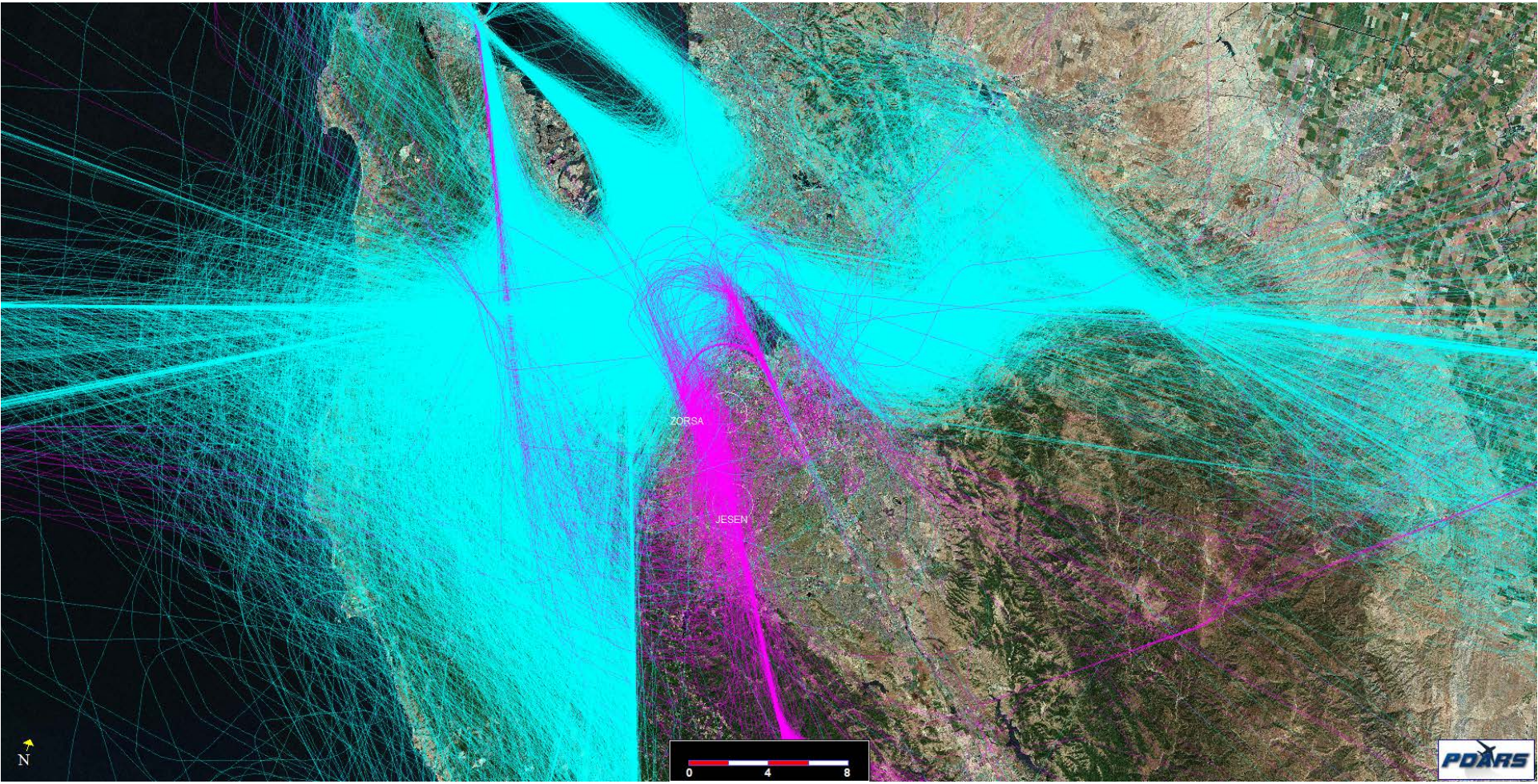


SJC Runway 12 L/R Arrivals
SFO Runway 10 L/R Departures
(Static Image)

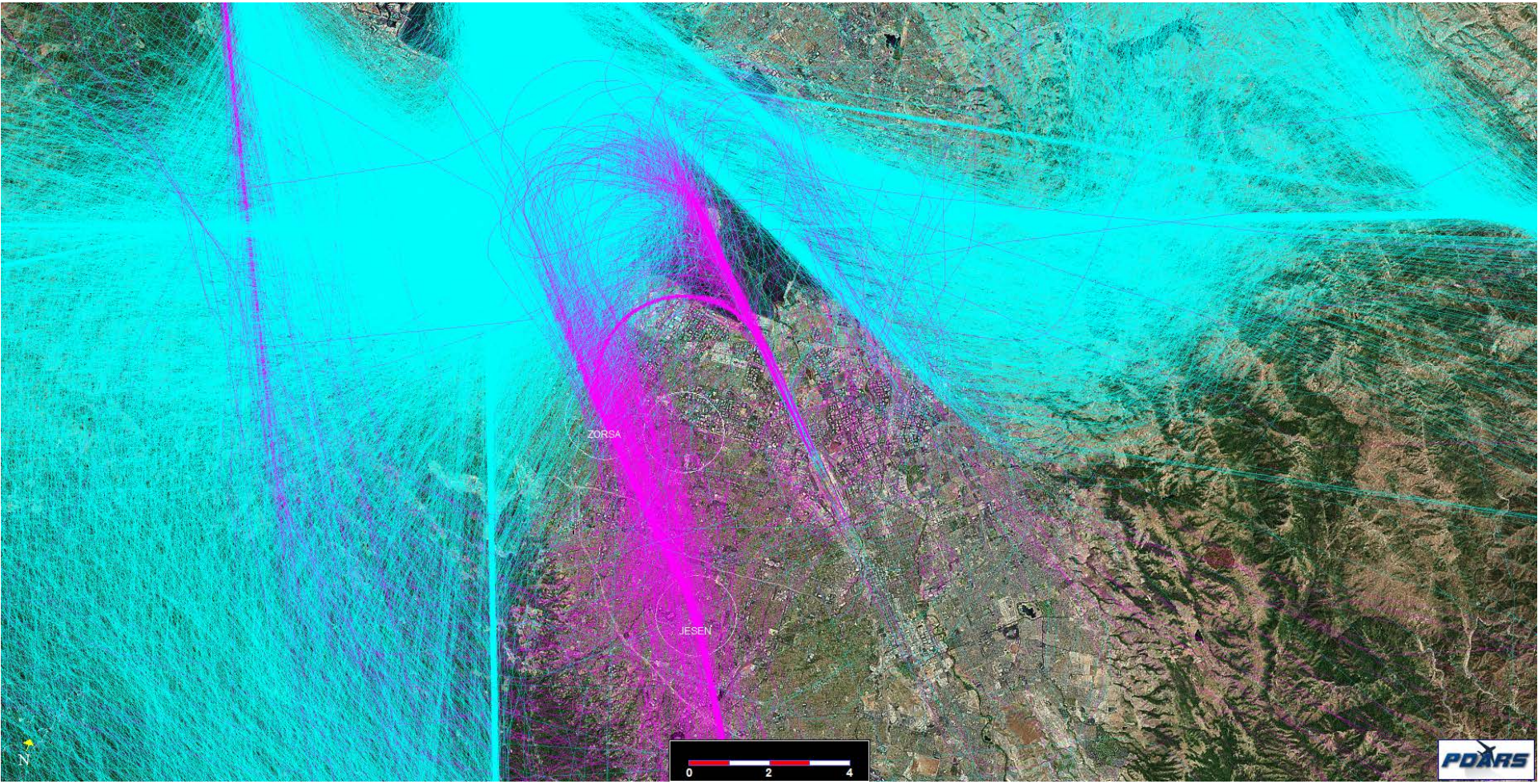


- This is similar to an Opposite Direction Operation (ODO), in that SFO departures and SJC arrivals are flying towards each other. This necessitates additional spacing.
- Approximate closure rate of 400 knots

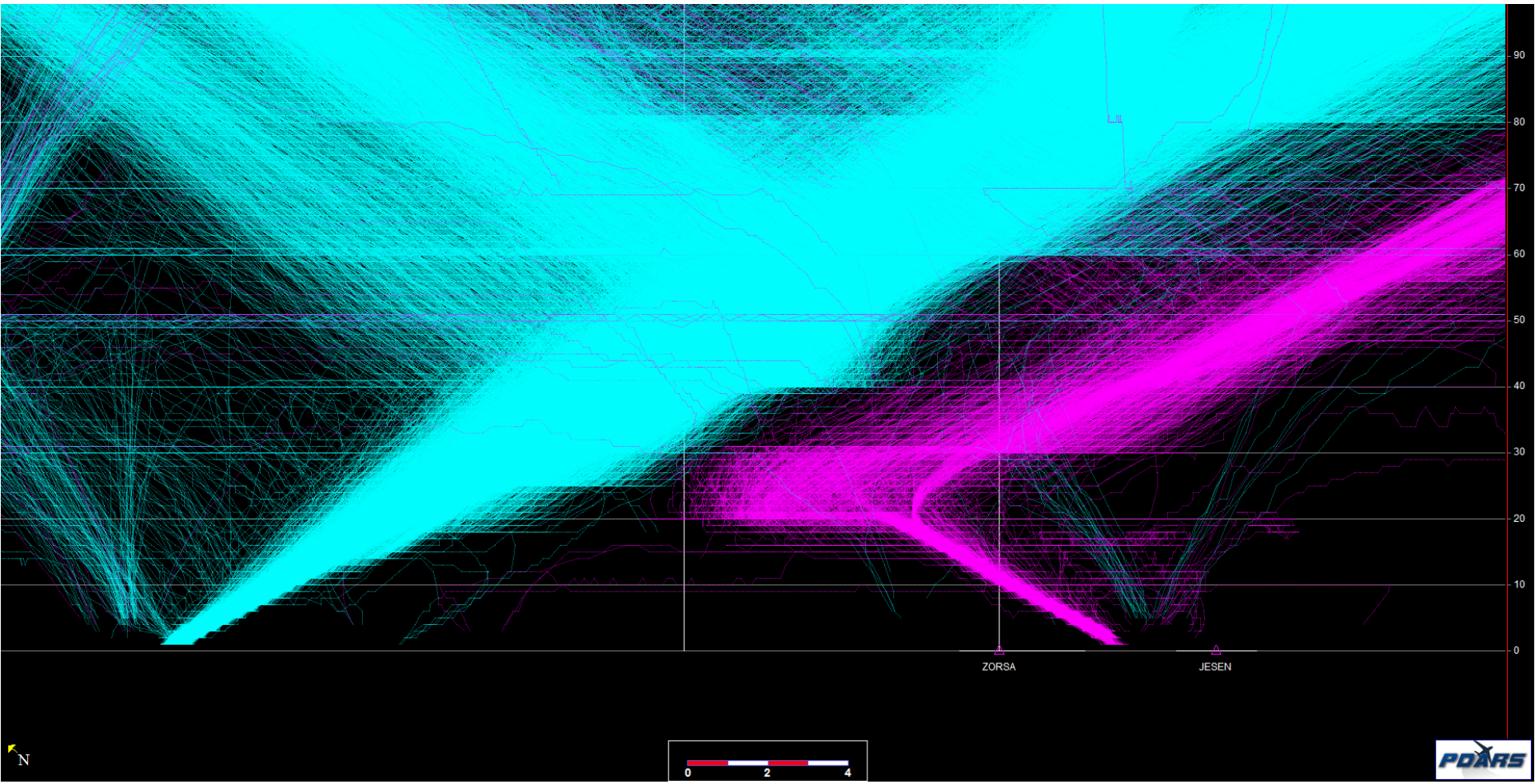
SJC Runway 12 L/R Arrivals
SFO Runway 28 L/R Arrivals
(Static Image)



SJC Runway 12 L/R Arrivals
SFO Runway 28 L/R Arrivals
(Static Image)



SJC Runway 12 L/R Arrivals
SFO Runway 28 L/R Arrivals
(Static Image)



Appendix D

FAA noise presentation - April 27, 2018

Air Traffic Environmental Program

By: Ryan Weller - FAA/ATO

Date: April 26, 2018

Air Traffic Environmental

- **NEPA requires FAA to:**
  - Address impacts of major federal actions on the human environment including noise, socioeconomic, land uses, air quality, water quality and others
  - Depending upon the context and potential impacts, NEPA analysis can differ
  - **Levels of NEPA**
    - Action not subject to NEPA/No further env. action
    - CATEX – Categorical Exclusion
    - EA – Environmental Assessment
    - EIS – Environmental Impact Assessment

AIR TRAFFIC ENVIRONMENTAL PROGRAM

Three Levels of NEPA Review

- **Categorical Exclusion (CATEX) – established list of actions that do not, individually or cumulatively, have a significant impact**
- **Environmental Assessment (EA) – analysis of proposed action and reasonable range of alternatives that could result in preparation of an Environmental Impact Statement or Find of No Significant Impact**
- **Environmental Impact Statement (EIS) – detailed analysis of environmental consequences and alternatives, cumulative impacts, and mitigation actions**

Categorical Exclusion (CATEX)

- Action that does not have a significant impact on the quality of the human environment
- FAA must review for extraordinary circumstances
  - **Adverse effect such as cultural resources, air quality, etc.**
- FAA Order 1050.1 - list of FAA CATEXs
  - **Establishes a list of common FAA actions that are CATEX'd**
  - **Example -**

Establishment of Global Positioning System (GPS), Flight Management System (FMS), Area Navigation/Required Navigation Performance (RNAV/RNP), or essentially similar systems that use overlay of existing flight tracks.

Environmental Assessment (EA)

- **Addresses environmental effects that are not anticipated to cause significant impact**

- **Analysis that could result in preparation of an Environmental Impact Statement or Finding of No Significant Impact**

- **When to prepare –**
  - Proposed action has no CATEX
  - Normally CATEX but involves extraordinary circumstance
  - Action normally requires an EA
  - Action that is not known to require an EIS and is not CATEX

Environmental Impact Statement (EIS)

- **Detailed analysis of environmental consequences of proposed action and alternatives, cumulative impacts and mitigation actions**

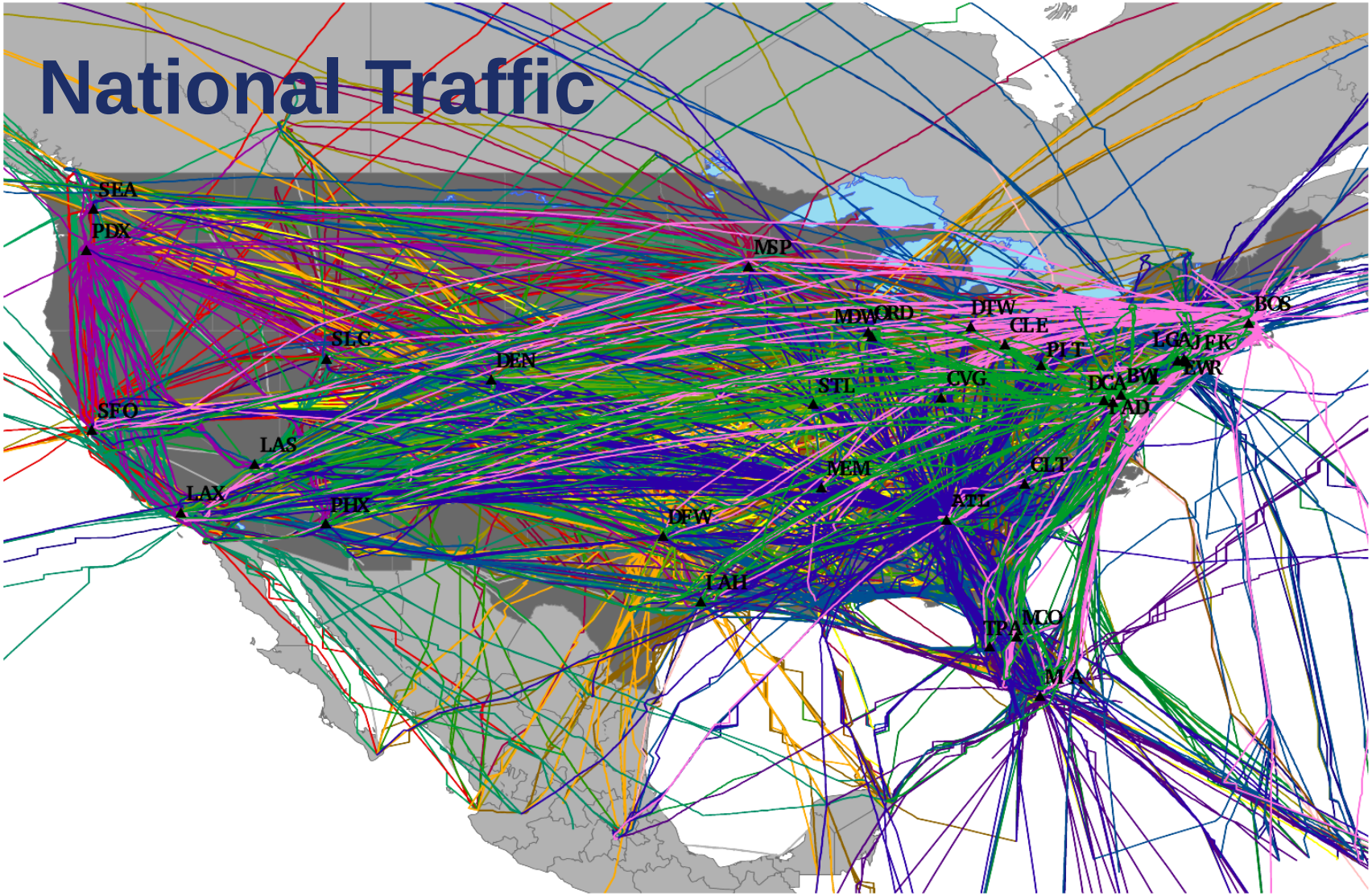
- **When to prepare?**
  - Based on an EA, a determination that the action would cause a significant environmental impact and mitigation would not reduce effects
  - FAA anticipates significant impacts, so prepare an EIS without first developing an EA

Airspace Actions

Typical Types of Actions

- **Jet Route Modification**
- **Procedure Changes (RNP/RNAV, OPD, etc.)**
  - Area Navigation Procedures (RNAV)
  - Required Navigation Performance (RNP)
  - Glide-path modifications
  - Altitude or lateral changes
- **Airspace Redesign- single site or regional**

National Traffic



Produced by the Air Traffic Airspace Laboratory
April 11, 2005

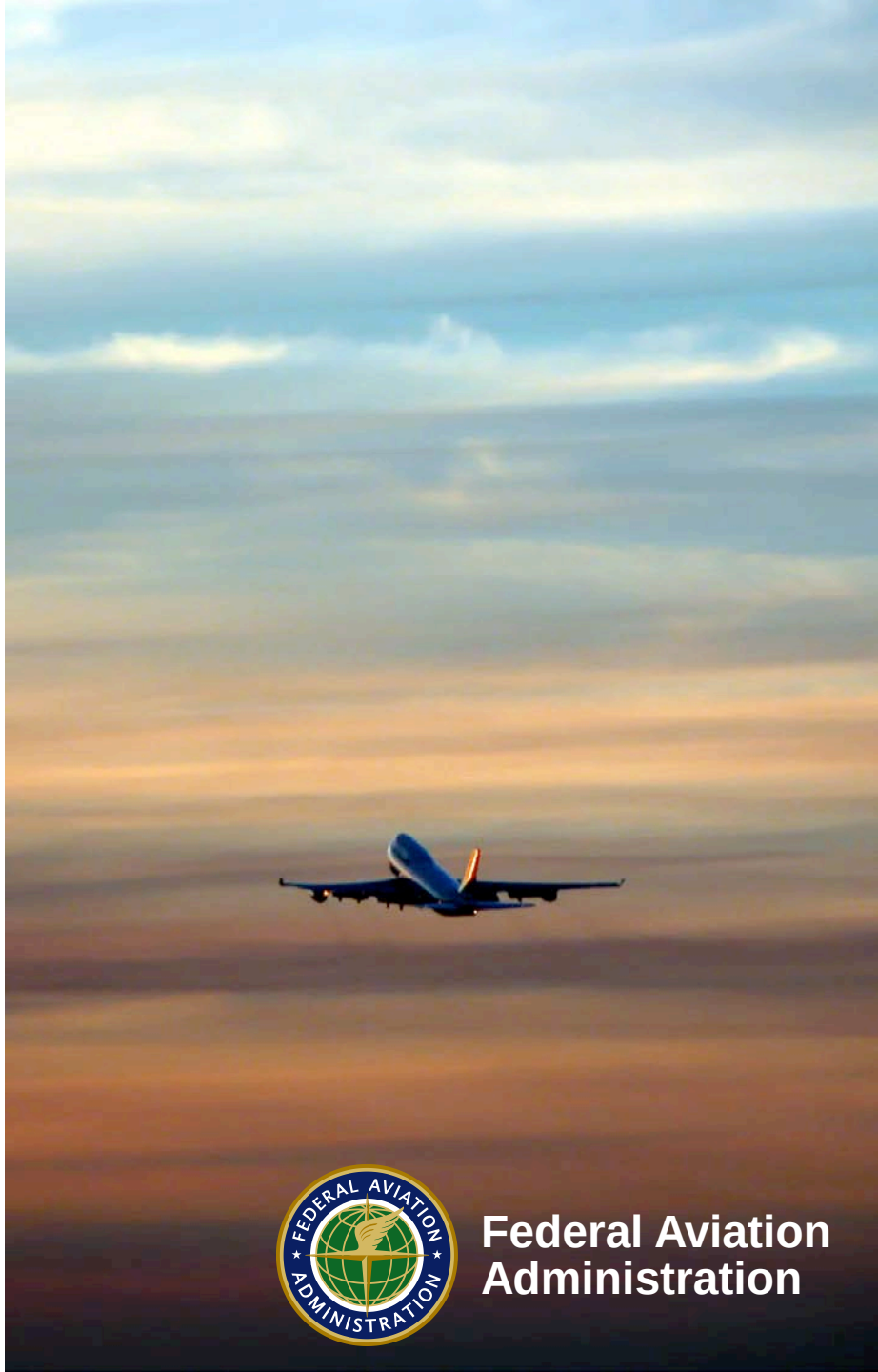
Appendix E

FAA slides provided to the

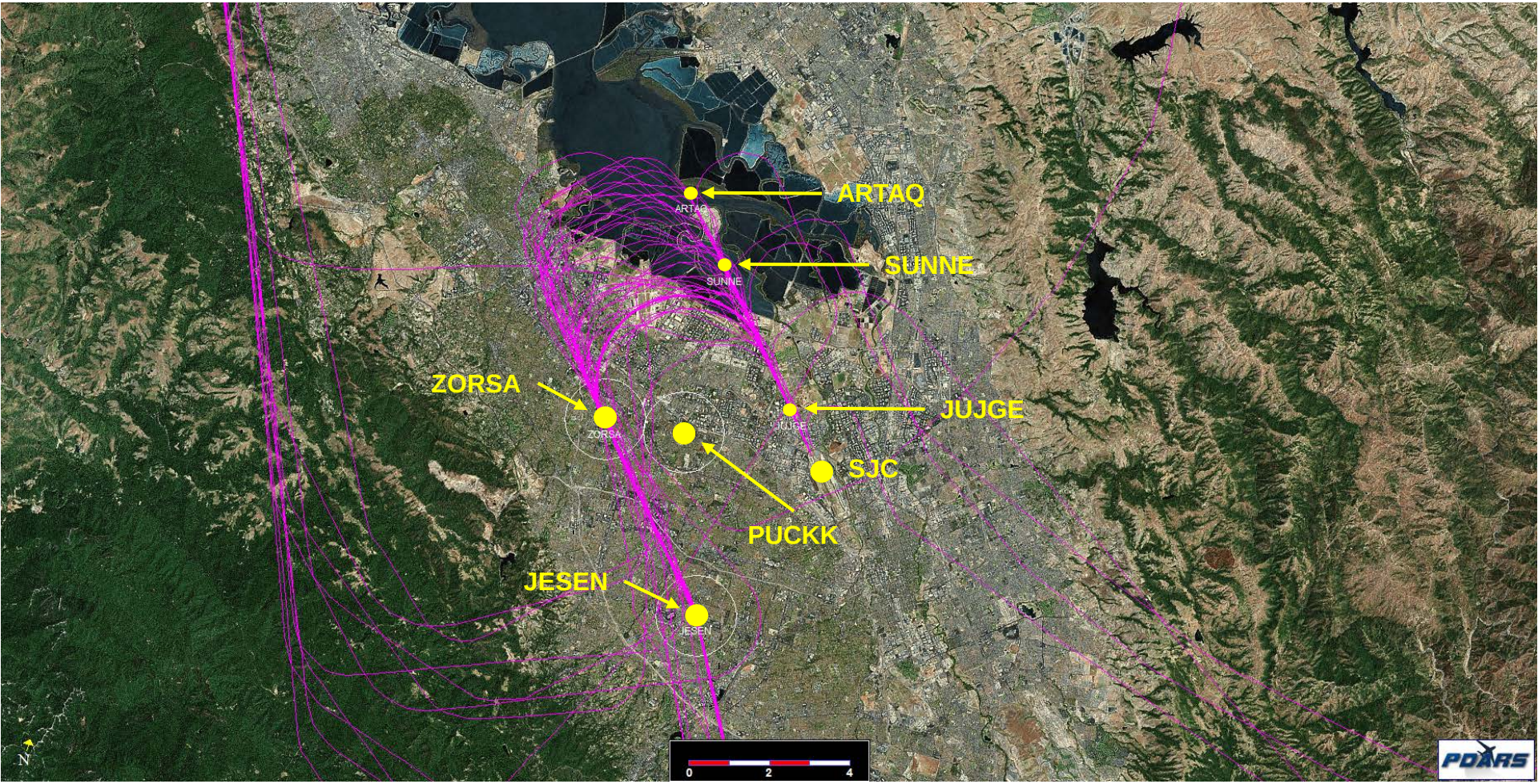
SJC Ad Hoc Committee at their request on May 1, 2018.

San Jose Ad Hoc Advisory Committee on South Flow Arrivals

SJC South Flow Data
5/1/2018



SJC South Flow
May 1, 2018



58 Total Tracks

RNAV = 14 (24%)

Est. ILS = 10 (17%)

East = 5 (9%)

Other = 29 (50%)

Federal Aviation Administration