

San Jose South Flow Noise Issue

March 23, 2017

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Summary of March 22 round table meeting with participation by the District 17 office, the Federal Aviation Administration (FAA), San Jose Airport (SJC), and councilmembers from Cupertino, Mountain View, San Jose, and Sunnyvale. Mountain View was added two days before, when councilmember Lisa Matichak contacted the FAA and was given the email I had sent to invited attendees. According to Councilmember Matichak, there are numerous residents of her city with concerns similar to those in our district. This briefing incorporates information obtained in January meetings and subsequent emails with several groups of citizens, the mayors of Sunnyvale and Cupertino, a long conversation with the former FAA Administrator, and an FAA public hearing on a San Francisco Airport issue which many of our citizens attended and spoke.

Definition of the Problem

Data from citizens and city policies were used to show that the issue of loud aircraft noise is a real one in this area when the wind speed goes above five knots and is forecast to stay there for hours. Under those conditions, San Jose Airport switches from its preferred landing direction (to the northwest) and reroutes planes over much of Congressional District 17, after which they make a U-turn and land at SJC to the southeast (see figure).

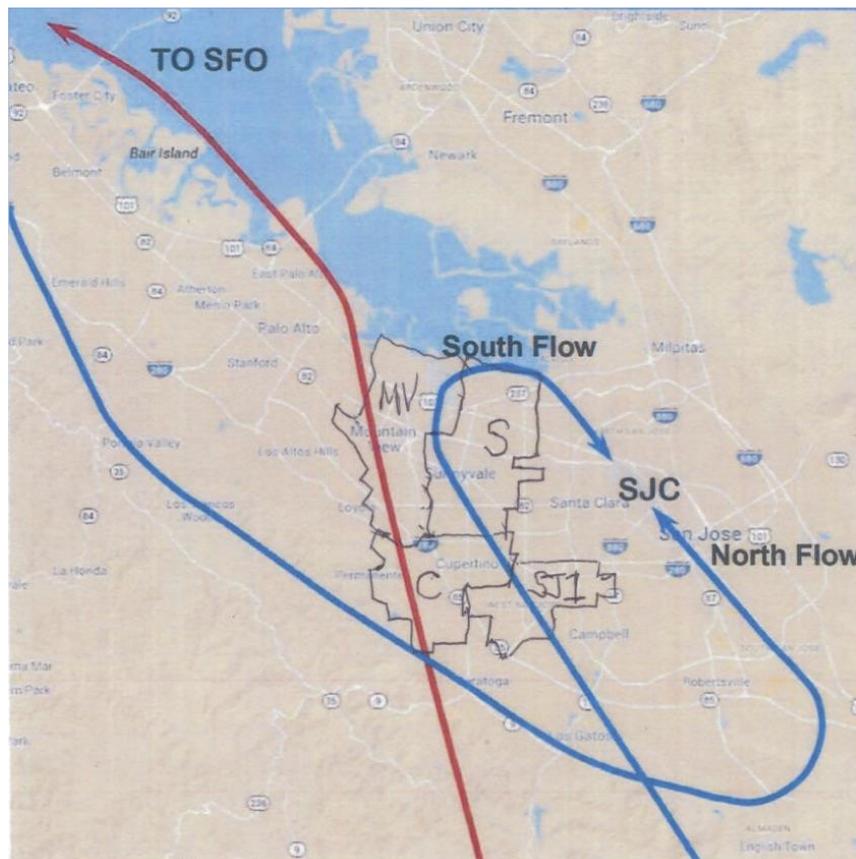


Diagram courtesy of San Jose Airport. SJ1 = San Jose council district 1, C = Cupertino, S = Sunnyvale, and MV = Mountain View. Approximate city boundaries added by author.

Because they are descending, they are at low altitude. Using existing web applications, citizens provided information for one 24-hour period on March 20, during which 186 airplanes crossed a Sunnyvale neighborhood at an average altitude of 3,438 feet. State noise standards indicate that sounds greater than 75 dB are loud enough to be forbidden in land-use policies. Citizen-generated data recorded sound levels between 74 and 99 dB on the ground.

The FAA standard for what constitutes a significant impact requiring mitigation, found in FAA Order 1050.1F, page 4-8, provided to us by FAA Senior Advisor Steve May, is any change that results in a day-night average noise level (DNL) of at least 65 dB and an increase of 1.5 dB or more over the previous level. (DNL is a weighted average over 24 hours, where the noise levels between 10 p.m. and 7 a.m. are increased by 10 dB.) Because DNL is averaged over all times, and cannot be limited to those times where south flow conditions are operating, DNL for the affected communities is below 65 dB, so the environmental assessment for implementation of NextGen (see below) concluded that there would be no significant noise impact. But citizens have measured a dramatic increase in aircraft noise in the last couple of years.

Causes of the Problem

One cause of increased aircraft noise has been an increase over the last year in the number of days and nights with high winds, so that the fraction of the time that the airport is operating under south flow conditions has increased dramatically.

**Total Number South Flow Operations
Compared to Total Number
of SJC Operations – 2011-2016**

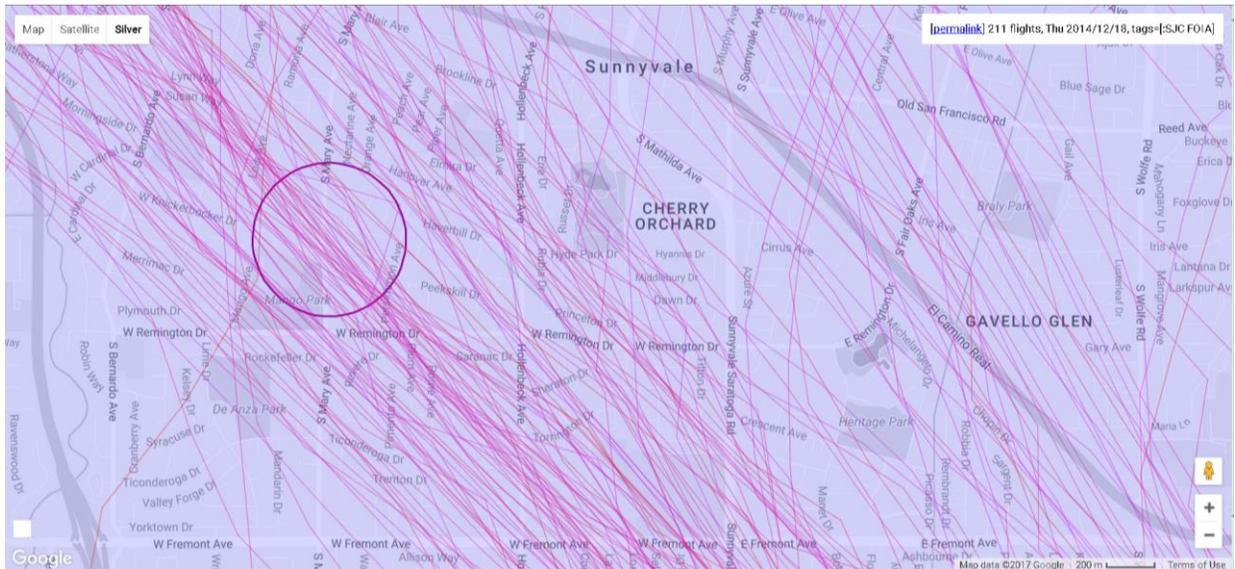
Year	Total Ops	South Flow Ops	% of Total Ops	Average Ops per South Flow Day
2016	153,419	24,033	15.7	139.7
2015	140,129	12,713	9.1	66.2
2014	135,872	21,473	15.8	117.3
2013	132,789	9,034	6.8	52.8
2012	127,181	18,639	14.7	90.0
2011	131,003	16,786	12.8	87.4



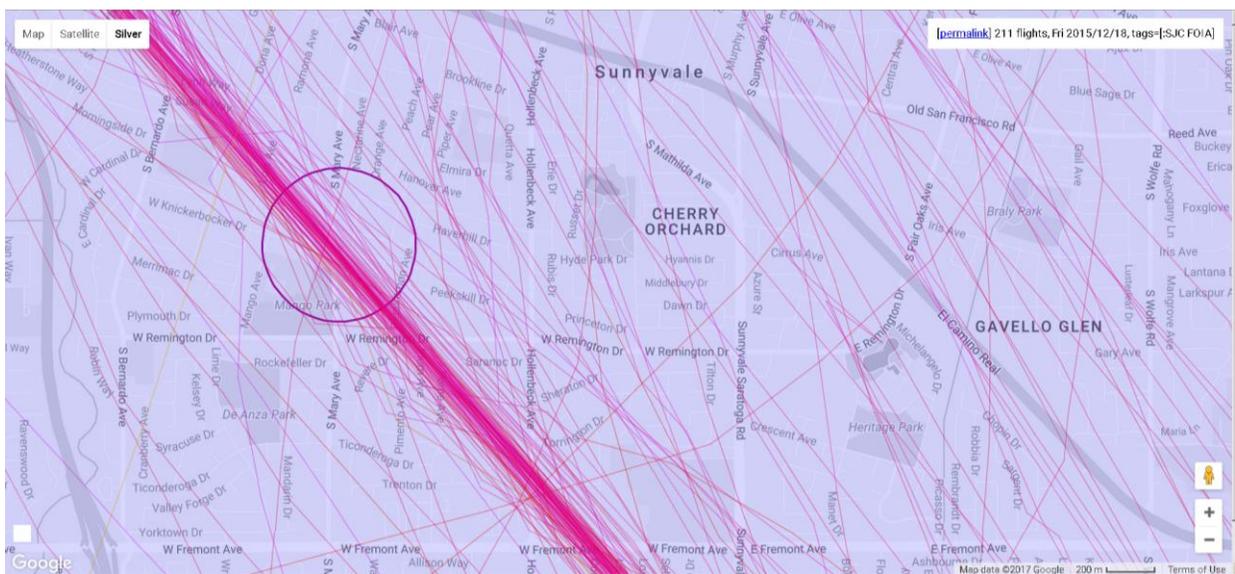

Percentage of time that aircraft fly over affected residential areas. Note that the number of operations per south flow day in 2016 is the highest in recent years.

A second cause of increased aircraft noise is increased traffic at the airport itself. Although this cause, unlike the weather, could be mitigated, that would require limiting SJC operations.

The third cause is implementation of satellite navigational control, otherwise known as NextGen. NextGen enables aircraft to fly the exact route specified in their procedure, rather than simply being within a particular distance of that route. A citizen obtained data for all flights on the same date in adjacent years, both using south flow, showing how implementation of satellite control has concentrated flights along the nominal route. That modification reduces aircraft noise for those who are a short distance from the route, but greatly magnifies it for those who live right under the route, as Sunnyvale Mayor Glenn Hendricks does.



Flights over Sunnyvale on December 18, 2014, before NextGen (above) and after (below). Circle is Waypoint ZORSA, near Mary Avenue and Knickerbocker Drive.



Possible Remedies

The conversation with former Regional Administrator Glen Martin had identified two possible approaches to mitigating aircraft noise (numbers 1 and 5 below), each of which was discussed in detail at this meeting. Other possible remedies were suggested and responded to by FAA and SJC professionals.

1. As many citizens have noted, San Francisco Airport has a waiver from the 5-knot wind standard, allowing that airport to direct aircraft to land with up to a 10-knot tailwind. What would it take to get San Jose Airport that kind of waiver? If south flow were used only at wind speeds above 10 knots, it would be used much less often and the noise over these neighborhoods would drop.

FAA Flight Standards Program Manager Chris Harris explained that this approach cannot be used at San Jose Airport for two reasons: the usable runway for landing is too short for planes to land safely with that strong of a tailwind (SFO's runways are substantially longer), and San Jose Airport is used by many general aviation aircraft (small propeller planes) which could not land safely at those wind speeds under any conditions.

Both FAA and SJC staff stressed that they have a very strong preference for normal flow operations, and switch to south flow only when the 5-knot criterion is clearly going to be exceeded for a long period. It takes an hour of preparation and communication with incoming aircraft before they can switch flow directions, and then they have to stop all landings for at least ten minutes to accomplish the switch. They do not direct planes over these residential neighborhoods casually, and concern for noise impacts is one of the reasons why they make that decision only when it appears unavoidable.

2. Can a curfew be imposed?

There is already a curfew at San Jose Airport between 11:30 p.m. and 6:30 a.m., although flights are given exemptions if they are delayed, if they use aircraft models that have been "grandfathered," if they are unusually quiet models, etc.

3. Can individual aircraft be required to be quieter?

Aeronautical technology is continuously improving. This remedy is already happening, gradually, and does not need to be mandated or managed.

4. Can a minimum altitude be imposed by the tower at San Jose Airport?

NextGen technology keeps planes on the official procedure route both horizontally and vertically, if they are flying under instrument control. Small planes fly under visual control, so their altitudes vary somewhat, and the tower often has to direct larger planes to deviate from the official procedure in order to achieve a minimum separation between all aircraft in three dimensions (this is called "vectoring"), so there are some aircraft that fly higher or lower at times. Because vectoring is required for safety reasons, it cannot be prevented for noise mitigation reasons.

5. Can the paths that aircraft fly under south flow conditions be modified?

Yes. This is the one remedy that has a strong possibility of success. The route that a plane flies is called a “procedure,” and procedures must be approved by the FAA. FAA can build a procedure, or a procedure can be developed externally and submitted through the Instrument Flight Procedures (IFP) Gateway. FAA will develop a procedure itself only under certain conditions where there is a clear “purpose and need,” as Regional Administrator Dennis Roberts explained. If an external entity wishes to develop a procedure, FAA will work with that organization in order to ensure that once the procedure is submitted through the IFP Gateway that it has a good chance of success. The best chance of mitigating the observed aircraft noise in the affected region is to develop procedures that accomplish either or both of the following:

(a) Create several minor variations of the existing procedure in which the route is slightly to the left or right of the current procedure, so that the airport can spread planes out horizontally, the way it used to be before NextGen implementation. Such new procedures would have to merge with the current procedure after passing the residential areas, so that there would be only one path into the airport.

(b) Create a longer descent flight path, going out over the bay before making the right turn to the airport. The longer path to be followed after traversing affected residential areas would mean that over those areas the aircraft would be at a higher altitude. Given the standard 3° angle of descent, each additional mile of travel would increase altitude by 277 feet.

Next Steps

1. A letter needs to be generated from the Congressman to Administrator Roberts, declaring the need for new procedures, and explaining their purpose, and asking FAA to develop the procedures itself, or assist materially in their development.
2. A public hearing of some kind needs to be held that includes FAA and SJC representation so that citizens can understand what is possible and what is not possible based on the many complicated constraints of the airspace in our region, and so that they can understand what is being done to mitigate their concerns. Administrator Roberts said that FAA has a workshop-type event format that has worked well for them in the past. The letter from Step 1 should include the request for this public event.
3. The SJC Airport Commission has recommended to the San Jose City Council that a round table group be formed, analogous to “a mini Select Committee,” to meet for some period of time to monitor the implementation of the remediation actions for this issue. Rep. Anna Eshoo’s district director feels that a standing round table group should be established, analogous to the one that exists at San Francisco Airport, to deal with all SJC issues going forward. Whether the group is temporary or permanent remains to be worked out, but SJC staff, San Jose Councilmember Chappie Jones, and Rep. Eshoo’s office all agree that in the group all affected jurisdictions should have voting rights, and that the group should be regional and inclusive, the latter being requirements for any FAA involvement.
4. This report shall be disseminated to citizens, through the individuals who provided us with the data that were so helpful in this meeting.