



CITY OF SUNNYVALE

FEBRUARY 1, 2021

## Casper Noise Lab User Manual



Sunnyvale

# TABLE OF CONTENTS

- 1 HOME PAGE ..... 4**
  - 1.1 Site Navigation Menu..... 5
  - 1.2 Current Operational Conditions ..... 5
  - 1.3 Flight Track Map..... 5
  - 1.4 Runway Utilization Indicator..... 6
  - 1.5 Weather Conditions ..... 6
  - 1.6 Status News Item ..... 7
  - 1.7 Calendar ..... 7
  - 1.8 News Items..... 8
  - 1.9 Data from Yesterday ..... 8
  - 1.10 Frequently Asked Questions (FAQs) ..... 9
- 2 FAQ PAGE ..... 10**
- 3 EDUCATION PAGES..... 11**
- 4 FLIGHT TRACKER PAGE ..... 12**
- 5 HISTORY PAGE ..... 13**
  - 5.1 Arrivals per Runway Chart ..... 14
  - 5.2 Departures per Runway Chart..... 14
  - 5.3 Top 5 Noise Events Chart..... 15
  - 5.4 Flights per Period Chart..... 16
  - 5.5 Flights per Hour Chart..... 16
- 6 NOISE PAGE ..... 18**
  - 6.1 Aircraft Noise Events per Period Chart ..... 19
  - 6.2 Average Aircraft Noise Events per Hour Chart..... 19
  - 6.3 Top Aircraft Noise Events (max dBA) Chart..... 20
  - 6.4 Aircraft Noise Events Chart ..... 21
- 7 TRAFFIC PAGE ..... 22**
  - 7.1 Arrivals per Runway (Day) Chart..... 23

7.2 Arrivals per Runway (Night) Chart .....	24
7.3 Departures per Runway (Day) Chart .....	24
7.4 Departure per Runway (Night) Chart.....	25
<b>8 SOUTH FLOW PAGE .....</b>	<b>27</b>
8.1 Aircraft Noise Events (Max dBA) RNP Approach Chart.....	28
8.2 Aircraft Noise Events (Max dBA) non-RNP Approach Chart.....	29
8.3 Jet Arrivals per Approach.....	30
8.4 Altitude Chart.....	30
8.5 Flights per Aircraft Type Chart .....	31
8.6 Flights per Airline Chart.....	32
<b>9 REPORT PAGES .....</b>	<b>33</b>
9.1 Sunnyvale Overflight Data Report.....	33
9.2 SJC South Flow Data Report .....	33
9.3 Raw Noise Data Report.....	34
<b>10 UPDATES PAGE.....</b>	<b>35</b>
<b>11 COMPLAINTS PAGE .....</b>	<b>36</b>
<b>12 RETURN TO SUNNYVALE .....</b>	<b>37</b>

# 1 Home Page

To launch Casper Noise Lab, open your web browser and input the following address in the search bar:  
<https://syv.noiselab.casper.aero>

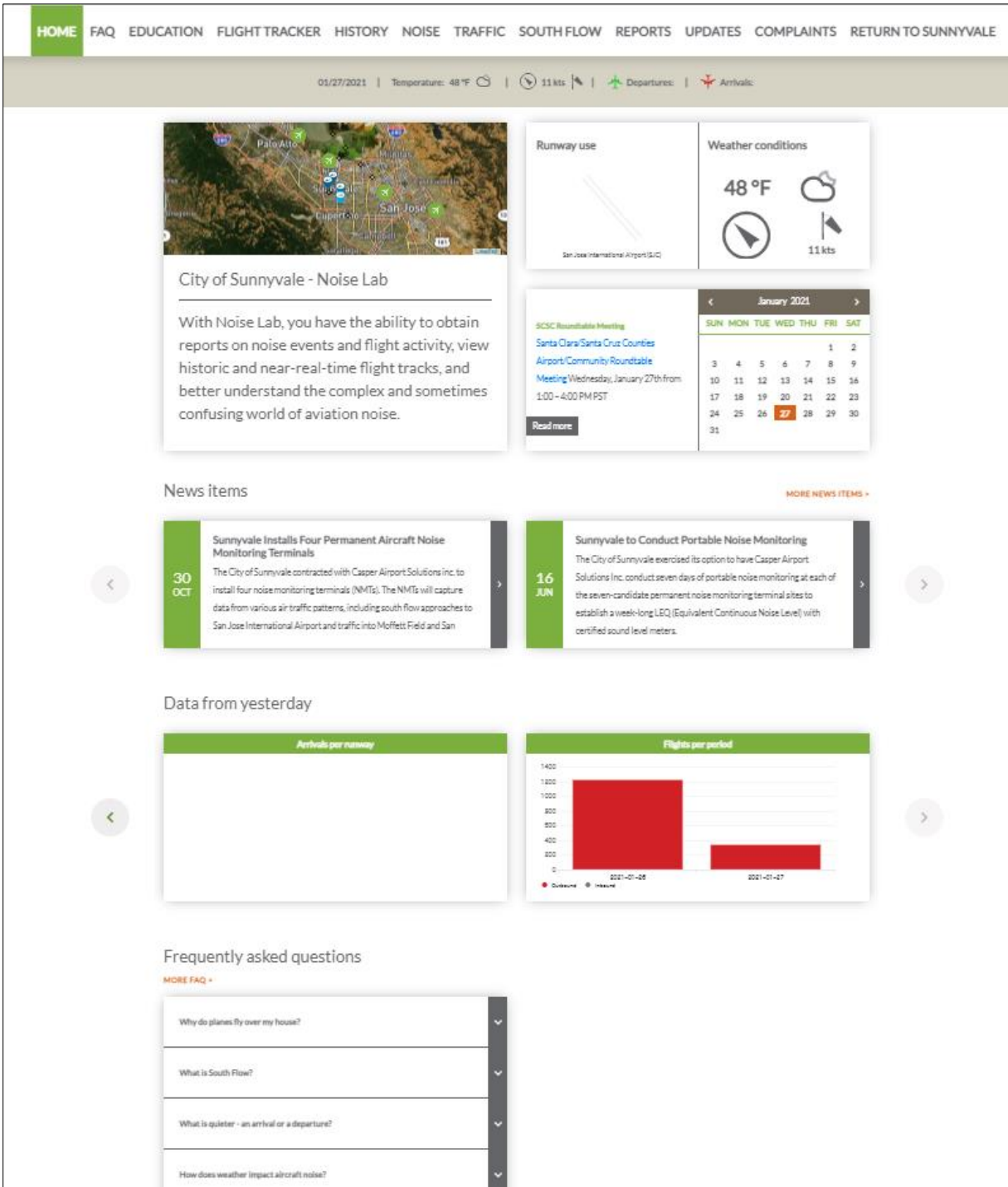


Figure 1 – Home Page

## 1.1 Site Navigation Menu

The site navigation menu at the top of the webpage allows you to navigate the site and visit the various pages. Each menu item is described in greater detail in Sections 2 through 12.

Note: some menu items contain a drop-down list requiring you to make a selection to view the information on that particular page. The current active page is highlighted in green.



Figure 2 – Site Navigation Menu

## 1.2 Current Operational Conditions

Just below the Site Navigation Menu is the Current Operational Conditions summary as shown in Figure 3. This bar displays the current weather conditions and runway utilization reported by the Casper NOMS system for Norman Y Mineta San Jose International Airport (KSJC), including the current runways in use



for Arrivals  and  Departures.



Figure 3 – Current Operational Conditions Summary

## 1.3 Flight Track Map

Below the Current Operational Conditions bar is a live view of the Flight Tracker's current flight activity, as shown in Figure 4. For FAA security reasons, the Flight Tracker operates on a 10-minute delay. You can click on a flight on the map to see additional information about that operation.

Note: Clicking on the map will not launch the Flight Tracker website. To do that, select the **Flight Tracker** entry on the site navigation menu above the map.



Figure 4 – Flight Track Map Window

### 1.4 Runway Utilization Indicator

Just to the right of the Flight Track map is the Runway Use Indicator as shown in Figure 5. This diagram shows the current observed runway use at Norman Y Mineta San Jose International Airport (KSJC). Casper calculates the runway use by analyzing the last five minutes of activity at the airport. The arrival runway is highlighted in red, and the departure runway is highlighted in green. During overnight hours, the display may be blank for long periods due to a lack of activity at KSJC.



Figure 5 – Runway Utilization Indicator

### 1.5 Weather Conditions

To the Runway Use Indicator's right, the current weather conditions measured by the KSJC Airport weather station are displayed as shown in Figure 6. The Meteorological Aerodrome Report (METAR) provides hourly surface weather observations, including the temperature, wind speed, wind direction, precipitation, and cloud cover.

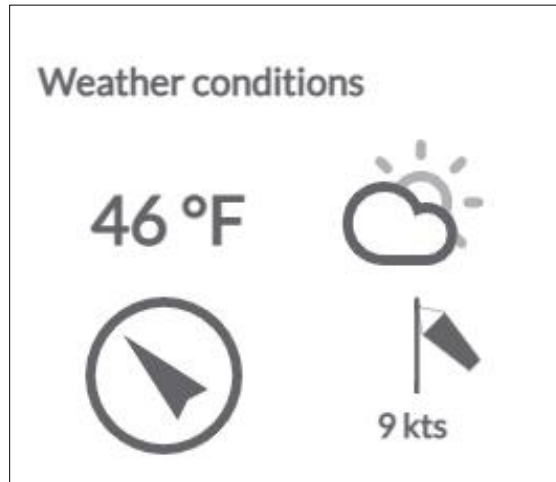


Figure 6 – Current Weather Conditions

### 1.6 Status News Item

Below the Runway Use Indicator, you will find active calendar notices for the current day. Only notices for the current day or the selected day on the calendar will be shown. Clicking the "Read more" button will display the full notice as shown in Figure 7.



Figure 7 – Active Calendar Notice

### 1.7 Calendar

To the right of the Status News Item block, you will see the Calendar. The calendar will highlight the current day in **27**. Dates with active notices on the calendar are highlighted in **28**, as shown in Figure 8. Clicking on a day with a notification displays that notification in the Active Calendar Notice block.

Note: Only days with a gray calendar notice can be selected. To advance the calendar forward or backward, use the **<** **>** arrows.

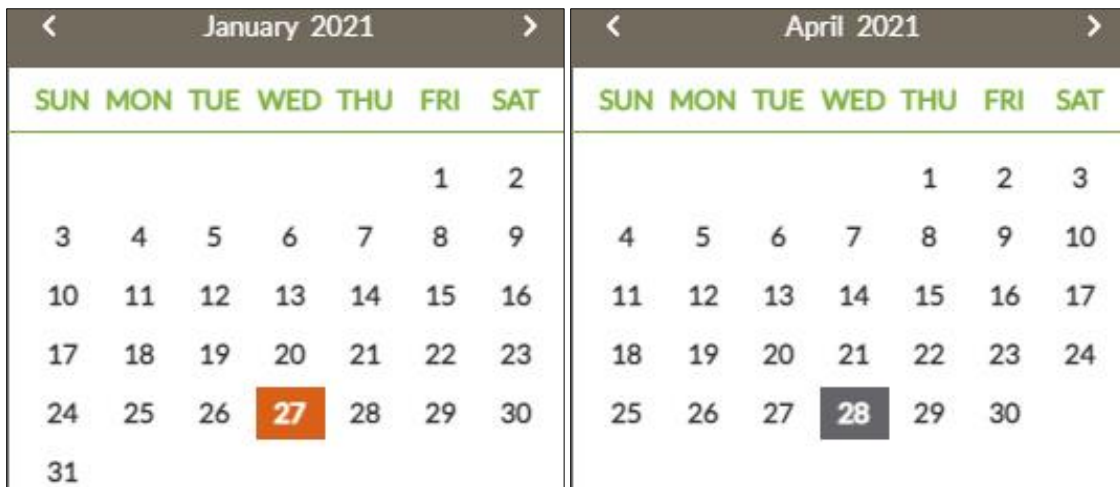



Figure 8 – Calendar Examples

### 1.8 News Items

Below the Flight Track Map is the News Items section as shown in Figure 9. In this section, current news items display in date order from left to right. Only notices with the current or past dates will display here. News items with a future publication date will not display in this section until the publication date is reached. Select the  arrow to the right of the news item to expand it and view the full text. Click on the **More News Items >** to be taken to the Updates webpage, where you can view all current and archived news items.

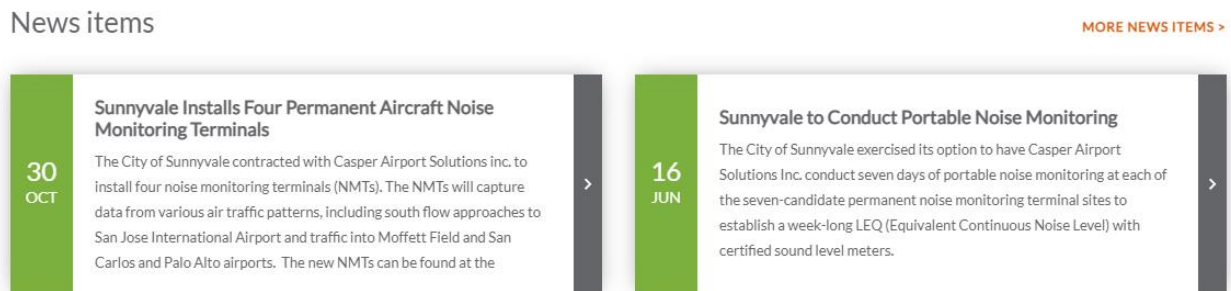




Figure 9 – News Items Section

### 1.9 Data from Yesterday

In this section, interactive charts display flight operation data from the previous day as shown in Figure 10. The charts are interactive, and hovering over a data slice or bar indicates the number of operations for that period. You can also click on a particular entry in the chart legend and remove that entry. The charts will update automatically to reflect the new data. Click on the   directional arrows to scroll through the available charts.



Data from yesterday

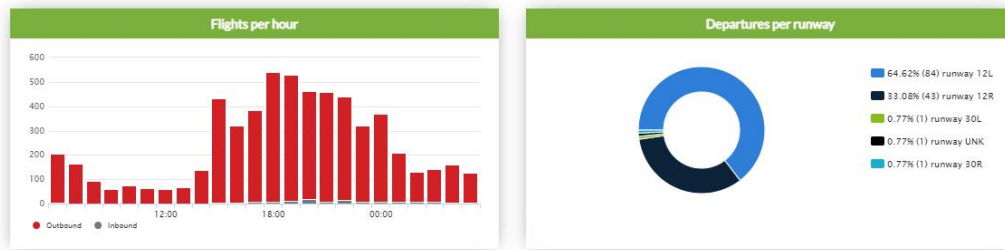


Figure 10 – Data from Yesterday Section

### 1.10 Frequently Asked Questions (FAQs)

The FAQ section below the charts contains answers to aircraft noise topics that residents often inquire about. Select a particular FAQ to open and view the corresponding answer. Click on the **(read more) >** link to see the full answer. Selecting the **More FAQ >** entry opens the FAQ webpage allowing you to view all FAQs currently available.

#### Frequently asked questions

[MORE FAQ >](#)

A list of five frequently asked questions, each with a downward-pointing chevron icon on the right side, indicating they are expandable. The questions are:

- Why do planes fly over my house?
- What is South Flow?
- What is quieter - an arrival or a departure?
- How does weather impact aircraft noise?
- What are the Guidelines for filing a noise complaint?

Figure 11 – FAQ Section

## 2 FAQ Page

HOME **FAQ** EDUCATION FLIGHTTRACKER HISTORY NOISE TRAFFIC SOUTHFLOW REPORTS UPDATES COMPLAINTS RETURN TO SUNNYVALE

The FAQ page provides access to all currently posted Frequently Asked Questions. The FAQs appear in the Date/Time order that they were created, with the most recent appearing at the top left and the oldest appearing in the bottom right. If all FAQs are not displayed, clicking on the **SHOW ALL** entry will display them. Selecting a particular entry will slide open the answer below the question. Click on the **(read more) >** link to see the full answer.

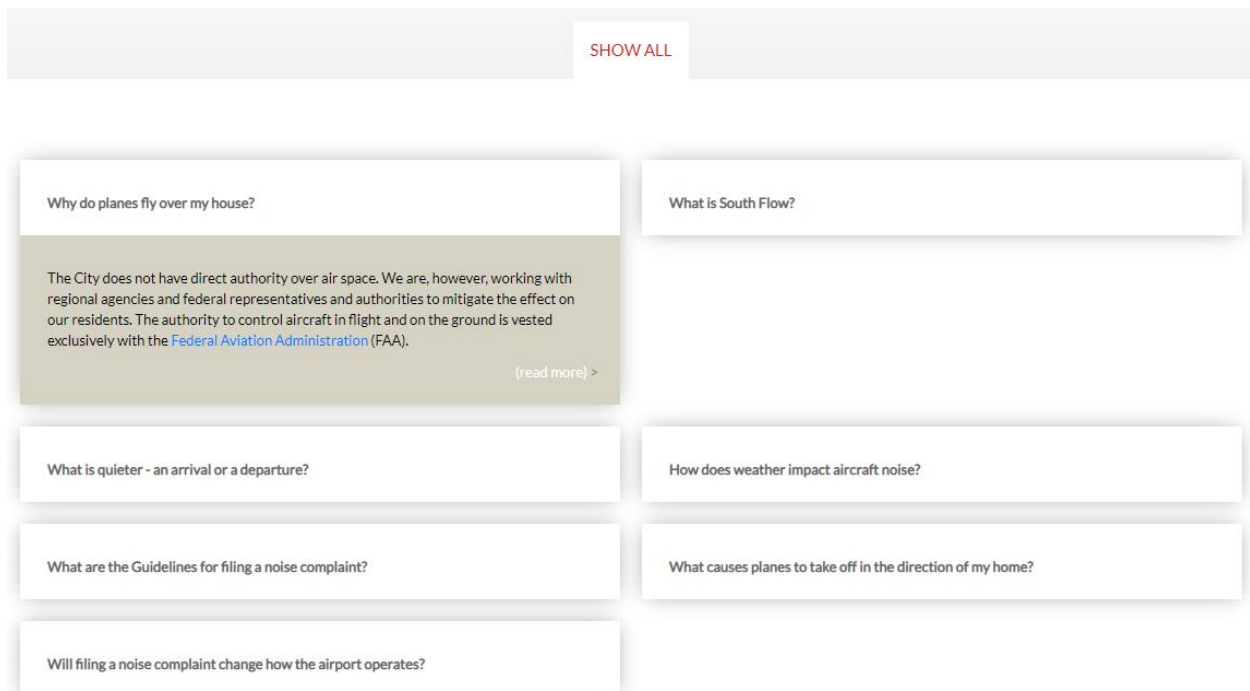


Figure 12 – FAQ Page

## 3 Education Pages



The Education pages provide access to a series of educational topics that help users better understand the complex world of aviation noise, air traffic control, and flight operations. Each course is dedicated to a specific topic area. Much of the material contained in the 101 pages were taken directly from the Noise 101-course material taught by the author (Gregory Maxwell) at the annual U.C. Davis Aviation Noise Symposium. The included topics are:

- South Flow 101 – Contains information about South Flow operations at KSJC Airport
  - How winds affect the traffic flow direction at KSCJ Airport
  - Comparison of ILS/GPS approaches and RNP approaches to Runway 12L/R
  - Comparison of typical vertical flight profiles of the two types of approaches
- Noise 101 – Contains information about noise terminology, metrics, and measurement
  - A-weighted noise measurement
  - Quantifying changes in sound energy
  - Aircraft noise footprint
  - Noise metrics such as Lmax, SEL, Leq, Ln, DNL, and CNEL
- Aircraft 101 – Contains information about aircraft noise, factors that affect performance
  - Aircraft noise sources
  - Environmental/Operational factors that influence aircraft noise
  - Evolution of jet engines from 1955 to the present
  - Aircraft noise certification process
  - Wake turbulence and aircraft spacing requirements
- Airspace 101
  - General FAA airspace classes and their limitations
  - Special Use Airspaces and their limitations
  - Other specialized airspace areas
- Air Traffic 101
  - Responsibilities and jurisdiction of FAA in controlling aircraft movements
  - Influence of weather on air traffic management
  - Bay Area air traffic management
  - Runway capability and limitations
  - Runway and taxiway designations explained
- Procedures 101
  - Factors that influence the design of flight procedures
  - Differences between RNAV and RNP procedures
  - Basic building blocks of flight procedures
  - Detailed explanation of RNP and RNP-AR approaches
- Codes 101
  - Language of Aviation (letters and numbers)
  - Airport, airline, aircraft codes, and radio callsigns
  - Aircraft registration numbers

## 4 Flight Tracker Page

Clicking the Flight Tracker Menu header opens the Casper Flight Tracker (<https://flighttracker.casper.aero/syv>) in a new window as shown in Figure 13.

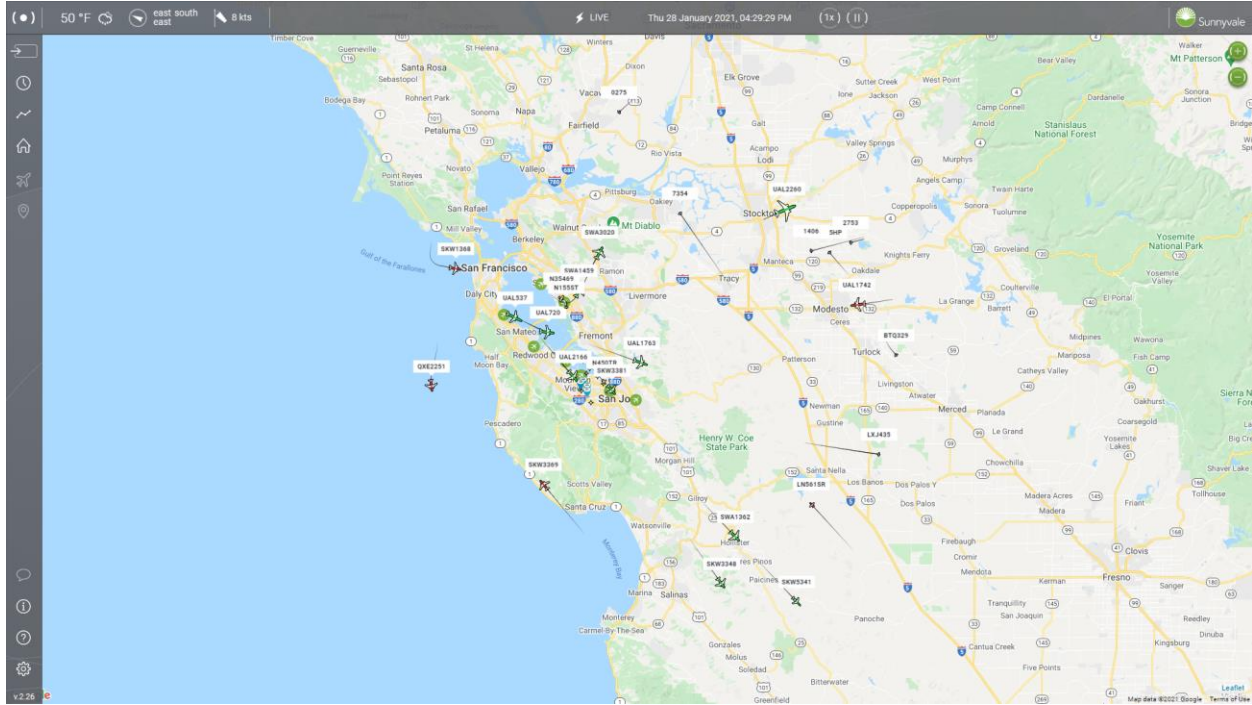


Figure 13 – City of Sunnyvale Casper Flight Tracker

## 5 History Page

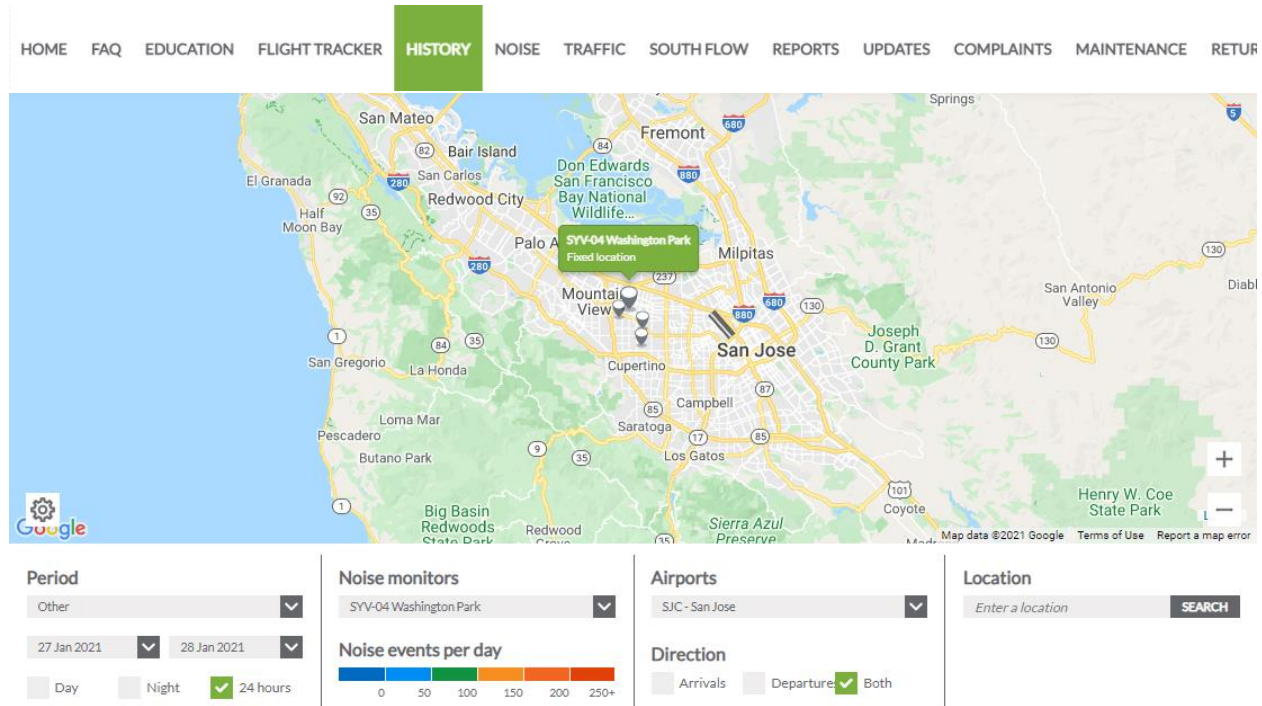



Figure 14 – History Data Browser

The History page provides access to the History Data Browser, which allows the user to view aircraft noise and flight data for either the current day or a fixed historical period. The map highlights the NMT on the map when selected from the Noise monitor drop-down list, as shown in Figure 14.

Clicking on the  icon in the lower left-hand corner of the map allowing the user to change the base map type. The choices are:

- Google Maps – Google street map
- Google Maps (Satellite) – Google aerial map
- Google Maps (Satellite/Hybrid) – Google aerial map with labels
- Openstreet Map – Openstreet map (default)

Under the map are a series of pull-down menus and checkboxes that allow you to change the data displayed in the charts below the menu.

The Period selector allows you to choose from the following time ranges: Yesterday, Last week, Last Month, Last year, and Other. When the Period “Other” is selected the user enters the date range of interest using the calendar below the period selector.



\*Note - when you select an NMT from the drop-down list, only flights correlated to a noise event at that monitor are displayed in the charts. Due to the flight patterns in use, one or more NMTs may have zero

correlated noise events when selecting specific periods such as "Yesterday or Last Week," and some charts may be blank as a result.

By default, the selected Airport is SJC – San Jose. Selecting a new airport from the drop-down list displays only arrivals, departures, or terrain (flights with the same arrival and departure airport).

The Location search box uses the Google Address lookup to find a location and display it for visual reference.

The charts are interactive. Hovering over a particular data slice or bar displays the value represented by the data grouping. You can also click on a particular entry in the chart legend and remove that entry.

The charts will update automatically to reflect the new data. Click on the   directional arrows to scroll through the available charts.

### 5.1 Arrivals per Runway Chart

This donut chart displays the percentage of arrivals per runway at the selected airport. If an NMT is selected, the flight information displayed is limited to situations where the system correlated an aircraft noise event to the selected noise monitor and airport. With no noise monitor selected, all arrivals for the chosen airport are displayed regardless of if they generated a noise event.



Figure 15 – Arrivals per Runway Chart

The chart legend denotes the percentage and the total number of arrivals on an individual runway.

### 5.2 Departures per Runway Chart

This donut chart displays the percentage of departures per runway at the selected airport. If an NMT is selected, the flight information displayed is limited to situations where the system correlated an aircraft

noise event to the selected noise monitor and airport. With no noise monitor selected, all departures for the chosen airport are displayed regardless of if they generated a noise event.



Figure 16 – Departures per Runway Chart

The chart legend denotes the percentage and the total number of departures on an individual runway.

### 5.3 Top 5 Noise Events Chart

This chart (Figure 17) displays the Top 5 Noise Events as determined by the Lmax of the event. If no noise monitor is selected, the chart shows the Top 5 noise events for the selected period across all four NMTs.

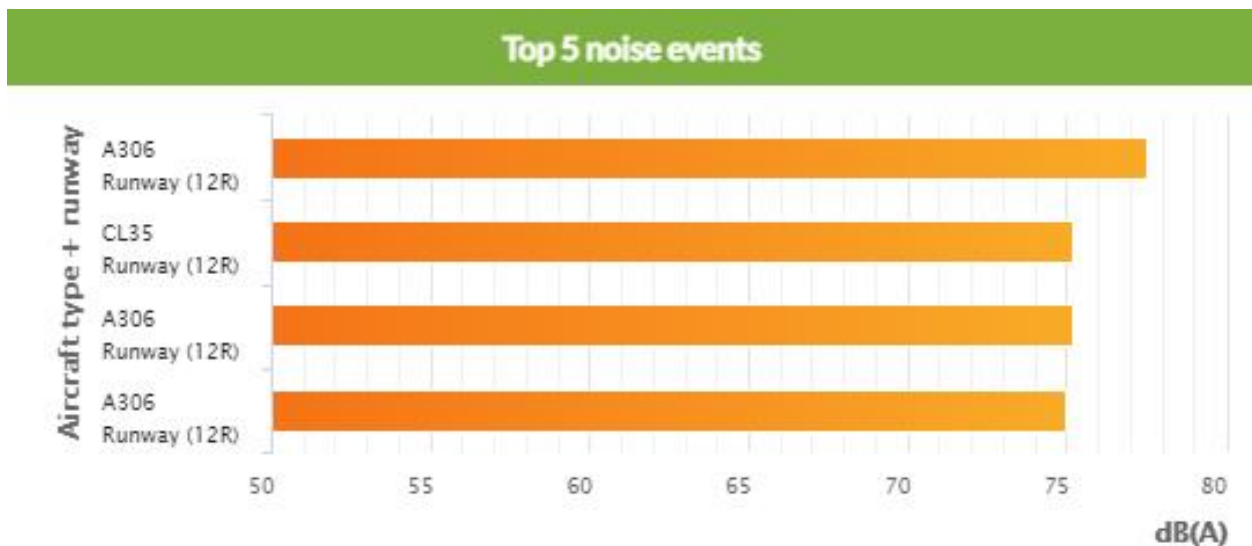


Figure 17 – Top 5 Noise Events Chart

The Y-axis labels denote the aircraft type and takeoff/landing runway, while the X-axis indicates the Lmax value in A-weighted decibels (dBA). The event bars are sorted in descending order by Lmax.

### 5.4 Flights per Period Chart

This chart compares the number of Takeoff (Outbound) and Landing (Inbound) flights for the selected airport and the period. In the example below a week's flights are compared using a stacked column for each day. The column indicates the ratio between outbound and inbound flights. If no noise monitor is selected, all fights for the chosen airport are shown regardless of whether they generated a noise event.



Figure 18 – Flights per Period Chart

The Y-axis denotes the number of flights, while the X-axis indicates days, months, or years depending on the period selected. In the example in Figure 18 with the period set to "Last Week," each column represents a day.

### 5.5 Flights per Hour Chart

This chart compares the number of Takeoff (Outbound) and Landing (Inbound) flights for the selected airport and the period. Flights by hour of the day are compared using a stacked column, which indicates the ratio between outbound and inbound flights. If no noise monitor is selected, all flights for the chosen airport are shown regardless of whether they generated a noise event.



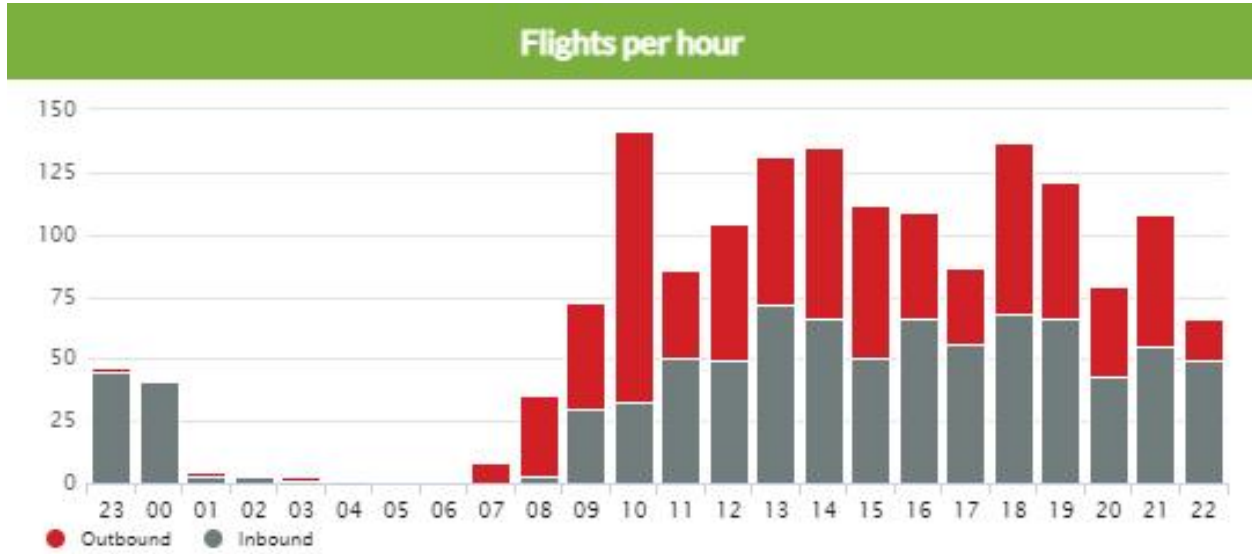


Figure 19 – Flights per Hour Chart

The Y-axis denotes the number of flights, while the X-axis indicates the hour of the day based on the 24-hour clock, which is the standard used in Aviation.

\*Note: To convert to PM, subtract 12 from any hour past 12:00 noon. For example, 18:30 = 6:30 PM.

## 6 Noise Page

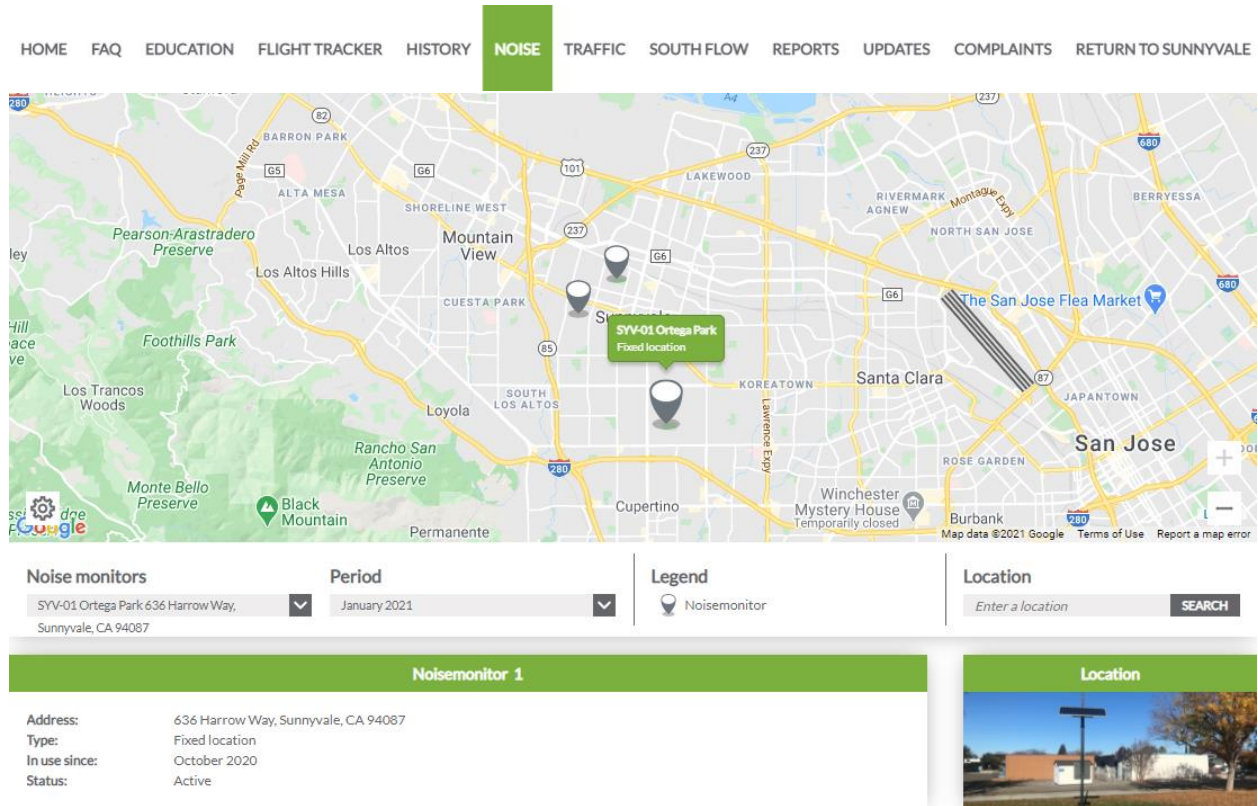



Figure 20 – Noise Data Browser

The Noise page provides access to the Noise Data Browser, which allows the user to view aircraft noise data for a given month. The Period selector defaults to the current month. The map highlights the NMT on the map when selected from the Noise monitor drop-down list, as shown in Figure 20.

Clicking on the  icon in the lower left-hand corner of the map allowing the user to change the base map type. The choices are:



- Google Maps – Google street map
- Google Maps (Satellite) – Google aerial map
- Google Maps (Satellite/Hybrid) – Google aerial map with labels
- Openstreet Map – Openstreet map (default)

Under the map are two pull-down menus that allow you to change the data displayed in the charts below the menu. By default, the selected NMT is SYV-01 Ortega Park. Selecting a new NMT from the drop-down list displays only correlated aircraft noise events at the chosen location. When you select an NMT, the details, including the address and a photo, are also displayed.

The Period Selector is a rolling 12 month period, based on the current month. Historical noise data is only available from November 1, 2020, when the NMTs went live. Months queried before that will display no data in the charts.

The Location search box uses the Google Address lookup to find a location and display it for visual reference.

The charts are interactive. Hovering over a particular data slice or bar displays the value represented by the data grouping. You can also click on a particular entry in the chart legend and remove that entry.

The charts will update automatically to reflect the new data. Click on the   directional arrows to scroll through the available charts.

### 6.1 Aircraft Noise Events per Period Chart

This chart displays the number of correlated aircraft noise events during the selected month at the chosen NMT as shown in Figure 21.

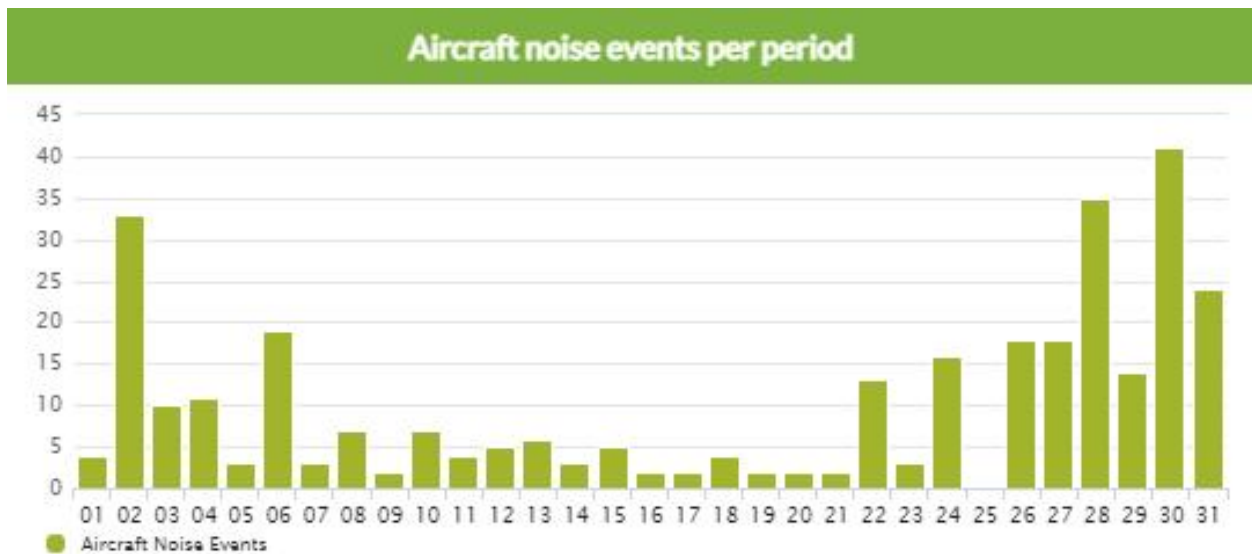


Figure 21 – Aircraft Noise Events per Period

The Y-axis denotes the number of aircraft noise events, while the X-axis indicates the day of the month.

### 6.2 Average Aircraft Noise Events per Hour Chart

This chart displays the average number of aircraft noise events (ACNE) per hour over the selected month at the chosen NMT.

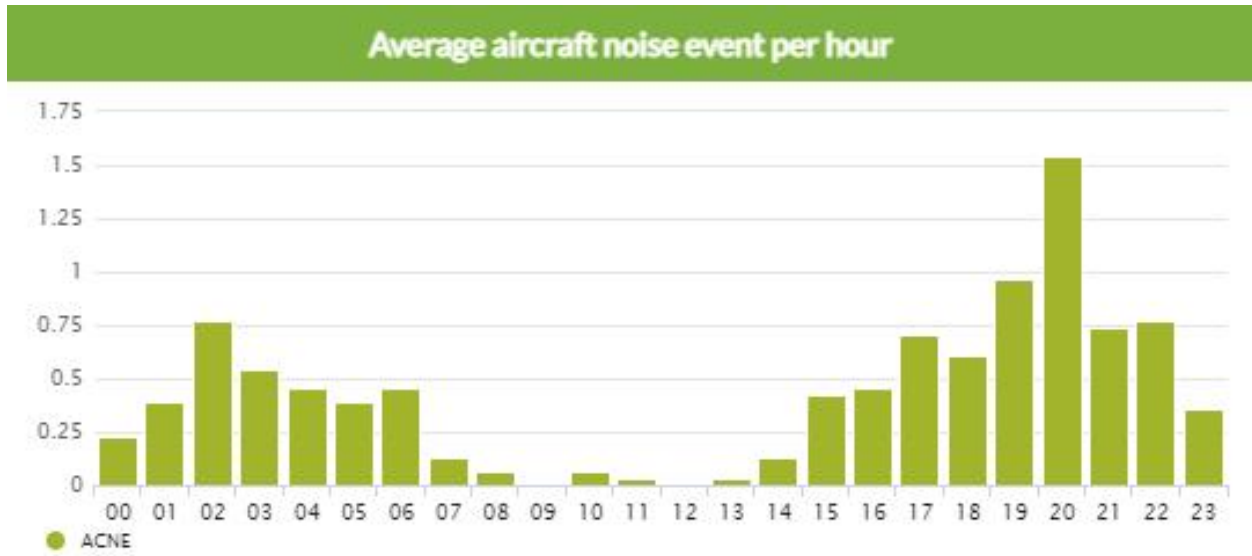


Figure 22 – Average Aircraft Noise Events per Hour Chart

The Y-axis denotes the average number of aircraft noise events, while the X-axis indicates the hour of the day.

### 6.3 Top Aircraft Noise Events (max dBA) Chart

This chart displays the Top 10 aircraft noise events ranked by Lmax in A-weighted decibels (dBA) at the selected NMT.

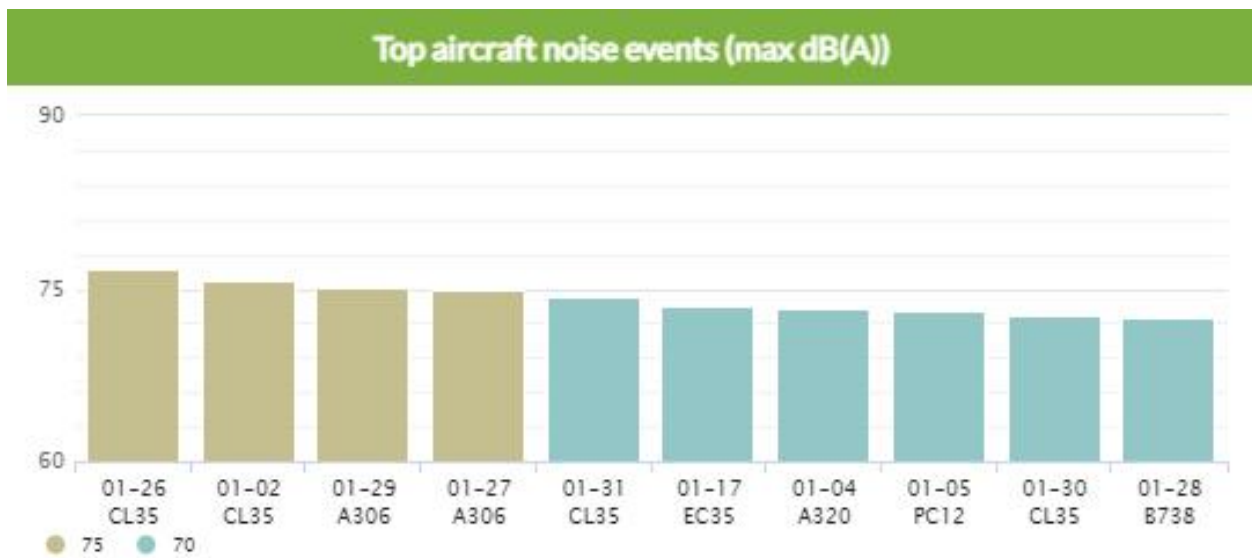


Figure 23 – Top Aircraft Noise Events (max dBA) Chart

The Y-axis denotes the Lmax in A-weighted decibels, while the X-axis depicts the events in descending order by Lmax from left to right. The individual bars are color-coded based on the Lmax value range, as shown in the key. The X-axis labels display the event's date, and aircraft type.

### 6.4 Aircraft Noise Events Chart

This chart displays the number of aircraft noise events per day at the selected NMT.

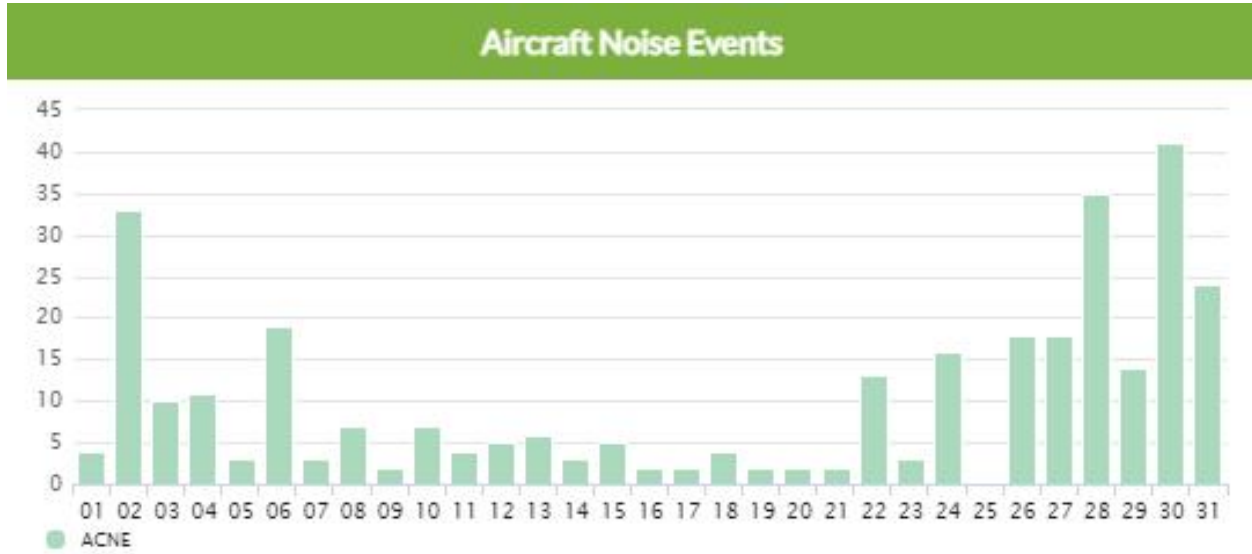


Figure 24 – Aircraft Noise Events Chart

The Y-axis denotes the number of aircraft noise events (ACNE), while the X-axis indicates the day of the month.

## 7 Traffic Page

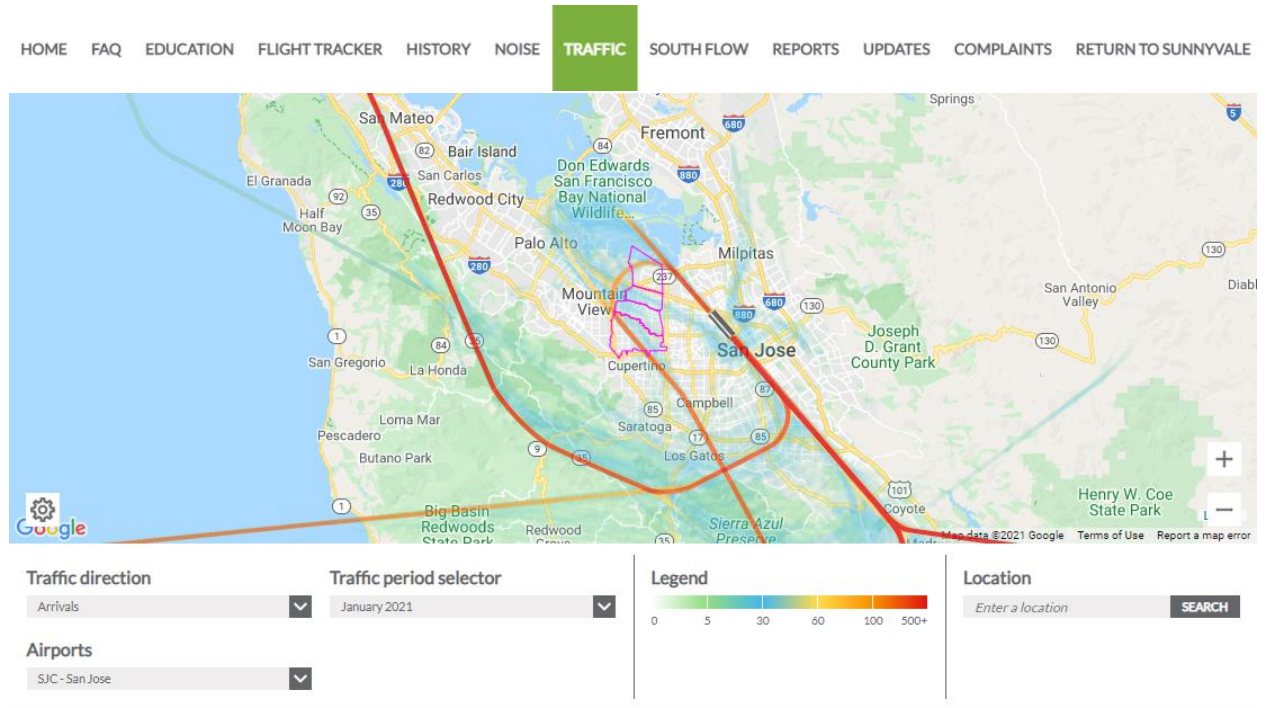


Figure 25 – Traffic Data Browser

The Traffic page provides access to the Traffic Data Browser, which allows the user to view aircraft flight track data for a given month. The Period selector defaults to the current month. A density (heat map) overlays the map highlighting the predominant flight paths for the selected airport and operation mode (Arrivals or Departures) during the chosen month, as shown in Figure 25.

The heat map is calculated based on a fixed grid that is overlaid on a map. The Casper NOMS system calculates the number of flights that passed through each equal-sized grid square. A color is then applied to the grid square based on the volume of flights compared to other squares. The color assignment is determined based on pre-determined buckets, as shown in the Map Legend in Figure 26.

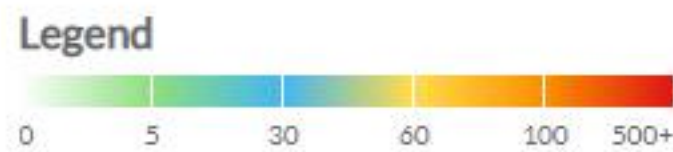



Figure 26 – Heat Map Legend

Clicking on the  icon in the lower left-hand corner of the map allowing the user to change the base map type.

- Google Maps – Google street map
- Google Maps (Satellite) – Google aerial map
- Google Maps (Satellite/Hybrid) – Google aerial map with labels
- Openstreet Map – Openstreet map (default)



The user can also activate one or multiple zip code (94085, 94086, 94087, 94089) map overlays.

Under the map are several pull-down menus that allow you to change the map and chart data displayed. By default, the page displays Arrivals for the current month at SJC- San Jose Airport. Changing the Traffic Direction, Period, and or airport alters the display of the page's data.

The Period Selector is a rolling 12 month period, based on the current month. Historical flight track data is available from January 1, 2020, when Casper turned on Sunnyvale's flight track data feed.

The Location search box uses the Google Address lookup to find a location and display it for visual reference.

The charts are interactive. Hovering over a particular data slice or bar displays the value represented by the data grouping. You can also click on a particular entry in the chart legend and remove that entry.

The charts will update automatically to reflect the new data. Click on the   directional arrows to scroll through the available charts.

### 7.1 Arrivals per Runway (Day) Chart

This chart compares the number of Arrivals per runway during daytime hours (defined by the FAA as 07:00-22:00) at the selected airport. A single day's flights are compared using a stacked column, which indicates the distribution of flights by arrival runway at the selected airport over the chosen month.

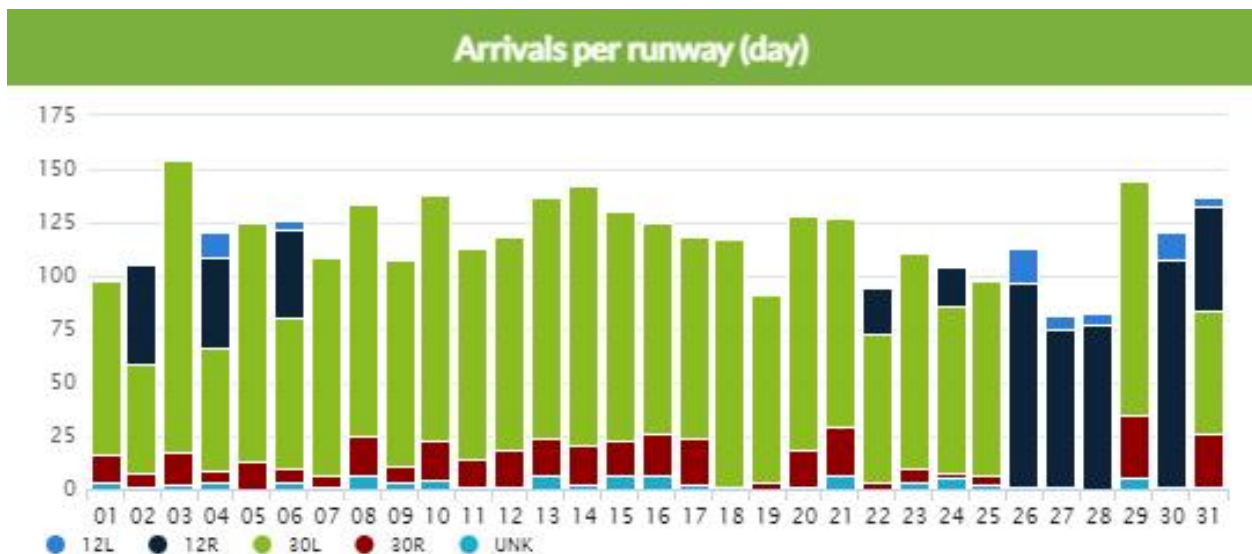


Figure 27 – Arrivals per Runway (Day) Chart

The Y-axis denotes the number of daytime arrivals, while the X-axis indicates the day of the month. The chart key is color-coded by arrival runway in number order at the selected airport.

### 7.2 Arrivals per Runway (Night) Chart

This chart compares the number of Arrivals per runway during nighttime hours (defined by the FAA as 22:00-07:00) at the selected airport. A single day's flights are compared using a stacked column, which indicates the distribution of flights by arrival runway at the selected airport over the chosen month.

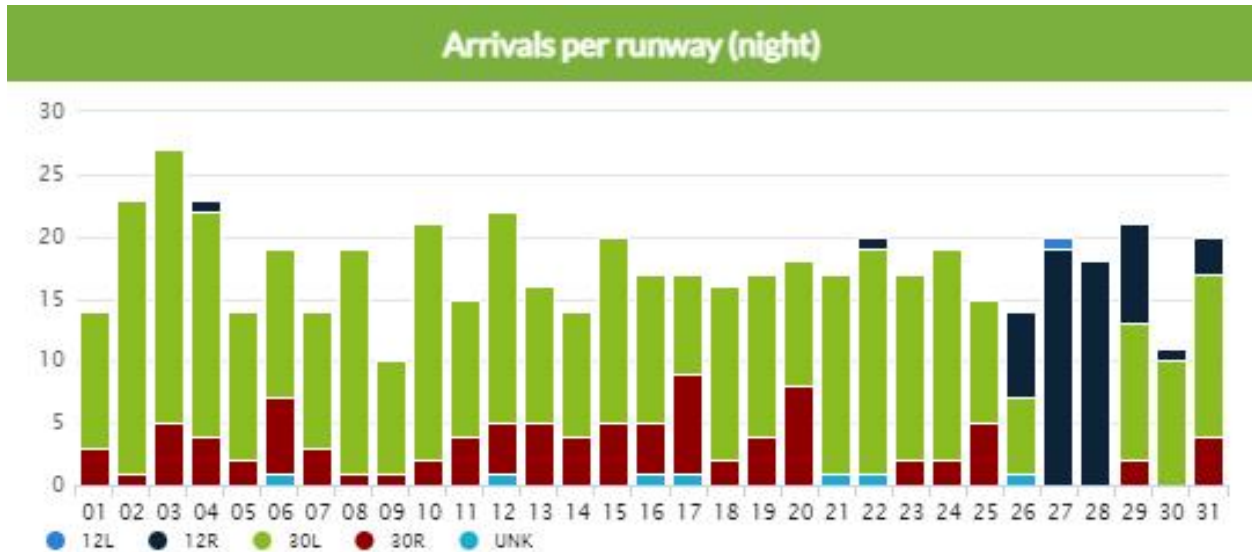


Figure 28 – Arrivals per Runway (Night) Chart

The Y-axis denotes the number of nighttime arrivals, while the X-axis indicates the day of the month. The chart key is color-coded by arrival runway in number order at the selected airport.

### 7.3 Departures per Runway (Day) Chart

This chart compares the number of Departures per runway during daytime hours (defined by the FAA as 07:00-22:00) at the selected airport. A single day's flights are compared using a stacked column, which indicates the distribution of flights by departure runway at the selected airport over the chosen month.



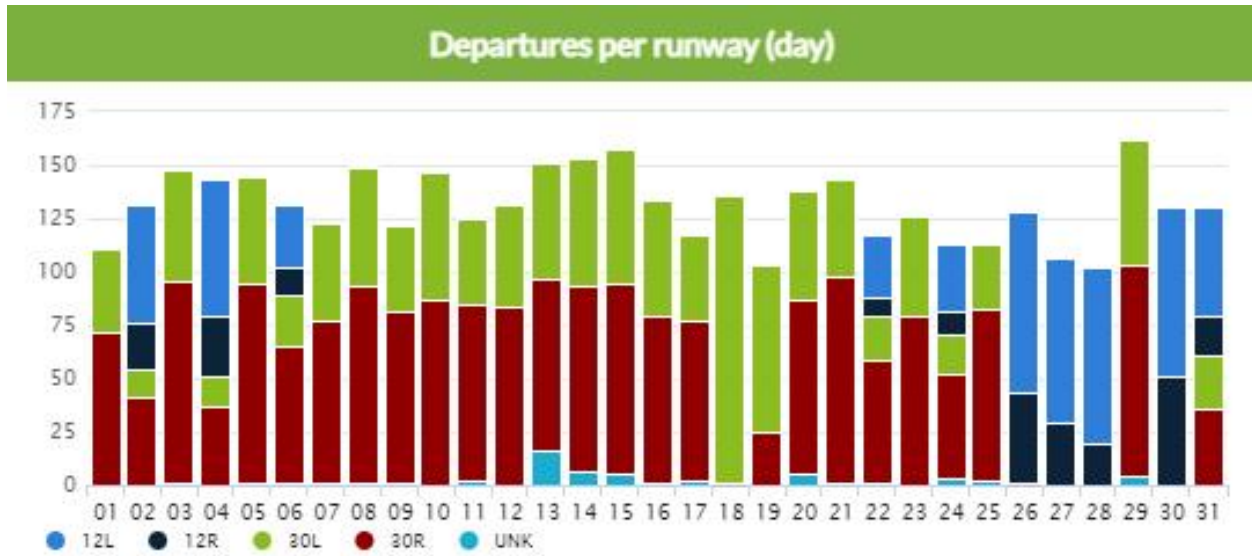


Figure 29 – Departures per Runway (Day) Chart

The Y-axis denotes the number of daytime departures, while the X-axis indicates the day of the month. The chart key is color-coded by departure runway in number order at the selected airport.

### 7.4 Departure per Runway (Night) Chart

This chart compares the number of Departures per runway during nighttime hours (defined by the FAA as 22:00-07:00) at the selected airport. A single day's flights are compared using a stacked column, which indicates the distribution of flights by departure runway at the selected airport over the chosen month.

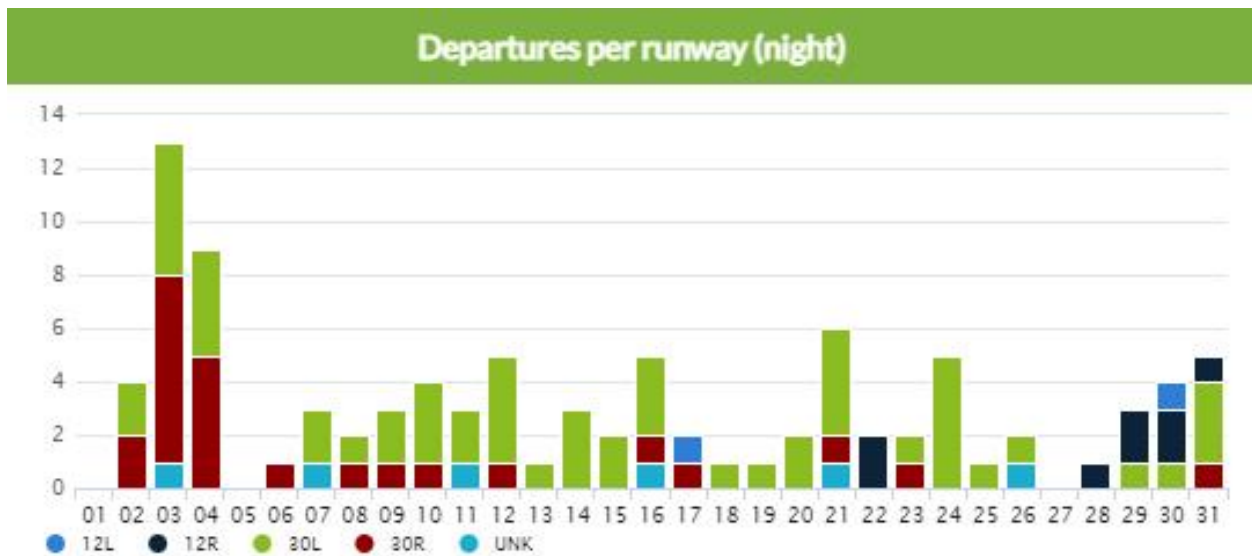


Figure 30 – Departures per Runway (Night) Chart

The Y-axis denotes the number of nighttime departures, while the X-axis indicates the day of the month. The chart key is color-coded by departure runway in number order at the selected airport.

## 8 South Flow Page

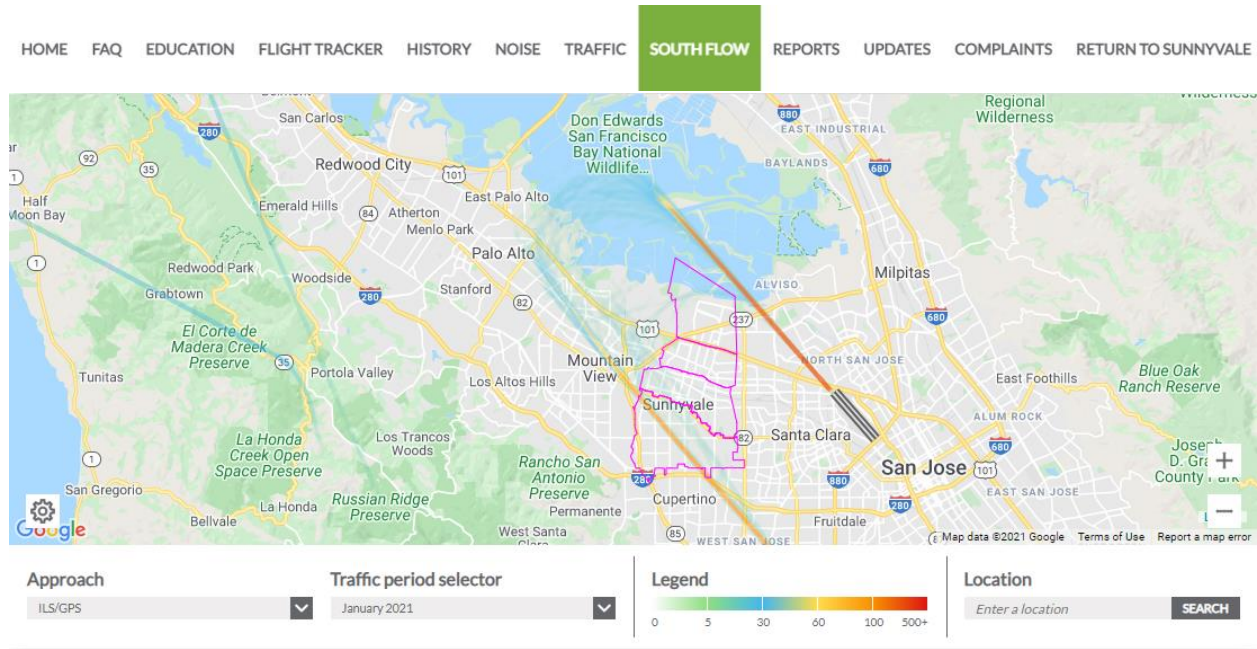


Figure 31 – South Flow Data Browser

The South Flow page provides access to the South Flow Data Browser, which allows the user to view aircraft flight track data associated with South Flow Arrivals at KSJC Airport for a given month. Note only jet aircraft are included in the data as most turboprop and all piston-powered aircraft are not authorized to fly the RNP Z Approach.

The Approach selector allows you to choose what type of landing pattern you wish to view data on. The two South Flow Approach procedures that most affect Sunnyvale are discussed in detail on the South Flow 101 page under the Education menu covered in Section 3.

A density (heat map) overlays the map highlighting flight track concentration areas over the City for the selected approach type during the chosen month, as shown in Figure 31.

The heat map is calculated based on a fixed grid that is overlaid on a map. The Casper NOMS system calculates the number of flights that passed through each equal-sized grid square. A color is then applied to the grid square based on the volume of flights compared to other squares. The color assignment is determined based on pre-determined buckets, as shown in the Map Legend in Figure 32.

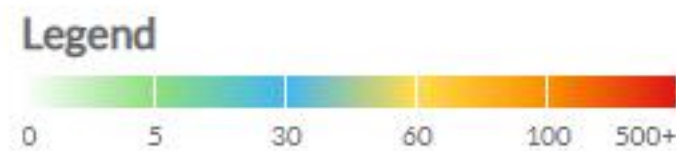



Figure 32 – Heat Map Legend

Clicking on the  icon in the lower left-hand corner of the map allowing the user to change the base map type.

- Google Maps – Google street map
- Google Maps (Satellite) – Google aerial map
- Google Maps (Satellite/Hybrid) – Google aerial map with labels
- Openstreet Map – Openstreet map (default)



The user can also activate one or multiple zip code (94085, 94086, 94087, 94089) map overlays.

Under the map are two pull-down menus that allow you to change the map and chart data displayed. By default, the page displays ILS/GPS Arrivals for the current month at SJC- San Jose Airport. Changing the approach type alters the map display, while selecting a different period alters the charts.

The Period Selector is a rolling 12 month period, based on the current month. Historical flight track data is available from January 1, 2020, when Casper turned on Sunnyvale's flight track data feed.

The Location search box uses the Google Address lookup to find a location and display it for visual reference.

The charts are interactive. Hovering over a particular data slice or bar displays the value represented by the data grouping. You can also click on a particular entry in the chart legend and remove that entry.

The charts will update automatically to reflect the new data. Click on the   directional arrows to scroll through the available charts.

## 8.1 Aircraft Noise Events (Max dBA) RNP Approach Chart

This chart compares the number of aircraft noise events by L<sub>max</sub> in A-weighted decibels (dBA) grouped into buckets of 5 dBA. The chart only includes noise event data for flights that flew the RNP Z approach to Runway 12L or 12R at SJC Airport. Note some flights may have generated noise events at more than one NMT.

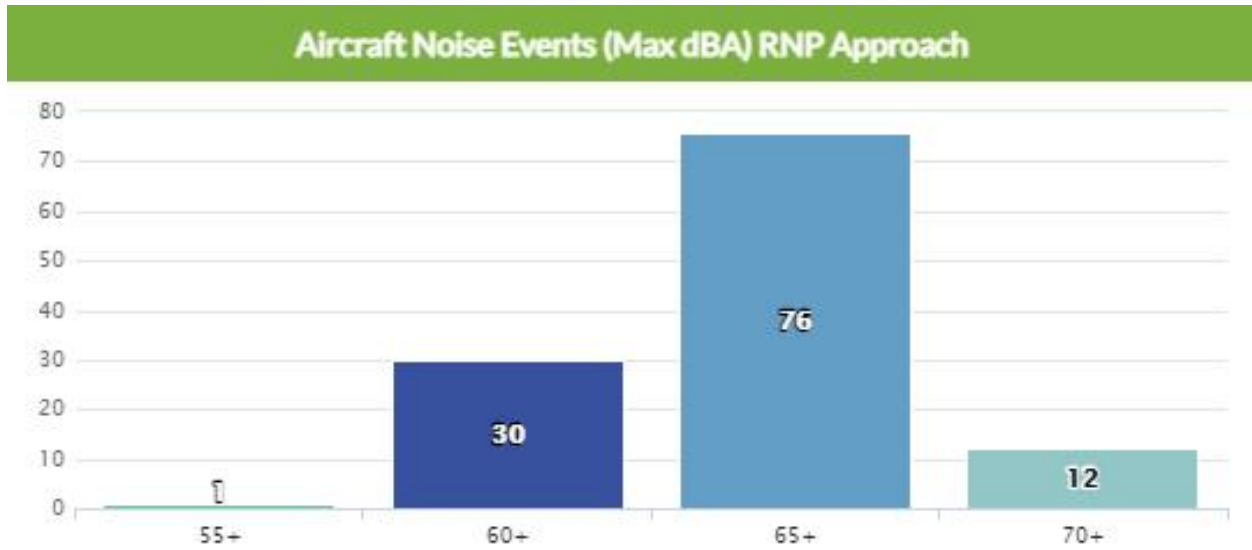


Figure 33 – Aircraft noise Events (Max dBA) RNP Approach Chart

The Y-axis denotes the number of aircraft noise events, while the X-axis depicts the Lmax in A-weighted decibels (dBA) grouped into buckets of 5 dBA. Each column is colored differently based on the decibel bucket represented.

### 8.2 Aircraft Noise Events (Max dBA) non-RNP Approach Chart

This chart compares the number of aircraft noise events by Lmax in A-weighted decibels (dBA) grouped into buckets of 5 dBA. The chart only includes noise event data for flights that flew the ILS/GPS approach to Runway 12L or 12R at SJC Airport. Note some flights may have generated noise events at more than one NMT.

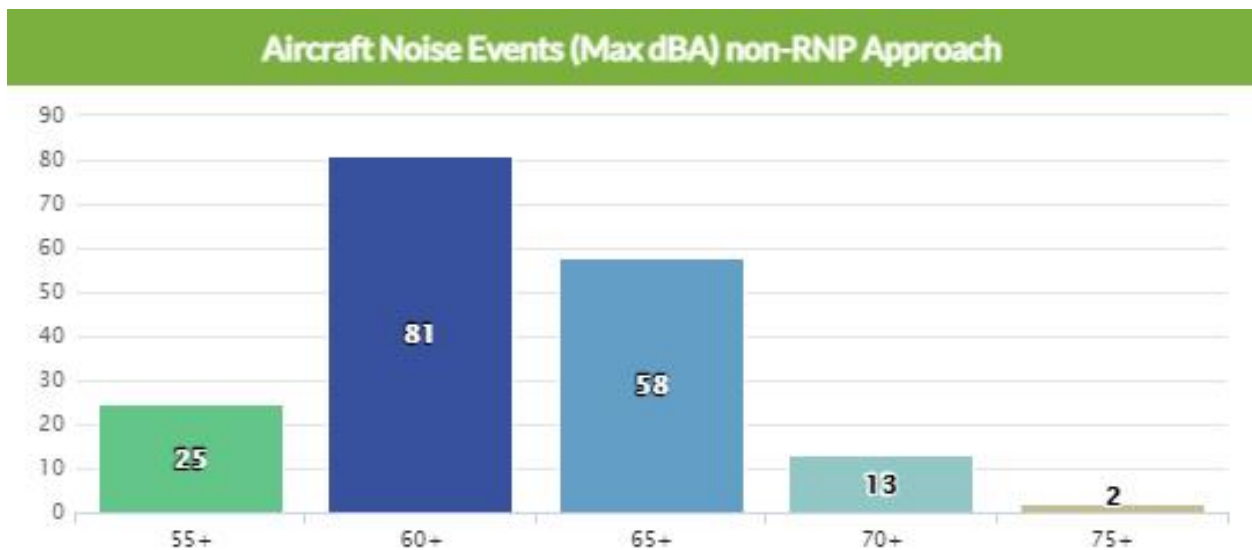


Figure 34 – Aircraft Noise Events (Max dBA) non-RNP Approach Chart

The Y-axis denotes the number of aircraft noise events, while the X-axis depicts the Lmax in A-weighted decibels (dBA) grouped into buckets of 5 dBA. Each column is colored differently based on the decibel bucket represented.

### 8.3 Jet Arrivals per Approach

This donut chart displays the percentage of flights that flew a particular South Flow approach procedure when landing at SJC Airport.



Figure 35 – Jet Arrivals per STAR Chart

The chart legend denotes the percentage and the total number of each approach type flown in South Flow during the chosen month. Each procedure type is assigned a different color.

### 8.4 Altitude Chart

This chart compares individual aircraft's altitude that flew through the RWY 12L-12R Downwind Gate, which intersects the ZORSA waypoint on the RNP Z 12L and 12R approach to SJC Airport. The gate captures both ILS/GPS and RNP approaches to Runway 12L and 12R, in which the aircraft overflow the City of Sunnyvale.

Each dot on the scatter plot indicates the penetration altitude of a single flight during the chosen month. The dots' distribution shows you the altitude and position left or right of the gate centerline. The chart makes it easy to determine concentration areas and highlights flights outside the typical approach pattern parameters.

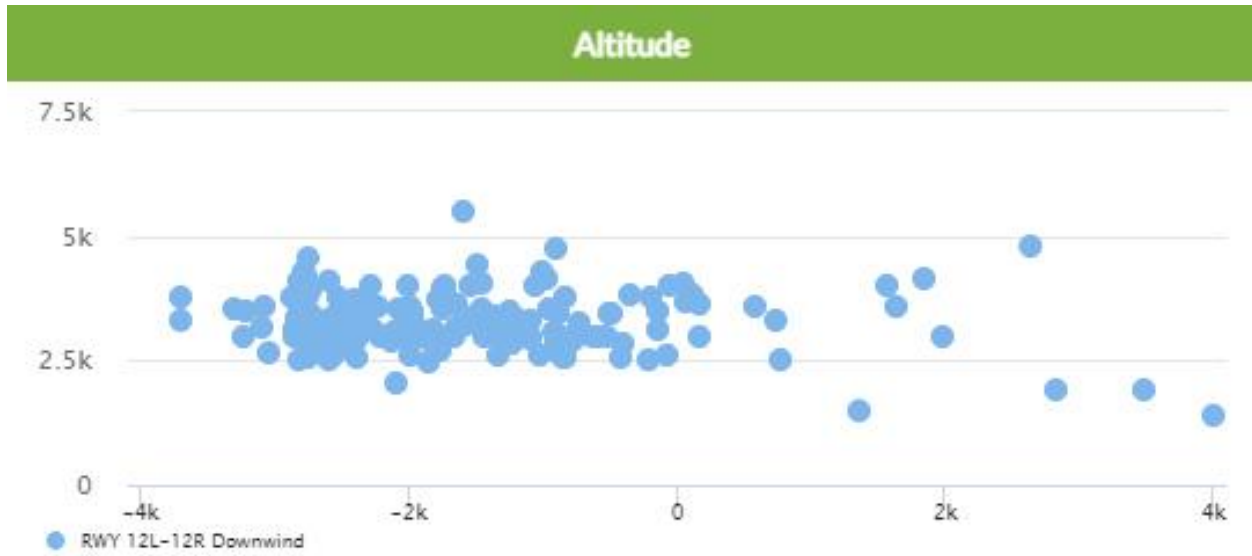


Figure 36 – Approach Altitude Scatter Plot Chart

The Y-axis denotes the penetration altitude in thousands of feet, while the X-axis depicts the penetration distance in thousands of feet left (negative) or right (positive) of the center point of the gate. Note a mile is equal to 5,280 feet.

### 8.5 Flights per Aircraft Type Chart

This chart displays the most frequent aircraft types to fly the RNP Z Approach to Runway 12L or 12R at SJC Airport for the chosen month.

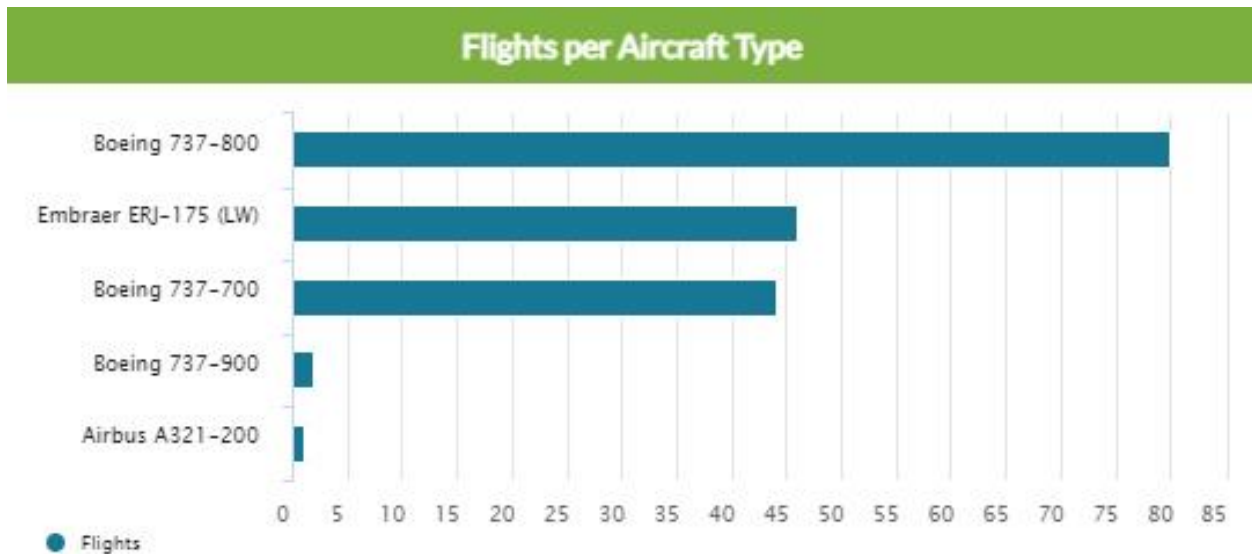


Figure 37 – Flights per Aircraft Type Chart

The Y-axis labels denote the aircraft type, while the X-axis indicates the number of RNP approaches flown. The bars are sorted in descending order from top to bottom.

### 8.6 Flights per Airline Chart

This chart displays the most frequent airlines to fly the RNP Z Approach to Runway 12L or 12R at SJC Airport for the chosen month.

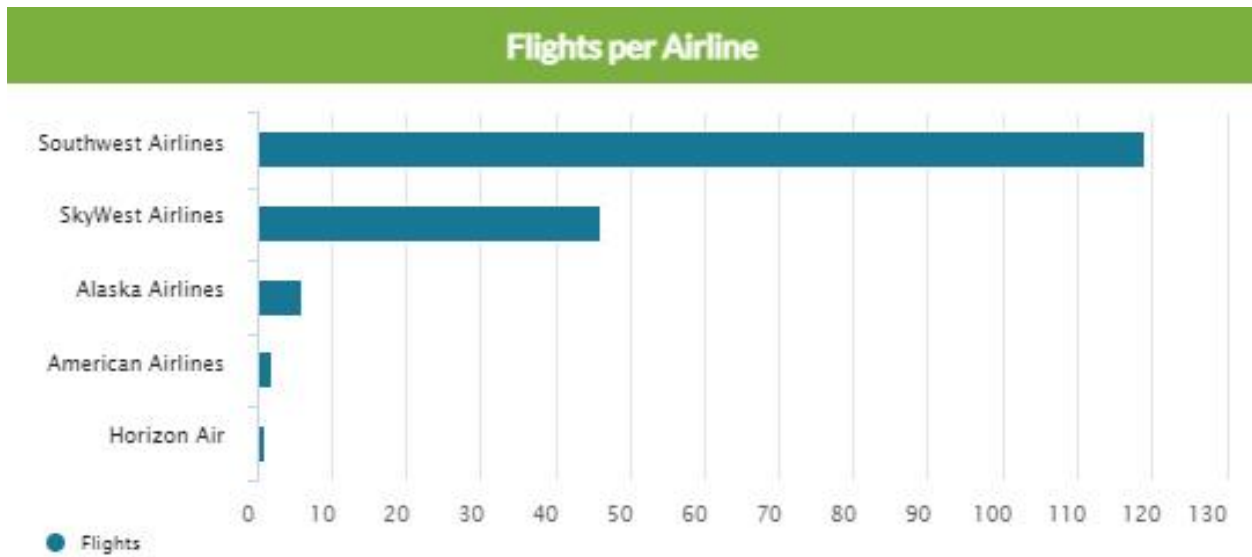


Figure 38 – Flights per Airline Chart

The Y-axis labels denote the airline, while the X-axis indicates the number of RNP approaches flown. The bars are sorted in descending order from top to bottom.



## 9 Report Pages

HOME FAQ EDUCATION FLIGHTTRACKER HISTORY NOISE TRAFFIC SOUTH FLOW **REPORTS** UPDATES COMPLAINTS RETURN TO SUNNYVALE

The Report pages provide access to a series of Excel reports that can be downloaded by users. Each report covers a specific area of interest as identified by the City. The included reports are:

### 9.1 Sunnyvale Overflight Data Report

This monthly report includes information on all flights that overflew the City of Sunnyvale during a given month arriving or departing from one of the eight local Bay Area airports of interest, as shown in Figure 39. Note this report doesn't include noise data. For details about the specific fields included in the report, please see the dedicated report page on the website.

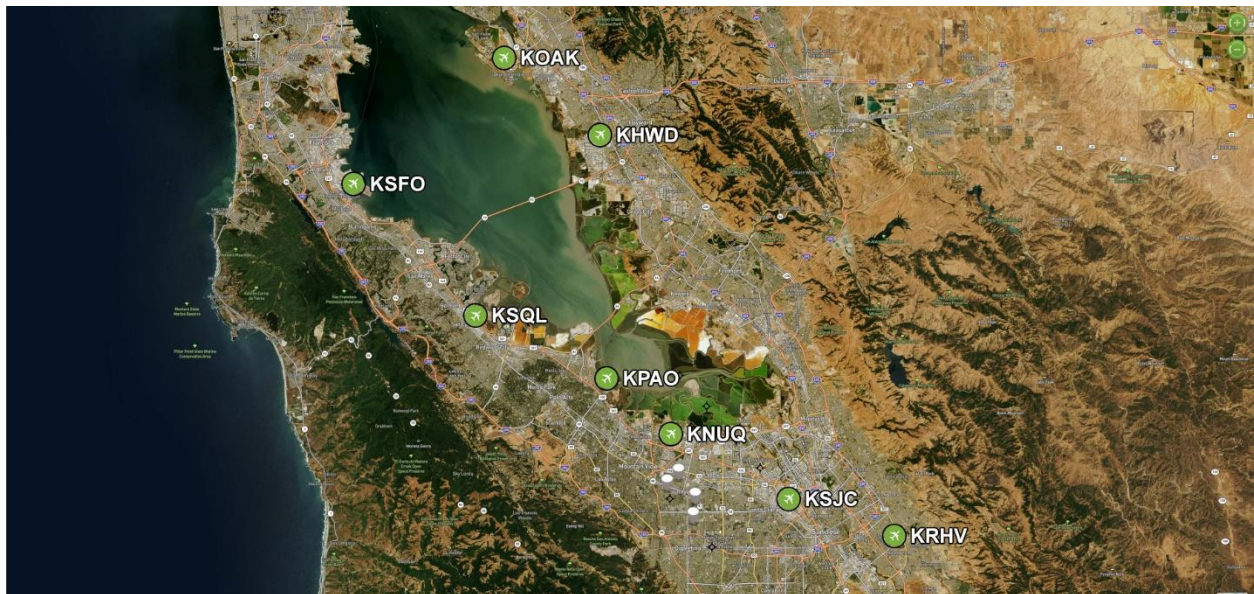


Figure 39 – Map showing Bay Area Airports of Interest

1. KRHV – Reid-Hillview Airport of Santa Clara County
2. KSJC – Norman Y Mineta San Jose International Airport
3. KNUQ – Moffett Federal Airfield
4. KPAO – Palo Alto Airport
5. KSQL – San Carlos Airport
6. KSFO – San Francisco International Airport
7. KOAK – Metro Oakland International Airport
8. KHWD – Hayward Executive Airport

### 9.2 SJC South Flow Data Report

This monthly report includes information on all south flow jet arrivals that generated at least one noise event at one of the four City-owned NMTs.

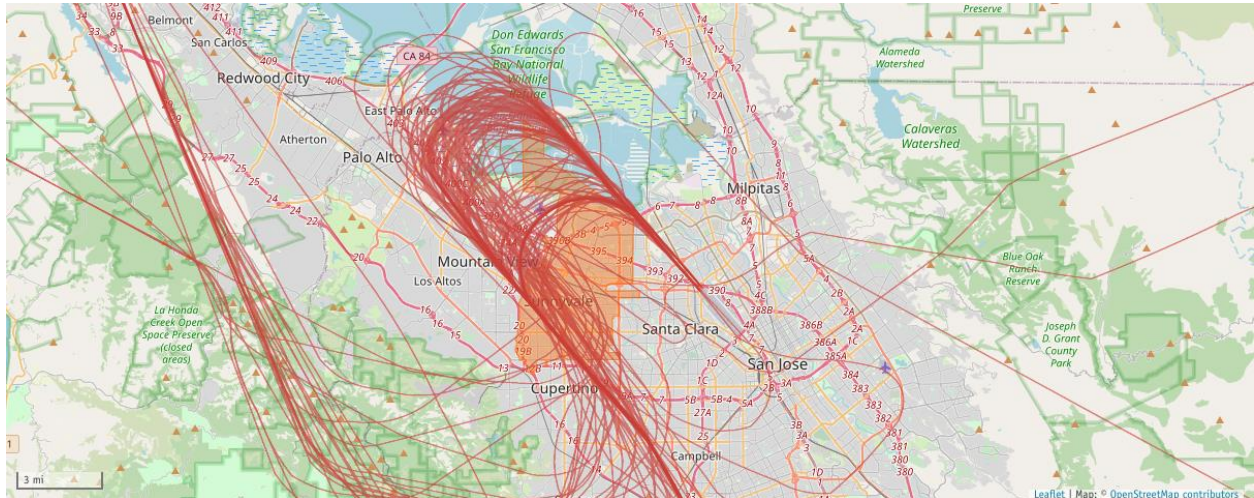


Figure 40 – Map Depicting SJC South Flow Approaches that Overflow Sunnyvale

The report breaks out flights by the approach procedure flown to allow for comparison. The altitude reported is when the aircraft was closest to the NMT that recorded the aircraft noise event. The noise level reported is the Lmax in A-weighted decibels (dBA) recorded for each flight. For details about the specific fields included in the report, please see the dedicated report page on the website.

### 9.3 Raw Noise Data Report

This weekly report is a raw dump of the 1-second noise data from each of the City's four NMTs. The data isn't correlated to aircraft overflights, and no attempt is made to associate a source (aircraft or community) to the noise level recorded. For details about the specific fields included in the report, please see the dedicated report page on the website.

	A	B	C	D	E	F
1	Start date/time	End date/time	0 sec	1 sec	2 sec	3 sec
2	11/2/2020 0:00	11/2/2020 0:01	46.8	44.3	40.6	41.3
3	11/2/2020 0:01	11/2/2020 0:02	38	37.5	37.8	38.4
4	11/2/2020 0:02	11/2/2020 0:03	38.7	38.7	38.8	38.4
5	11/2/2020 0:03	11/2/2020 0:04	39.5	38.6	38.7	38.5
6	11/2/2020 0:04	11/2/2020 0:05	39.5	39.6	39.6	39.1
7	11/2/2020 0:05	11/2/2020 0:06	36.2	36.8	36.1	36.6
8	11/2/2020 0:06	11/2/2020 0:07	37.5	37.8	37.9	37.9
9	11/2/2020 0:07	11/2/2020 0:08	38.2	38.2	37.6	38.3
10	11/2/2020 0:08	11/2/2020 0:09	37.7	37.3	37.4	38.7
11	11/2/2020 0:09	11/2/2020 0:10	39.3	39.6	79.4	40.4
12	11/2/2020 0:10	11/2/2020 0:11	38.1	39.1	38.6	38.9
13	11/2/2020 0:11	11/2/2020 0:12	38.3	37.8	37.9	37.9
14	11/2/2020 0:12	11/2/2020 0:13	38.1	38	37.6	37.4

Figure 41 – Raw Noise Data Report Snapshot

# 10 Updates Page

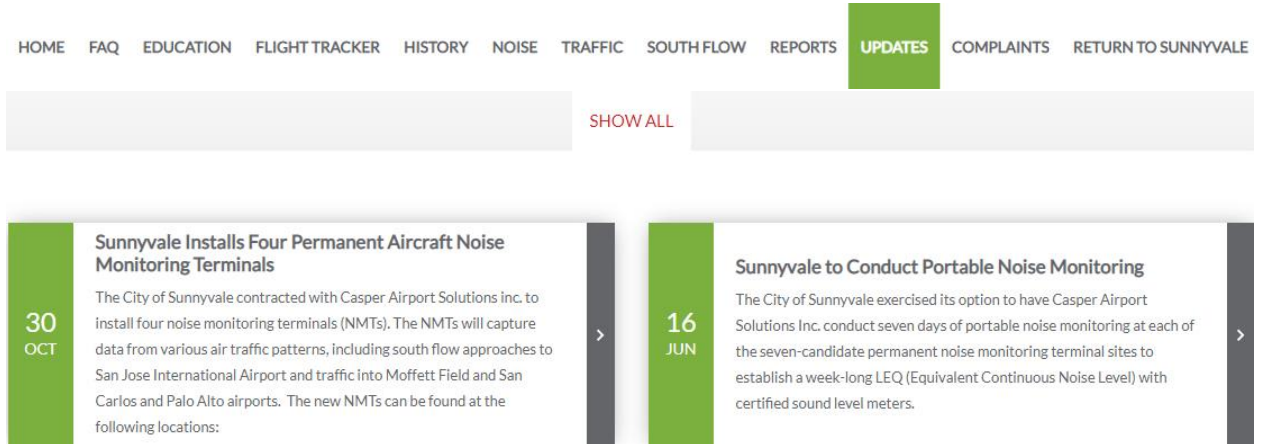


Figure 42 – Sample News Items on the Updates Page

The Updates page provides access to news items issued by the City of Sunnyvale concerning aircraft noise. The page displays all current and archived news items. It will not display any news items with a future publication date. Selecting the **SHOW ALL** entry displays all news items available on the website.

Select the  arrow to the right of the news item to expand it and view the full text.

# 11 Complaints Page

HOME FAQ EDUCATION FLIGHTTRACKER HISTORY NOISE TRAFFIC SOUTHFLOW REPORTS UPDATES **COMPLAINTS** MAINTENANCE RETUR

The Complaints page provides users with information on how to file an aircraft noise complaint. Note the City of Sunnyvale does not accept aircraft noise complaints. Instead, it directs residents to submit their complaints directly to the airport authority.

As explained on the page, the airport responsible for the aircraft noise event can be determined using the City's Casper Public Flight Tracker. The page includes links to each airport's noise website from which residents can submit their complaints.

The FAA's Northern California Aviation Noise Ombudsman's contact email and phone number are also listed. This information changes regularly, and updated contact information can be found at <https://www.faa.gov/noise/inquiries/>

Region	State	Name	Email	Telephone
Western-Pacific	California (Northern)	Sky Laron	<a href="mailto:9-awp-noise@faa.gov">9-awp-noise@faa.gov</a>	424-405-8020

## 12 Return to Sunnyvale

Clicking on this menu item opens up the City of Sunnyvale's website in a new browser window.

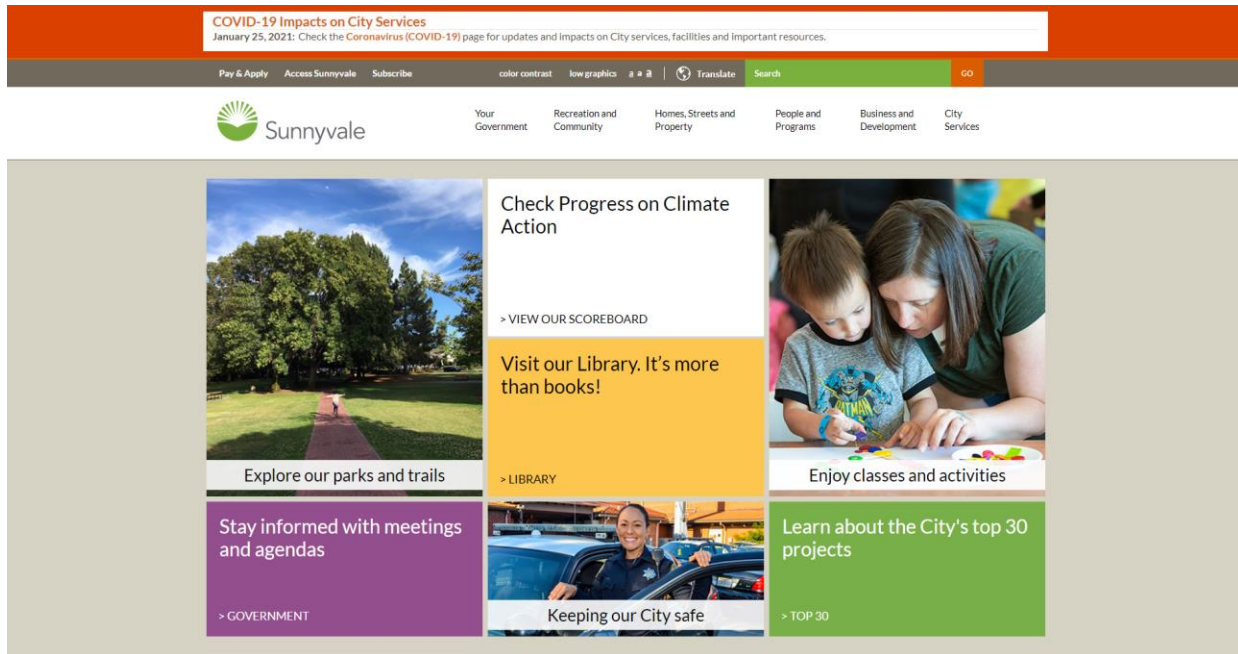


Figure 43 – City of Sunnyvale's Website