



**SAN DIEGO**  
INTERNATIONAL AIRPORT

LET'S **GO.**

# Airport Noise Advisory Committee

August 16, 2017

# Agenda

1. Welcome and Introductions
2. Presentation Items
  - a. Quieter Home Program Update
  - b. Missed Approach Statistics
  - c. Early Turn Statistics
  - d. Gate/Altitude Analysis
  - e. Curfew Violation Review Panel Statistics
  - f. Noise Complaint Statistics
  - g. Fly Quiet Report - 2nd Quarter 2017
  - h. La Jolla Noise Methodology
  - i. **July 19, 2017 Subcommittee Update**
3. Public Comment
4. Action Items
  - a. Approval of June 21, 2017 Minutes
5. New Business
6. Next Meeting: October 18, 2017- Special Agenda: Subcommittee Recommendations
7. Adjourn



# Quieter Home Program Update

PROGRAM STATISTICS	
Applicants / Homes on the Wait List	666/1,413
Homes Completed in June & July 2017	0
Estimated Homes to Complete in CY 2017	20
Total Homes Completed (through July 31, 2017)	3,453

## Updates

- **8.12** – Awarded in July. Pre-construction activities underway.
- **9.1** – Advertised for bid on 8/1/17.
- Projects submitted for FAA review:
  - **8.10** – Designs approved. Request to advertise for bid 8/4/17.
  - **8.11** – Designs submitted on 8/2/17.
- Pending Projects:
  - **9.2** – Non-Historic, SF and MF, 40 units.
  - **9.3** – Non-Historic, SF and MF, 35 units.
  - **9.4** – Non-Historic, SF and MF, 25 units.
- **9.5** – New group of (Historic) homes pending for 9/5/17

Questions ?



# Definition: Missed Approaches



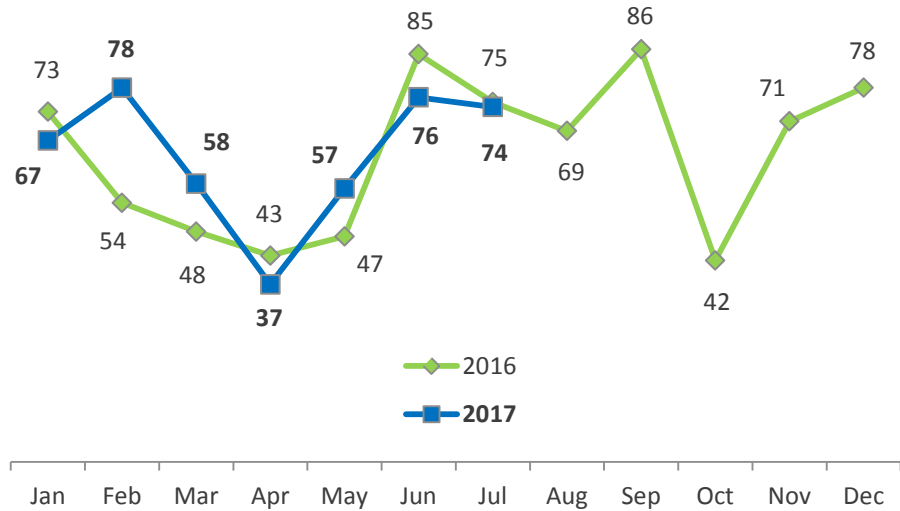
Commonly referred to as a “Go-Around,” a missed approach occurs when an aircraft cannot complete its landing and is required to make another attempt. It can be caused by:

- Inclement weather conditions
- Debris on the runway
- ATC separation of aircraft, slower aircraft unable to exit airspace or runway, forcing larger aircraft to go around

Missed approaches are safety operations that the Authority cannot influence.

# Missed Approach Statistics

## Missed Approaches by Month



YEAR	Total Missed Approaches	Total Arrivals	% of Total Arrivals that are Missed Approaches
2012	692	93,126	0.7
2013	659	93,985	0.7
2014	637	95,881	0.7
2015	748	96,856	0.8
2016	771	98,566	0.8
2017	447*	59,804**	0.7

\* Through July 31, 2017  
 \*\* Estimated Through July 31, 2017

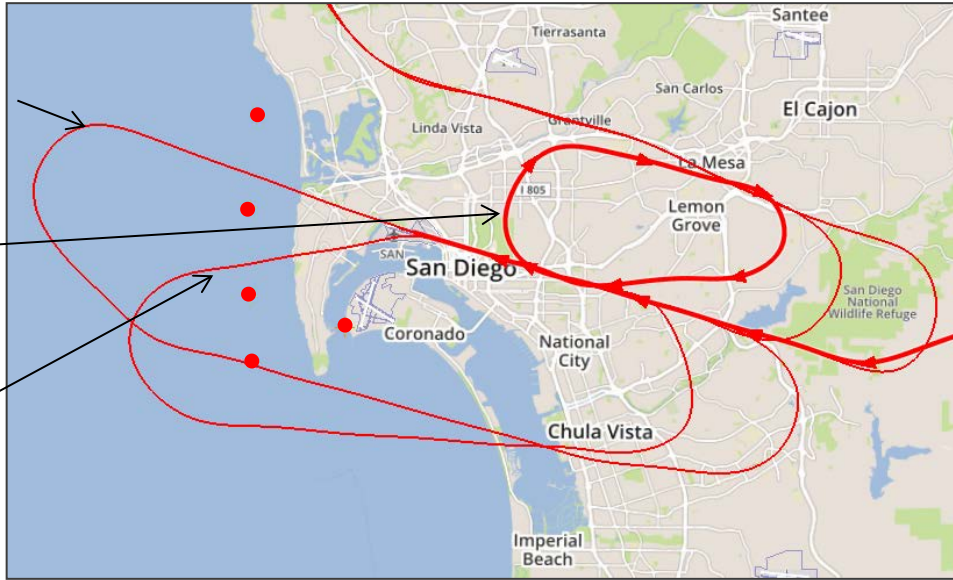
# Missed Approach Noise Dot Compliance

## Examples

Compliant

Eastern

Non-Compliant



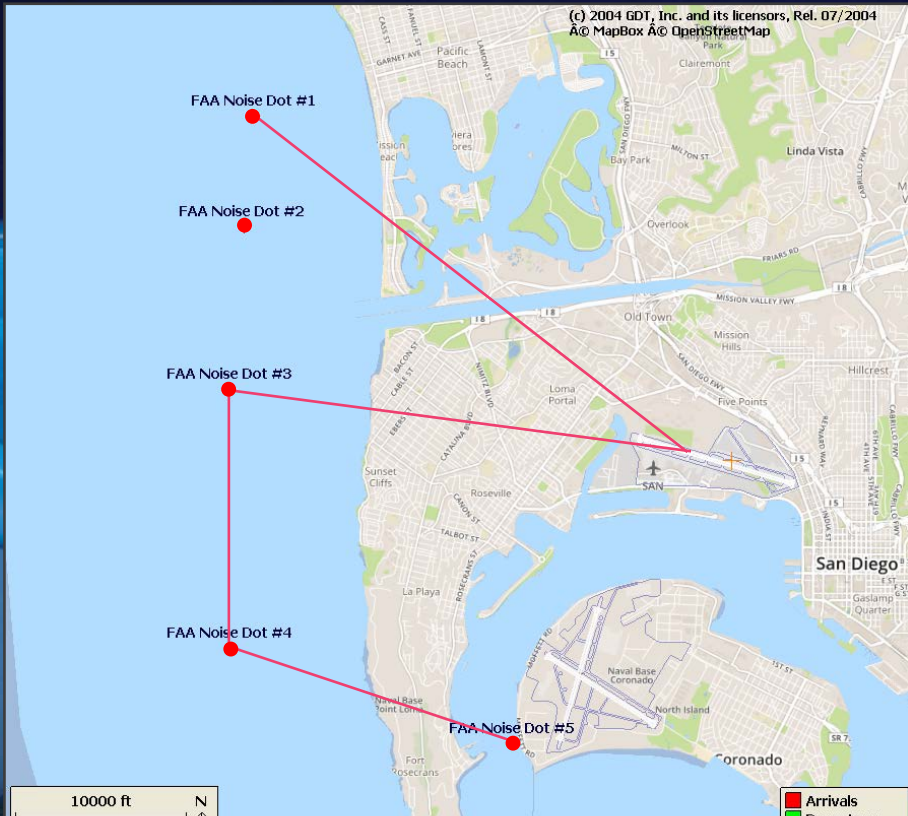
	<u>Compliant</u>	<u>Non-Compliant</u>	<u>East of Airport</u>
June, 2017	39	20	17
July, 2017	50	17	7

## Missed Approaches Non-Compliant with FAA Noise Dots

	<u>2016</u>	<u>2017</u>
Jan	18	15
Feb	11	9
Mar	10	5
Apr	11	3
May	12	10
Jun	29	20
Jul	25	17
Aug	19	
Sep	22	
Oct	11	
Nov	11	
Dec	12	

\*Through July 31, 2017

# Definition: Early Turns



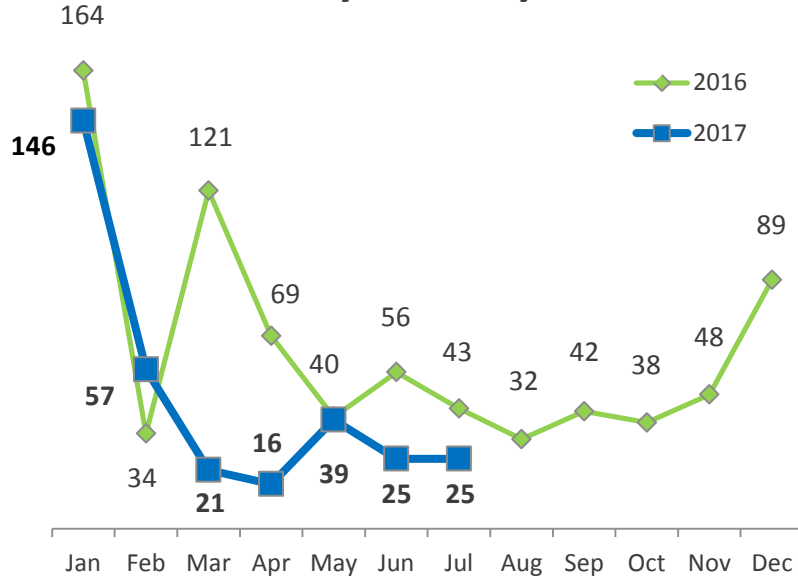
The Authority has defined early turns to the right as those aircraft that turn prior to FAA Noise Dot #1 at the 295-degree heading to the right. Left early turns are defined as those aircraft that turn prior to the FAA Noise Dot #3 at the 265-degree heading to the left.

Causes for early turns can be similar to missed approaches and are often due to weather or separation.



# Early Turn Statistics

## Early Turns by Month

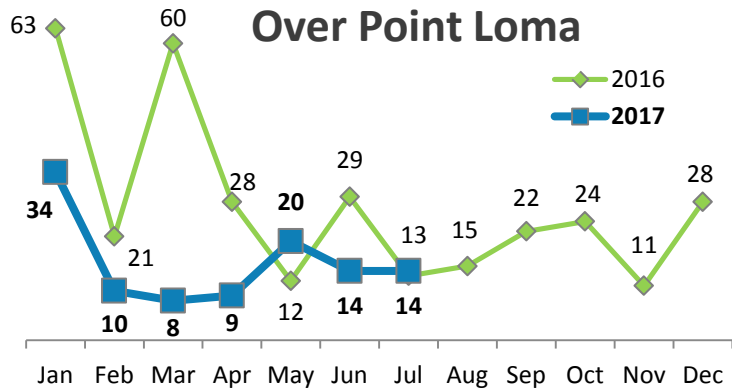


## Historical vs. Current Data

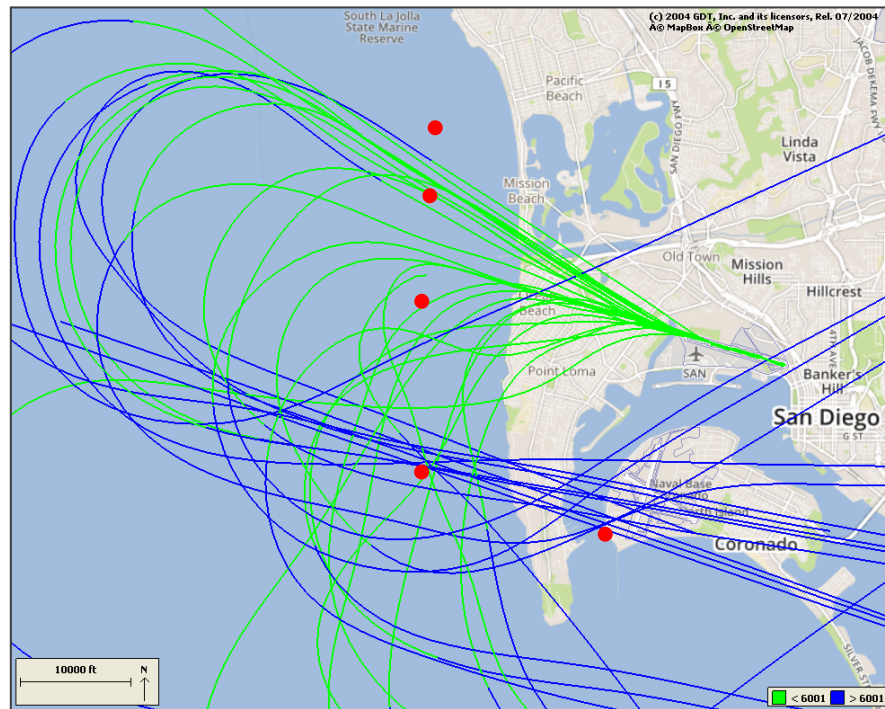
YEAR	Below 6,000'	All Altitudes
2012	316	538
2013	200	829
2014	338	1,105
2015	467	1,293
2016	559	776
2017	277*	329*

\*Through July 31, 2017

# Early Turn Statistics - Left



## June & July 2017

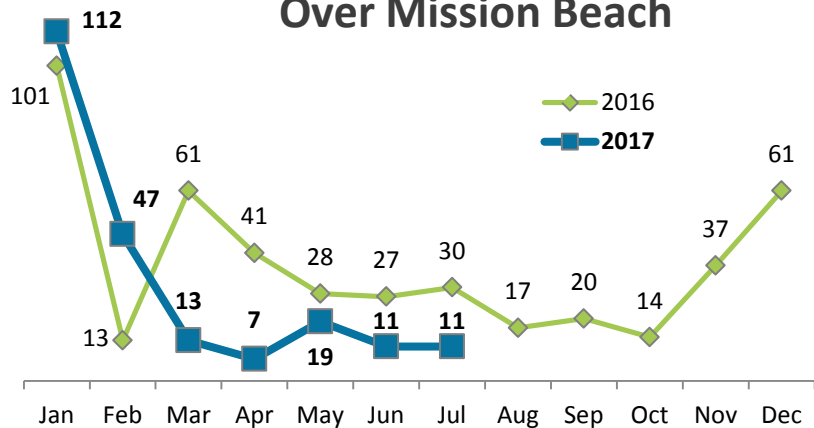


## Early Turns by Operator

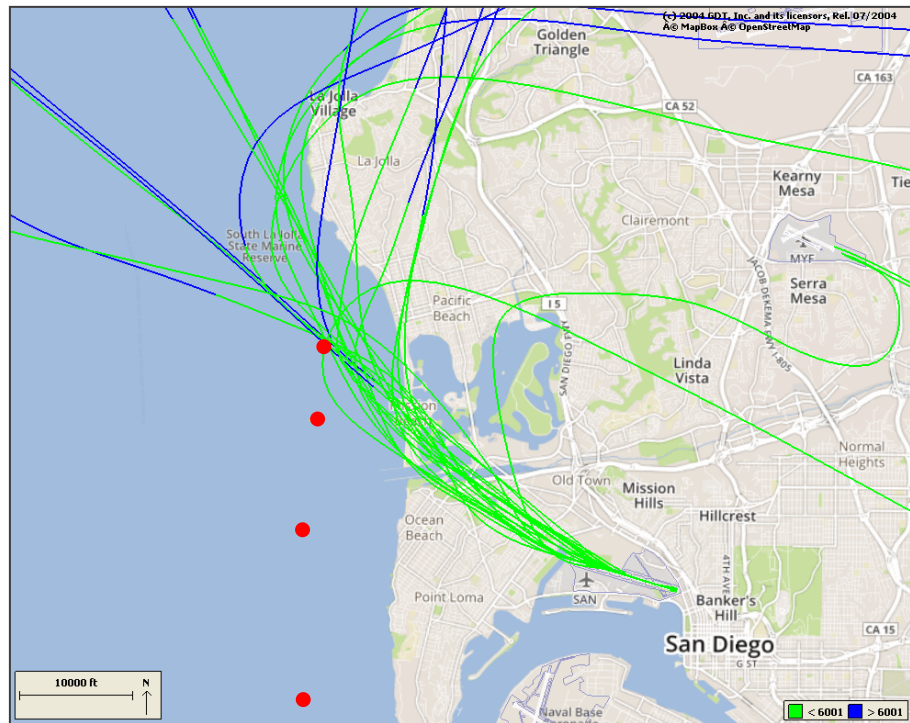
Count	Airline	Aircraft
9	American Airlines	A321, B738, B752
6	General Aviation	--
3	Delta Air Lines	B739, B752
3	Southwest Airlines	B737
1	Allegiant Air	A319
1	Alaska Airlines	B738
1	Edelweiss Air	A343
1	Frontier Airlines	A320
1	jetBlue	A320
1	United Airlines	A319
1	UPS	B763

# Early Turn Statistics - Right

## Over Mission Beach



## June & July 2017



## Early Turns by Operator

Count	Airline	Aircraft
12	General Aviation	--
3	American Airlines	B738
2	Southwest Airlines	B737
1	Alaska Airlines	B739
1	Delta Air Lines	B752
1	Frontier Airlines	A320
1	Japan Airlines	B788
1	Virgin America	A320

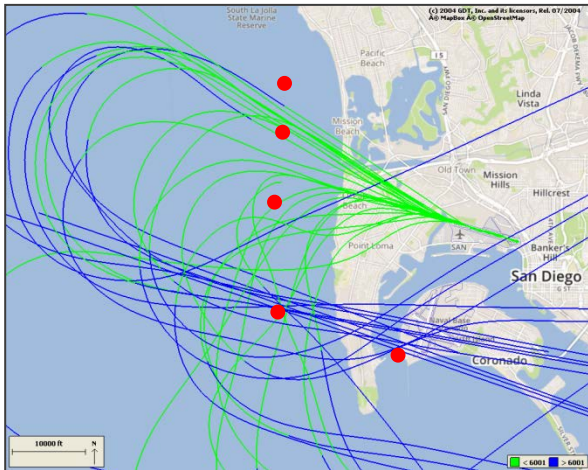
# Breakdown of Early Turns

## Over Point Loma

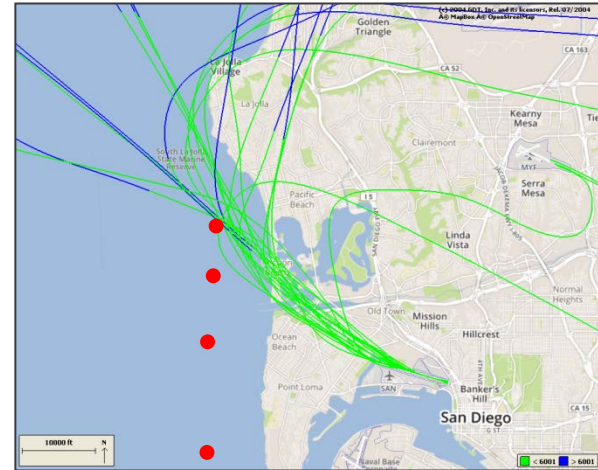
Reason	Count	%
Pilot Deviation / Equipment Error	10	36%
ATC	7	25%
Within 1,500 ft. from Noise Dot	7	25%
Pending Investigation	2	7%
Weather / Contraflow	2	7%
<b>TOTAL</b>	<b>28</b>	<b>100%</b>

## Over Mission Beach

Reason	Count	%
Within 1,500 ft. from Noise Dot	7	32%
Weather / Contraflow	5	23%
Pending Investigation	4	18%
Pilot Deviation / Equipment Error	3	14%
ATC	3	14%
<b>TOTAL</b>	<b>22</b>	<b>100%</b>



● = FAA Noise Dots



# Signature Aviation Materials

## SAN DIEGO INTERNATIONAL AIRPORT NOISE ABATEMENT PROCEDURES



### Noise Dots

#### Follow published procedures.

If flying VFR, avoid initiating your turn before 1.5 miles off-shore to prevent fly-over of noise sensitive communities.



### Nighttime Departure

Unless instructed by ATC, fly heading 290° on departure between 2200-2330.



### Curfew

There is a departure curfew of 2330-0630. Financial penalties may apply.

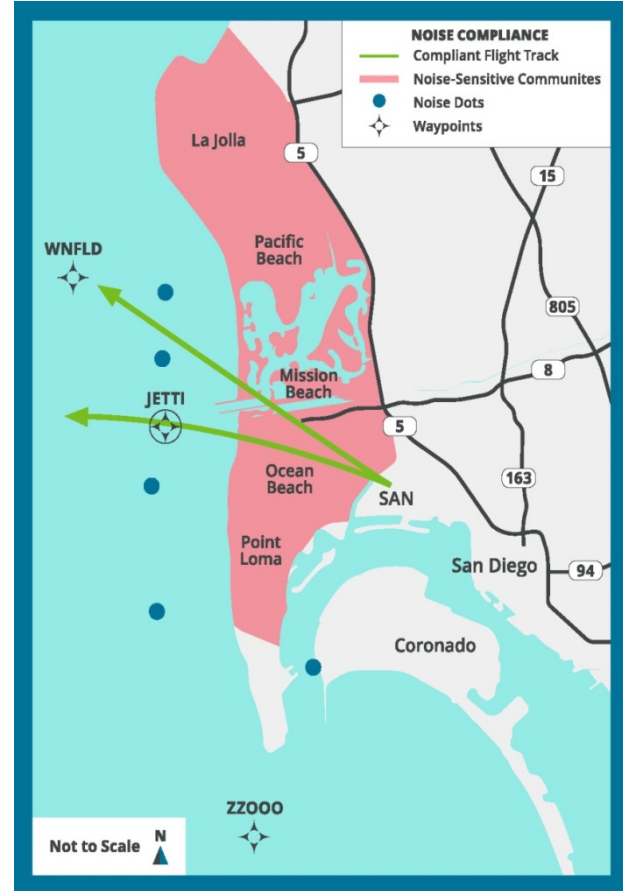


### Noise Questions

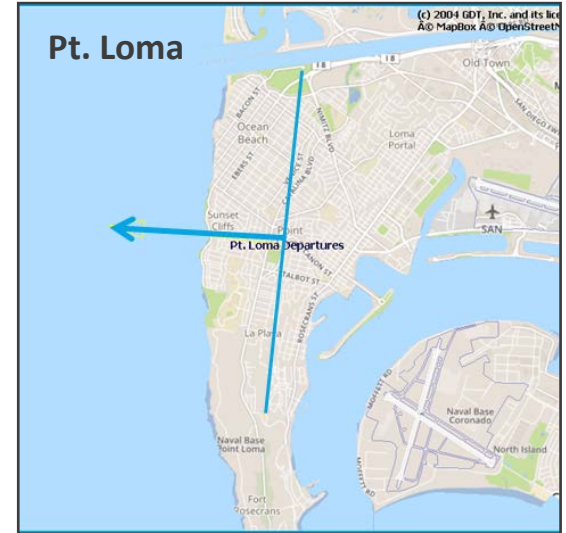
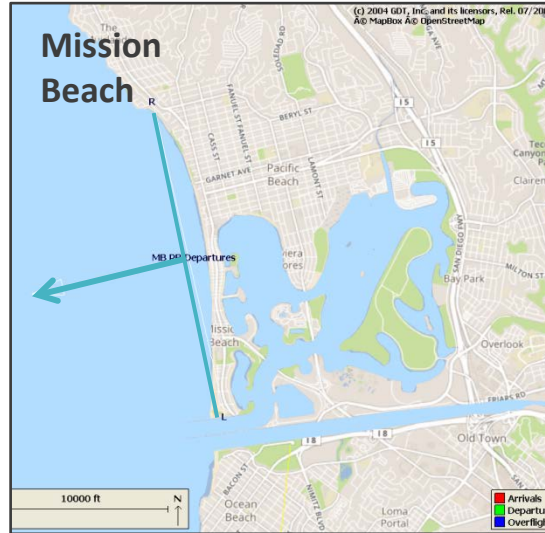
Phone: 619.400.2660

Email: [noisedisclosure@san.org](mailto:noisedisclosure@san.org)

Website: [san.org/airport-noise](http://san.org/airport-noise)



# Gate Altitude Analysis



Location	Pre-Metroplex Altitude (ft. AGL)	Post-Metroplex Altitude (ft. AGL)
La Jolla (SAN Arrivals)	7,781	8,036
La Jolla (Other Airports)	2,283	2,615
Pt. Loma Departures	1,759	1,836
Mission Beach Departures	2,455	2,464

# Questions ?



# Curfew Violation Review Panel Stats

Year	Total Curfew Violations	Fines Assessed
2013	60	\$ 166,000
2014	47	\$ 178,000
2015	55	\$ 152,165
2016	84	\$ 564,000
2017	38*	\$ 296,000*

\*Through August 2, 2017



# Curfew Violation Review

## Curfew Violations in June-July 2017

### **No penalty due to local weather conditions and contraflow:**

June 16, 2017, June 20, 2017, June 21, 2017

### **No penalty due to local maintenance:**

June 1, 2017 : JBU 530 – Engine Bleed Issue

June 3, 2017 : JBU 20 – Fuel System Issue

June 29, 2017 : AAL 654 – Damage from jetbridge

### **To be reviewed on October 4 CVRP meeting:**

July 18, 2017 : VRD 8001

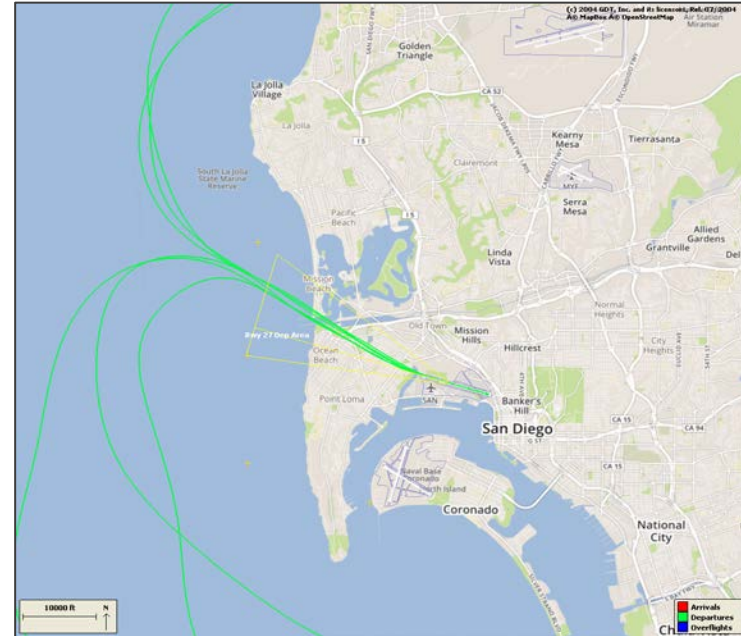
July 23, 2017 : AAL 654

Date	Time	Flight ID	Aircraft	Penalty Status
6/3/2017	0:13	AAL 584	A321	\$2,000
6/5/2017	23:55	NKS 189	A319	\$ 10,000
6/29/2017	0:33	JBU 530	A320	\$50,000
6/30/2017	23:52	AAL 385	B738	\$ 6,000

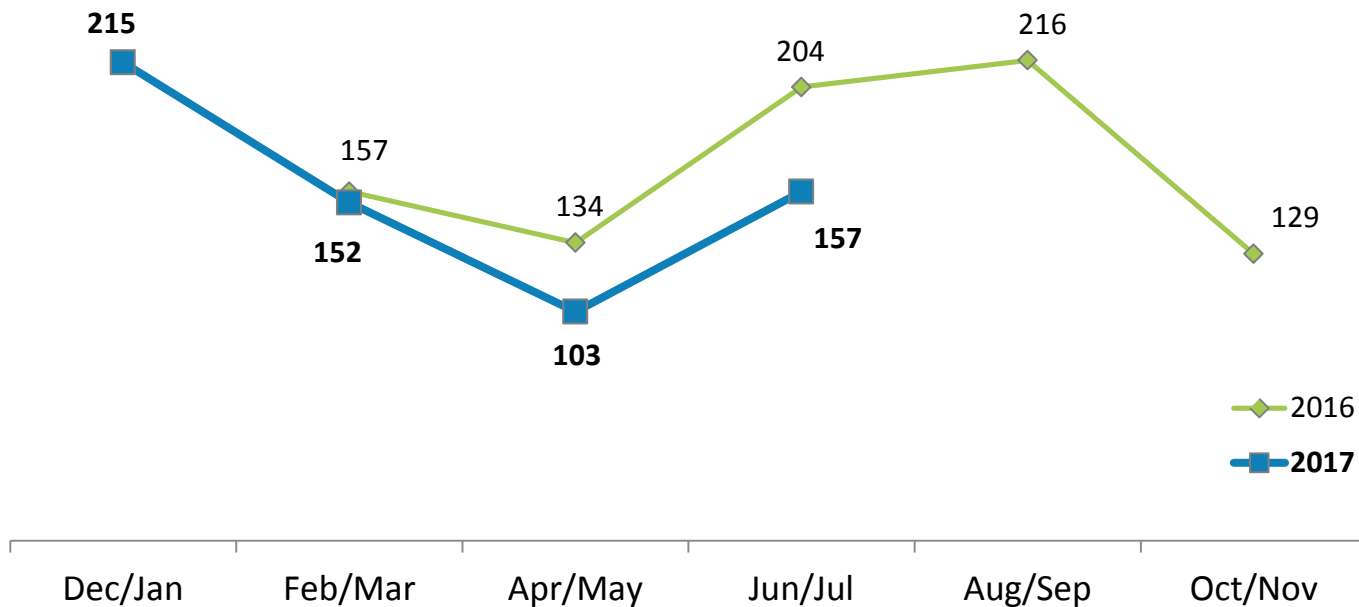
# Top Noise Concerns

Curfew violations the nights of June 20-21. Contraflow was in effect due to weather.

Date/Time	Noise Event	Complaints
6/20/17 @ 11:47 p.m.	JBU 90, no penalty, Liberty Station(3), Loma Portal (4), Mission Beach (1), Point Loma Heights (1)	10
6/21/17 @ 11:39 p.m.	AAL 654, no penalty, Liberty Station (1), Loma Portal (4), Ocean Beach (1), Mission Beach (1), Point Loma Heights (2), La Jolla (1).	10
6/20/17 @ 11:40 p.m.	DAL 1792, no penalty, Liberty Station (3), Loma Portal (4), Mission Beach (1), La Jolla Mesa (1).	9
6/20/17 @ 11:44 p.m.	AAL 654, no penalty, Liberty Station (3), Loma Portal (4), Mission Beach (1), La Jolla (1).	9
6/21/17 @ 11:41 p.m.	UAL 238, no penalty, Liberty Station (1), Loma Portal (3), Ocean Beach (1), Mission Beach (1), La Jolla (1).	9
6/21/17 @ 11:42 p.m.	ASA 785, no penalty, Liberty Station (1), Loma Portal (3), Ocean Beach (1), Mission Beach (1), La Jolla (1).	9



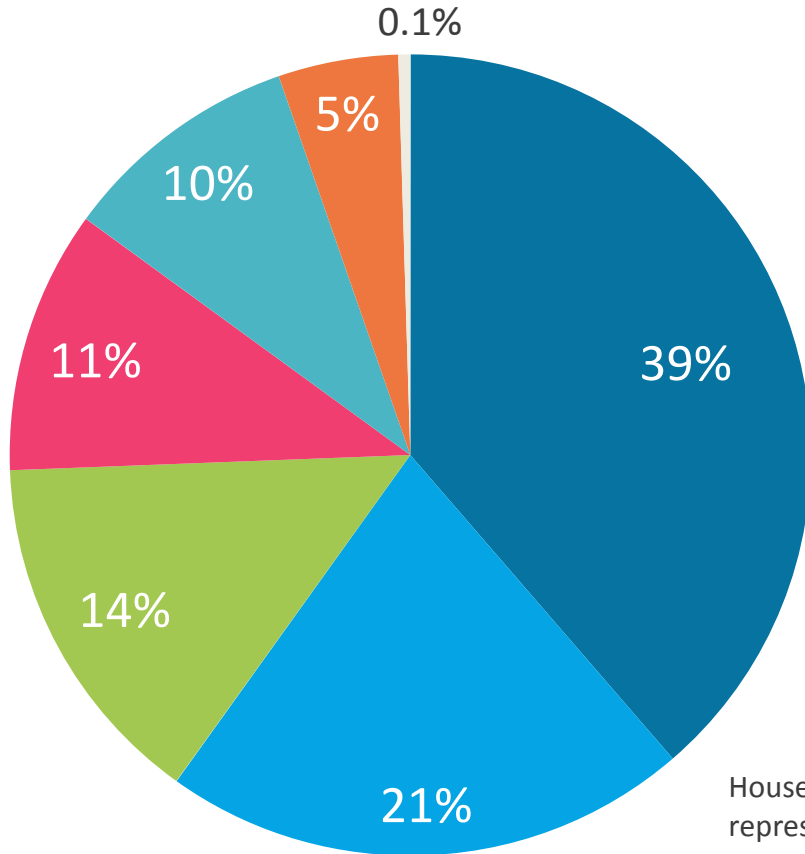
# Noise Complaints by Household



**73% of complaints came from 8 households**

Through July 31, 2017

# Noise Complaint Breakdown by Household



Reason for Complaint	Number of Households
Loud Aircraft	80
Curfew Violation	44
Suspected Off-Course	30
Low Flying	22
Increased Flight Volume	20
Early Turn	10
Missed Approach	1

Households may have had multiple complaint reasons and could be represented in multiple categories.

# Noise Complaints by Neighborhood

Neighborhood	Number of Households
Loma Portal	27
La Jolla	18
Point Loma Heights	15
Wooded Area	15
La Jolla Mesa	14
Sunset Cliffs	9
Mission Beach	8
Ocean Beach	8
Bird Rock	7
Fletridge	6
La Jolla Shores	6
La Playa	5
Liberty Station	4
Other (<3 households )	15
<b>Total</b>	<b>157</b>

## June & July 2017

- Increase in complaining households from April & May 2017
- 57% of households came from the Point Loma area
- 29% of households came from the La Jolla area
- There were an increase in contraflow operations and curfew violation which could be a contributing factor to the increase in complaints from the Point Loma area.

# Fly Quiet Changes since 1st Quarter

Overall scores have improved because of the decrease in early turns due to implementation of FAA SoCal Metroplex.

1<sup>st</sup> full year of Fly Quiet

Newer, quieter aircraft into San Diego International Airport

Accounted for ATC directed Early Turns

12 curfew cancellations

# Fly Quiet Score: Curfew Violations

Quietest score

*United cancelled 4 flights to avoid curfew violations. American 3, Frontier 2, Delta 2 and Spirit 1.*

**Curfew Score:**  
Operator starts with 10 points.  
-1 point for violation, no penalty  
-2 points for violation with penalty  
+1 point if operator cancels flight to avoid violating



# Fly Quiet Score: Early Turns

Quietest  
score = 10

## Early Turn Score:

Operator starts with 10 points.

-0.5 point per Early Turn within 1,500 feet from noise dot

-1.0 point per Early Turn greater than 1,500 feet from noise dot

**Points are not counted if FAA directed the turn.**

**Equalized for operations.**

Airlines	Number of Early Turns	2nd QTR Departures	Early Turn Score
Spirit	0	559	10.0
FedEx	0	314	10.0
UPS	0	113	10.0
Sun Country	0	89	10.0
Hawaiian	0	93	10.0
British	0	91	10.0
WestJet	0	83	10.0
Atlas Air	0	66	10.0
Allegiant Air	0	119	10.0
Japan	0	91	10.0
Rouge Air Canada	0	91	10.0
Virgin America	0	490	10.0
Compass	5	810	7.5
Alaska	2	2,065	9.0
jetBlue	2	437	8.0
Skywest	6	2,067	7.0
Frontier	0	414	10.0
Delta	0	1,879	10.0
American	4	2,304	7.0
Southwest	6	9,110	7.5
United	3	2,338	7.0



# Fly Quiet Score: Fleet

Quietest  
score = 10

 JAPAN AIRLINES  jetBlue  spirit <small>LESS MONEY. MORE GO.</small>		10.0
 HAWAIIAN AIRLINES		9.0
 BRITISH AIRWAYS		8.0
 allegiant  DELTA  Virgin america		7.0
 UNITED		6.0
 FRONTIER AIRLINES  ATLAS AIR		5.0
 sun country airlines  FedEx  ups  WESTJET  Alaska		4.0
 Southwest  American Airlines		3.0
 AIR CANADA rouge  Compass Airlines  SkyWest		1.0



Quieter

Louder

## Fleet Score:

FAA Certified Noise Level for each aircraft

Multiplied by the percentage of operations for the quarter.

Carriers are given scores 0 (loudest) to 10 (quietest.)

# Questions ?



# La Jolla Noise Monitoring Methodology




# La Jolla Noise Monitoring

Purpose and Methodology  
August 16, 2017

PAUL DUNHOLTER, P.E.

BRIDGENET INTERNATIONAL

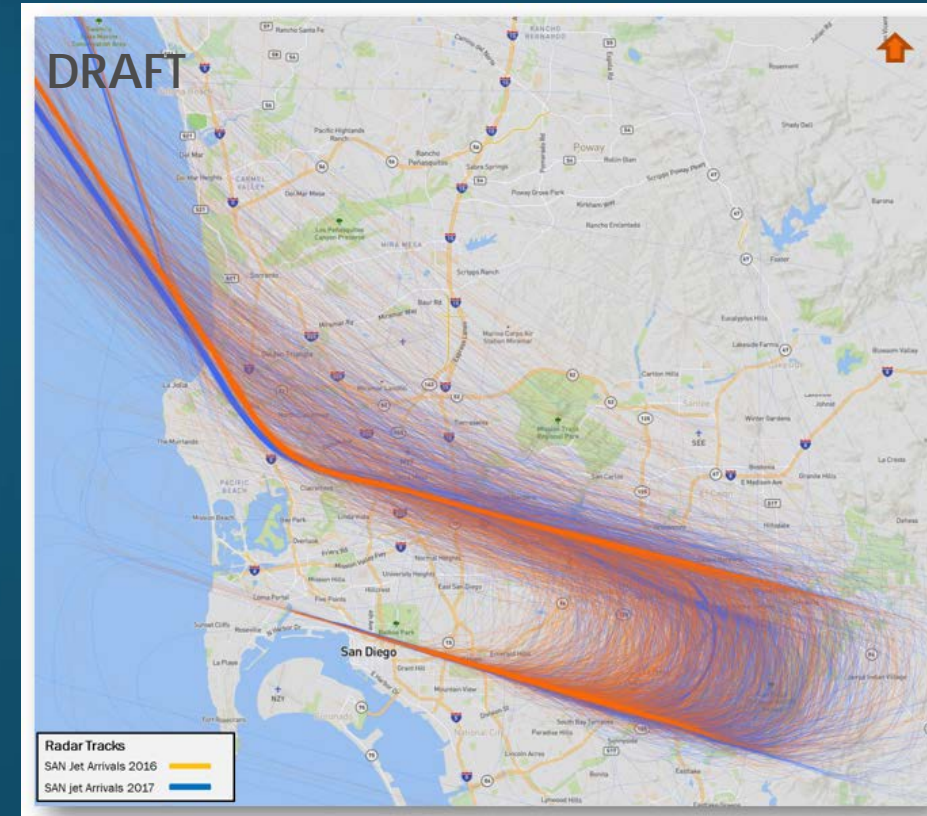
# Presentation Outline

- Purpose
  - Historical Perspective
  - Measurement Locations
  - Methodology
  - Aircraft Operational Analysis
  - Next Steps
- 

# Purpose

Evaluate effect of FAA moving the San Diego International Airport (SDIA) arrival flight path south over La Jolla to de-conflict airspace as part of their implementation of the FAA SoCal Metroplex

- ✓ Determine if there were measurable differences in noise or changes in operations related to the FAA's Metroplex implementation
- ✓ Quantify any other noise and flight track changes that may have occurred



Pre and Post Metroplex SDIA jet arrivals over La Jolla

# Historical Perspective

- Metroplex was implemented in two phases (for SDIA). The first phase was in November of 2016, for Point Loma departures and the second in March of 2017 for departure and arrival procedures that fly near/over Mission Beach and La Jolla
- Noise complaints from La Jolla started to increase in October of 2016
- Noise monitoring was conducted for a two week period in October/November 2016 for “Pre-metroplex” and April/May 2017 for “Post-Metroplex”

# Measurement Locations

## Site A: Long-term measurement location

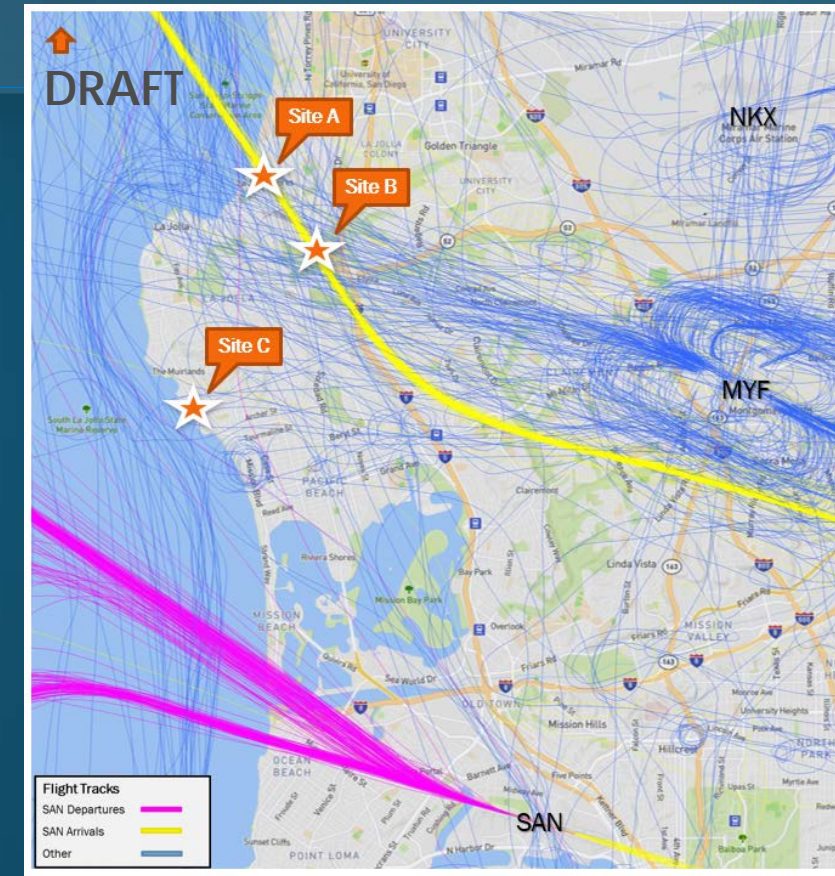
- Selected for proximity to the SDIA arrival track proposed by FAA and to the shoreline
- Obtained two weeks of data **before** and **after** Metroplex implementation

## Site B: Short-term measurement location

- Selected for proximity to the SDIA arrival track proposed by FAA
- Obtained two days of data **after** Metroplex implementation

## Site C: Short-term measurement location

- Selected due to recent high volume of complaints in this area
- Obtained two days of data **after** Metroplex implementation



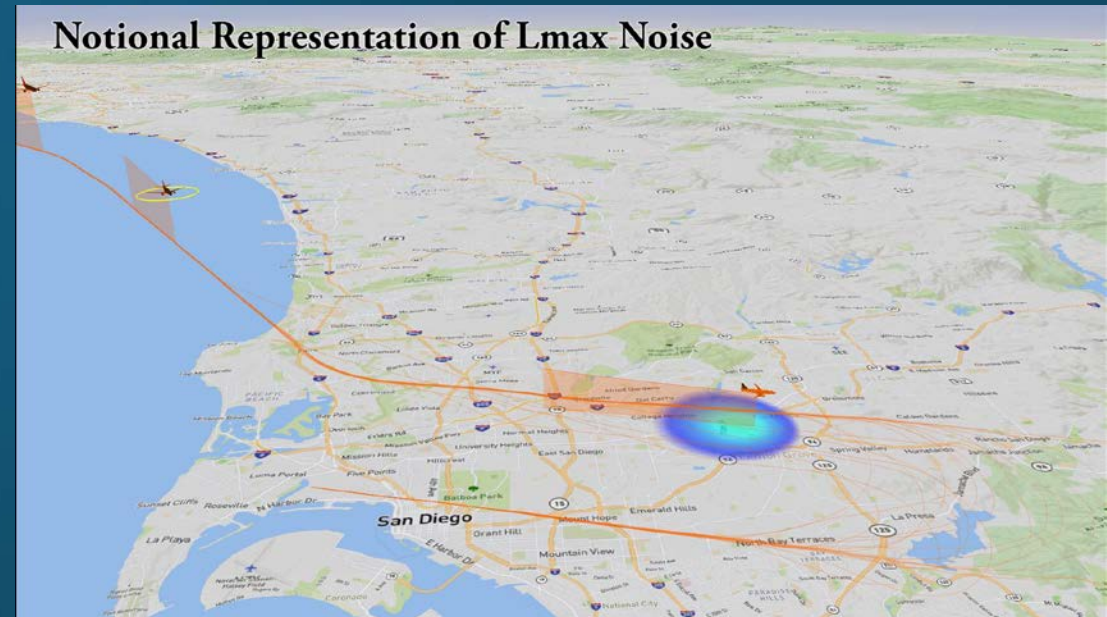
Site A – UCSD (Downwind Way and Shellback Way)  
Site B - Cul-de-sac on Revelle Drive  
Site C - North of Calumet Park at the end of Midway Road



# Methodology

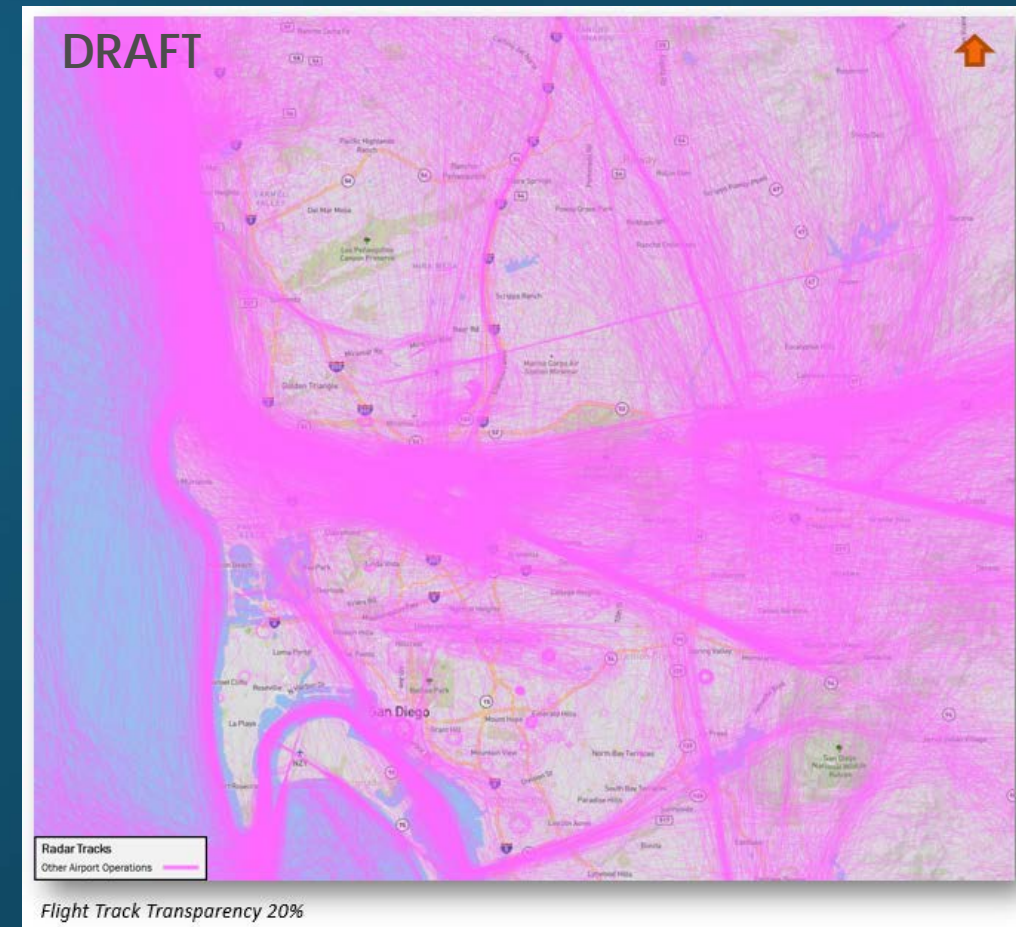
- Collect continuous Time History of Noise
- Collect and analyze FAA Radar data
- Identify and correlate noise events to the aircraft causing the event
- Identify if there are measurable changes in noise
  - ✓ Have Lmax single event noise levels changed?
  - ✓ Has the number of operations changed?

Notional Display of Lmax



# Aircraft Operations Analysis

- Analyzing aircraft operations in the vicinity of the noise measurement locations to:
  - ✓ Quantify the number of aircraft operations and determine if they are SDIA operations or other airport operations
  - ✓ Has the number, time, or type of operations changed?
- For SDIA Operations:
  - ✓ Locate aircraft flight paths and determine whether they changed
  - ✓ Determine the dispersion of aircraft flight tracks and assess whether more or less disperse after FAA SoCal Metroplex
  - ✓ Assess aircraft altitudes before and after FAA SoCal Metroplex implementation
  - ✓ Assess whether aircraft are flying level or descending when passing over La Jolla and whether the results are different before and after FAA SoCal Metroplex implementation



Other Airport Operations, 2 weeks in 2016

# Next Steps

- We are still collecting and analyzing results and wanted to share the methodology before we finished our analysis
- The plan is to present results to ANAC in October prior to presenting the Subcommittee recommendations

# Questions



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