



NOISE OVERSIGHT COMMITTEE

March 21, 2018

Audio recordings are made of this meeting

ITEM 1

REVIEW AND APPROVAL OF JANUARY 24, 2018 MEETING MINUTES



NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018



ITEM 2

REVIEW OF MONTHLY OPERATIONS REPORTS: JANUARY AND FEBRUARY 2018



NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018



MSP OPERATIONS

JANUARY 2018

30,703

Operations

1,865

Nighttime Operations
(10:30 PM – 6:00 AM)

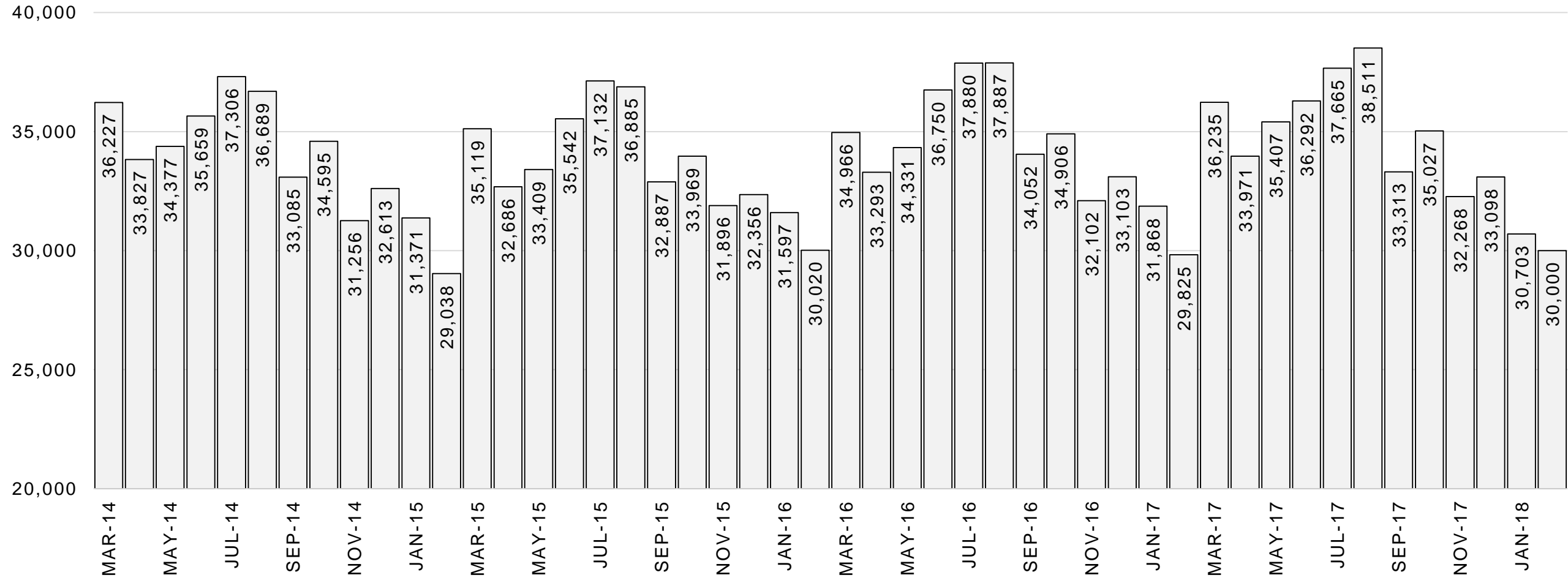
FEBRUARY 2018

30,000

Operations

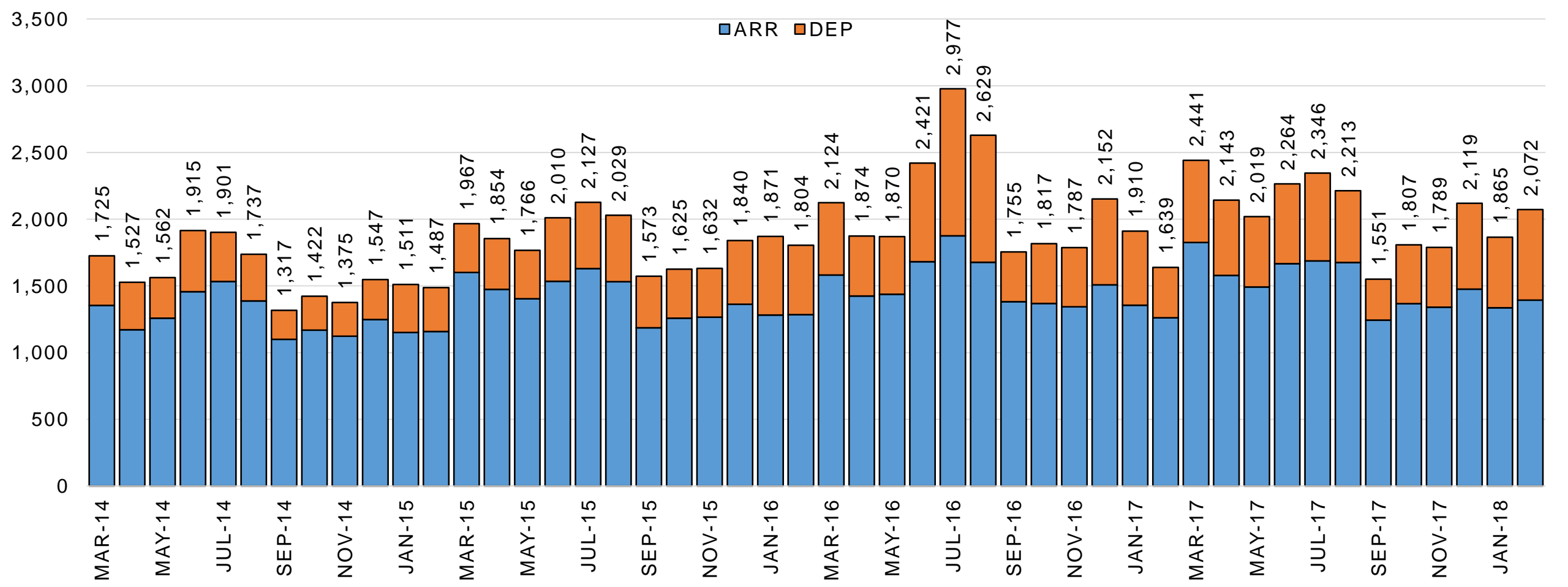
2,072

Nighttime Operations
(10:30 PM – 6:00 AM)



MSP OPERATIONS

JANUARY 2018		FEBRUARY 2018	
30,703 Operations	1,865 Nighttime Operations (10:30 PM – 6:00 AM)	30,000 Operations	2,072 Nighttime Operations (10:30 PM – 6:00 AM)



JAN – FEB RUNWAY USE

30,373
ARRIVALS RECORDED

66.9%
RUNWAYS 30L, 30R OR 35

33.1%
RUNWAYS 12L OR 12R

30,330
DEPARTURES RECORDED

53.8%
RUNWAYS 30L OR 30R

45.6%
RUNWAYS 12L, 12R OR 17



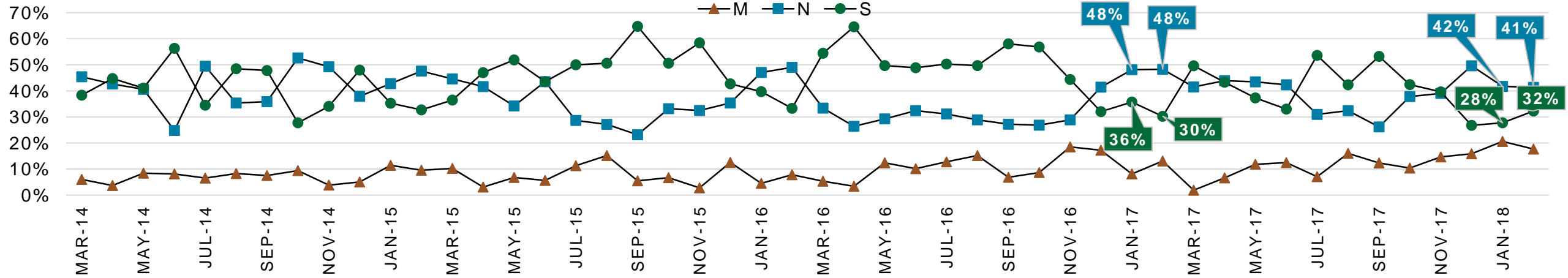
RUNWAY USE

JANUARY 2018			FEBRUARY 2018		
NORTH FLOW	SOUTH FLOW	MIXED FLOW	NORTH FLOW	SOUTH FLOW	MIXED FLOW
42%	28%	21%	41%	32%	18%

NORTH FLOW - 540 HOURS (42%)

SOUTH FLOW - 389 HOURS (30%)

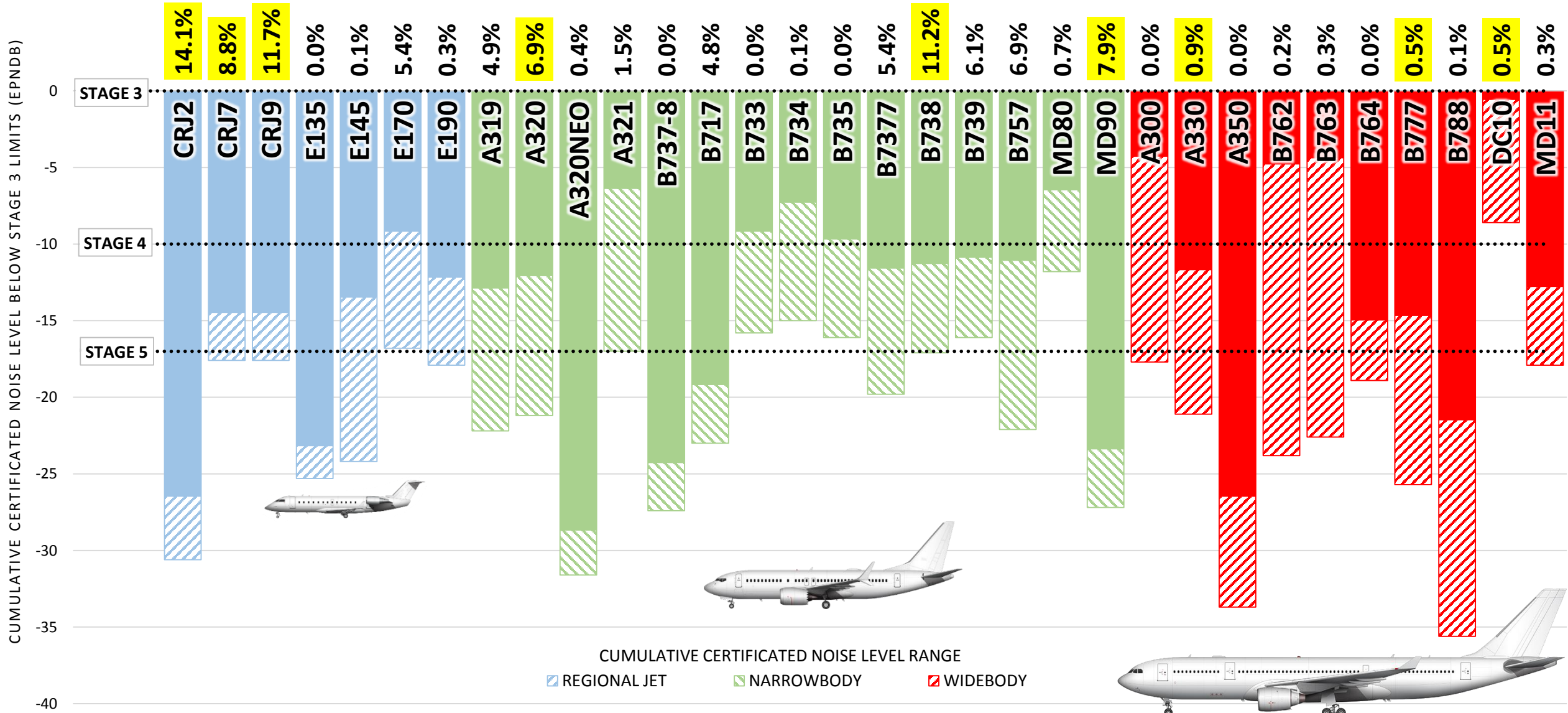
MIXED FLOW - 249 HOURS (19%)



CARRIER JET FLEET MIX

2018 MSP CARRIER JET USAGE WITH CUMULATIVE CERTIFICATED NOISE LEVELS

JAN - FEB

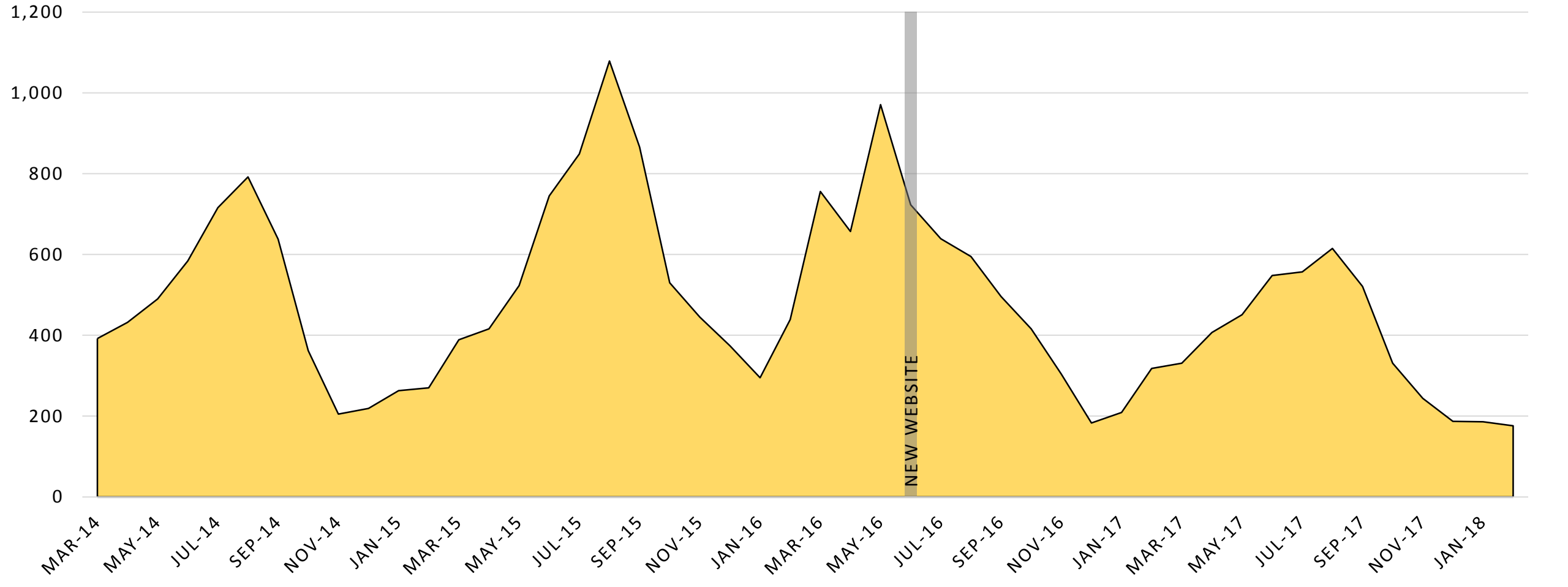


SOURCE: USAGE DATA: MACNOMS; NOISE CERTIFICATION DATA: EUROPEAN AVIATION SAFETY AGENCY

CUMULATIVE CERTIFICATED NOISE LEVELS REPRESENTED AS A RANGE TO ACCOUNT FOR MULTIPLE CERTIFICATION VARIABLES (WEIGHT, MODEL, ENGINE TYPE, AIRFRAME CONFIGURATION, ETC)

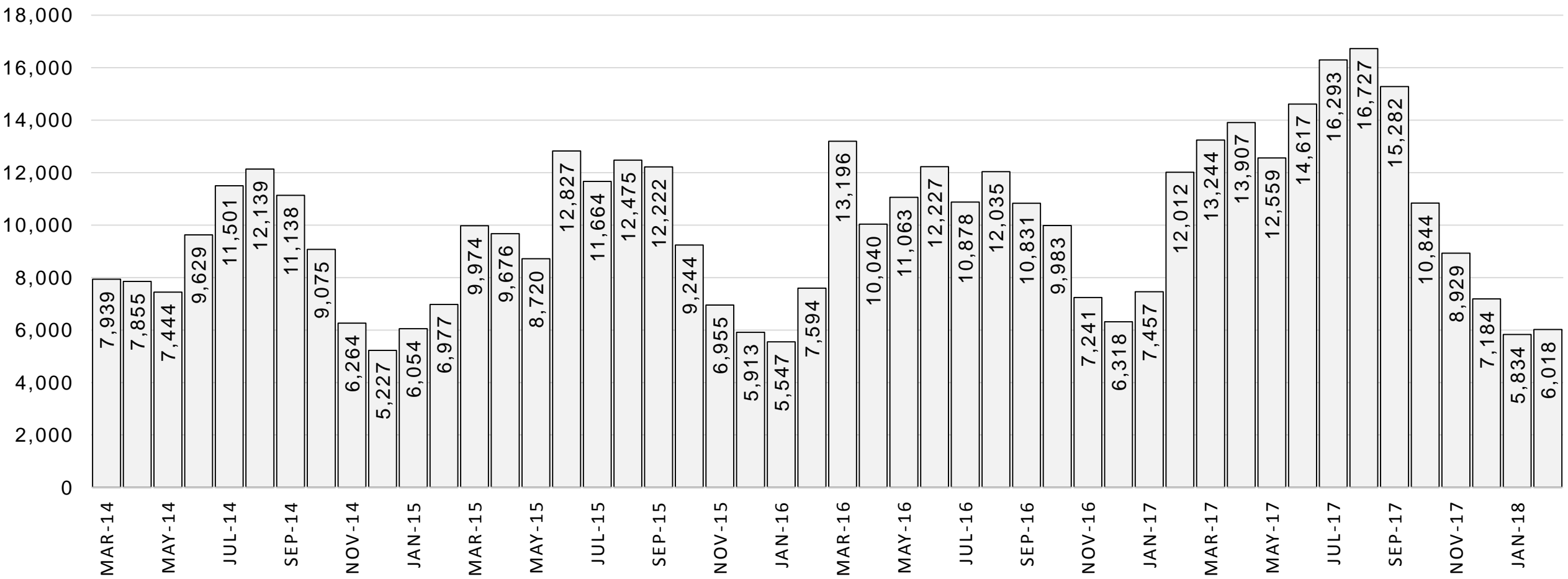
MSP COMPLAINTS

JANUARY 2018				FEBRUARY 2018			
COMPLAINTS	LOCATIONS			COMPLAINTS	LOCATIONS		
5,834	186			6,018	176		
Operations per Complaint	New Locations	Average	Median	Operations per Complaint	New Locations	Average	Median
5.3	7	31	4	5.0	21	34	4



MSP COMPLAINTS

JANUARY 2018				FEBRUARY 2018			
COMPLAINTS	LOCATIONS			COMPLAINTS	LOCATIONS		
5,834	186			6,018	176		
Operations per Complaint	New Locations	Average	Median	Operations per Complaint	New Locations	Average	Median
5.3	7	31	4	5.0	21	34	4



JANUARY LOCATIONS

124

AREAS WITH AT LEAST 1 LOCATION

0

AREAS WITH MORE THAN 10
LOCATIONS – 0%

3

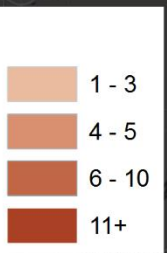
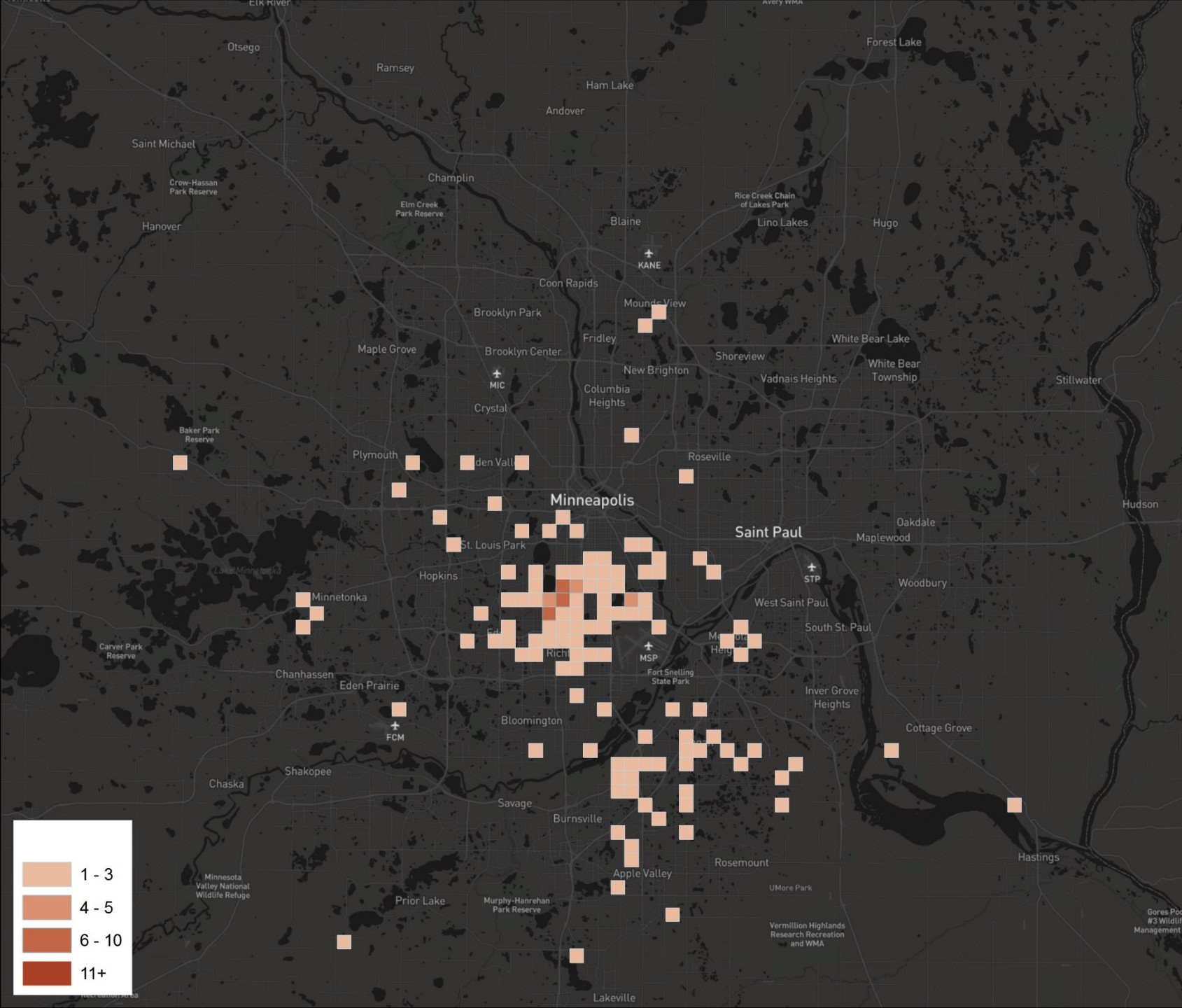
AREAS WITH 6 – 10 LOCATIONS –
2.4%

3

AREAS WITH 4 OR 5 LOCATIONS –
2.4%

118

AREAS WITH 1 – 3 LOCATIONS –
95.2%



FEBRUARY LOCATIONS

113

AREAS WITH AT LEAST 1 LOCATION

0

AREAS WITH MORE THAN 10
LOCATIONS – 0%

1

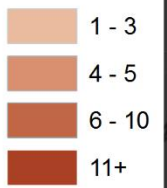
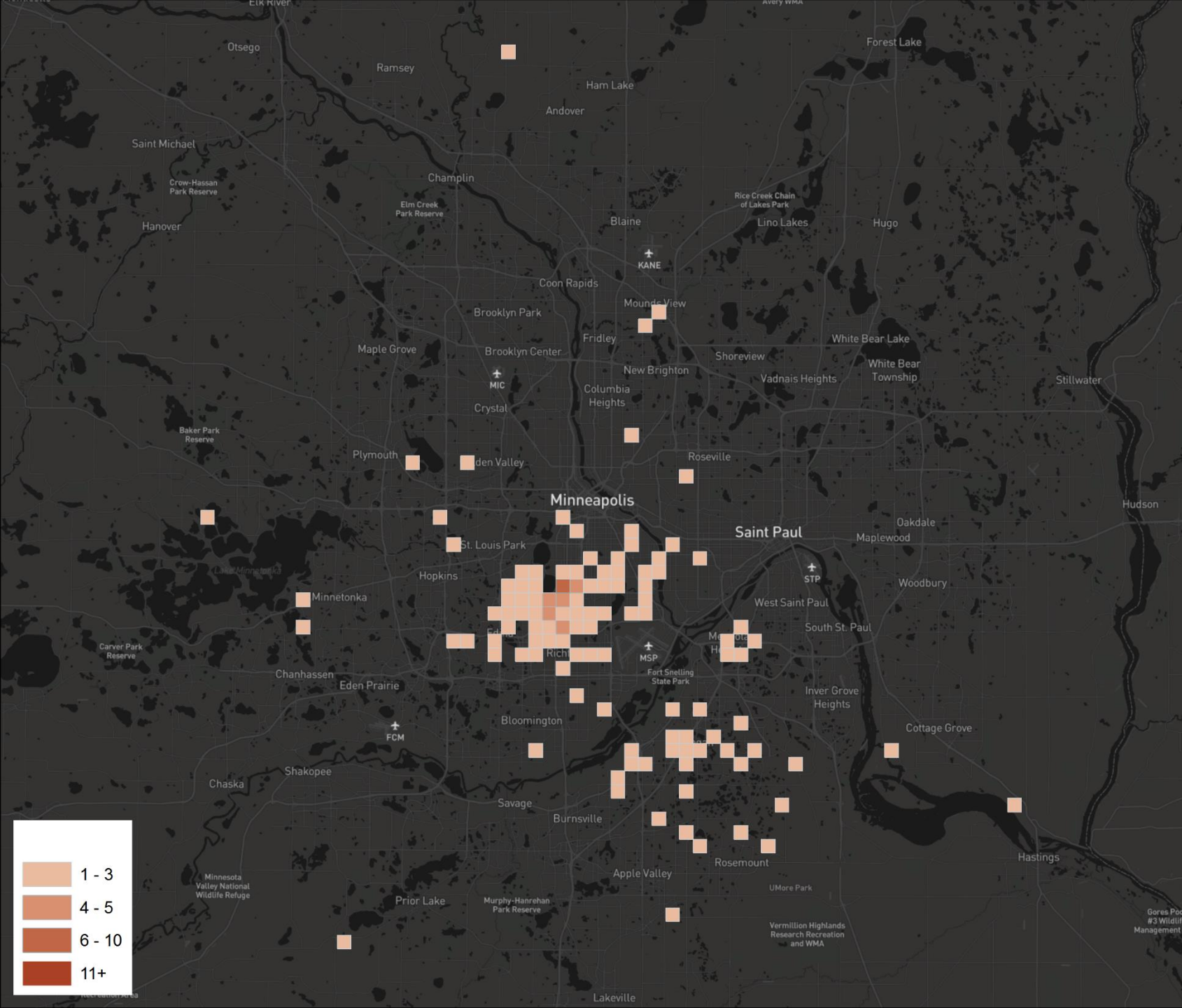
AREAS WITH 6 – 10 LOCATIONS –
.9%

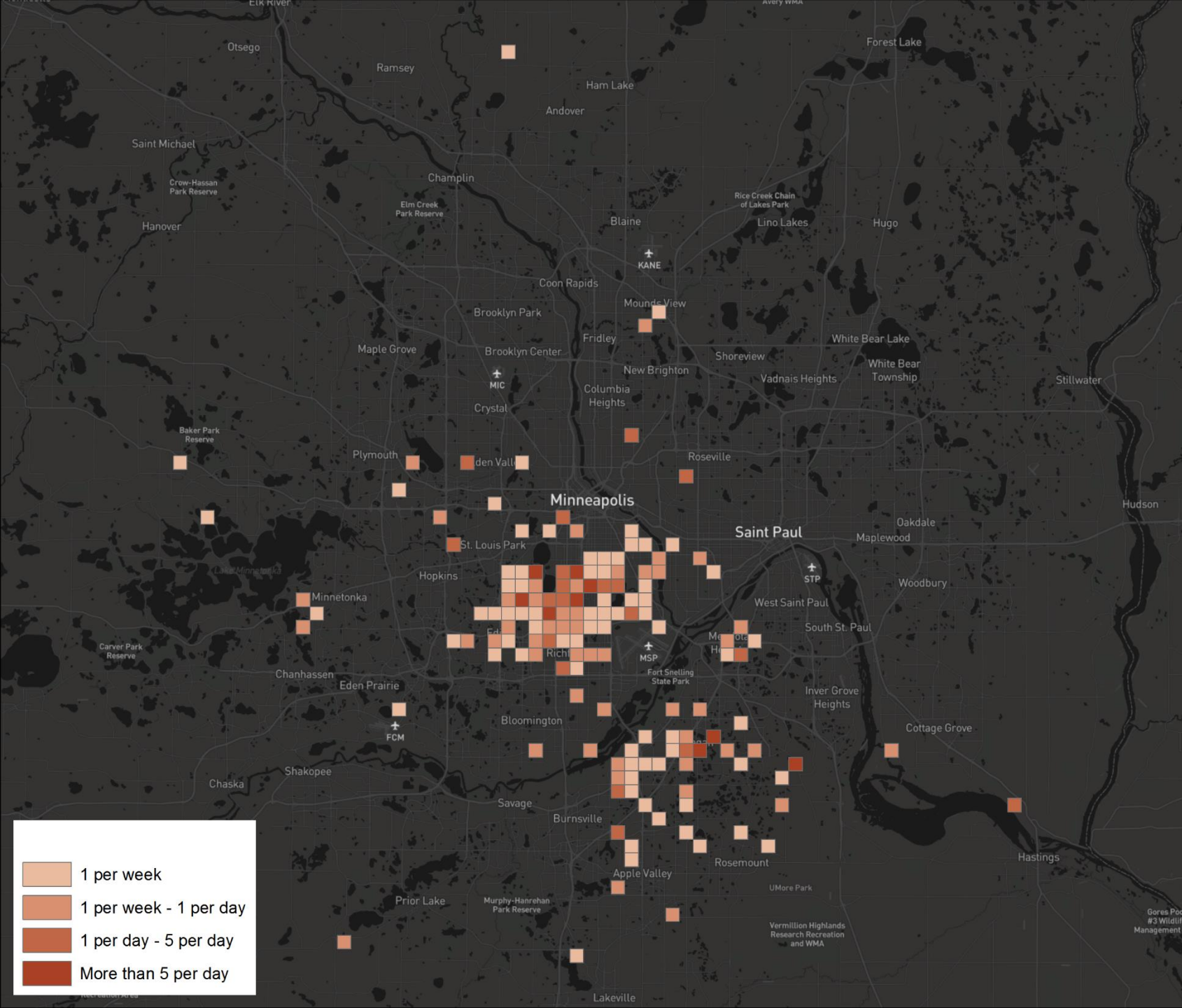
5

AREAS WITH 4 OR 5 LOCATIONS –
4.4%

107

AREAS WITH 1 – 3 LOCATIONS –
94.7%







TOP 10 LOCATIONS

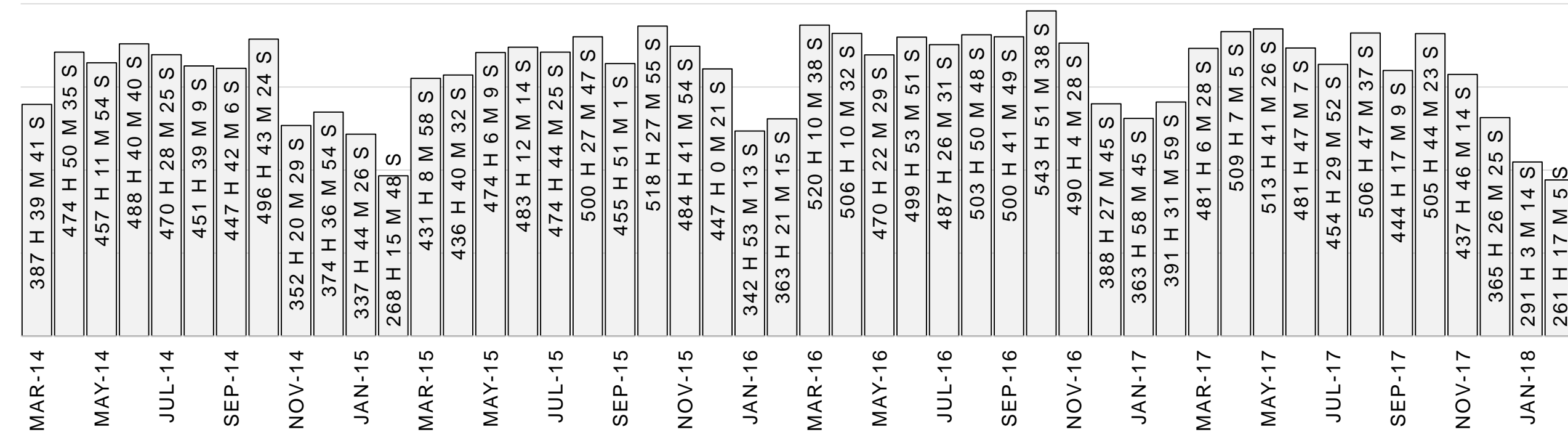
FILED
8,067
 (68.1%)
 COMPLAINTS DURING THE PREVIOUS
 2 MONTHS

8 OF 10
 LOCATIONS WERE IN THE TOP 10
 FOR NOVEMBER / DECEMBER DATA

172
 (68.8%)
 LOCATIONS FILED 10 OR LESS
 COMPLAINTS

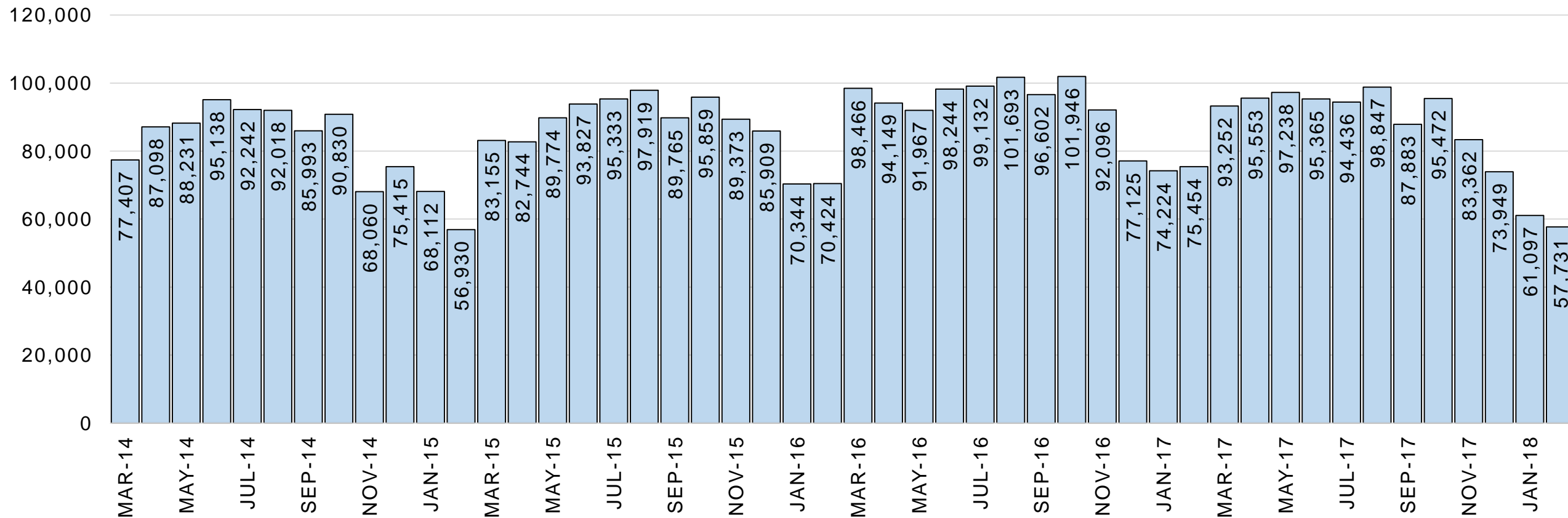
SOUND MONITORING

JANUARY 2018			FEBRUARY 2018		
Time Above	34 _s TA ⁶⁵ per operation	291 _h 3 _m TA ⁶⁵	Time Above	31 _s TA ⁶⁵ per operation	261 _h 17 _m TA ⁶⁵
Count Above	1.99 N ⁶⁵ per operation	61,097 N ⁶⁵	Count Above	1.92 N ⁶⁵ per operation	57,731 N ⁶⁵



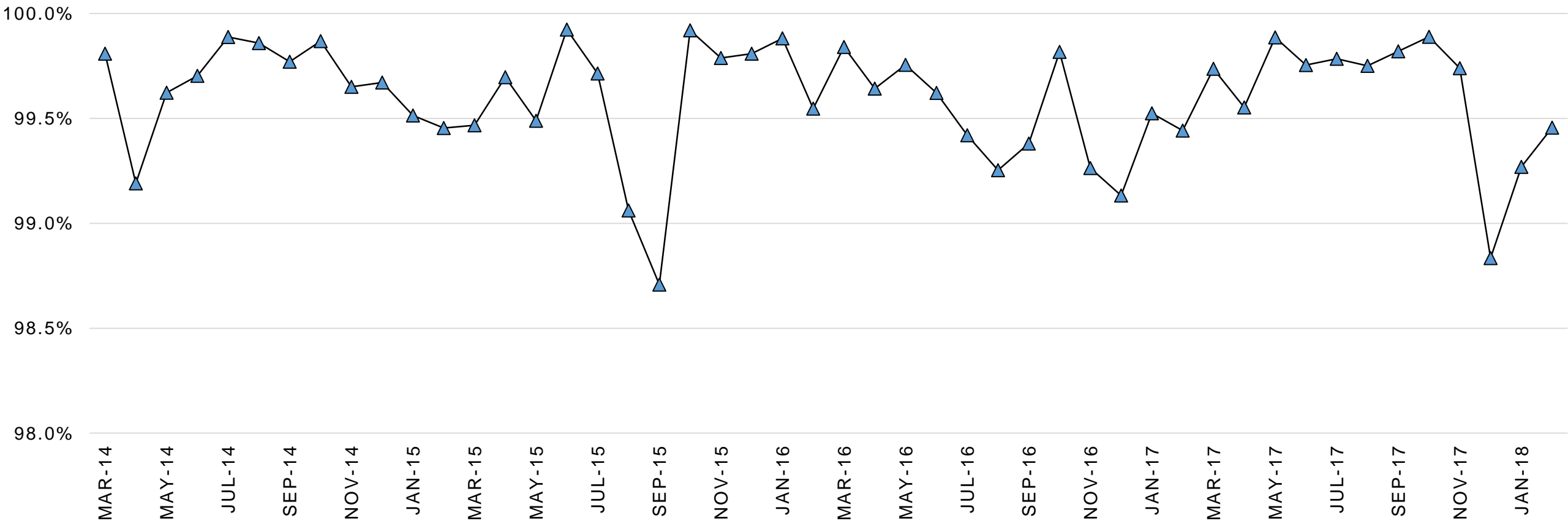
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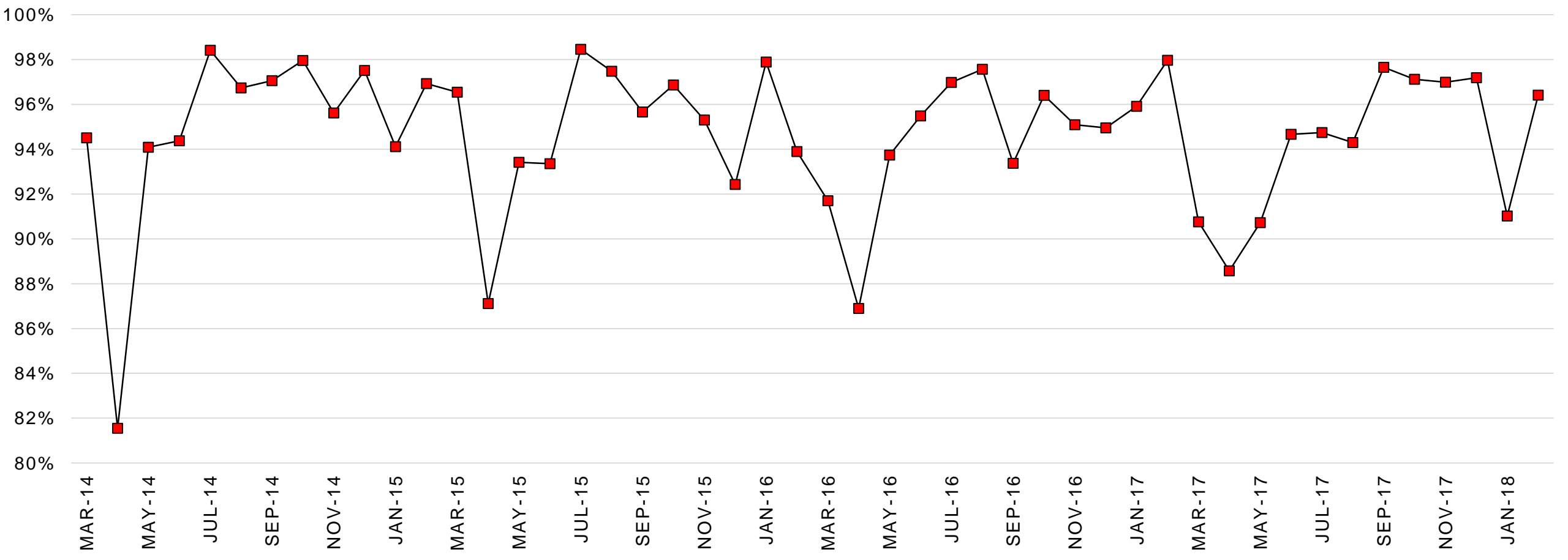
NOISE ABATEMENT

JANUARY 2018				FEBRUARY 2018			
Runway 17	99.3%	Cross Day	28.1%	Runway 17	99.5%	Cross Day	30.4%
Corridor	91.0%	Cross Night	37%	Corridor	96.4%	Cross Night	42.5%
RUS	57.1%	Arrive – 71%	Depart – 43%	RUS	55.3%	Arrive – 63%	Depart – 48%



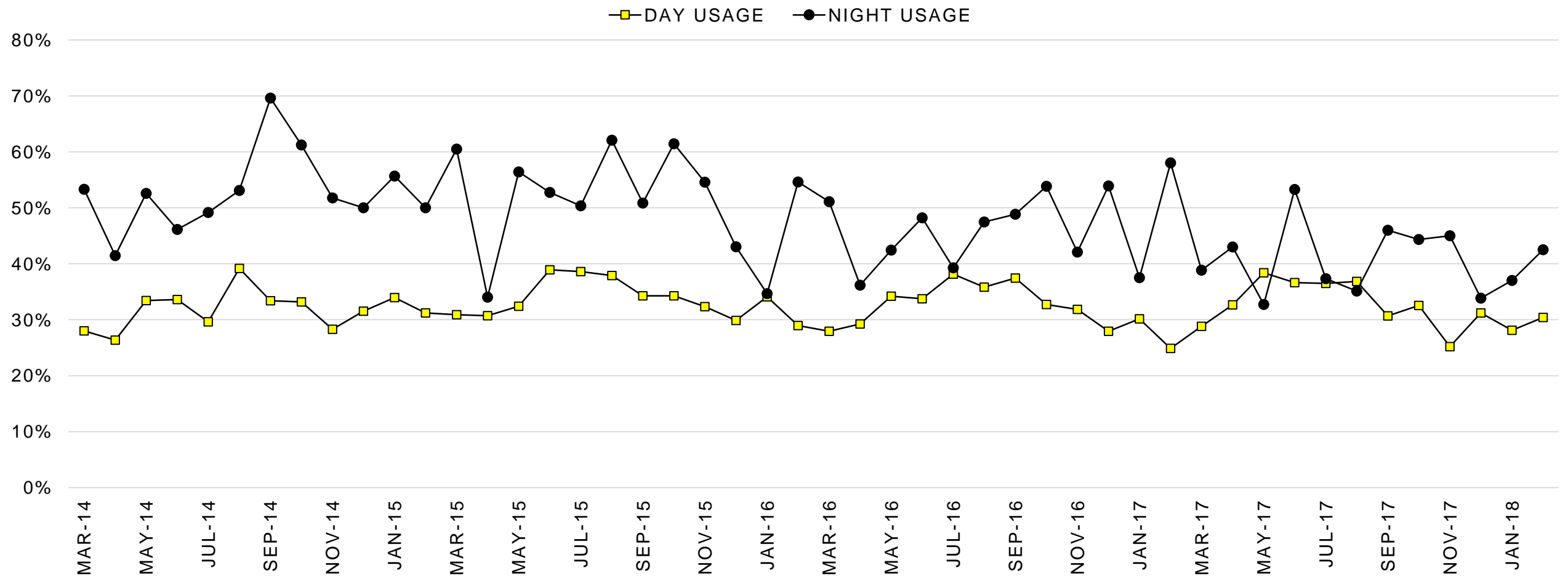
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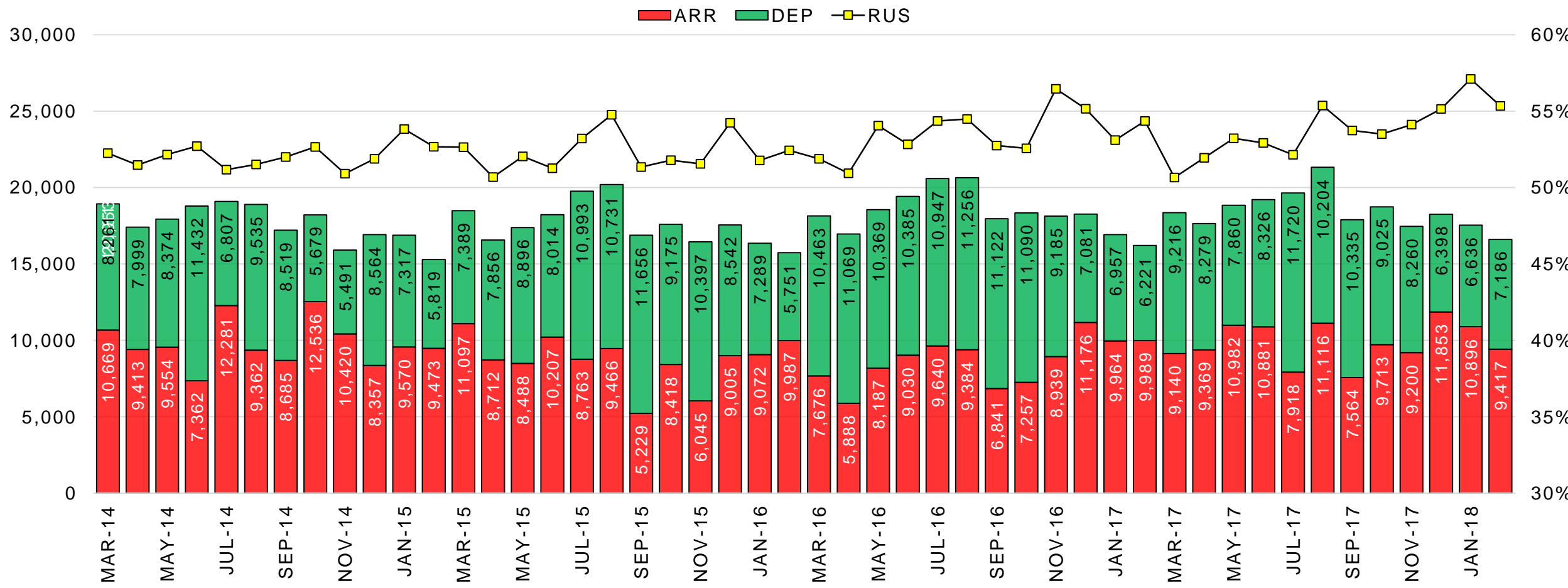


NOISE ABATEMENT

JANUARY 2018

FEBRUARY 2018

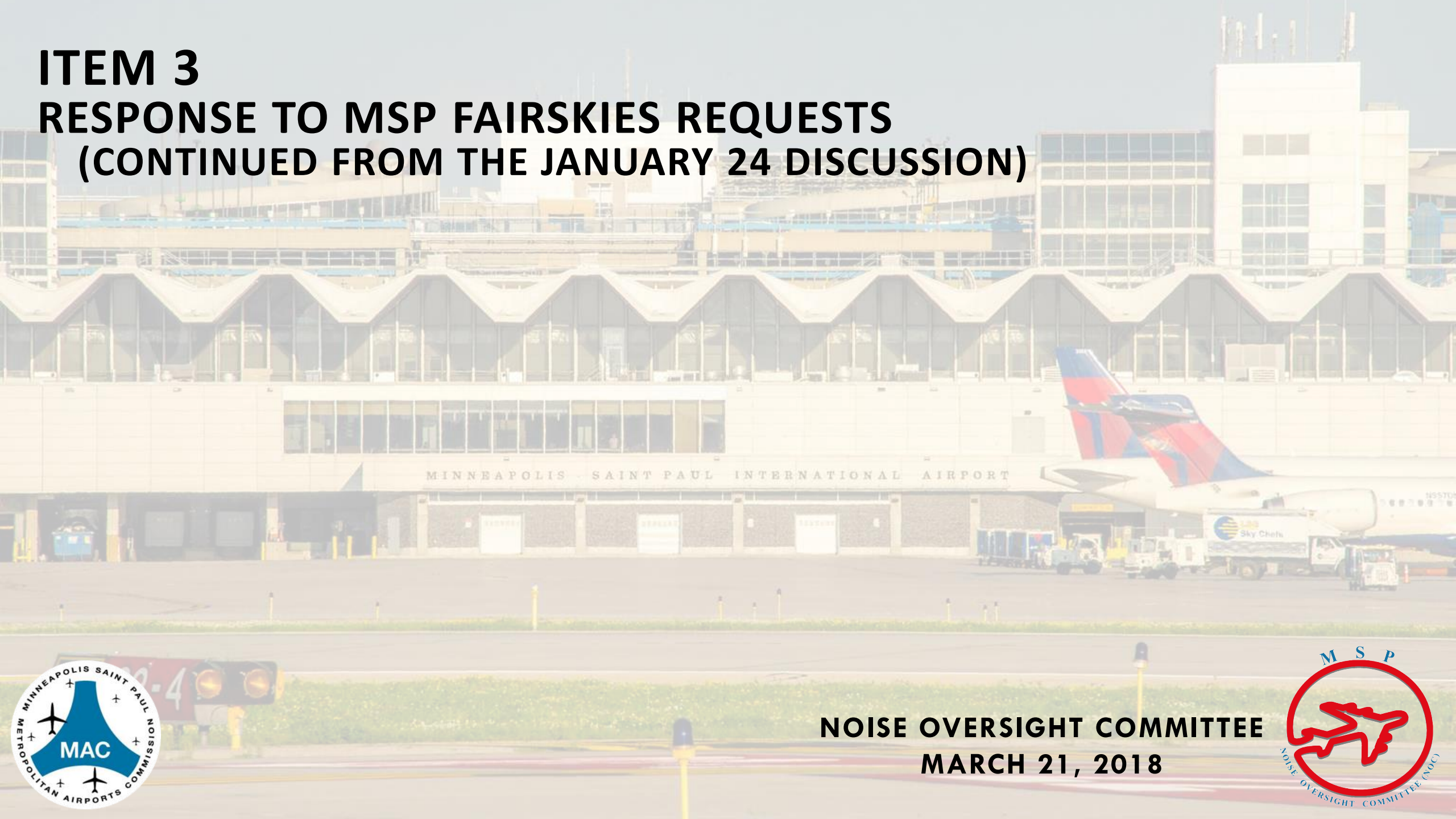
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ITEM 3

RESPONSE TO MSP FAIRSKIES REQUESTS

(CONTINUED FROM THE JANUARY 24 DISCUSSION)



NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018



September 20, 2017 NOC Meeting representatives from MSP FairSkies addressed the Committee requesting that NOC/MAC:

1. Enhance the NOC with greater stakeholder (citizen) representation
2. Establish a goal to reduce noise
3. Produce a 55 dB and N65 NEM/Contour



In response to the first two requests, on January 24, 2018 the NOC discussed the following:

1. Enhance the NOC with greater stakeholder (citizen) representation
 - Concurred that the current balance of six user representatives and six community representatives was appropriate for the NOC membership
 - Took action to establish a NOC Bylaw Subcommittee to review the bylaws and recommend changes to enhance citizen engagement during meetings
2. Establish a goal to reduce noise
 - Took action to solidify the goal to mitigate homes out to the actual 60 dB DNL contour by the year 2024
 - Agreed that the establishment of this goal does not preclude further discussion to establish Committee goals in the future



Request 3:

Does the Committee recommend publication of 55 dB DNL and N65 noise contours and NEMs?



OBJECTIVES

- Objective #1: Help advance a more restrictive noise metric/threshold in before FAA returns to MSP for RNAV SID implementation
- Objective #2: Acknowledge and validate that residents who live beyond the 60 DNL noise contour experience aircraft overflights and noise



EVALUATING TACTICS TO ACHIEVE OBJECTIVES

Are there relevant situational factors?

Are there unintended consequences/risks that should be considered?

Do the proposed tactics provide the most effective means to achieve the objectives?



Does the Committee recommend publication of 55 dB DNL and N65 noise contours and NEMs?



ITEM 4

MSP NOISE MANAGEMENT BENCHMARKING STUDY SCOPE



NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018



MSP Noise Management Benchmarking Study Proposed Scope

Presented to: MSP Noise Oversight Committee (NOC)

Mary Ellen Eagan

March 21, 2018

Agenda

- HMMH Overview
- Mary Ellen Eagan bio
- Proposed Approach
- Anticipated Schedule

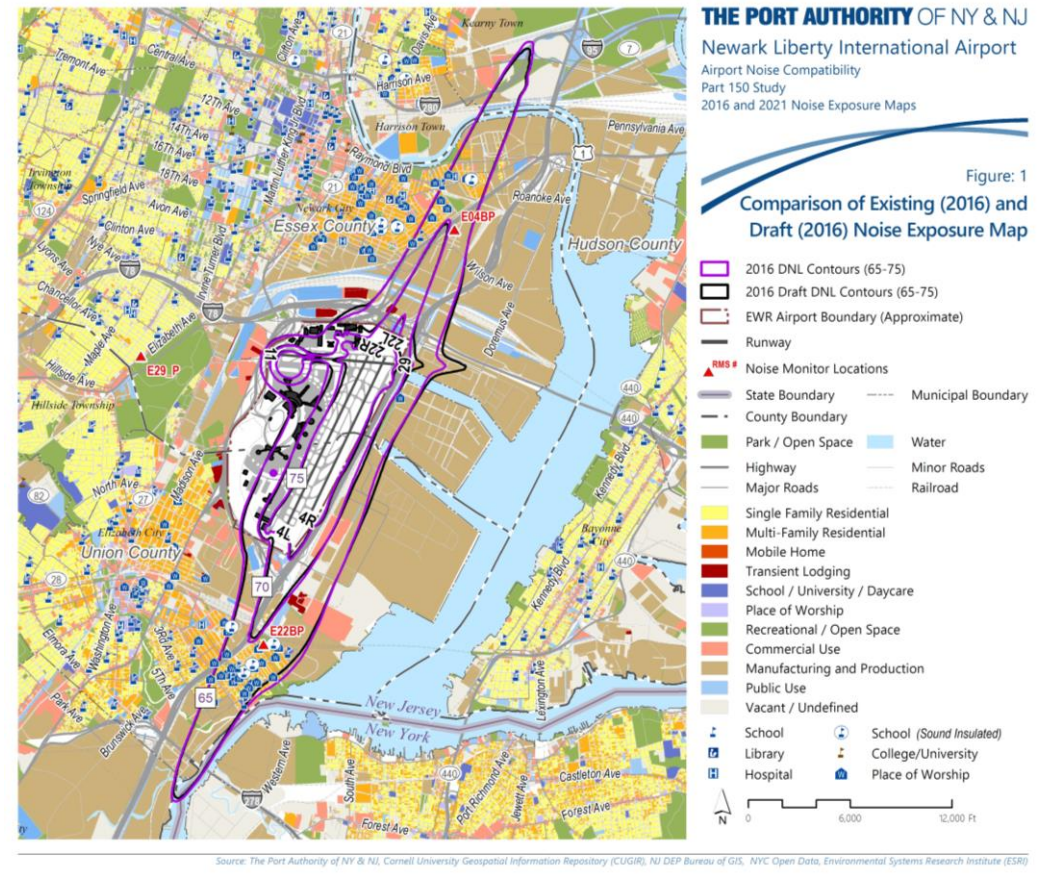
HMMH's Aviation Services

- NEPA
- Noise
- Air Quality
- Outreach/NextGen Communications
- Airport and Airspace Design
- Sustainability/Renewable Energy
- Software Tools
- Training



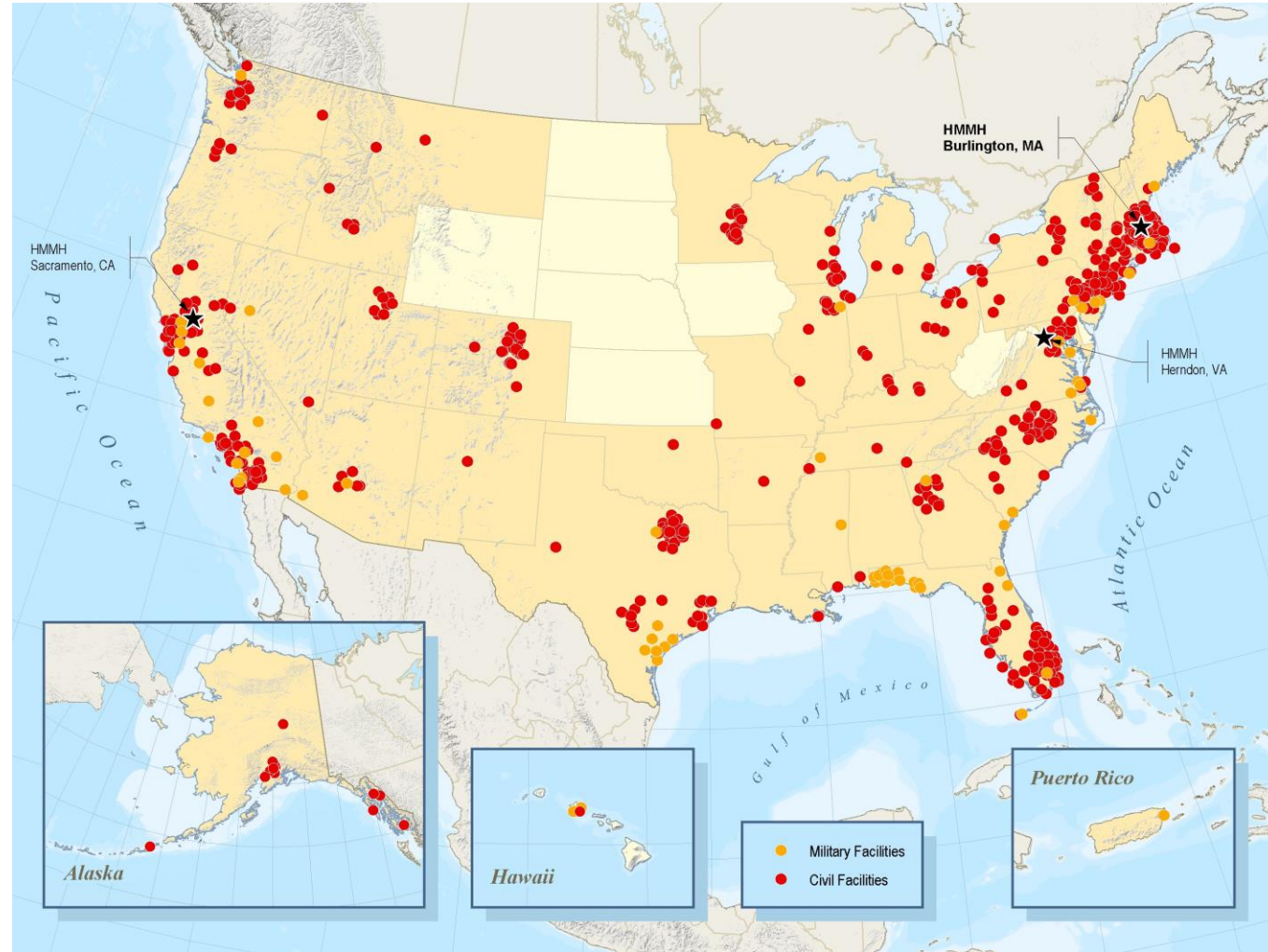
Expert Noise Services

- Environmental Assessments / Environmental Impact Statements
- Part 150
- Part 161
- Noise Modeling
- Noise Monitoring Systems
- Sound Insulation
- Airport Ground Noise
- Research

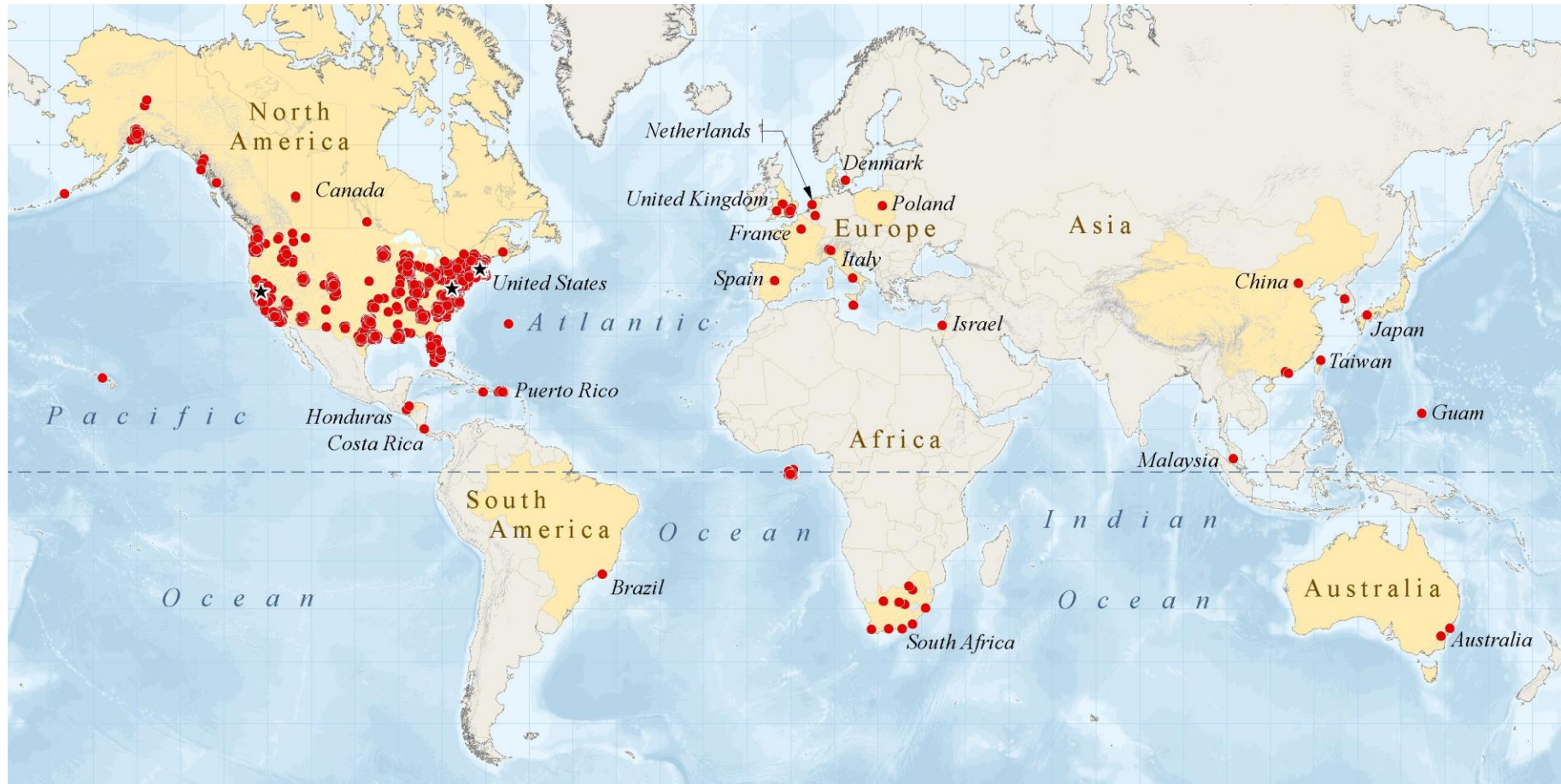


Noise Exposure Map, Newark Liberty International Airport, 2016

US Clients



International Clients



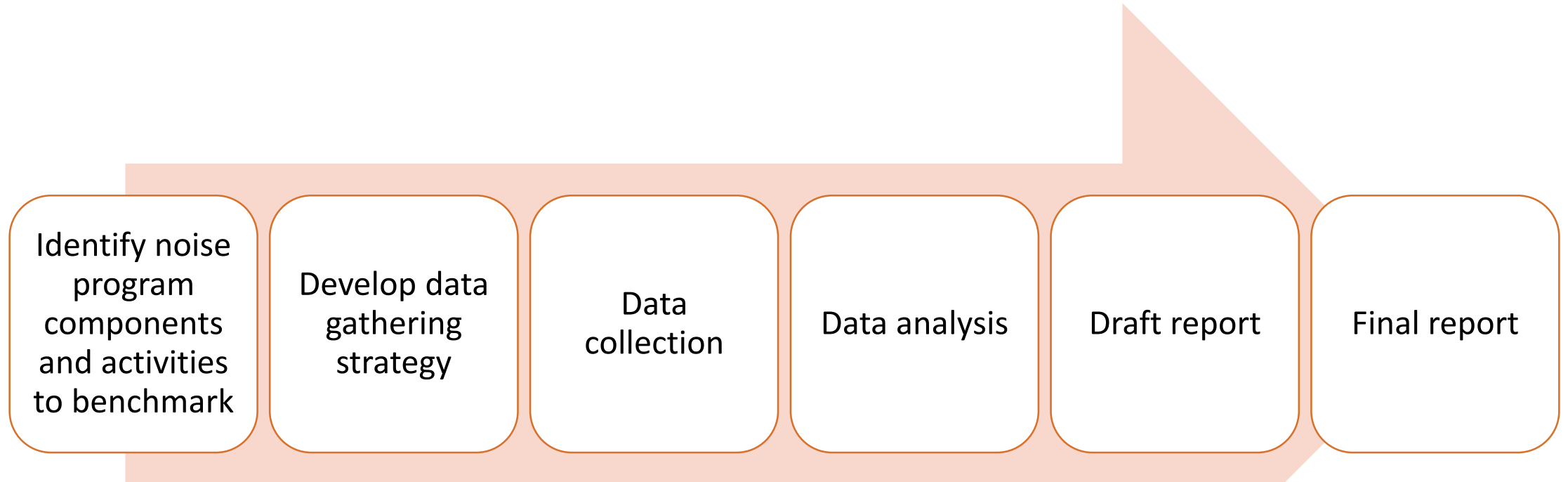
Mary Ellen Eagan

- 34 years airport noise consulting experience
- ACI Noise Working Group Chair; ACI World Environment Standing Committee
- TRB Aviation Group Chair
- 25 years support to Federal Interagency Committee on Aviation Noise
- Principal Investigator, ACRP Research Study on Effects of Aircraft Noise on Children's Learning

Benchmarking Study Objectives

- Understand the constraints imposed on U.S. airport noise programs due to the highly-regulated environment in contrast with airports in other countries
- Provide an independent and transparent review of the MAC Noise Program Office and related noise abatement activities as compared with peer airports in the U.S.
- Identify improvement opportunities for the MAC Noise Program Office and MSP Noise Oversight Committee (NOC).

Proposed Scope of Work



Task 1: Identify noise program activities to benchmark

- HMMH will work with MAC Noise Program Office and NOC to develop list of activities to benchmark, including:
 - Operational Measures
 - Mitigation and Land Use Measures
 - Program Management and Innovate use of Technology
 - Stakeholder Engagement
 - Research and policy

Task 2: Develop survey

- HMMH will develop an online survey (e.g., SurveyMonkey)
- Survey respondent list will be developed from ACI-NA and AAEE mailing lists
- HMMH will review draft and final survey recipient list with MAC staff

Task 3: Data collection

- Survey link will be sent from MSP to survey recipients
- After two weeks, HMMH will send recipients a reminder
- After another week, HMMH will call recipients and offer to assist with completion
- HMMH will research and document current laws/rules/regulations/policies in the U.S. related to noise and mitigation

Task 4: Data/Policy analysis

- HMMH will summarize the data collected through online and telephone survey
- HMMH will summarize implications of U.S. laws/rules/regulations/policies

Task 5: Draft report

- HMMH will prepare a draft report; proposed sections include:
 - Background (i.e., motivation for the benchmarking study)
 - Study methodology
 - Findings
 - Recommendations
- HMMH will review this report with NOC

Task 6: Final report

- HMMH will finalize report based on input received from NOC
- HMMH will prepare and present the study results to the MSP Noise Oversight Committee

Anticipated Schedule

	<i>Mar</i>	<i>April</i>	<i>May</i>	<i>June</i>	<i>July</i>	<i>August</i>	<i>September</i>
Task 1: Identify components to benchmark							
Task 2: Develop data gathering strategy							
Task 3: Data collection							
Task 4: Data analysis							
Task 5: Draft report							
Task 6: Final report							

Milestone Dates:

Draft Report to MAC: June 29

Draft Report to NOC: July 11

Presentation of draft findings to NOC: July 18

Final Report to MAC: Aug 31

Final Report to NOC: Sep 12

Presentation of final report to NOC: Sep 19

Discussion

REQUESTED ACTION

APPROVE THE PROPOSED SCOPE OF WORK BY HMMH FOR THE MSP NOISE MANAGEMENT BENCHMARKING STUDY.



ITEM 5

2017 ANNUAL NOISE CONTOUR REPORT AND MITIGATION ELIGIBILITY



NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018

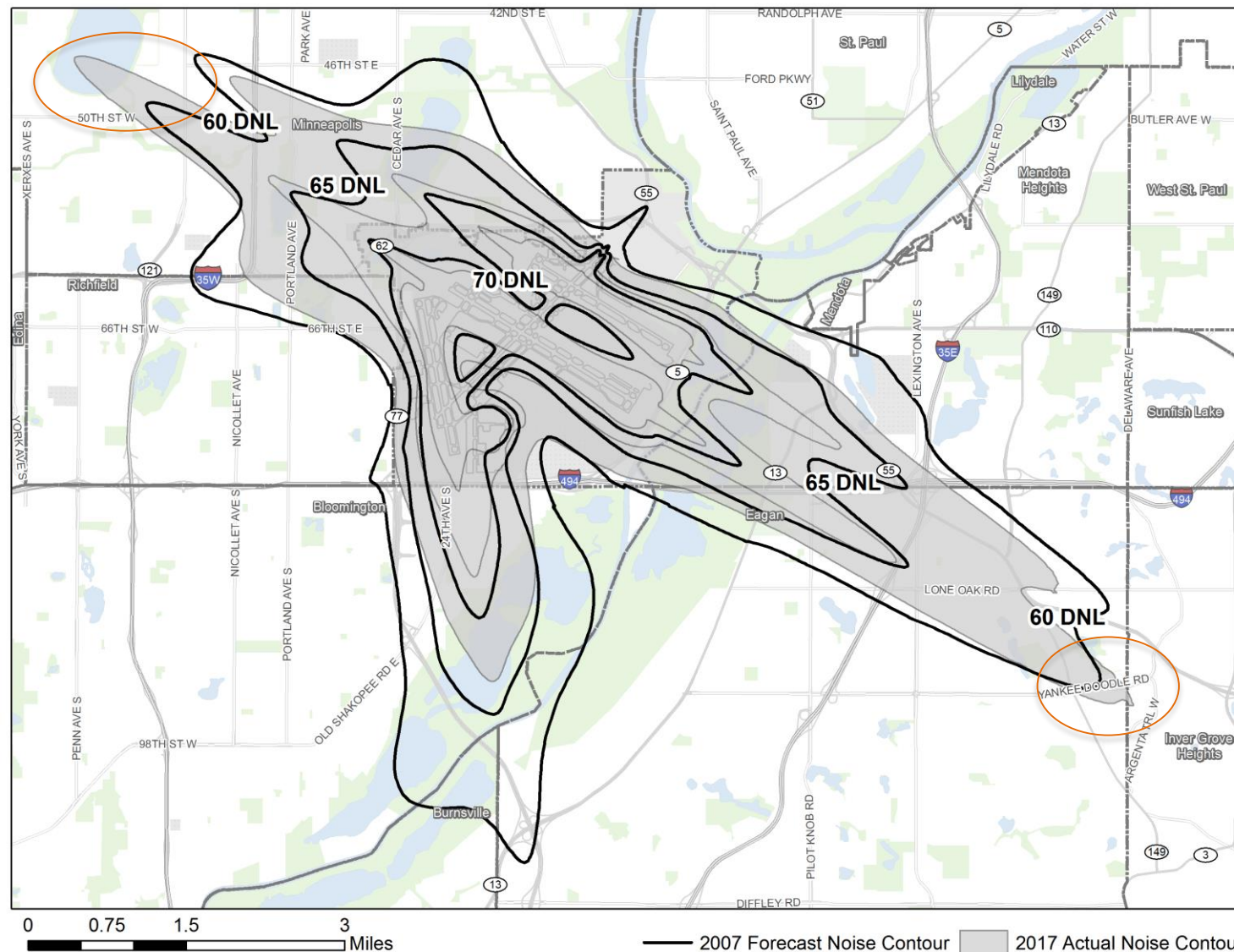


Report Overview

- The amended Consent Decree requires the MAC to prepare an annual noise contour analysis for MSP by March 1 of each year.
- On February 28, 2018, the MAC published the 11th Annual Noise Contour Report consistent with the requirements in the Consent Decree.
- The 2017 actual noise contour was developed in partnership with HNTB using the Aviation Environmental Design Tool (AEDT).



Item 5: 2017 Annual Noise Contour Report and Mitigation Activity



*Based on airport operations counts documented by the FAA for MSP in 2017.

2017 vs 2007 Statistics

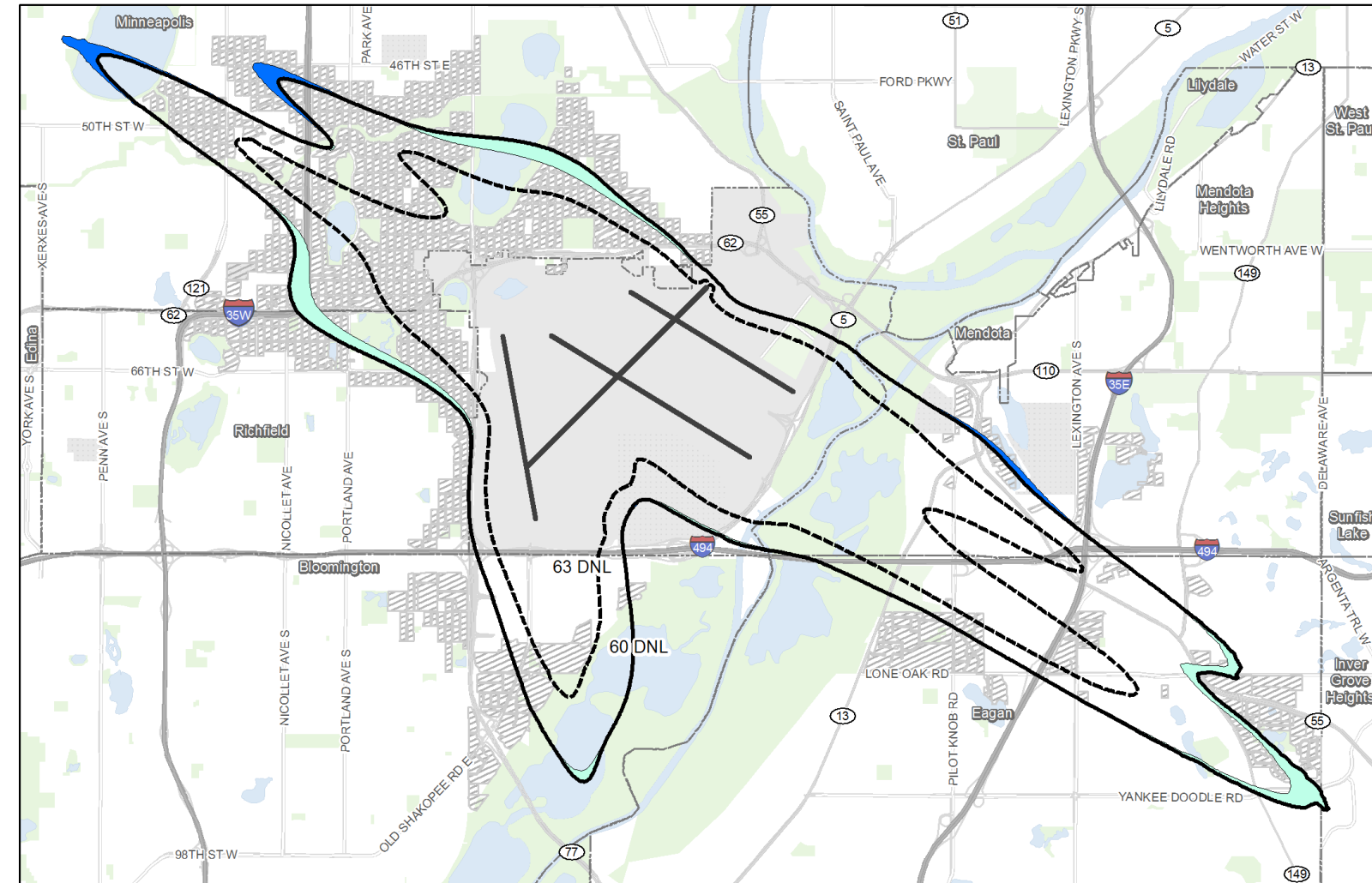
- 2017 total operations - 415,703*
 - A 28.6% reduction from 2007 forecast operations
- During 2017, one Hushkit Stage 3 jet operated every 10 days on average
 - The 2007 forecast average is 274.9 Hushkit flights per day
- Nighttime operations in 2017 decreased by 3.2 average daily operations from the 2007 forecast number
- The 2017 actual noise contour is smaller than the 2007 forecast contour by 27% in the 60 DNL contour and 38% in the 65 DNL contour

Two areas of the 2017 contour have extended beyond the 2007 forecast contour



Item 5: 2017 Annual Noise Contour Report and Mitigation Activity

MSP 2017 60 DNL CONTOUR COMPARED TO MSP 2016 60 DNL CONTOUR



- 2017 had more balance between North Flow and South Flow operations compared to the previous 2 years due to the FAA's efforts to refine traffic management during Converging Runway Operations
- Reduction of noise exposure in 2017 compared to 2016 under the arrival lobes of Runways 12L and 12R (dark blue)
- Increased noise exposure in 2017 under the arrival and departure lobes of Runways 30L and 30R (light blue)

2017 MSP CONTOUR

60 DB DNL	AREAS WHERE THE 2017 CONTOUR IS BIGGER THAN THE 2016 CONTOUR
63 DB DNL	AREAS WHERE THE 2017 CONTOUR IS SMALLER THAN THE 2016 CONTOUR
BLOCKS COMPLETED OR INCLUDED IN 2017-2018 MITIGATION PROGRAMS	



Item 5: 2017 Annual Noise Contour Report and Mitigation Activity

Overview of Mitigation Eligibility per the Amended Consent Decree

The current program will provide mitigation to eligible homes until 2024 based on actual noise exposure 5 dB DNL further into the community than the federal threshold of 65 dB DNL

The home must meet the following 2 criteria:

- (a) The community in which the home is located has adopted local land use controls and building performance standards to ensure the practices are consistent with the noise mitigation provided by the MAC.
- (b) The home is located for 3 consecutive years in the actual 60 DNL noise contour and within a higher mitigation area when compared to the original program.



Item 5: 2017 Annual Noise Contour Report and Mitigation Activity

Overview of Mitigation Eligibility per the Amended Consent Decree

The MAC will provide 2 different packages depending on exposure area:

- Eligible homes within the 63 dB DNL contour receive the Full 5dB Reduction Package, designed to reduce interior noise levels by an average of 5 decibels
- Eligible homes within the 60 db DNL contour receive the Partial Noise Reduction Package, which comes with two options:
 - Central air conditioning + \$5,503* of mitigation products and services; or
 - \$19,262* of noise mitigation products and services

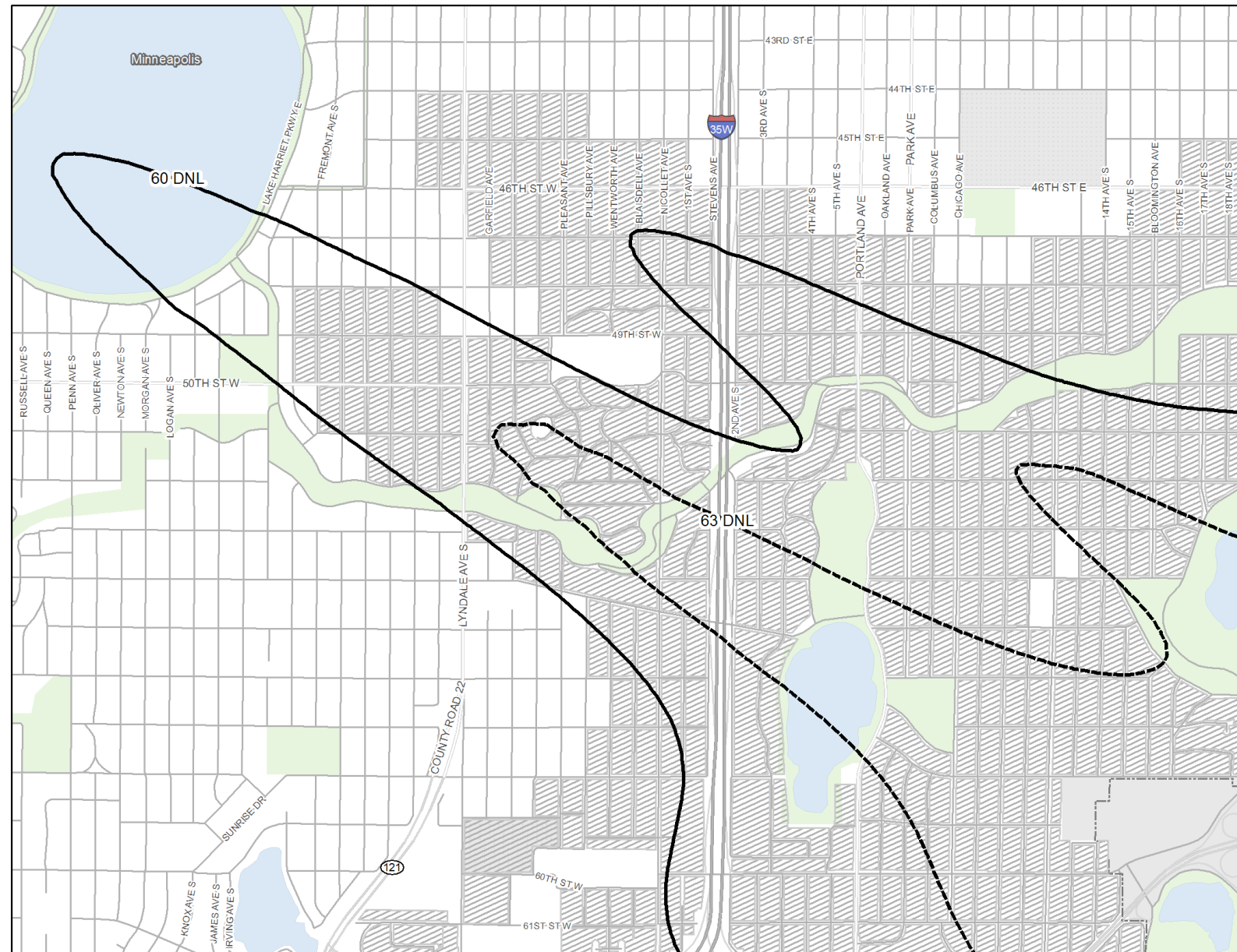
The MAC will provide mitigation to homes the year following eligibility determination.

The only residential properties that currently meet the mitigation eligibility criteria are located in the City of Minneapolis.



**Any reimbursement or mitigation improvements previously provided by the MAC will be deducted from the dollar amounts; dollar amounts will be adjusted according to the project year CPI.*

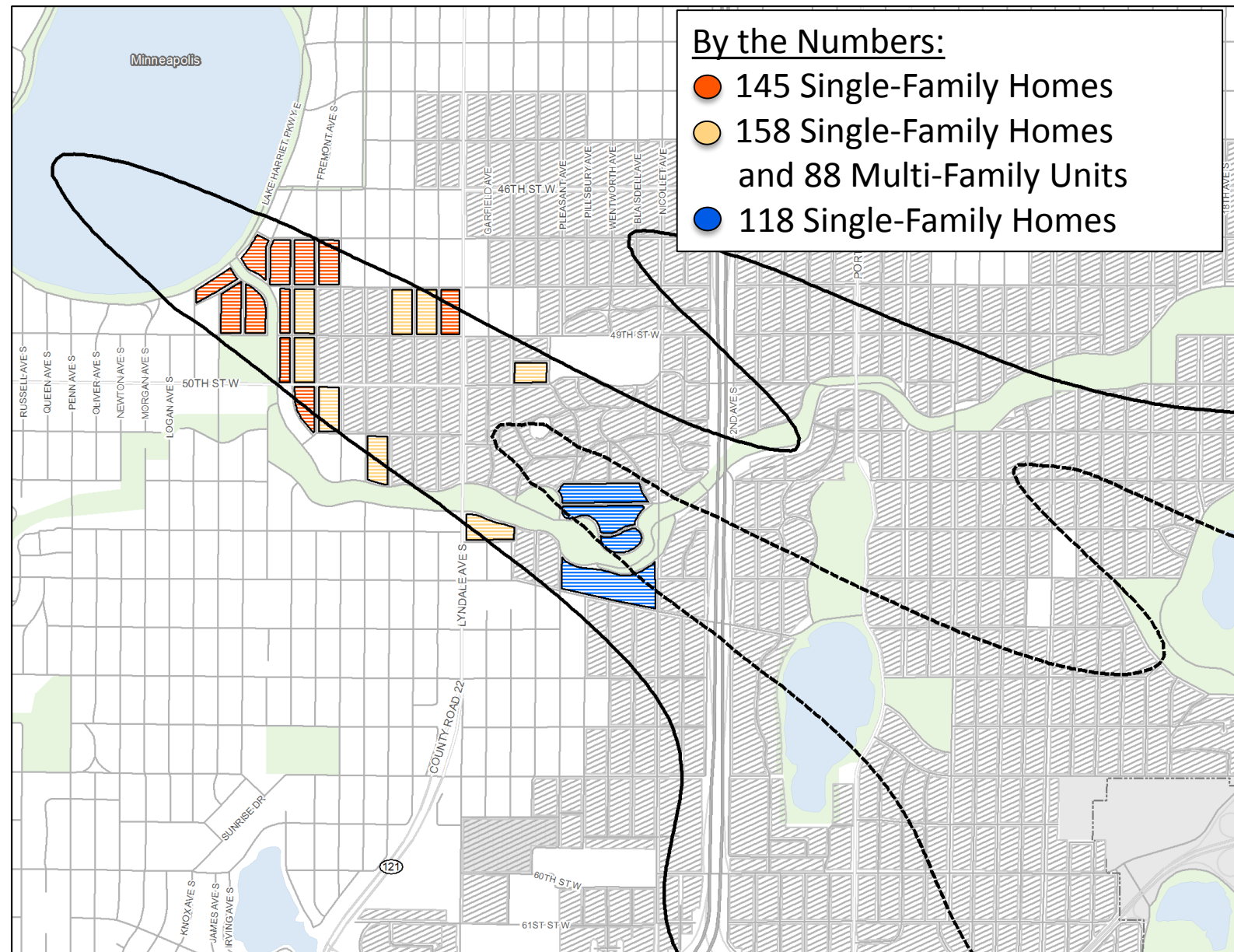
Item 5: 2017 Annual Noise Contour Report and Mitigation Activity



Blocks completed under the original Part 150 program and 2007 Consent Decree







Item 5: 2017 Annual Noise Contour Report and Mitigation Activity



By the Numbers:

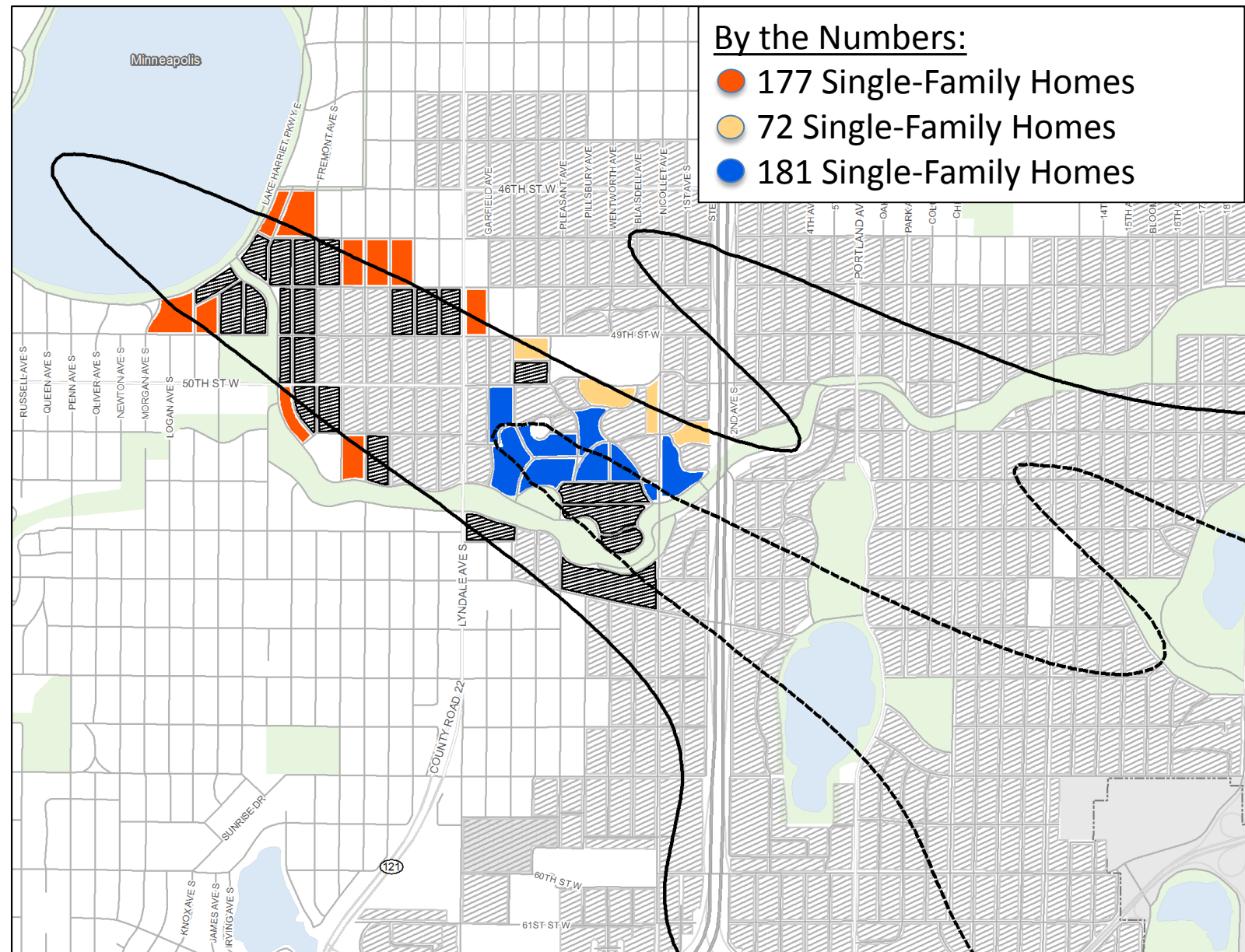
- 145 Single-Family Homes
- 158 Single-Family Homes and 88 Multi-Family Units
- 118 Single-Family Homes

2017 and 2018 Mitigation Programs






-  Blocks completed under previous programs
-  Blocks eligible for 2017-2018 Partial Noise Reduction Package
Outside any previous areas of mitigation
-  Blocks eligible for 2017-2018 Partial Noise Reduction Package
Eligible for reimbursements under the previous mitigation program
-  Blocks eligible for 2018 Full 5 dB Reduction Package
Eligible for Partial Noise Reduction under the previous mitigation program



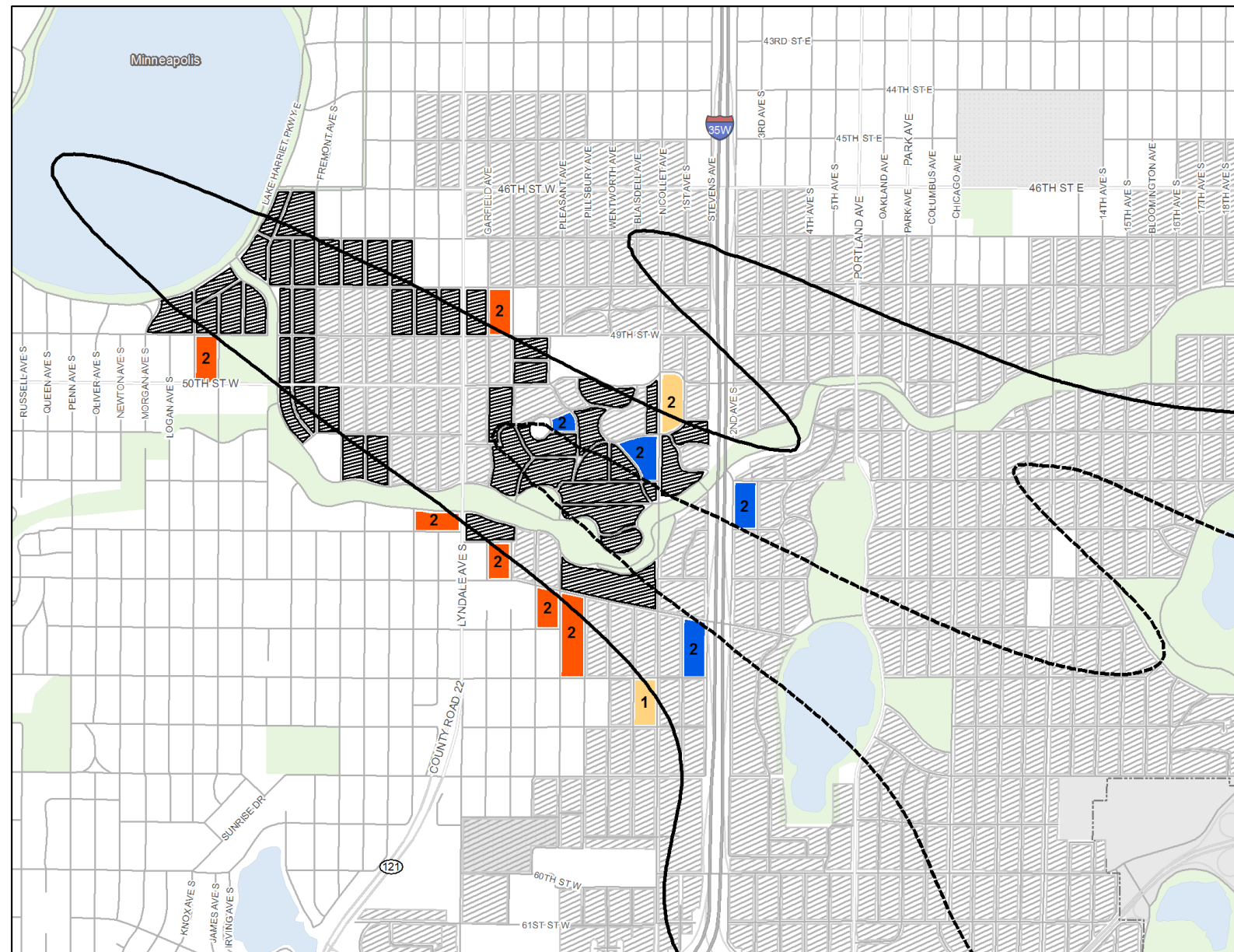
Item 5: 2017 Annual Noise Contour Report and Mitigation Activity








2019 Mitigation Program: Determined Eligible this Year

-  Blocks completed under previous programs
-  Blocks completed as part of the 2017-2018 programs
-  Blocks eligible for 2019 Partial Noise Reduction Package
Outside any previous areas of mitigation
-  Blocks eligible for 2019 Partial Noise Reduction Package
Eligible for reimbursements under the previous mitigation program
-  Blocks eligible for 2019 Full 5dB Reduction Package
Previously eligible for Partial Noise Reduction Package

Item 5: 2017 Annual Noise Contour Report and Mitigation Activity



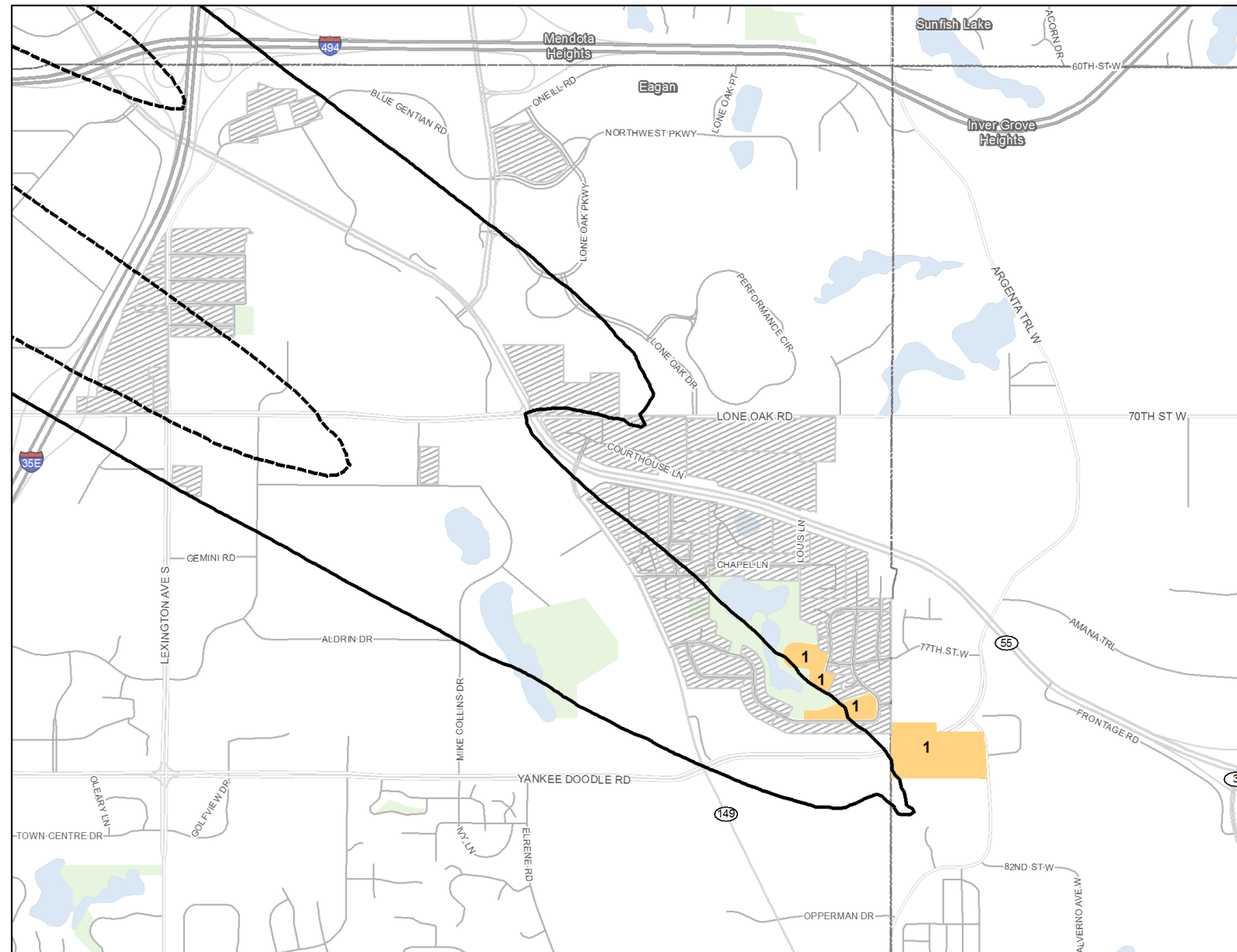
A Look beyond 2019

-  Blocks completed under previous programs
-  Blocks completed in the 2017, 2018 and 2019 programs
-  Candidate Blocks for Partial Noise Reduction Package
Outside any areas of previous mitigation
-  Candidate Blocks for Partial Noise Reduction Package
Eligible for reimbursements under the previous mitigation program
-  Candidate Blocks for Full 5dB Reduction Package
Previously eligible for Partial Noise Reduction Package






1 Achieved Year 1 of Candidate Eligibility this Year
(If these blocks remain in a higher impact area for 2 more years, they will be eligible for mitigation in 2021.)

2 Achieved Year 2 of Candidate Eligibility this Year
(If these blocks remain in a higher impact area in the 2018 Actual Noise Contour, they will be eligible for mitigation in 2020.)

Item 5: 2017 Annual Noise Contour Report and Mitigation Activity



A Look beyond 2019

-  Blocks completed under previous programs
-  Blocks completed in the 2017, 2018 and 2019 programs
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Outside any areas of previous mitigation
-  Candidate Blocks for Partial Noise Reduction Package
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-  Candidate Blocks for Full 5dB Reduction Package
Previously eligible for Partial Noise Reduction Package

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(If these blocks remain in a higher impact area for 2 more years, they will be eligible for mitigation in 2021.)

2 Achieved Year 2 of Candidate Eligibility this Year
(If these blocks remain in a higher impact area in the 2018 Actual Noise Contour, they will be eligible for mitigation in 2020.)

Item 5: 2017 Annual Noise Contour Report and Mitigation Activity



The MAC will contact eligible homeowners. At this time, there is nothing for the homeowners to do to initiate the 2019 mitigation process.

Materials regarding the Residential Noise Mitigation Program are available at <http://www.macnoise.com/noise-mitigation-program>



ITEM 6 VORTEX GENERATOR NOISE MONITORING STUDY



**NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018**



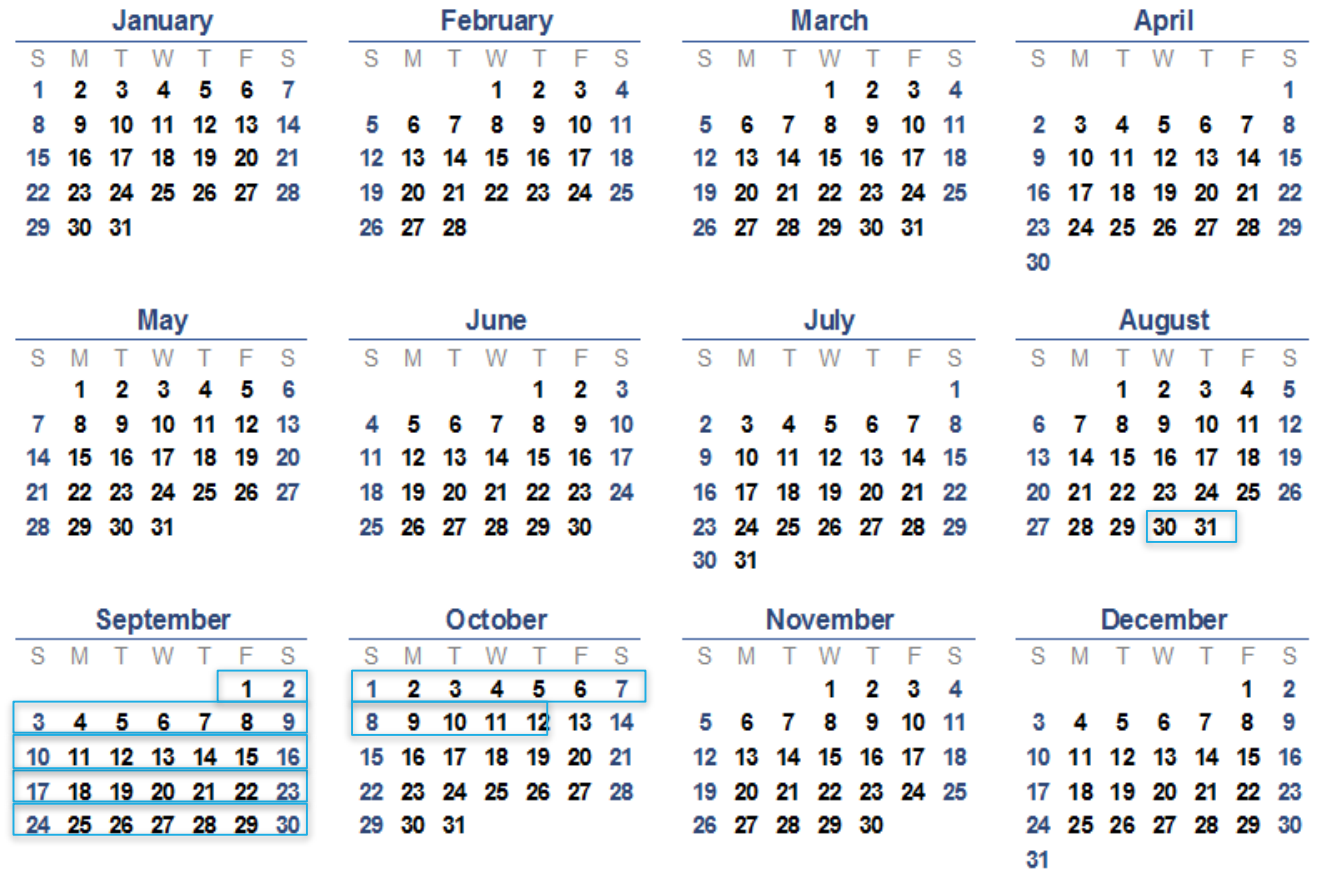
Item 6: Vortex Generator Noise Monitoring Study

Study Results

Noise monitoring began on August 30, 2017 concluded on October 12, 2017

- 9,181 total noise events recorded
- 4,033 correlated to MSP aircraft operations (3,527 arrivals and 506 departures)
- 453 correlated to Airbus A320 family arrivals (excluding United Airlines)
- 29 were determined to be equipped with vortex generators and 424 were non-equipped

2017



Item 6: Vortex Generator Noise Monitoring Study

Study Results

The vortex generator data had Lmax noise level differences from -0.4 to +1.6 dBA, SEL noise level differences from -1.0 to +1.2 dBA and average duration from -1 to +5 seconds.

When taking aircraft noise measurements from the ground during this phase of flight, staff found the measured aircraft noise events struggled to exceed the ambient noise level in the community. Therefore, quantifying the noise reduction benefits provided by these devices from the ground becomes extremely difficult.

The study limitations included the low threshold settings required to collect aircraft arrival events between 5,000 and 9,000 feet in altitude, which resulted in noise level data that was impacted by louder community events; and the small sample of vortex generator-equipped aircraft operations that were available to analyze.



ITEM 7 SUPER BOWL ACTIVITY DEBRIEF



**NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018**



Item 7: Super Bowl Activity Debrief

CHART 1 - MSP OPERATIONS BY DAY

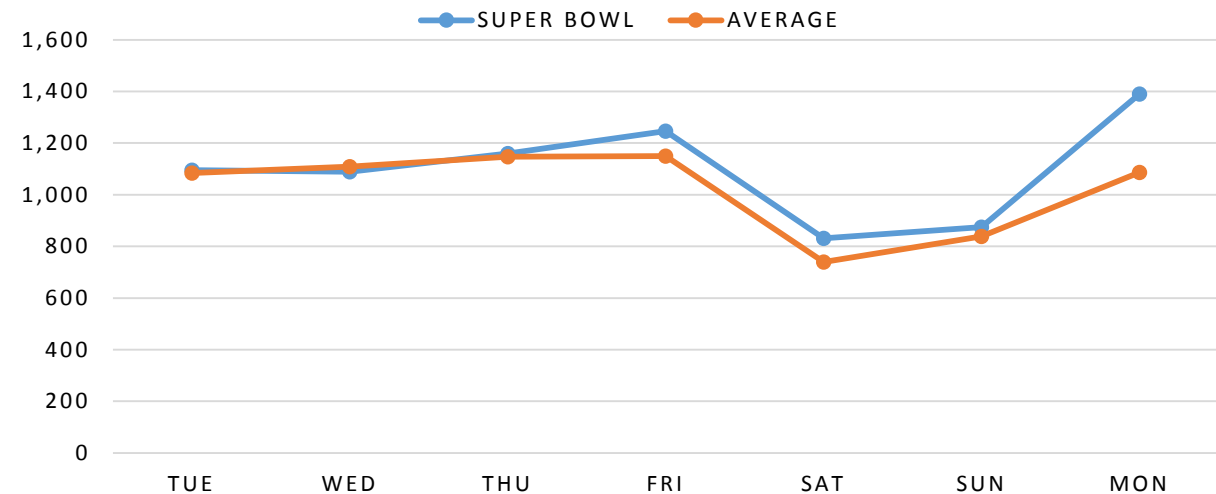


CHART 4 - MSP OPERATIONS 8:00 PM SUNDAY - 8:00 AM MONDAY

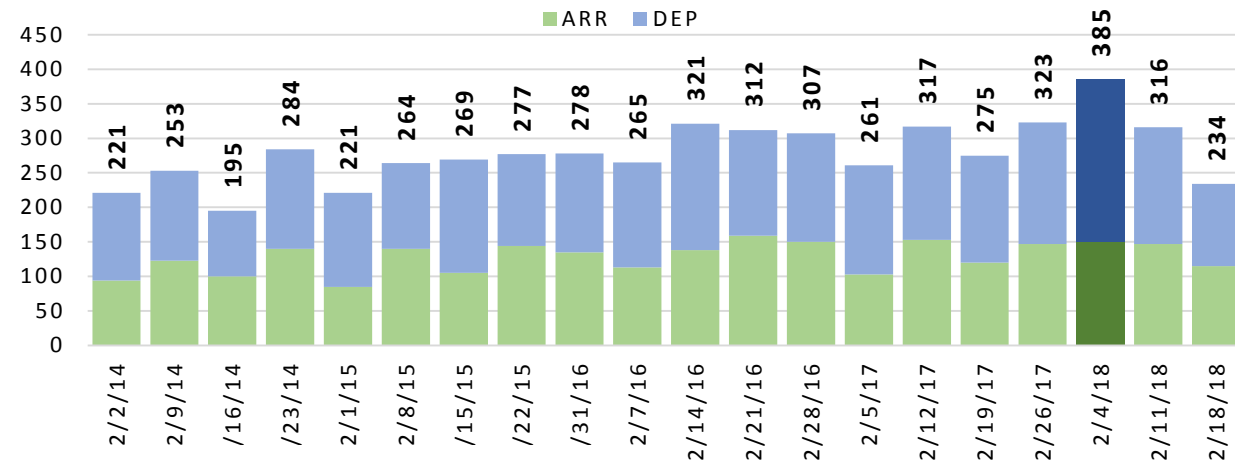
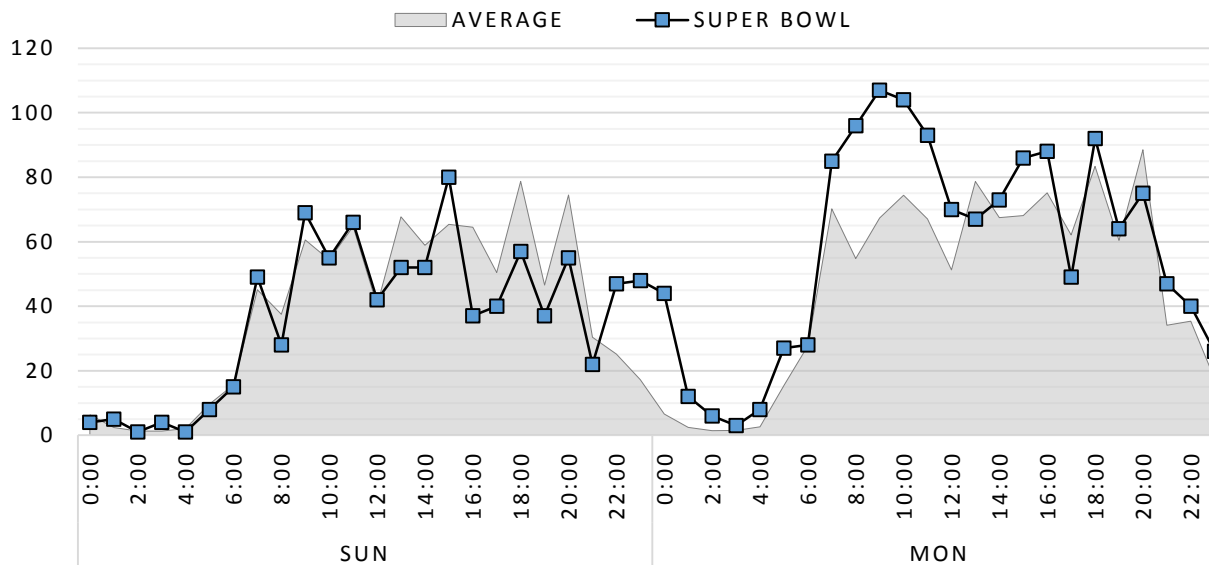


CHART 5 - MSP OPERATIONS



Item 7: Super Bowl Activity Debrief

CHART 6 - MSP COMPLAINTS BY DAY

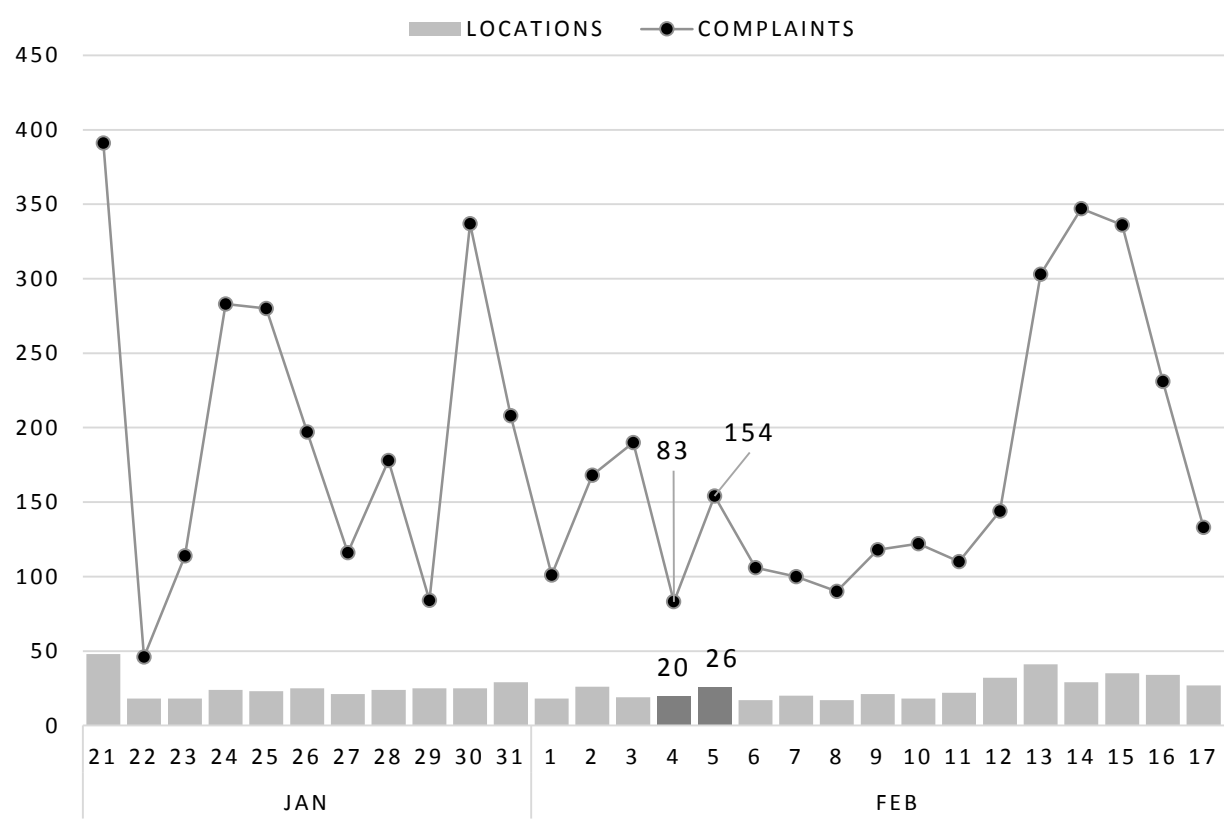
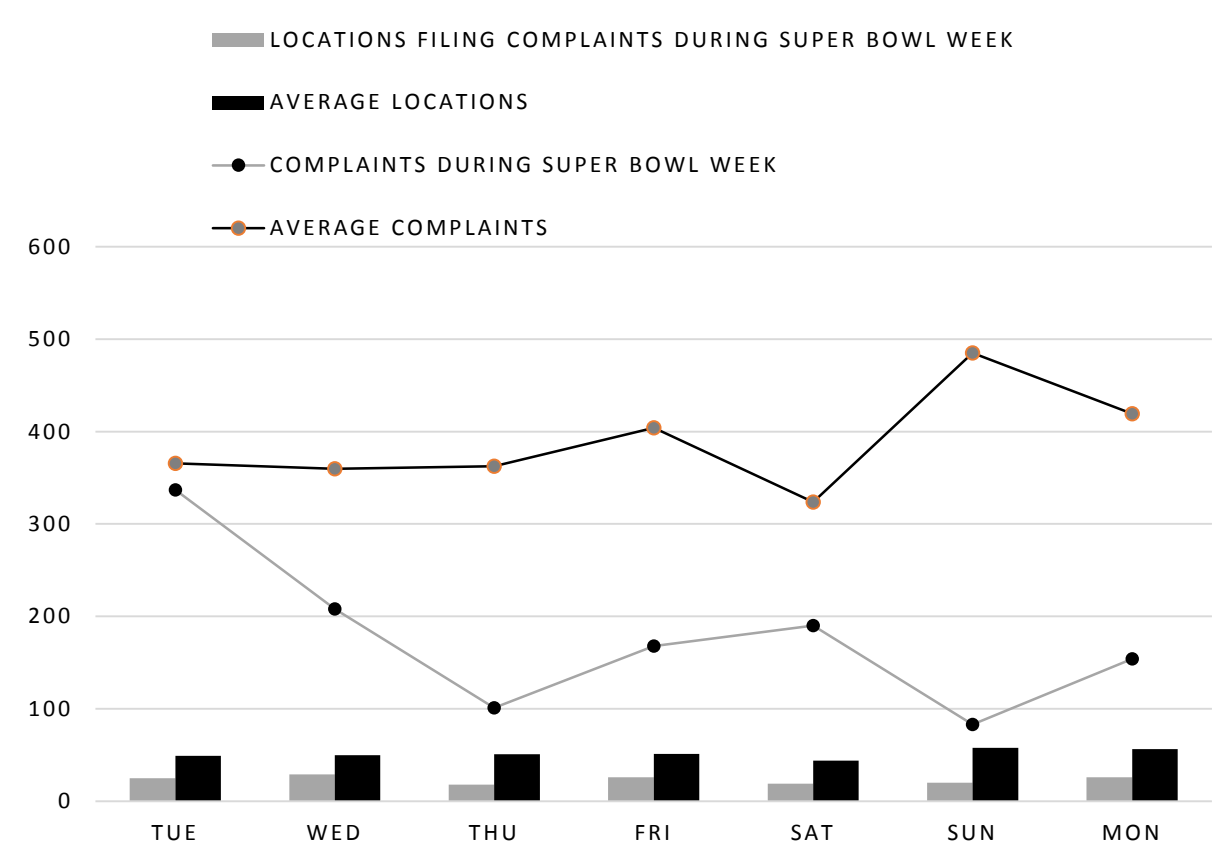
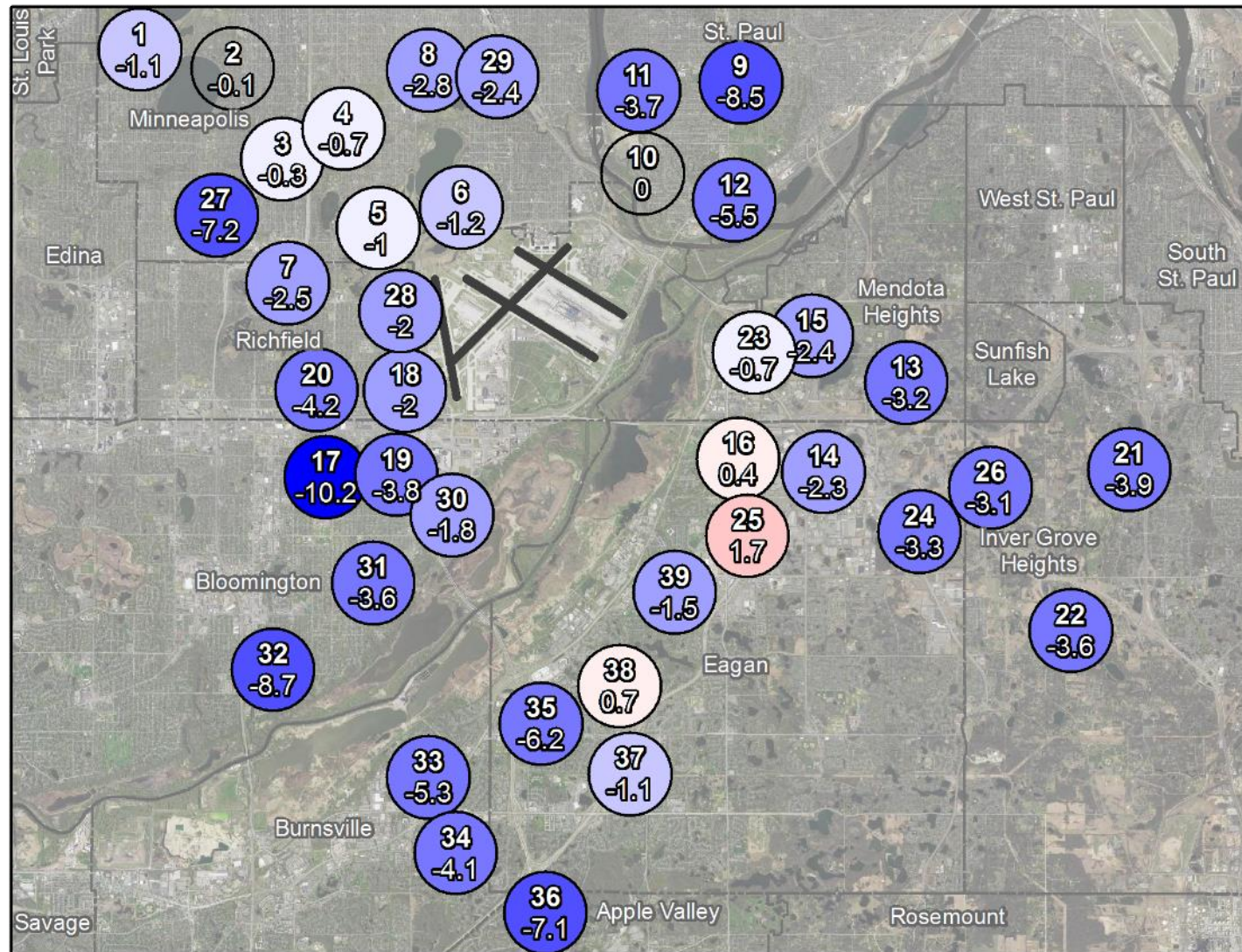
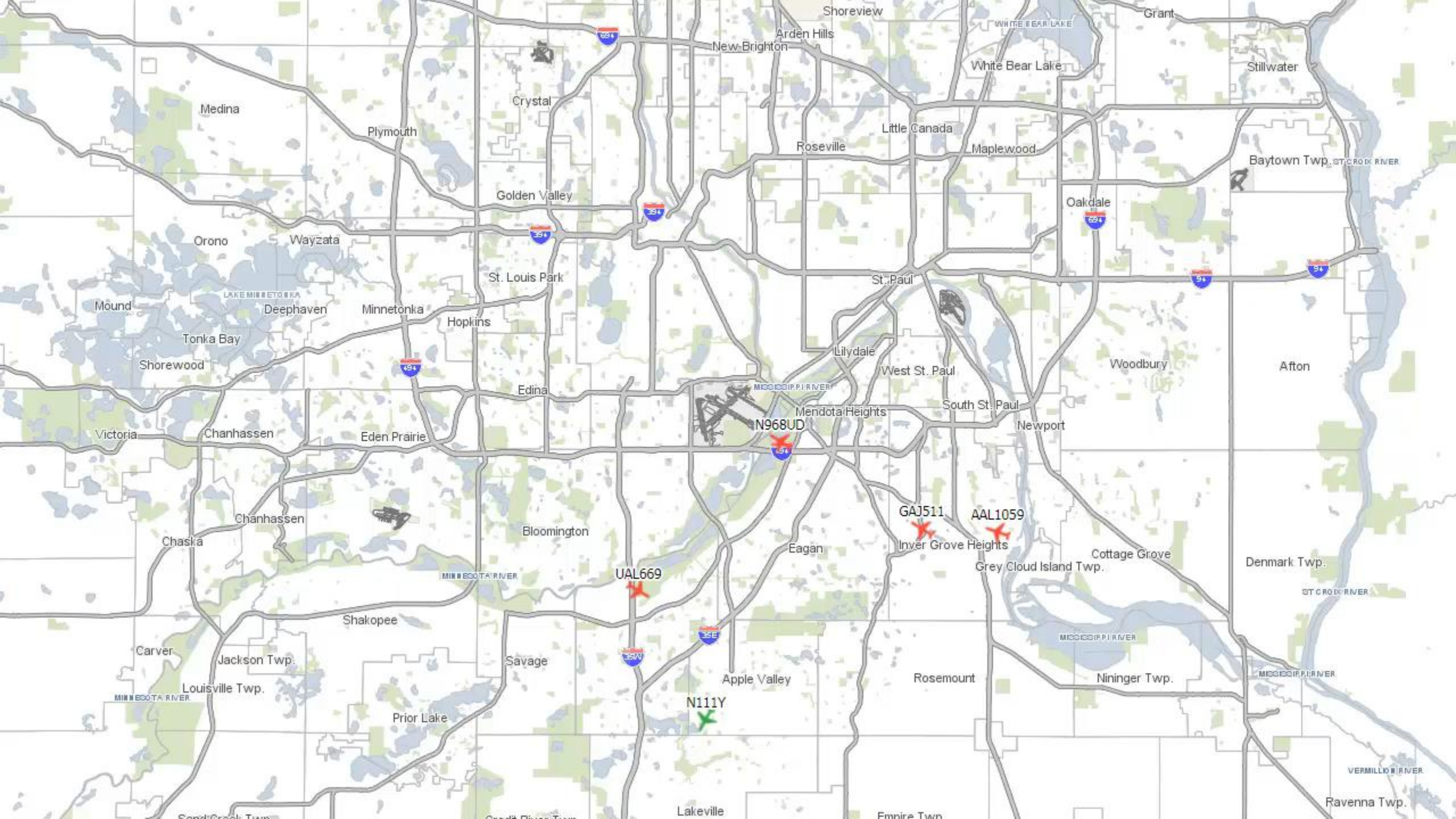


CHART 7 - MSP COMPLAINTS BY DAY



Item 7: Super Bowl Activity Debrief





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ITEM 8

REVIEW OF THE WINTER LISTENING SESSION



NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018



Item 8: Review of the Winter Listening Session

40 residents attended the Winter Listening Session at Mount Olivet Lutheran Church in the Lynnhurst neighborhood of Minneapolis.

The majority of the attendees were from Minneapolis and Edina.

The meeting was also attended by representatives from FAA air traffic, MAC Commission, Minneapolis and Bloomington City Councils, NOC, Minneapolis Staff, and Metropolitan Council.

MAC staff opened with an introduction and presentation. Slides are available at:

The open floor conversation focused on:

- MSP nighttime operations
- Frequency of arrivals to Runways 12L and 12R
- Balancing arrivals to Runways 12L and 12R with departures from Runways 30L and 30R
- Noise monitoring locations and data
- Creation of DNL noise contours and eligibility criteria for the Residential Noise Mitigation Program
- Area Navigation (RNAV) procedures at MSP
- Departures flying runway heading straight-out over Minneapolis
- The DNL noise metric and its representation of actual noise impacts
- Alternative noise metrics
- Anticipated air traffic demand in the future
- MSP Fairskies requests to the NOC



NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018

ITEM 9 PUBLIC COMMENT PERIOD



**NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018**



ITEM 10 ANNOUNCEMENTS

Spring Listening Session

Wednesday, April 25, 2018 @ 7:00 PM

MAC General Offices

6040 28th Avenue South

Minneapolis, MN 55450

Next NOC Meeting

Wednesday, May 16, 2018 @ 1:30 PM

MAC General Offices



**NOISE OVERSIGHT COMMITTEE
MARCH 21, 2018**

