NOISE OVERSIGHT COMMITTEE
MARCH 15, 2017

Audio recordings are made of this meeting

NOISE OVERSIGHT COMMITTEE
MARCH 15, 2017

Item 1: Review and Approval of January 18, 2017 Meeting Minutes

NOISE OVERSIGHT COMMITTEE
MARCH 15, 2017

Item 2: Review of Monthly Operations Reports: January and February 2017

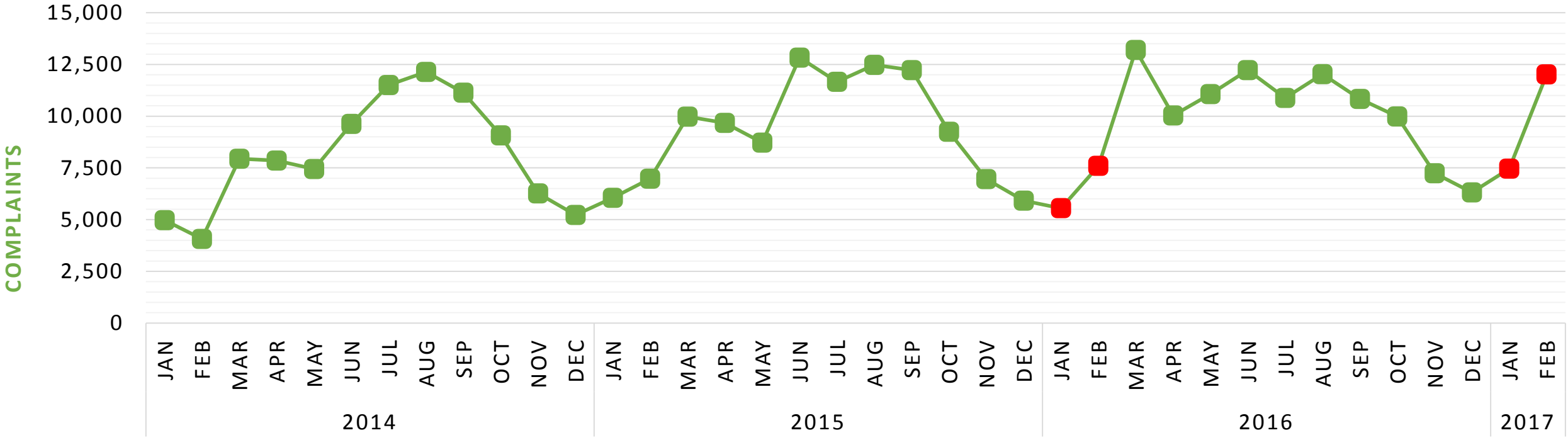
Item 3: Review of Operations Report Summary: January and February 2017

MSP COMPLAINTS

	2016	2017
JANUARY	5,547	7,457
FEBRUARY	7,594	12,012

TOP 5 CITIES

CITY	COMPLAINTS
MINNEAPOLIS	6,437
INVER GROVE HEIGHTS	3,805
EAGAN	3,684
BURNSVILLE	1,384
RICHFIELD	1,119



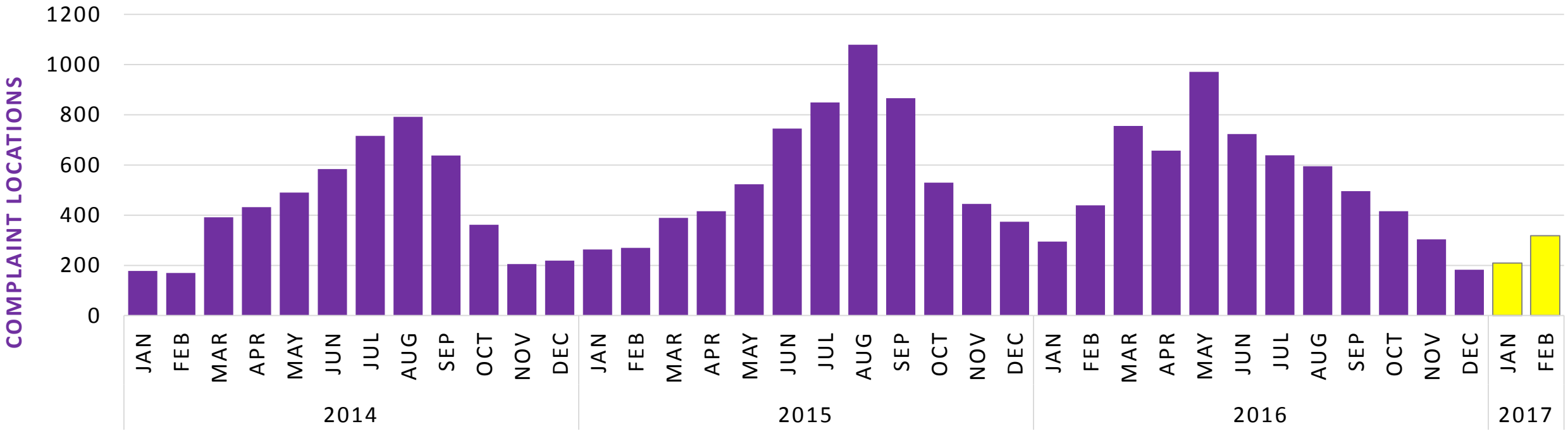
Item 3: Review of Operations Report Summary: January and February 2017

MSP COMPLAINT LOCATIONS

JANUARY	FEBRUARY
209	318

MSP COMPLAINT STATS

	JANUARY	FEBRUARY
AVERAGE	35.7	37.8
MEDIAN	3	3



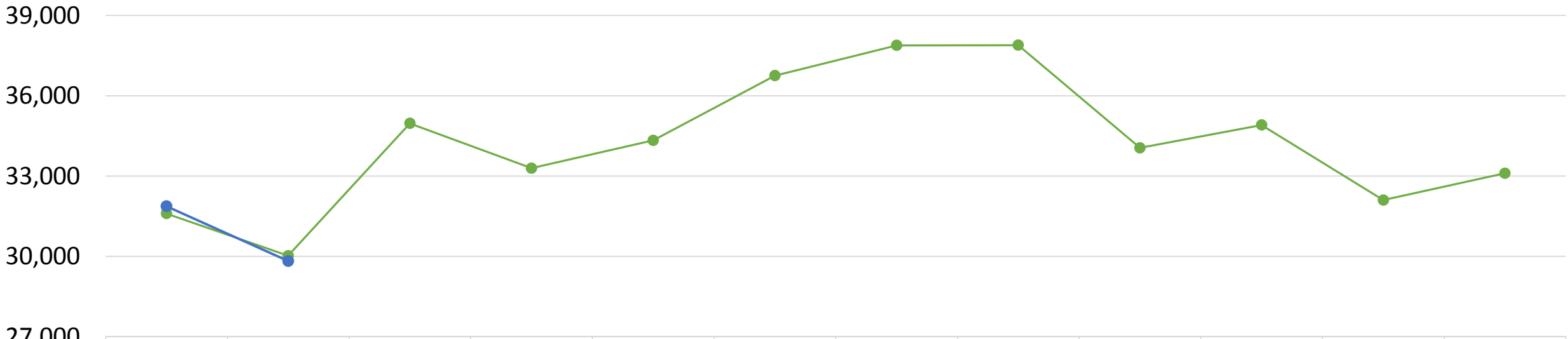
Item 3: Review of Operations Report Summary: January and February 2017

TOTAL MSP AIRCRAFT OPERATIONS

	2016	2017
JANUARY	31,597	31,868
FEBRUARY	30,020	29,825

MSP YEAR-TO-DATE OPERATIONS

2016	2017
61,617	61,693

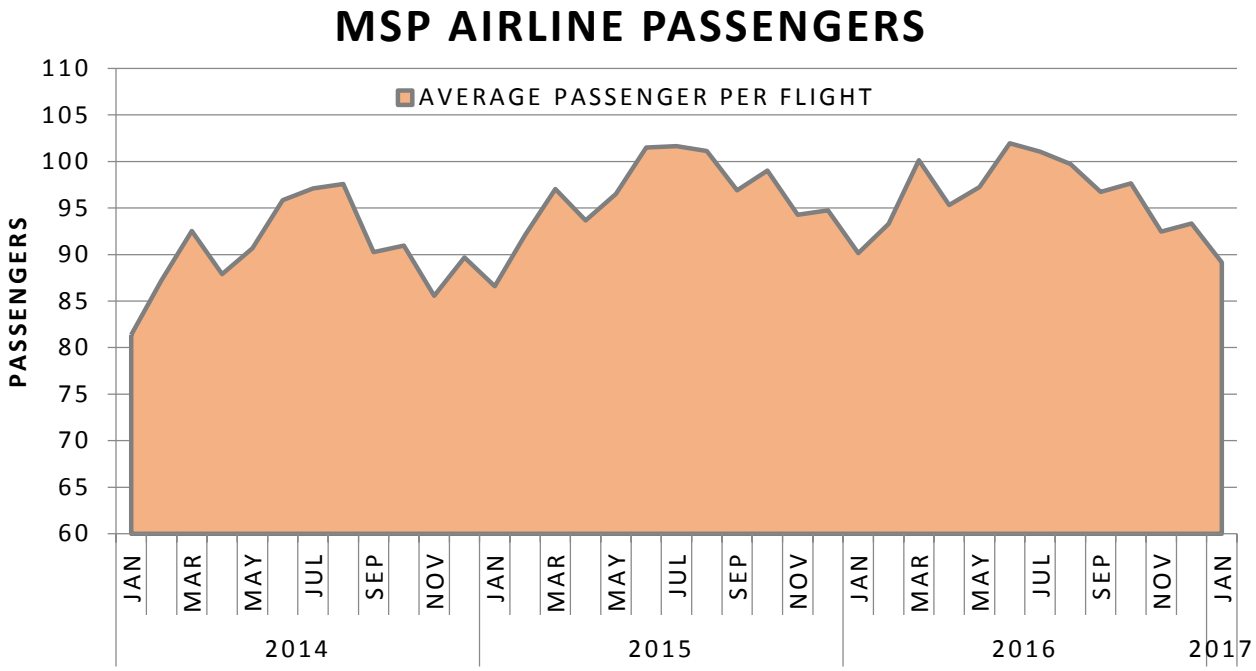


	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2016	31,597	30,020	34,966	33,293	34,331	36,750	37,880	37,887	34,052	34,906	32,102	33,103
2017	31,868	29,825										

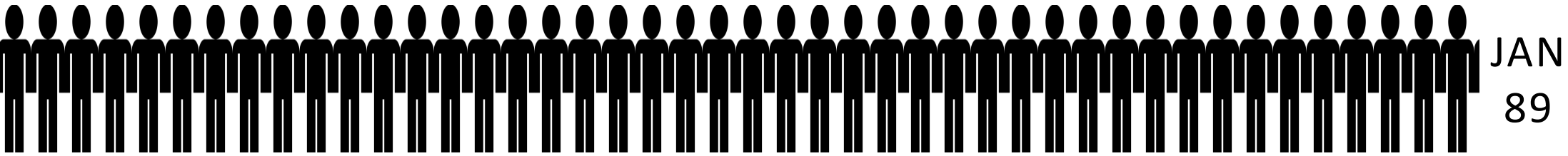
Item 3: Review of Operations Report Summary: January and February 2017

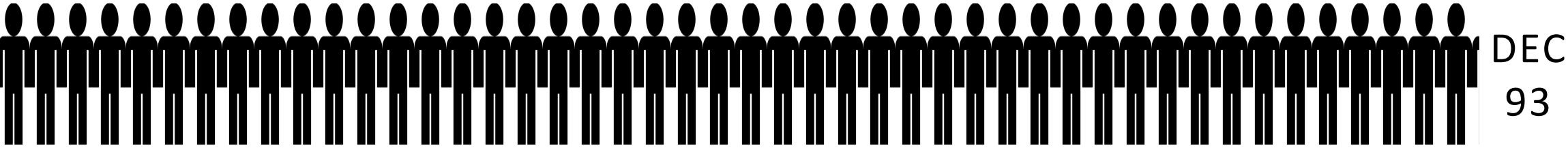
MSP PASSENGERS

DECEMBER	JANUARY
2,796,374	2,599,643



AVERAGE PASSENGER PER FLIGHT





Source: Metropolitan Airports Commission's Finance Department Monthly Passenger and Operations Reports

Item 3: Review of Operations Report Summary: January and February 2017

FLEET MIX COMPOSITION

JANUARY AND FEBRUARY 2017

42.1%

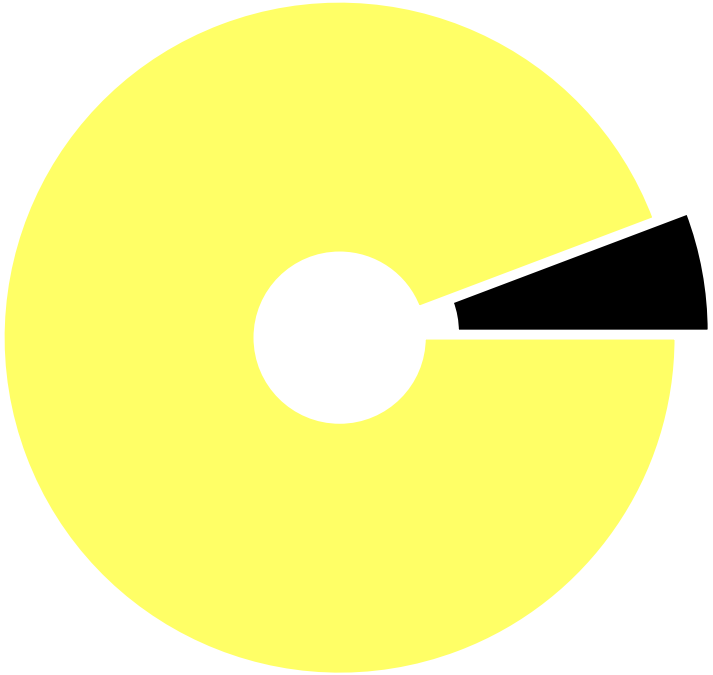
54.7%

3.2%

DAYTIME COMPOSITION

JANUARY AND FEBRUARY 2017

DAY
58,144
94.2%

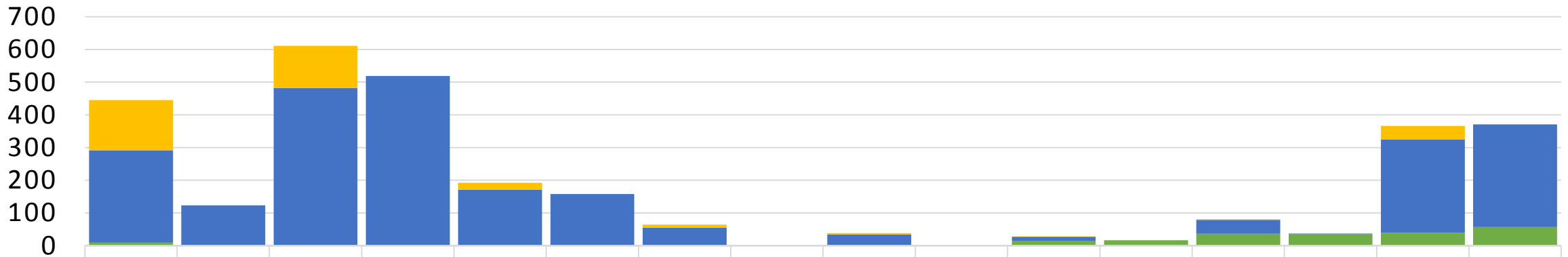


NIGHT
3,549
5.8%

Item 3: Review of Operations Report Summary: November and December 2016

JANUARY NIGHT TIME

Scheduled	Actual
1,224	1,825

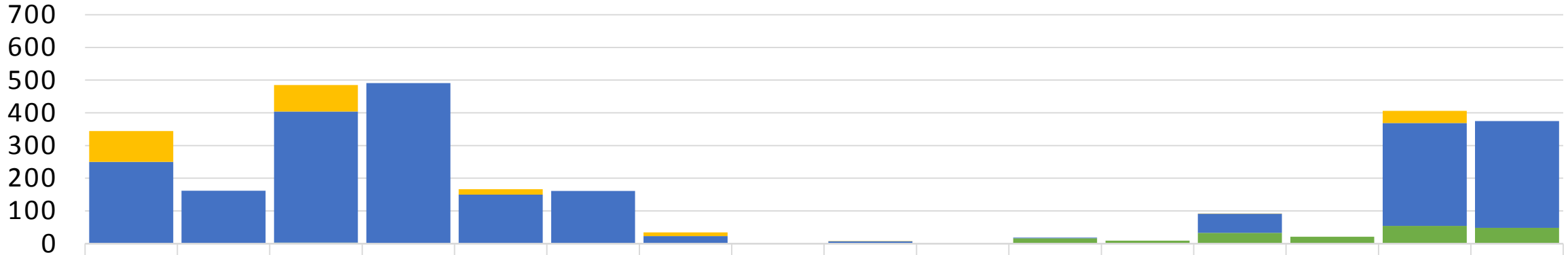


	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH
	22:30		23:00		0:00		1:00		2:00		3:00		4:00		5:00	
OTHER	154		129		21		9		4		1		2		41	
AIR CARRIER	282	123	480	519	170	158	55		34		12		43	2	286	314
CARGO	9		2		1						15	16	36	35	39	57

Item 3: Review of Operations Report Summary: November and December 2016

FEBRUARY NIGHT TIME

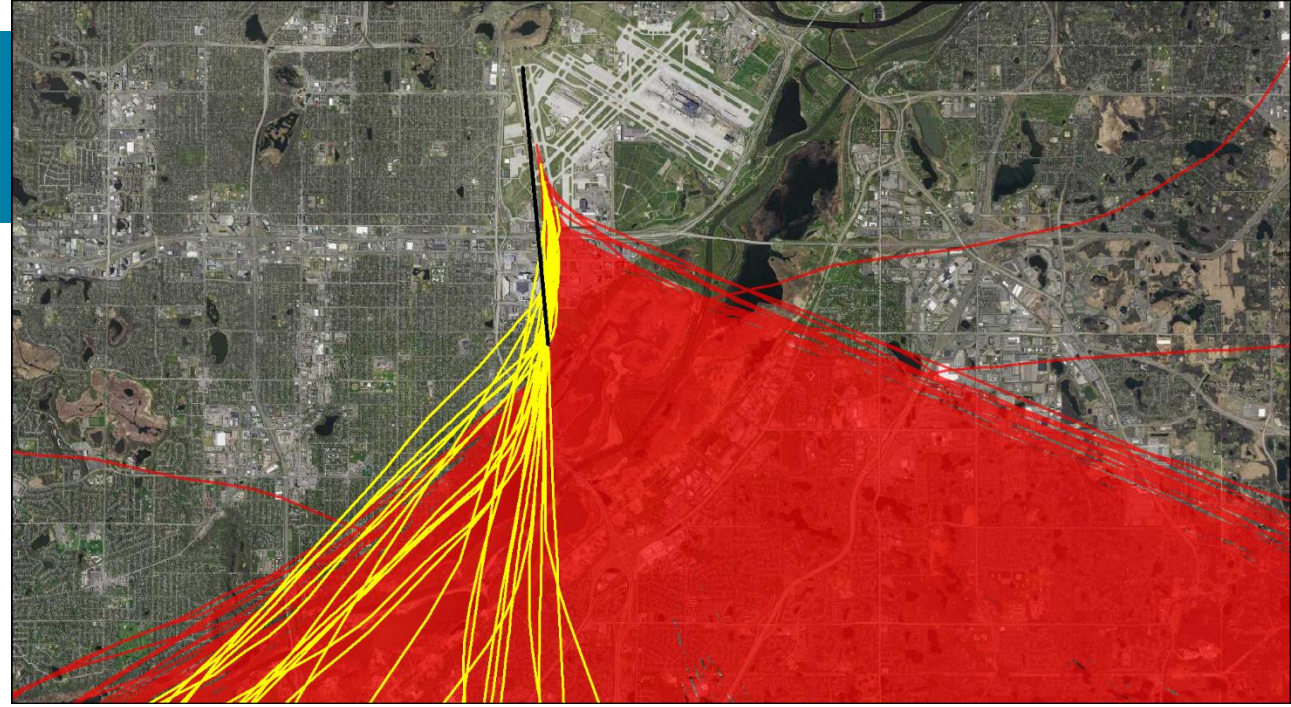
Scheduled	Actual
1,219	1,553

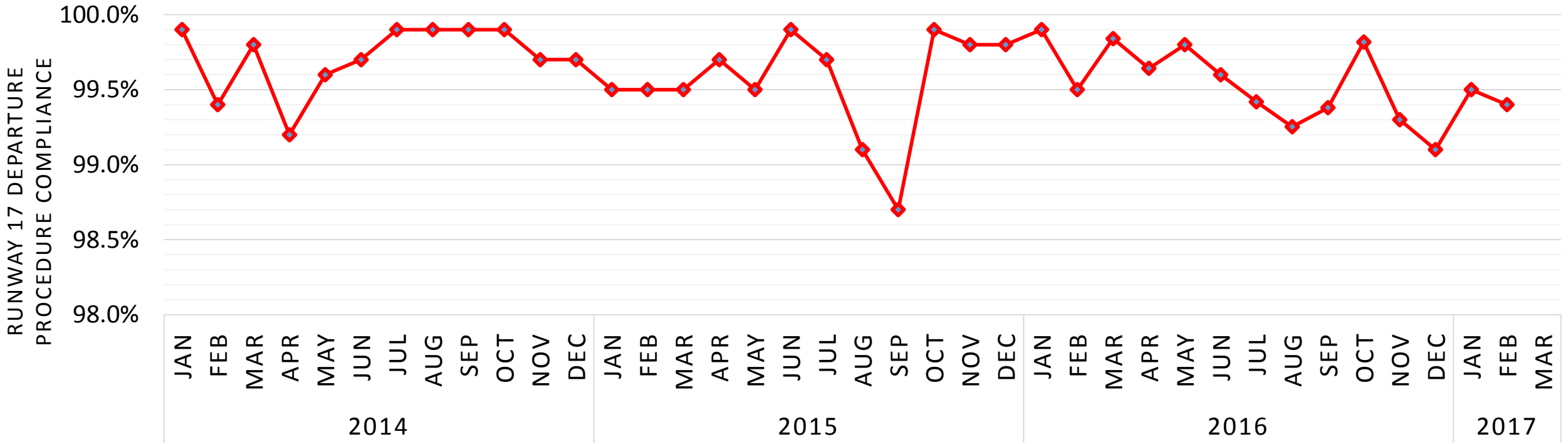


	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH
	22:30		23:00		0:00		1:00		2:00		3:00		4:00		5:00	
OTHER	94		81		16		11		1				1		37	
AIR CARRIER	249	162	401	491	150	161	23		7		2		58		315	327
CARGO	1		3								16	9	33	21	54	48

Noise Abatement Procedures – Runway 17 Departure

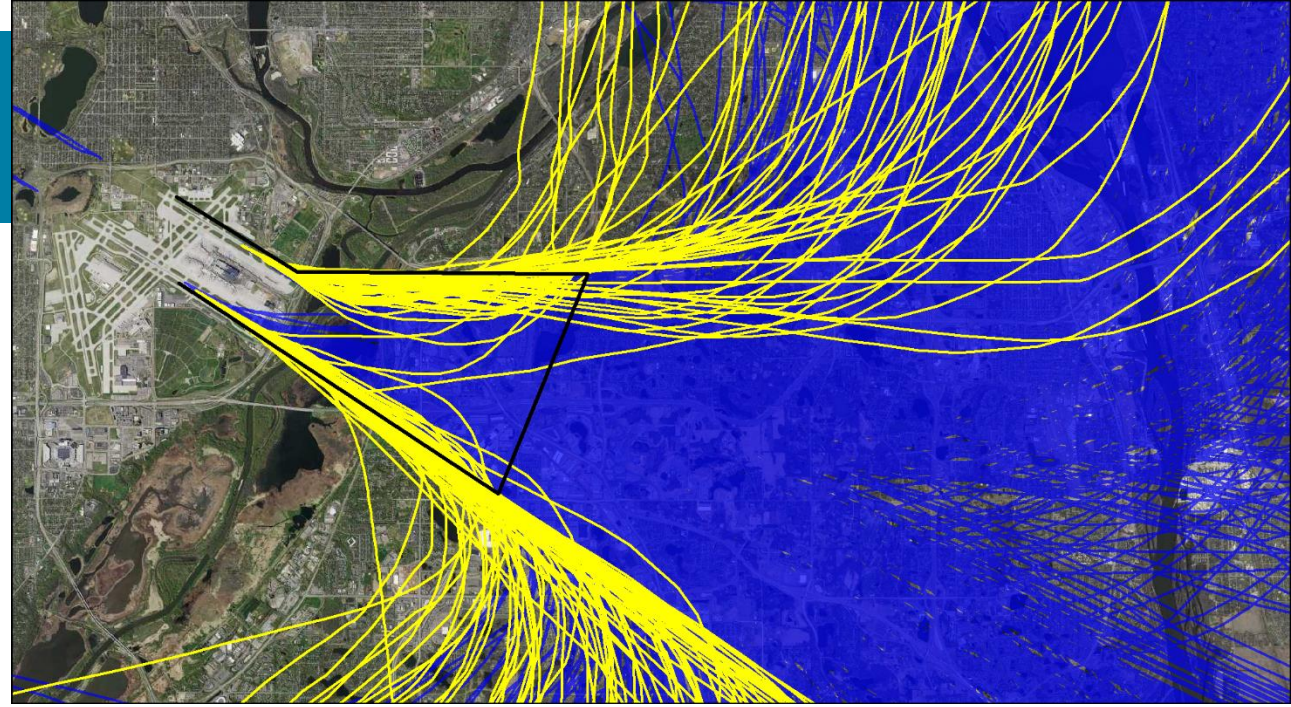
RUNWAY 17	JANUARY	FEBRUARY
CARRIER JET DEPARTURES (PROCEDURE COMPLIANCE)	4,205 (99.5%)	4,124 (99.4%)

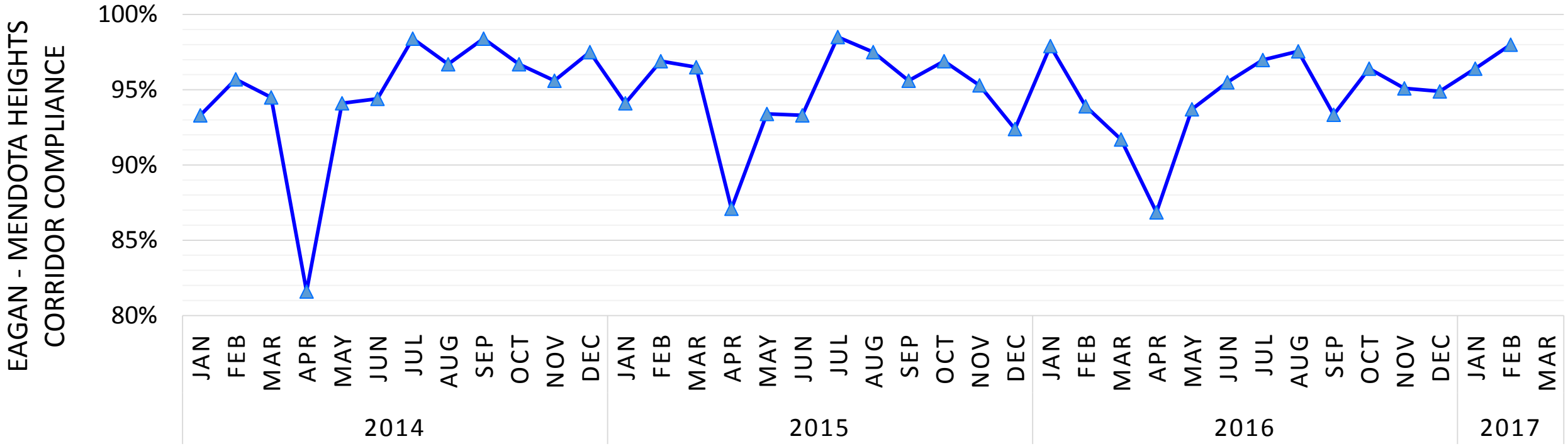




Noise Abatement Procedures – Eagan-Mendota Heights Departure Corridor

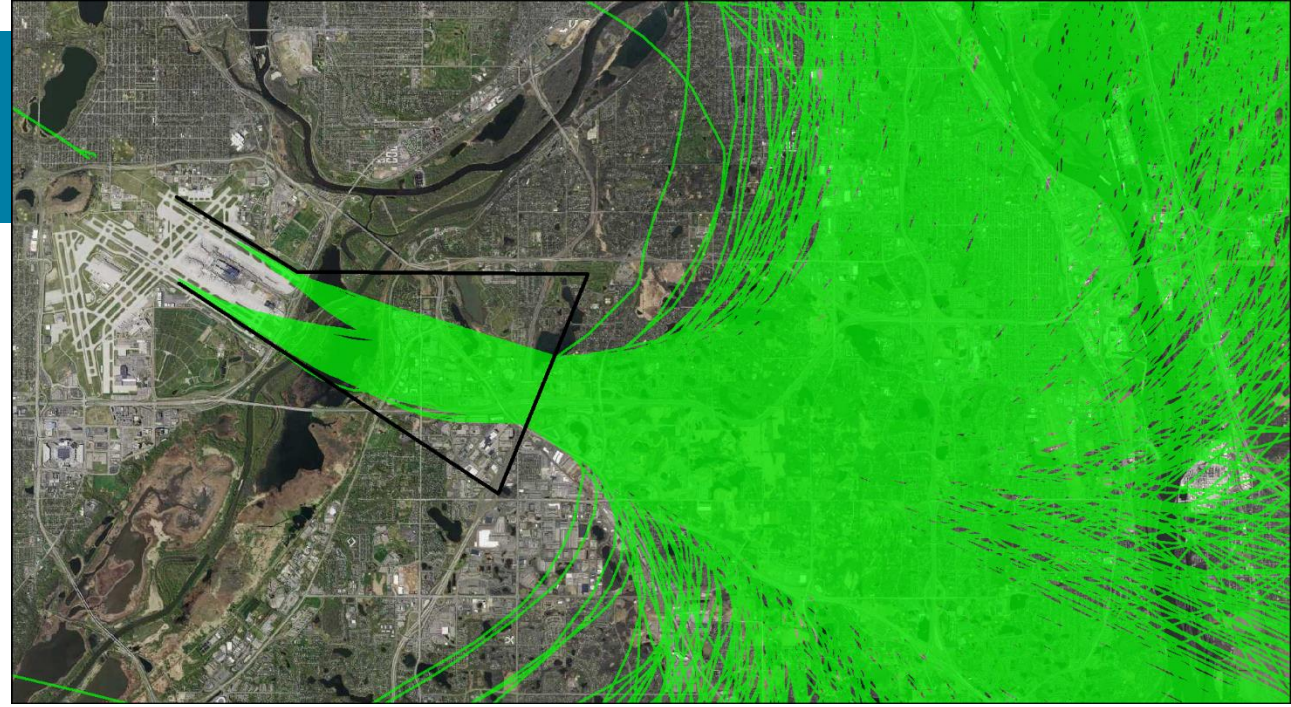
RUNWAYS 12L AND 12R	JANUARY	FEBRUARY
CARRIER JET DEPARTURES (PROCEDURE COMPLIANCE)	2,276 (96.4%)	1,625 (98.0%)

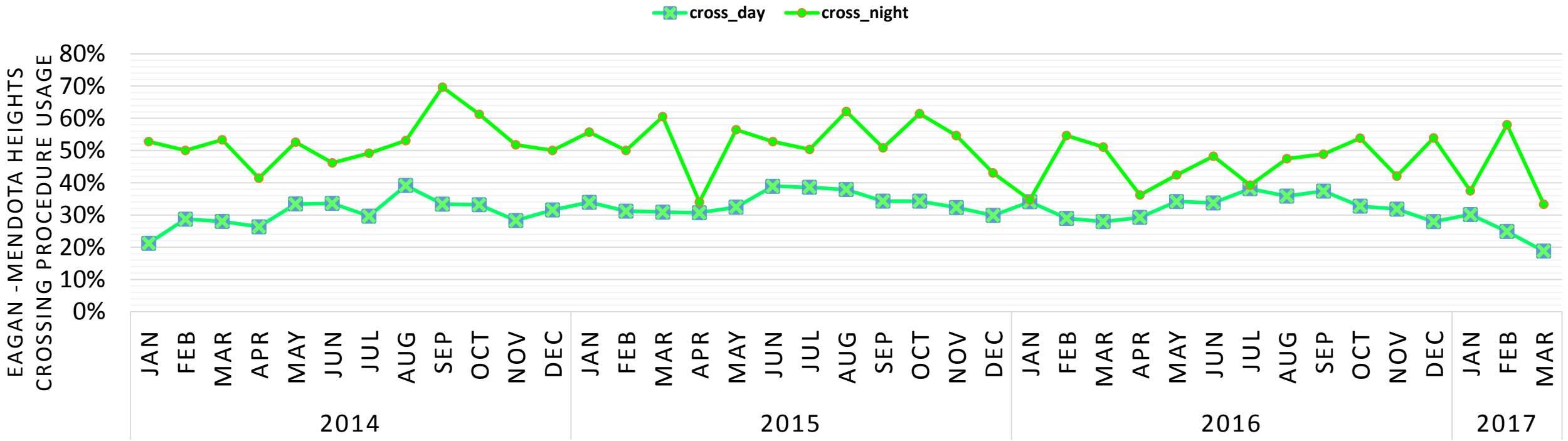




Noise Abatement Procedures – Crossing-in-the-Corridor

CROSSING USAGE	JANUARY	FEBRUARY
NIGHT TIME (23:00 – 06:00)	**104** (38%)	**81** (58%)
DAY TIME (06:00 – 23:00)	**2,172** (30%)	**1,544** (25%)

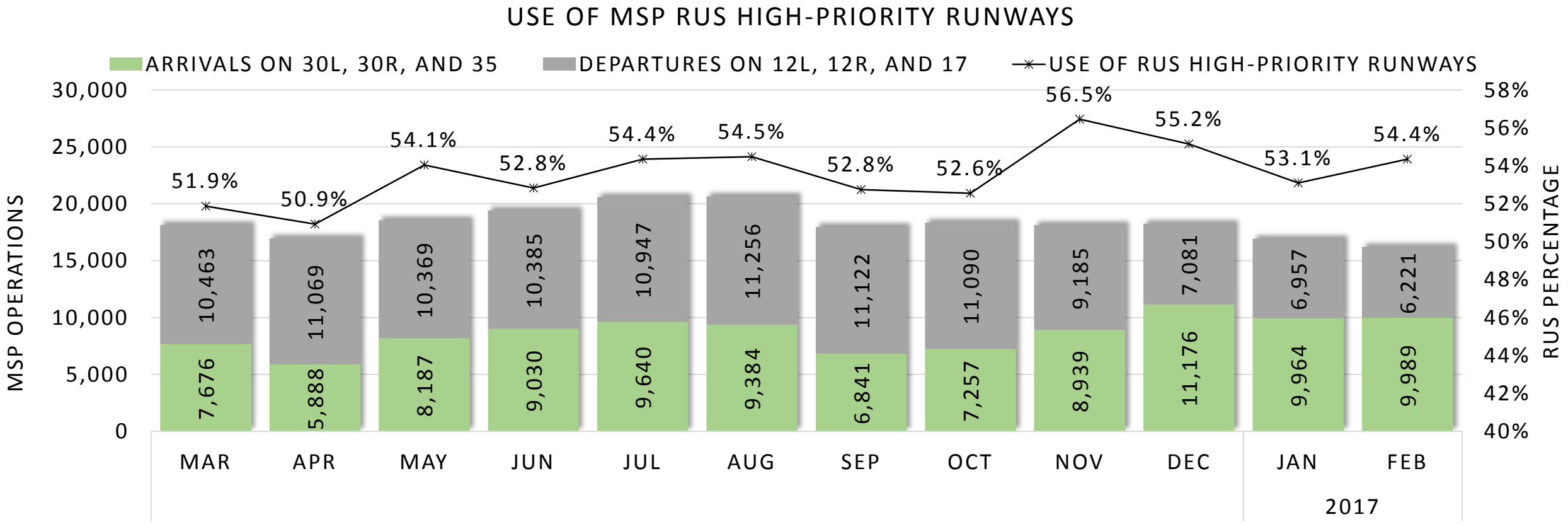




Noise Abatement Procedures – Runway Use System (RUS)

January	Count	Percent
Arrivals on 30L, 30R, and 35	9,964	31.27%
Departures on 12L, 12R, and 17	6,957	21.83%
Use of RUS High-Priority Runways	16,921	53.10%

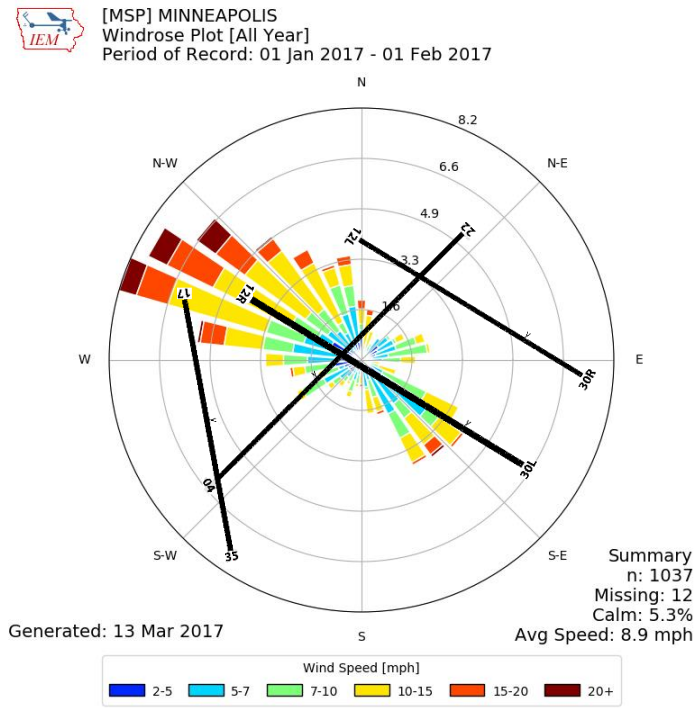
February	Count	Percent
Arrivals on 30L, 30R, and 35	9,989	33.49%
Departures on 12L, 12R, and 17	6,221	20.86%
Use of RUS High-Priority Runways	16,210	54.35%

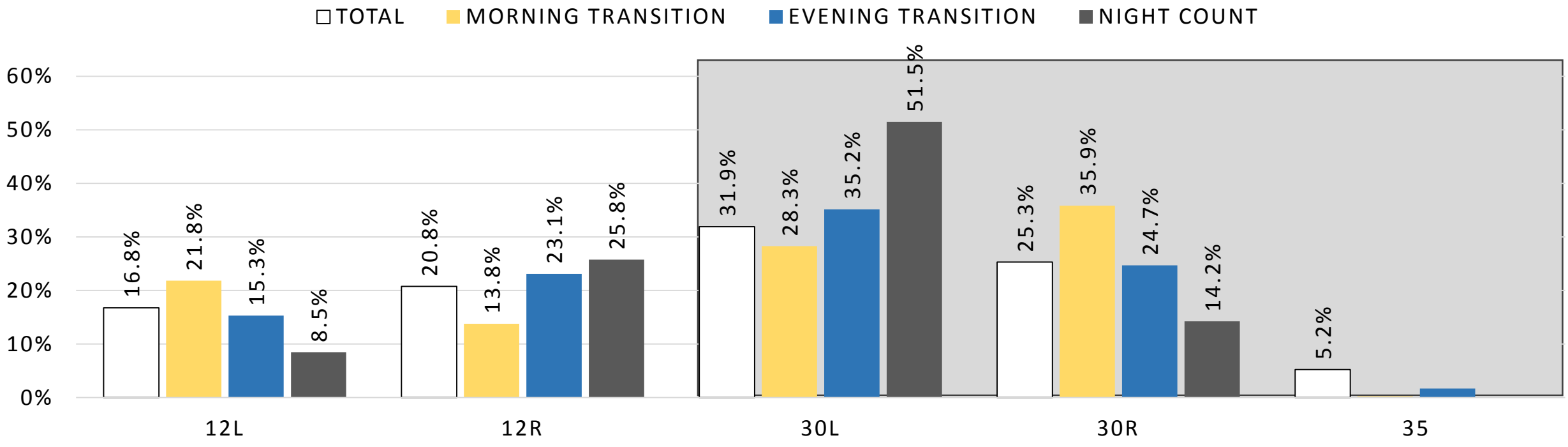


Noise Abatement Procedures – Runway Use System (RUS)

JANUARY ARRIVALS

North Flow	South Flow	Mixed Flow
48.1%	35.7%	8.1%

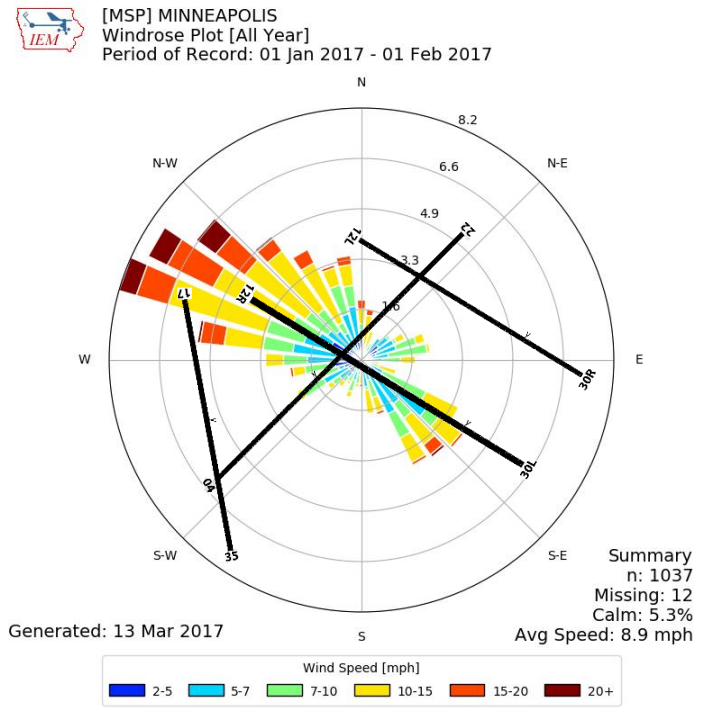


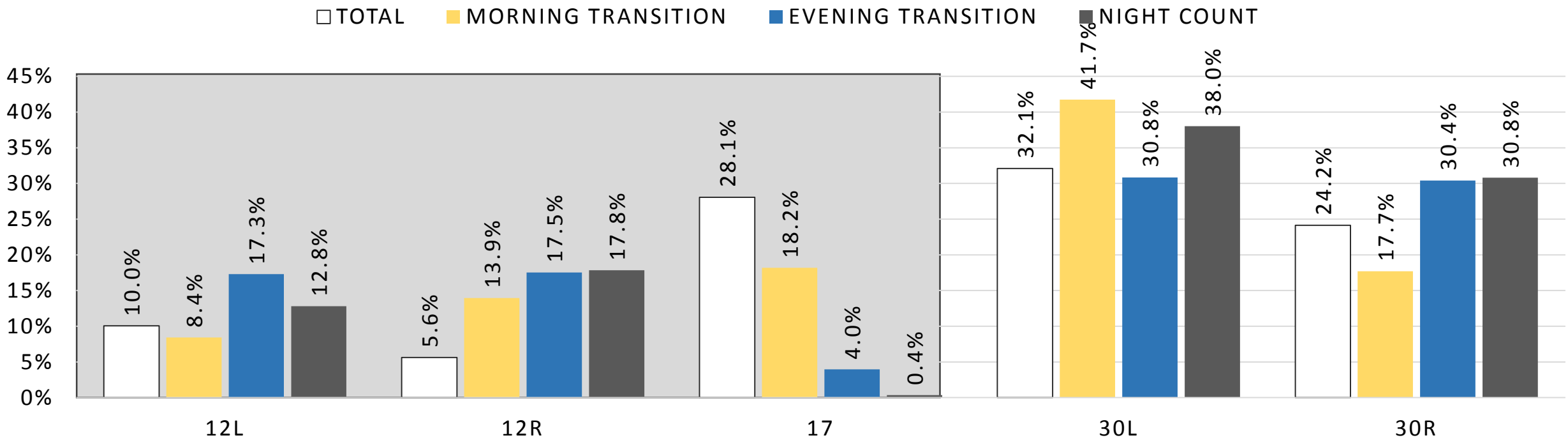


Noise Abatement Procedures – Runway Use System (RUS)

JANUARY DEPARTURES

North Flow	South Flow	Mixed Flow
48.1%	35.7%	8.1%

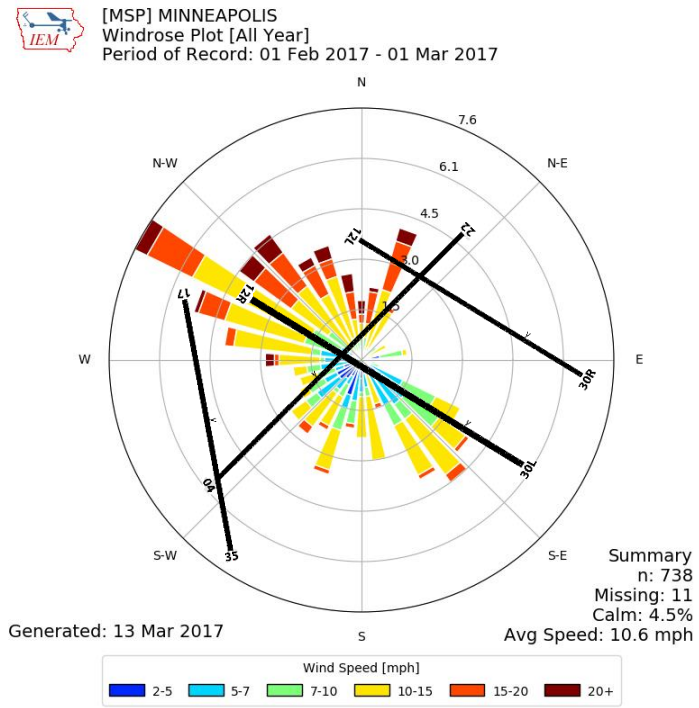


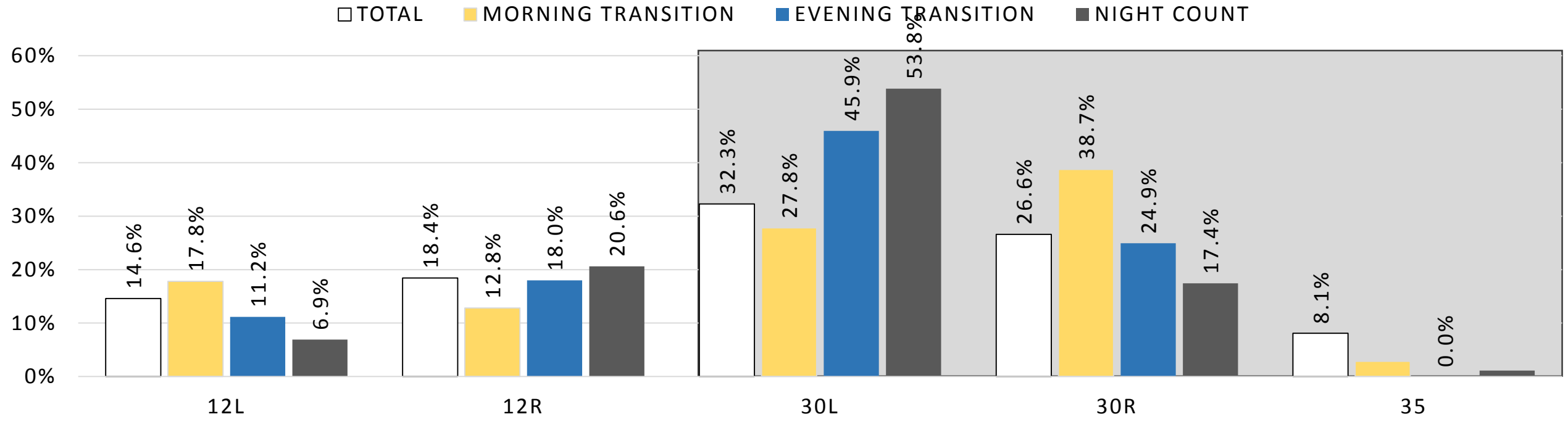


Noise Abatement Procedures – Runway Use System (RUS)

FEBRUARY ARRIVALS

North Flow	South Flow	Mixed Flow
48.3%	30.3%	13.1%

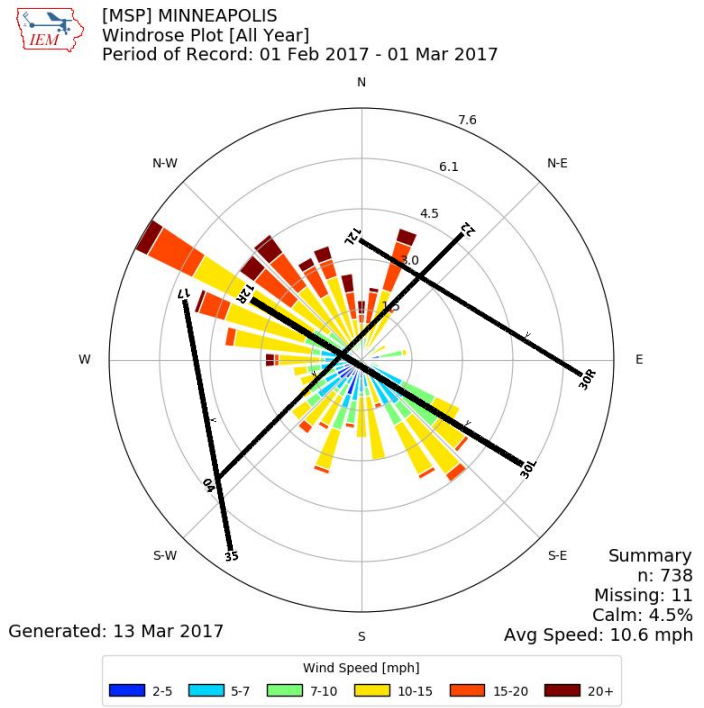


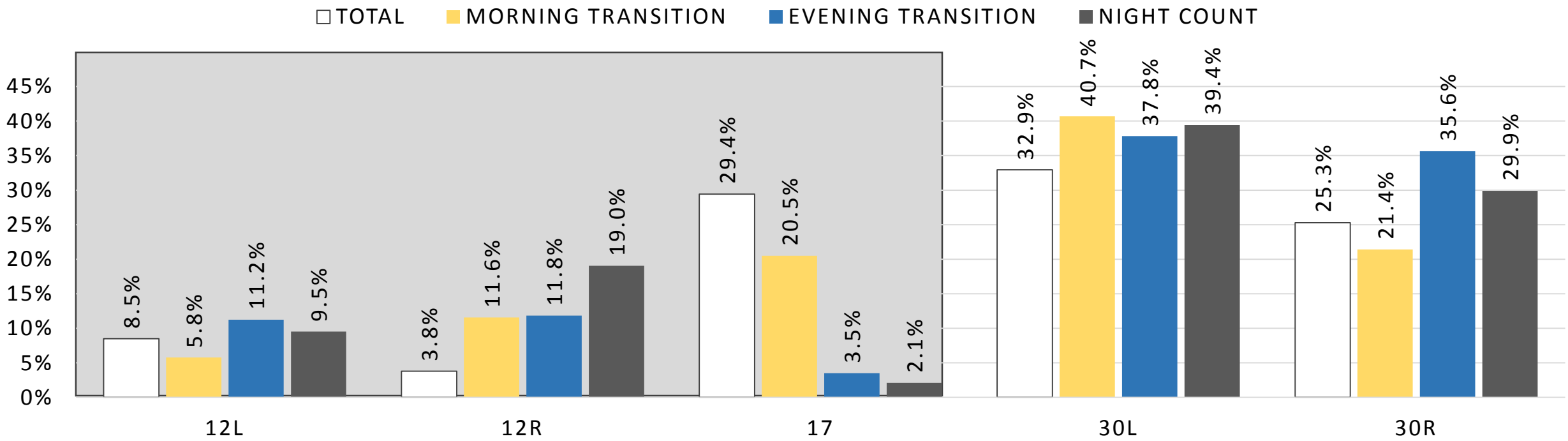


Noise Abatement Procedures – Runway Use System (RUS)

FEBRUARY DEPARTURES

North Flow	South Flow	Mixed Flow
48.3%	30.3%	13.1%





NOISE OVERSIGHT COMMITTEE
MARCH 15, 2017

Item 3: Review of Format of Monthly Operations Summary Report

Item 3: Review of Format of Monthly Operations Summary Report

"Many reports are currently available on the MAC website that are not designed to be readily understood by members of the public. "

"Many of the issues related to the usability and organization of these pages stem from the inclusion of historical data, which often dates back many years (such as Monthly Operations Reports"

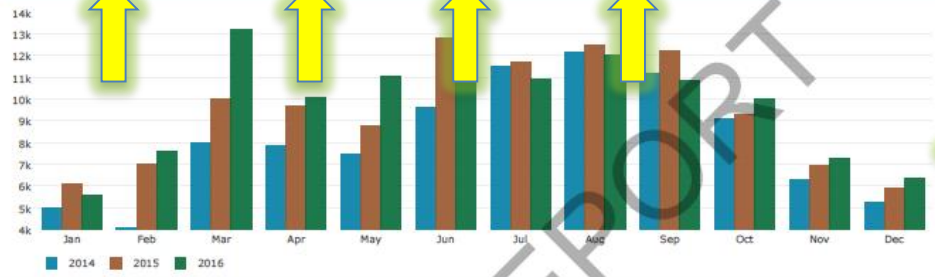
"This readability mismatch stems from a variety of causes—the technical nature of the information being shared often necessitates terminology not immediately familiar to members of the public; the communications often include information about legal requirements for noise abatement or other regulatory information; and many vehicles seem intended to serve both expert and lay audiences. "

"Wherever possible, the MAC should seek to overcome these challenges to ensure that all community members are able to understand the information being communicated to them"

Item 3: Review of Format of Monthly Operations Summary Report

MSP COMPLAINTS — DECEMBER 2016

COMPLAINTS		LOCATIONS		MOST FREQUENT
Total		Total		Hour
6,318		183		8:00 PM (13%)
Operations per Complaint	New Locations	Average Complaints	Median Complaints	Day
5.2	26	34	4	Thursday (19%)

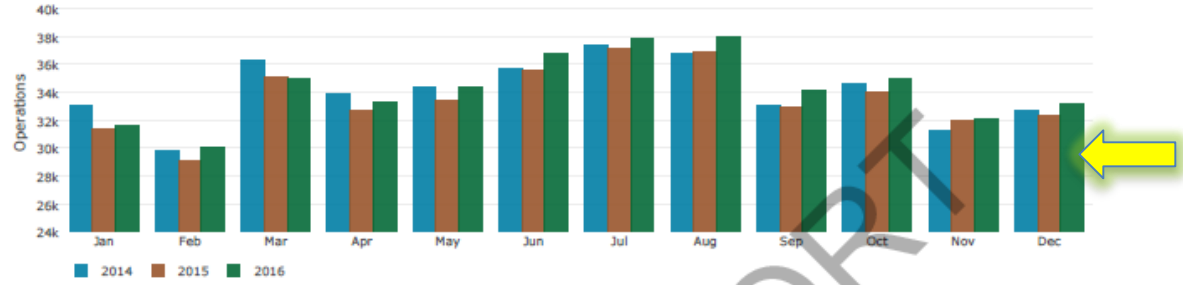


COMPLAINT LOCATIONS

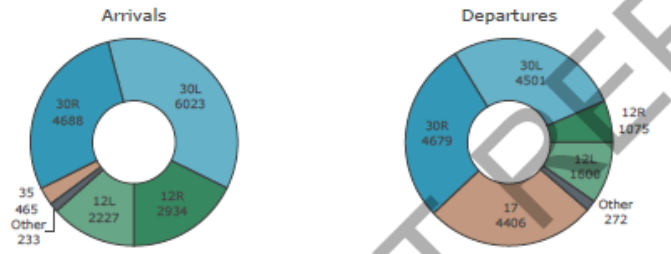
TOP 5 CITIES	Minneapolis	Eagan	Richfield	Burnsville	Inver Grove Heights
	2,192 Complaints	1,129 Complaints	751 Complaints	710 Complaints	657 Complaints
	75 Locations	19 Locations	16 Locations	8 Locations	3 Locations

MSP OPERATIONS — DECEMBER 2016

33,103	2,152	410,887
Operations	Nighttime Operations (10:30 PM - 6:00 AM)	Year to Date Operations



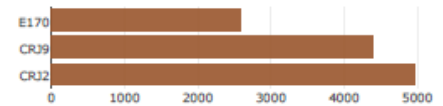
RUNWAY USE

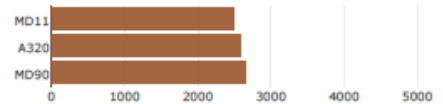


RUNWAY FLOW	North	South	Mixed
	41%	32%	17%

CARRIER JET FLEET MIX

44%	REGIONAL
53%	NARROW-BODY
3%	WIDE-BODY





TOP 3 BY CATEGORY

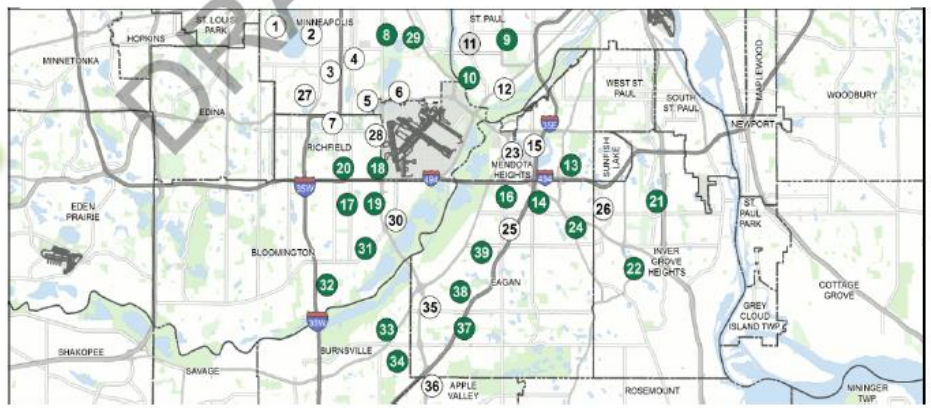
Item 3: Review of Format of Monthly Operations Summary Report

MSP SOUND MONITORING — DECEMBER 2016

Time Above (TA^x)	42s TA^{65} per operation	388h 6m TA^{85}	11h 59m TA^{80}	11m TA^{90}	3s TA^{100}
Count Above (N^x)	2.33 N^{65} per operation	77,097 N^{65}	9,300 N^{80}	177 N^{90}	1 N^{100}

COUNT ABOVE	CARRIER JET CONTRIBUTION	TIME ABOVE
25% 19,587	REGIONAL	22% 8h 25m
64% 49,435	NARROW-BODY	65% 251h 58m
5% 4,090	WIDE-BODY	6% 24h 28s

AIRCRAFT DNL BY SITE



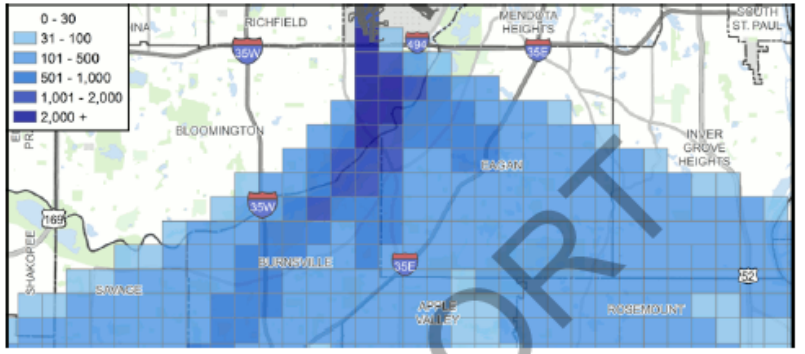
MSP NOISE ABATEMENT — DECEMBER 2016

RUNWAY 17 DEPARTURE PROCEDURE (CARRIER JET)

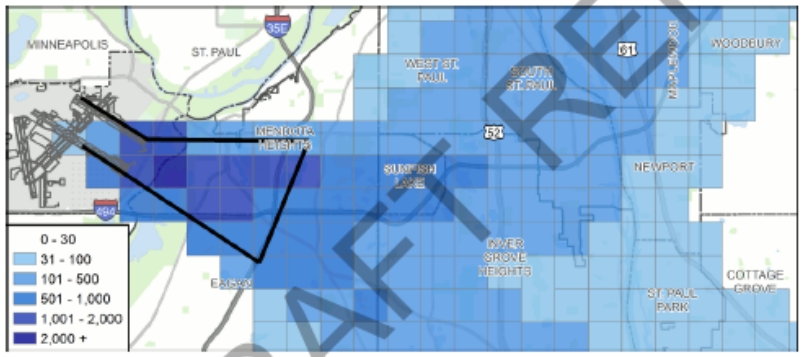
4,150 Runway 17 Departures

99.1% Compliance Rate

2 Nighttime Deaprtures



EAGAN-MENDOTA HEIGHTS CORRIDOR PROCEDURE (CARRIER JET)



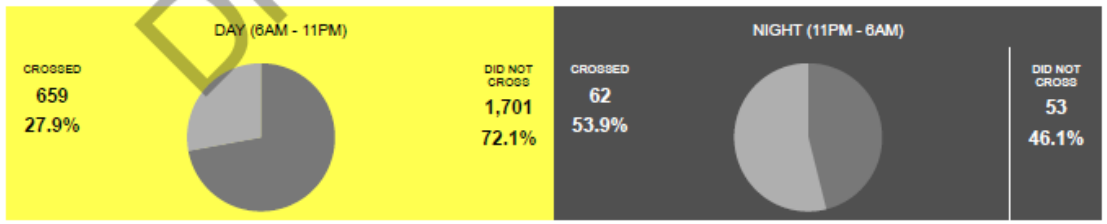
2,475 Departures

94.9% Compliance Rate

38 Departures North of the Corridor

87 Departures South of the Corridor

CROSSING-IN-THE-CORRIDOR PROCEDURE (CARRIER JET)



MSP RUNWAY USE SYSTEM (RUS)

ARRIVAL RUS USAGE	TOTAL RUS USAGE	DEPARTURE RUS USAGE
55.2%	43%	67%

Item 3: Review of Format of Monthly Operations Summary Report

Goals

- Easily understood reports
- Relevant, concise information
- Reliable, supported and advanced technology

Proposed Timeline

- April and May — Produce both sets of reports for March and April data
- Mid May — Complete interactive reporting tools and present to NOC for approval
- June — Discontinue production of existing reports

Requested Action

- Approve the Monthly Operations Report Summary Format

NOISE OVERSIGHT COMMITTEE
MARCH 15, 2017

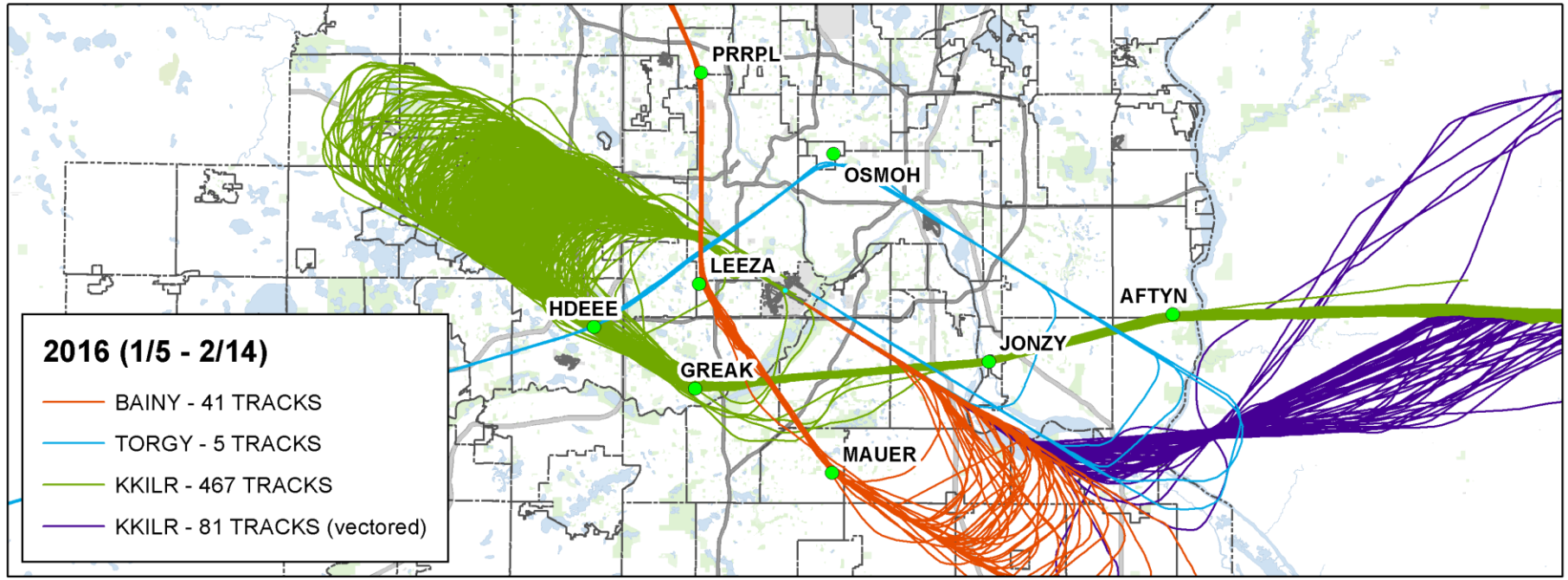
Item 4: Update on Converging Runway Operations – Kurt Mara, FAA

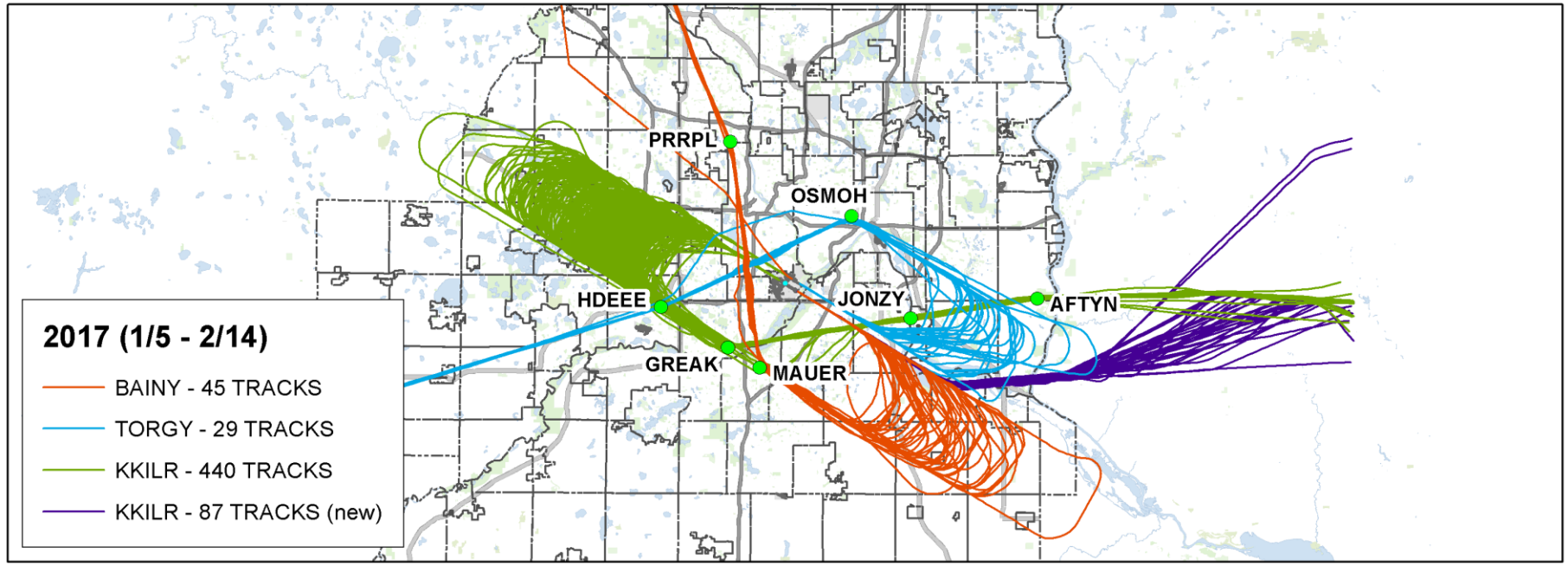

Both Rwy 30L and 30R with 35 Virtual Intersection Point
Minnehaha Creek Park
Lake Nokomis Park
KEEWAYDIN
MINNEHAHA
HALE
PAGE
HIGHLAND
Lake Nokomis
E 54th St
NOKOMIS
Minneapolis VA Health Care System
Coldwater Spring
Solomon Park
Crosstown Hwy
WENONAH
DIAMOND LAKE
E 60th St
Mississippi River
Shepard Rd
Pike Island
Fort Snelling Golf Course
Minneapolis-Saint Paul International Airport
Terminal 1-Lindbergh
E 66th St
Snelling Lake
Minnesota River
Pilot Knob Preservation Site
Acacia Park Cemetery
E 70th St
Fort Snelling State Park
Fort Snelling Natl Cemetery
Mendota Heights Rd
E 77th St
Water Park of Americ
American Blvd E
IKEA Twin Cities Home Furnishings
Minnesota Valley National Wildlife...
Lost Spur Golf Course
E 82nd St
Mall of America
Gun Club Lake
Google

NOISE OVERSIGHT COMMITTEE
MARCH 15, 2017

Item 5: Update on RNAV STAR Adjustments – Kurt Mara, FAA

RNAV ARRIVAL ADJUSTMENT TRACKS





NOISE OVERSIGHT COMMITTEE
MARCH 15, 2017

Item 6: 2016 Actual Noise Contour Report and Consent Decree Amendment Mitigation Eligibility

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, 2017, MAC staff completed the 10th Annual Noise Contour Report consistent with the requirements in the Consent Decree.

Item 6: 2016 MSP Annual Noise Contour Analysis

Report Overview

The 2016 report represents the first time the annual noise contour is run using the Aviation Environmental Design Tool (AEDT).

The report also includes updated language to account for the opt-out provisions of the Second Amendment to the Consent Decree, an update on CRO and the FAA's mandatory phase-out of Stage 2 operations for aircraft less than 12,500 lbs beginning in 2016.

The MAC retained the services of HNTB for the preparation of the inputs and running the AEDT noise model.

Item 6: 2016 MSP Annual Noise Contour Analysis

2016 vs 2007 Statistics

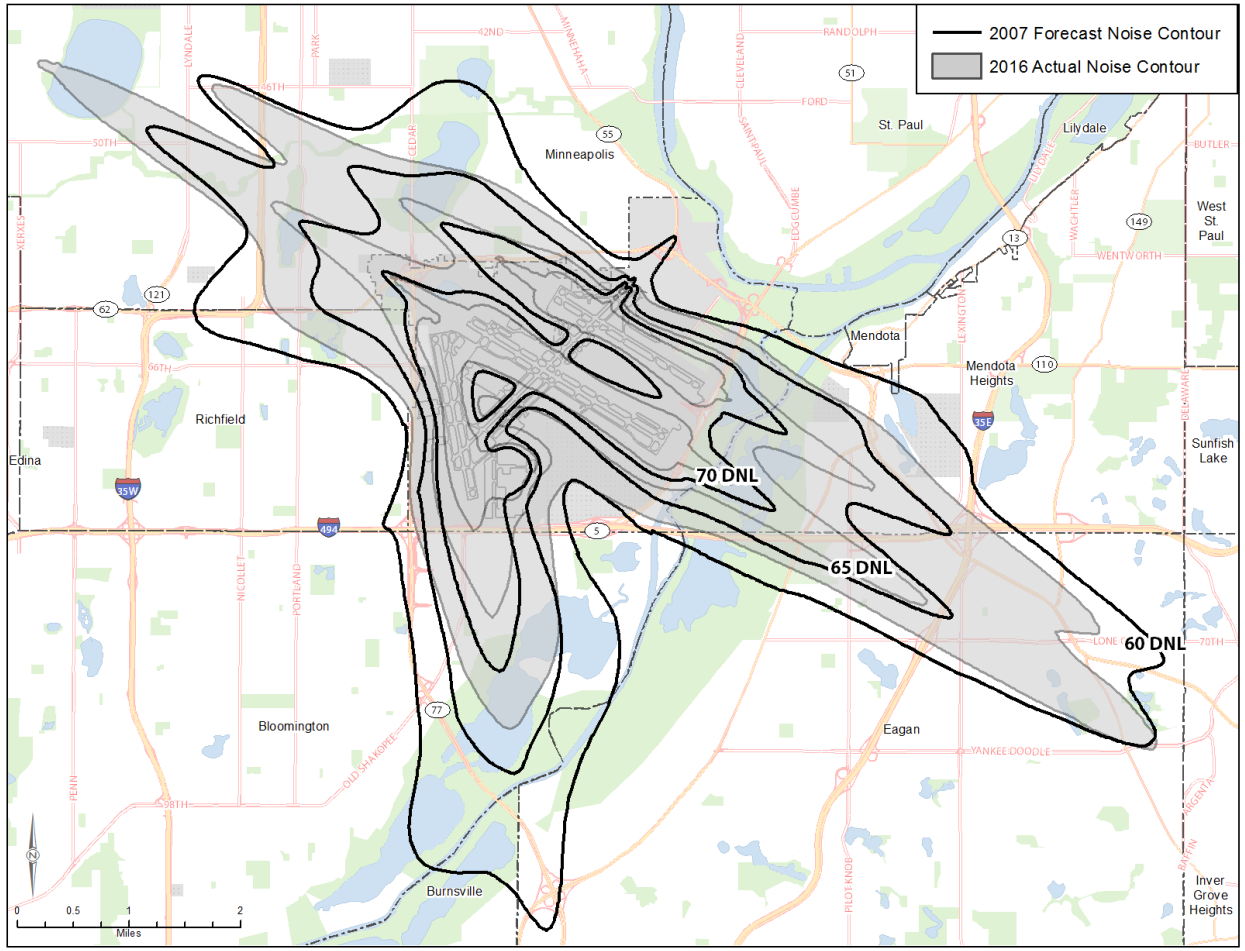
The 2016 total operations number of 412,898 represents a 29.1% reduction from the 2007 forecast mitigated total operations number.

On average, one Hushkit Stage 3 jet operated every 10 days in 2016. This is down from the 2007 forecast average of 274.9 Hushkit flights per day.

Nighttime operations in 2016 decreased by 4.5 average daily operations from the 2007 forecast number.

The 2016 actual noise contour is smaller than the 2007 forecast contour by 29% in the 60 DNL contour and 39% in the 65 DNL contour.

The area where the 2016 actual noise contour extends beyond the 2007 forecast contour is attributed to an increase in nighttime arrival operations on Runway 12R.



Item 6: 2016 MSP Annual Noise Contour Analysis

Overview of Mitigation Eligibility per the Amended Consent Decree

The current program will provide mitigation to eligible homes until 2023 based on actual noise exposure beyond the federal threshold of 65 DNL out to 60 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.

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

Full 5dB Reduction Package: Designed to reduce interior noise levels by an average of 5 decibels

Partial Noise Reduction Package (comes with two options):

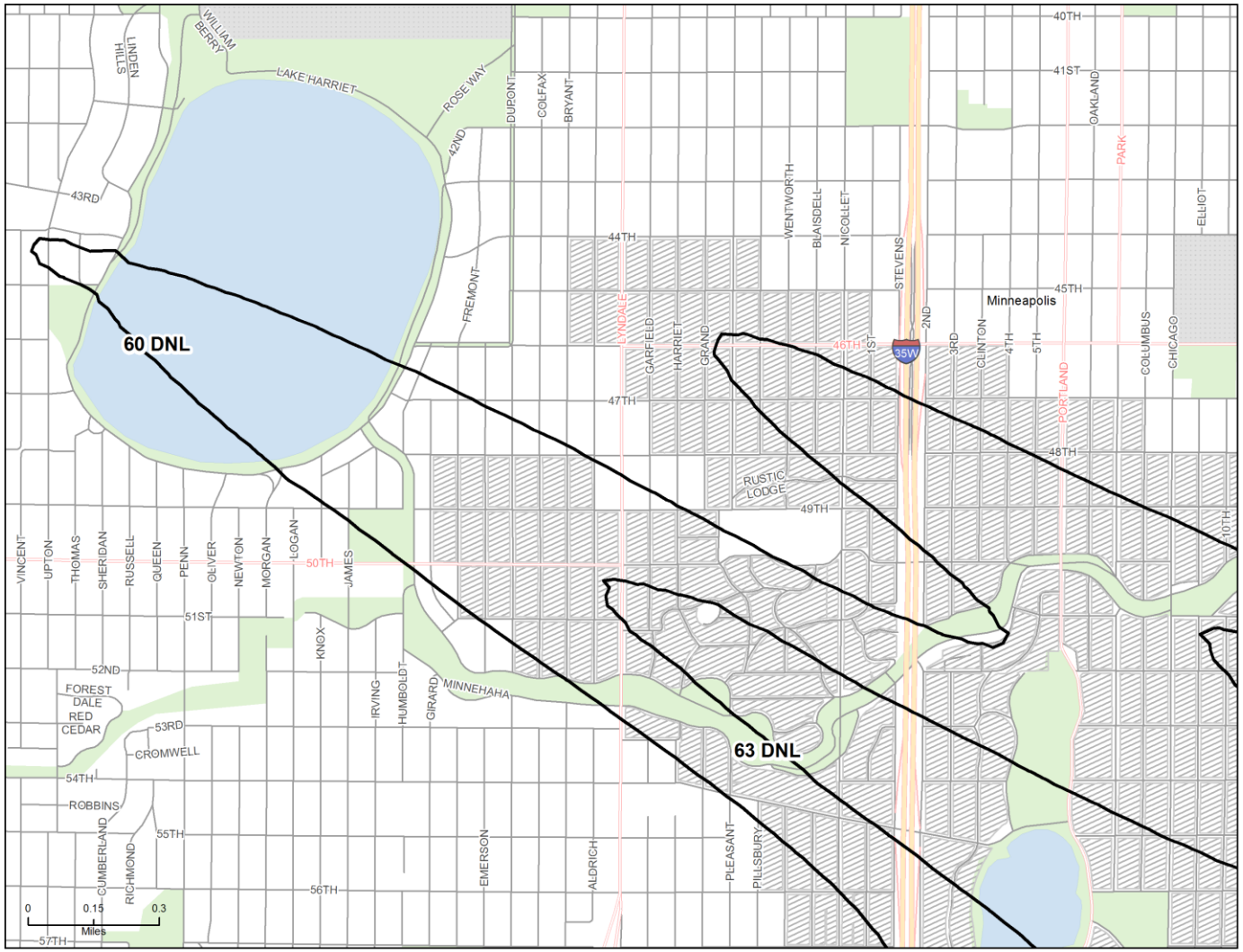
- Central air conditioning + $5,395* of mitigation products and services; or
- $18,884* of noise mitigation products and services

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

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

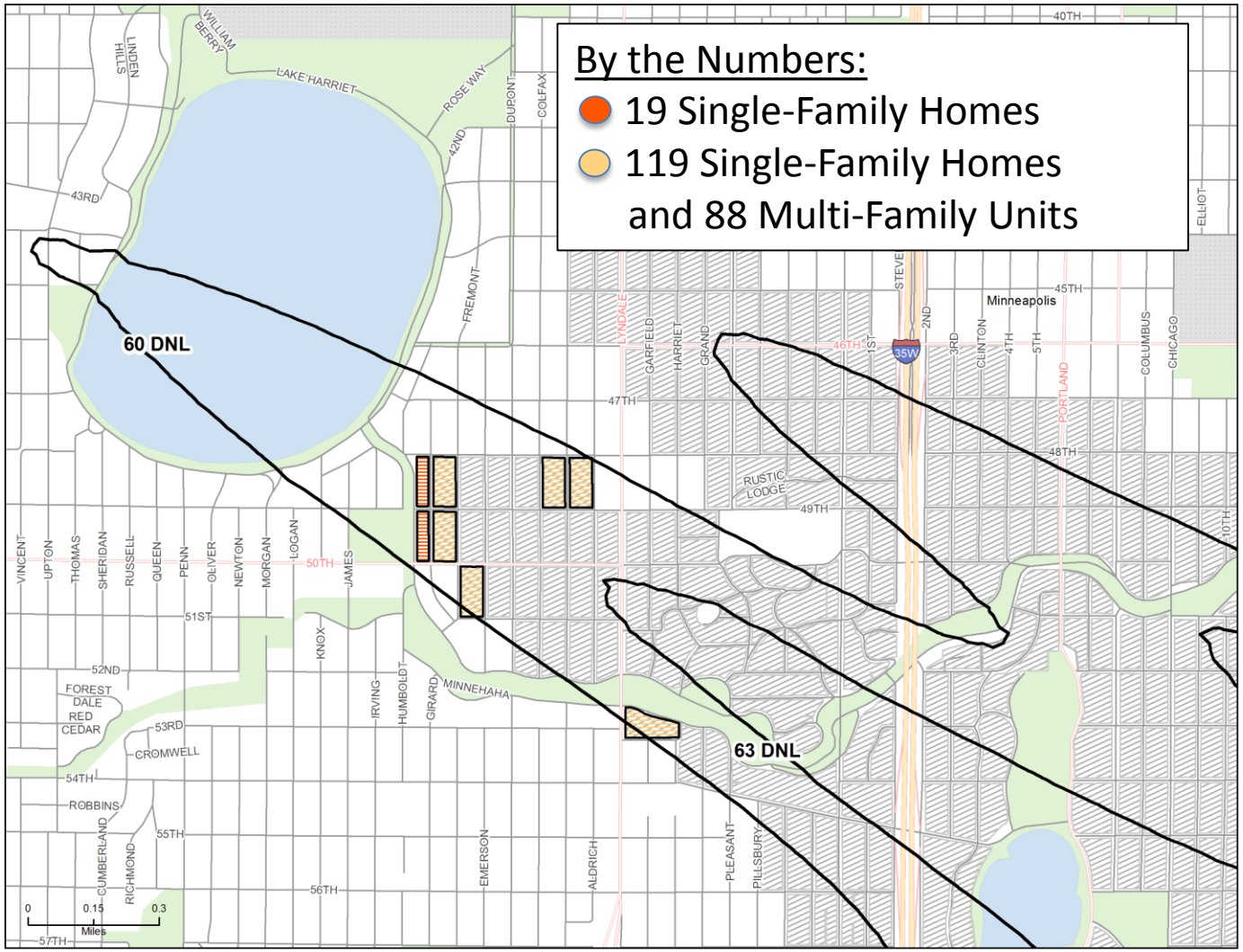
**Any reimbursement or mitigation improvements previously provided by the MAC will be deducted from the dollar amounts; dollar amounts will be adjusted according to the project year CPI.*

Item 6: 2016 MSP Annual Noise Contour Analysis



Blocks completed under previous programs

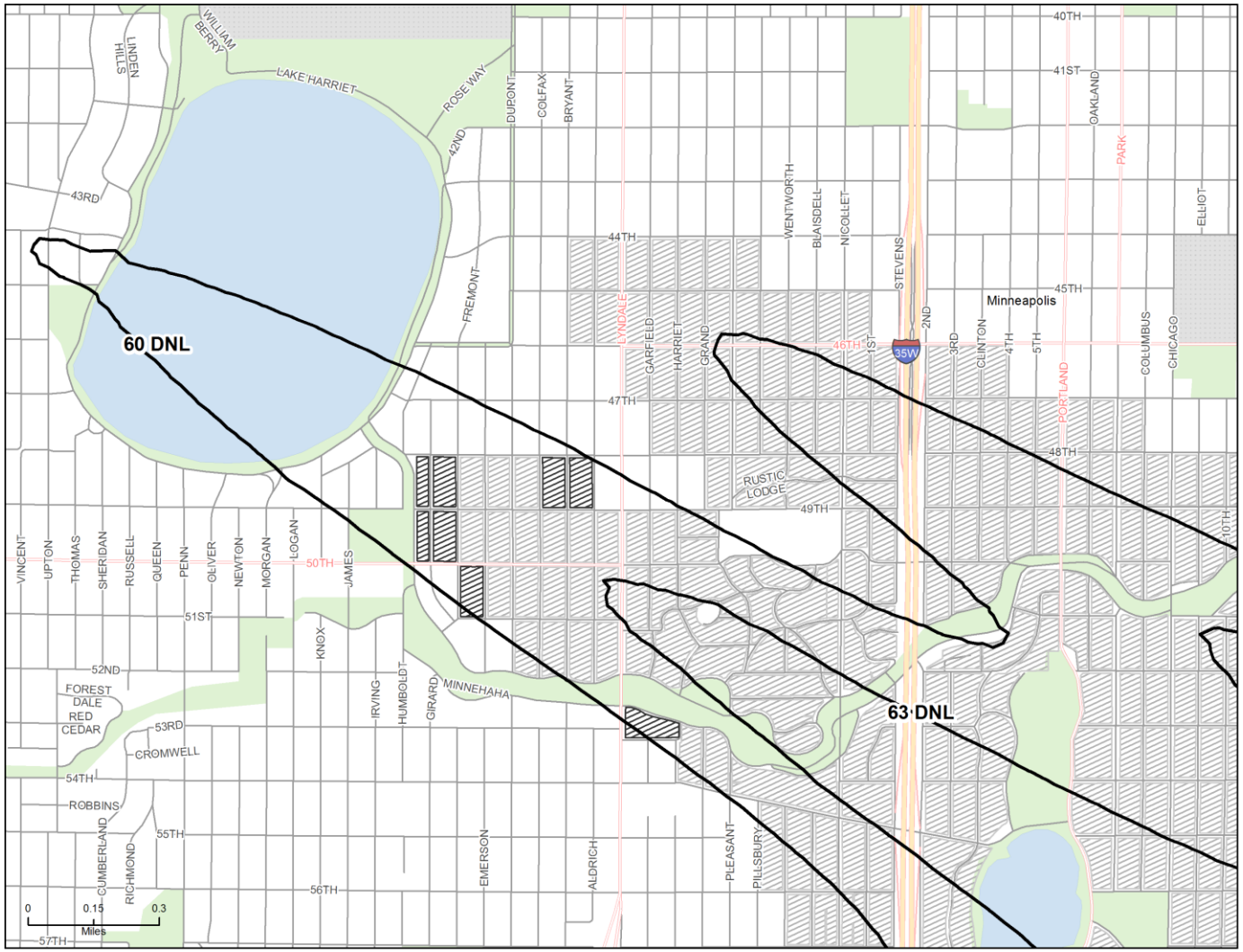
Item 8: 2016 MSP Annual Noise Contour Analysis



Determined Eligible in 2016

- Blocks completed under previous programs
- Blocks eligible for 2017 Partial Noise Reduction Package
  Outside any previous areas of mitigation
- Blocks eligible for 2017 Partial Noise Reduction Package
  Eligible for reimbursements under the previous mitigation program
  (previous reimbursements paid out will be deducted from 2017 allocation)

Item 6: 2016 MSP Annual Noise Contour Analysis

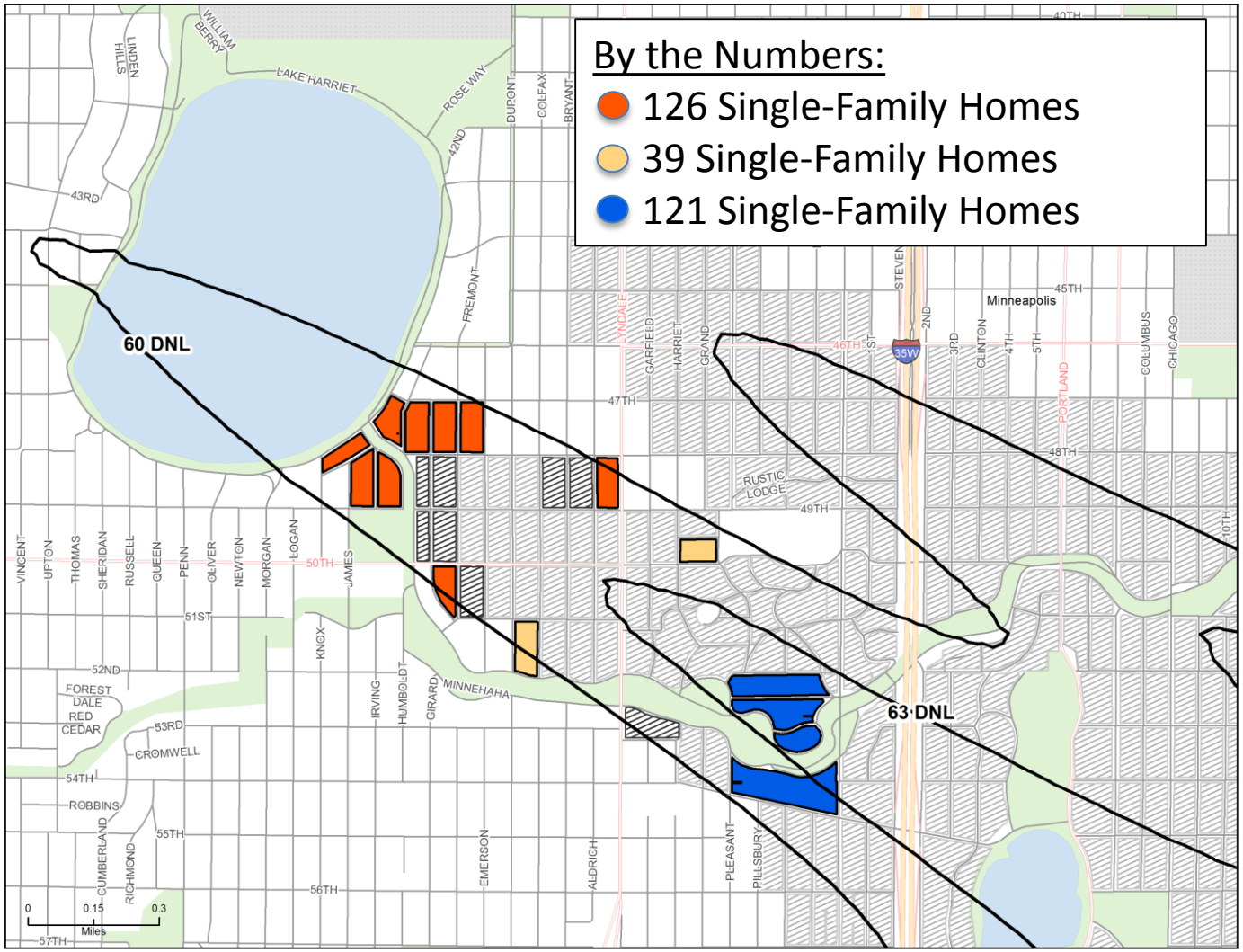


A Look at 2018 Mitigation

Blocks completed under previous programs

Blocks completed in 2017

Item 6: 2016 MSP Annual Noise Contour Analysis



A Look Ahead to 2018 Mitigation: Determined Eligible this Year

Blocks completed under previous programs

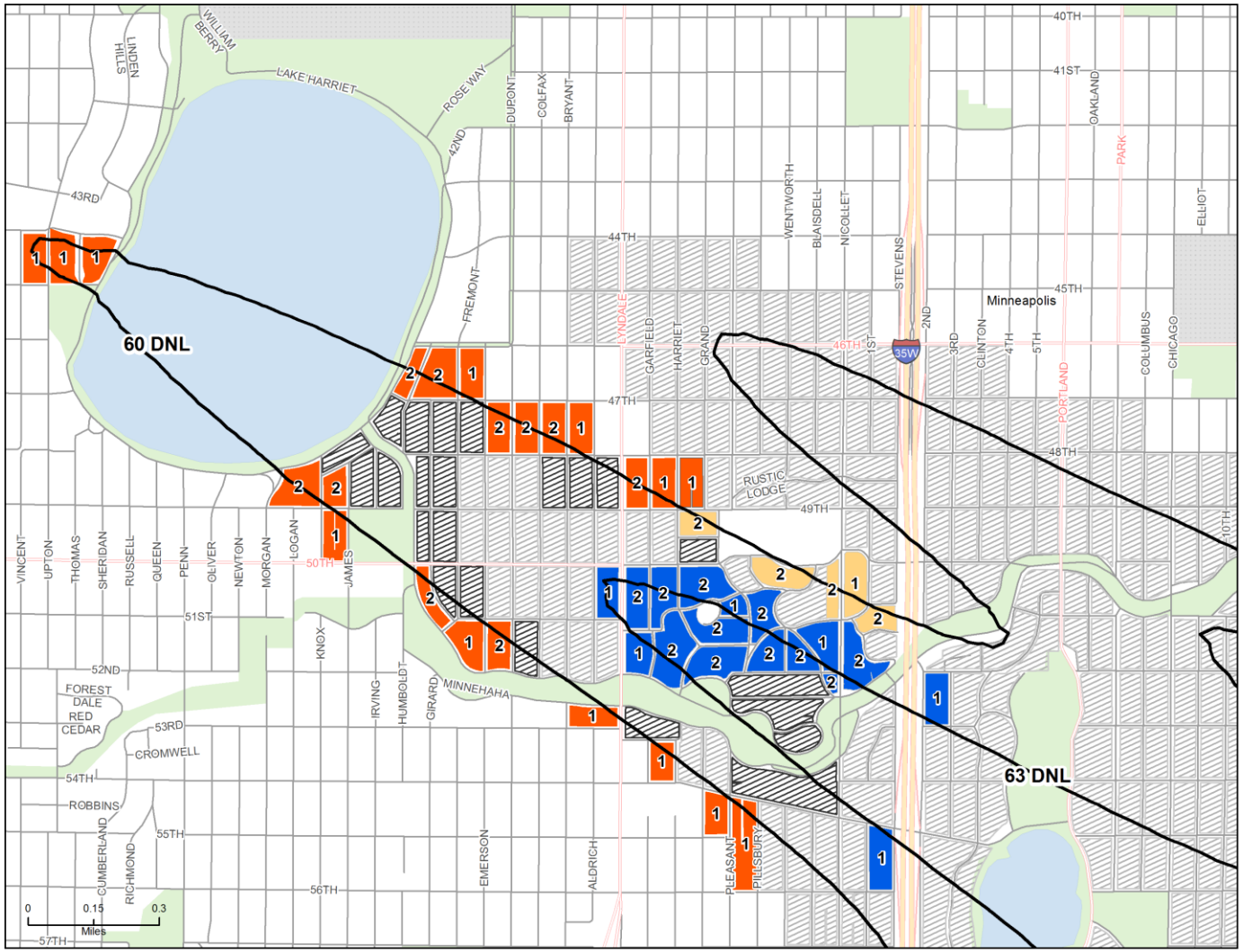
Blocks completed in 2017

Blocks eligible for 2018 Partial Noise Reduction Package
Outside any previous areas of mitigation

Blocks eligible for 2018 Partial Noise Reduction Package
Eligible for reimbursements under the previous mitigation program
(previous reimbursements paid out will be deducted from 2018 allocation)

Blocks eligible for 2018 Full 5dB Reduction Package
Previously eligible for Partial Noise Reduction Package
(previous mitigation provided will be deducted from 2018 allocation)

Item 6: 2016 MSP Annual Noise Contour Analysis



A Look beyond 2018

Blocks completed under previous programs

Blocks completed after 2018

Candidate Blocks for Full 5dB Reduction Package
Previously eligible for Partial Noise Reduction Package

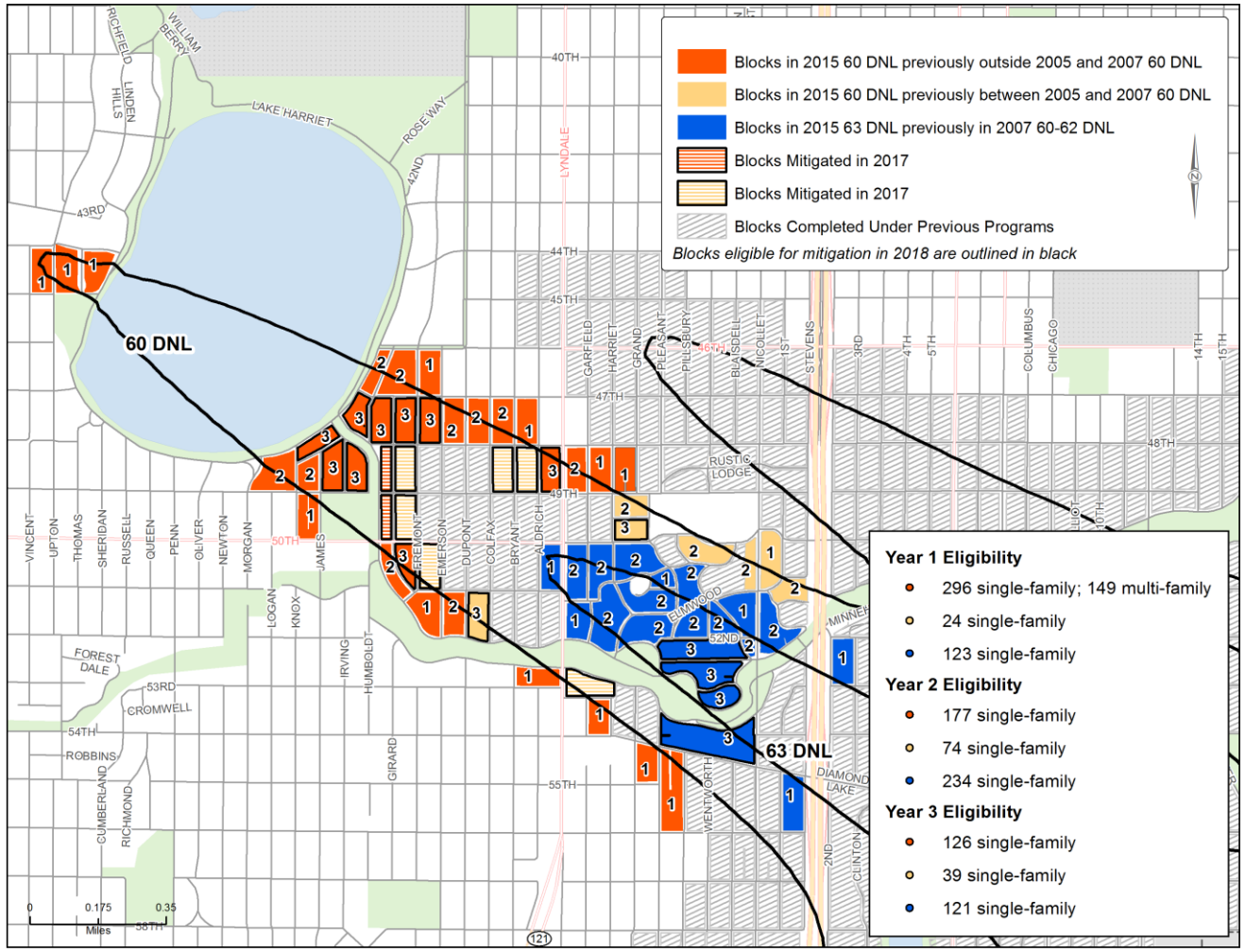
Candidate Blocks for Partial Noise Reduction Package
Eligible for reimbursements under the previous mitigation program

Candidate Blocks for Partial Noise Reduction Package
Eligible for reimbursements under the previous mitigation program

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 2020.)

2 Achieved Year 2 of Candidate Eligibility this Year
(If these blocks remain in a higher impact area in the 2017 Actual Noise Contour, they will be eligible for mitigation in 2019.)

Item 6: 2016 MSP Annual Noise Contour Analysis



The MAC will contact eligible homeowners. A this time, there is nothing for the homeowners to do to initiate the 2018 mitigation process.

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

NOISE OVERSIGHT COMMITTEE
MARCH 15, 2017

Item 7: Evaluation of Distant Noise Abatement Departure Profile (NADP) Use at MSP

Item 7: Evaluation of Distant Noise Abatement Departure Profile (NADP) Use at MSP

Background on National Guidance

- In 1993 AC 91-53A was published by FAA: Close-In and Distant
- 91-53A provides guidance for departure procedures
  - Airlines develop their own standard operating procedures according to operational specifications for each aircraft type
- Unless otherwise instructed airlines will use the Distant NADP

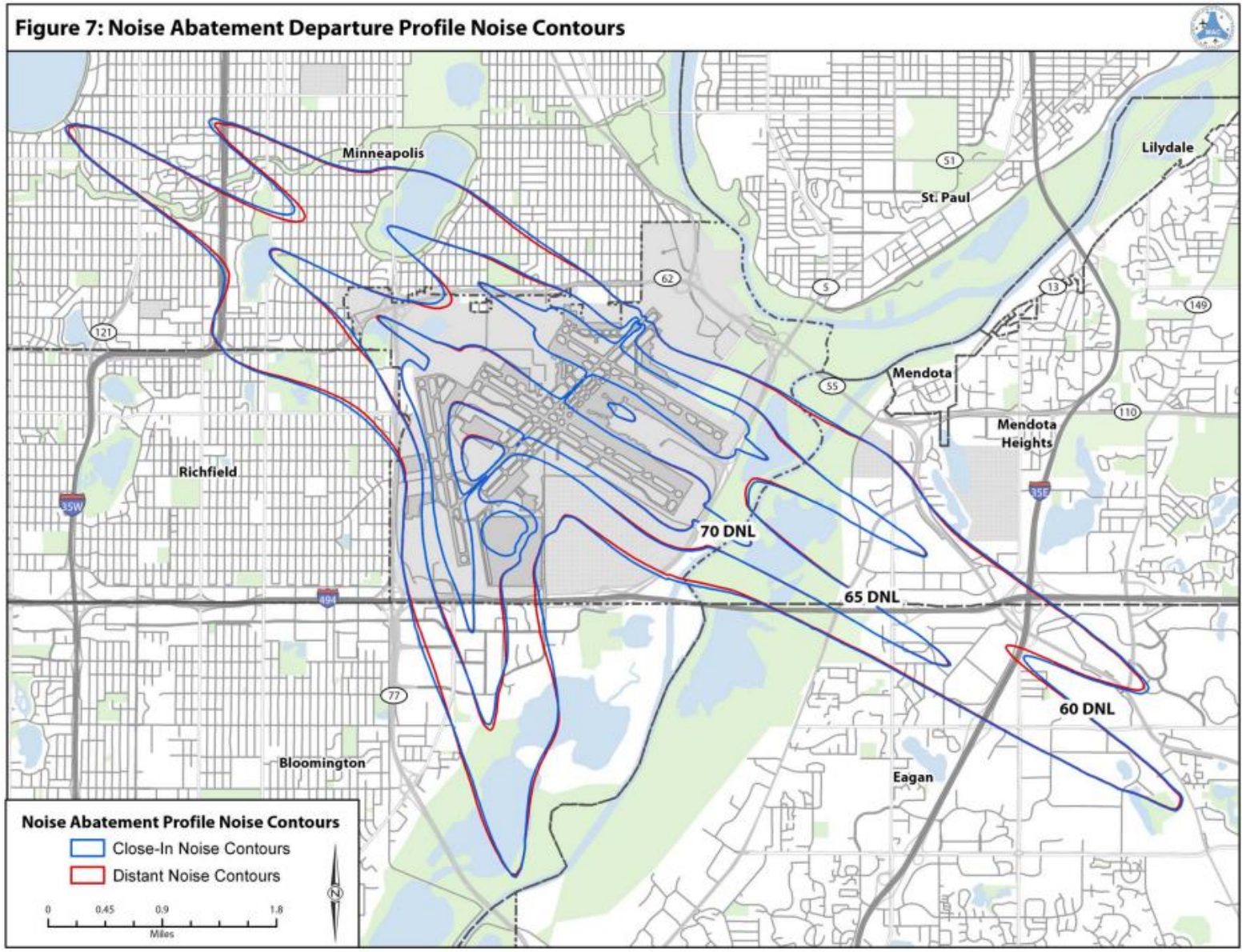
Local Decisions

- In 1997 MASAC endorsed the Close-In on Runways 30L and 30R and Distant on all other runways
  - Operations at the time were 51% Stage 2
- As MSP aircraft fleet transitioned to manufactured Stage 3 aircraft, Close-In NADP benefits diminished
- Part 150 Update process in 2001 led MASAC to determine that noise impacts for all communities were minimized using the Distant NADPs off all runways
- In June 2003 the NOC endorsed previous MASAC position
  - Consideration was given to the amount of residential sound mitigation that had been done around MSP and the shrinking difference in noise impact between the two options as Stage 2 and Hushkit Stage 3 aircraft were decreasing.

NOC Evaluation in 2012

- In 2012, NOC directed staff to analyze NADPs at MSP
- In consultation with Delta, MAC and a consulting team modeled Close-In and Distant NADPs
- The Integrated Noise Model was used to evaluate several noise metrics to compare the two NADPs
- The analysis supported the fact that new aircraft types manufactured to be Stage 3 or better diminished the variation between Close-In and Distant NADP noise impacts

Item 7: Evaluation of Distant Noise Abatement Departure Profile (NADP) Use at MSP



Item 7: Evaluation of Distant Noise Abatement Departure Profile (NADP) Use at MSP

Recent NADP-Related Questions at MSP

Q: Are MSP airlines using the Distant NADPs at MSP?

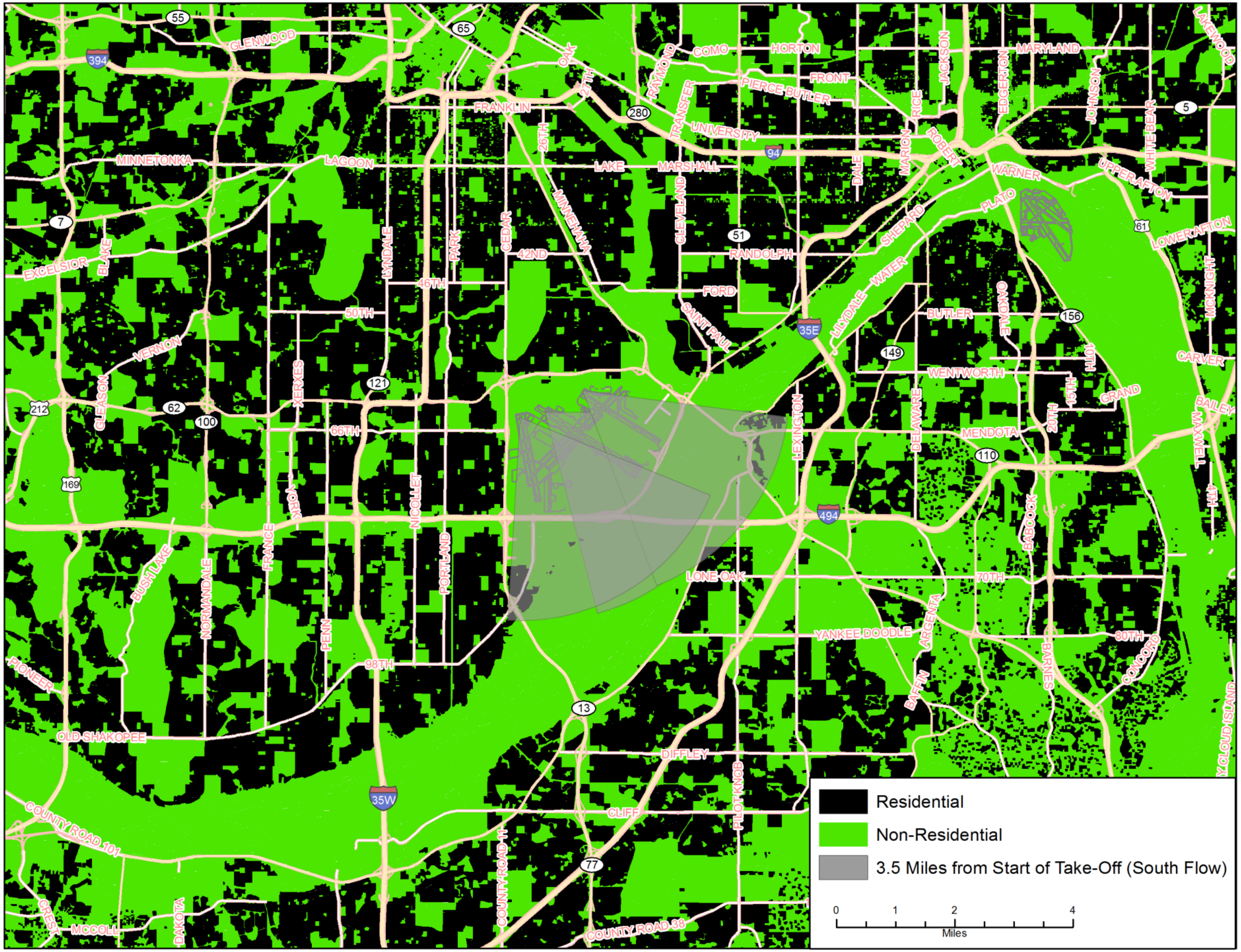
A: Yes. They are used by all carriers at MSP unless there are unusual circumstances, such as equipment malfunctions or emergencies. Air carriers require pilots to be proficient with all operating procedures, including the Distant NADP.

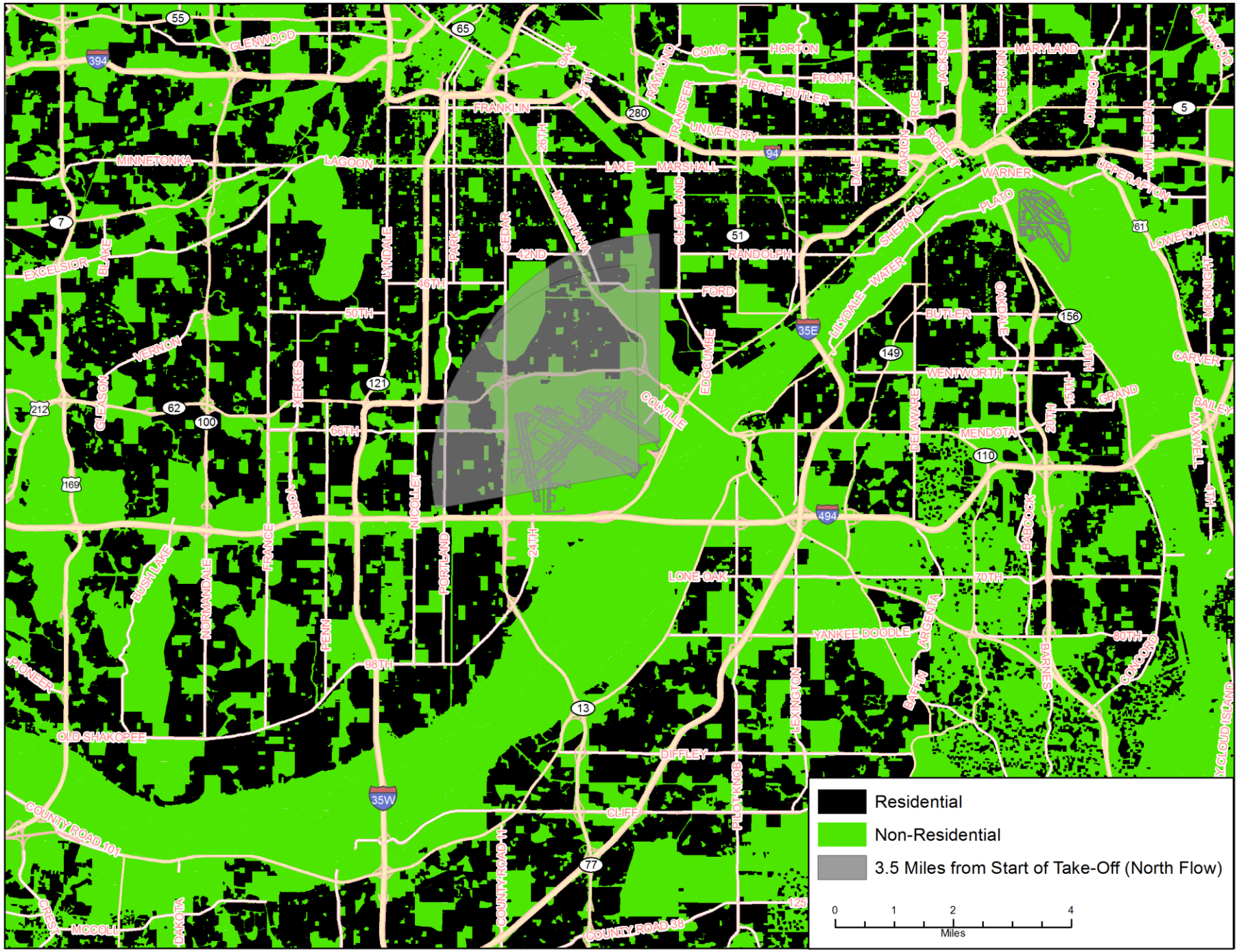
Q: Why does FlightTracker appear to show inconsistent climb-out procedures?

A: The rate of climb, point where aircraft are reaching altitudes and speeds will vary according to the aircraft and environmental conditions. Therefore, specific climb-outs will differ from one aircraft to another.

Q: Do Distant NADPs impact where an aircraft turns?

A: No. NADPs are only for the vertical profile of an aircraft on departure. Aircraft may make lateral turns while still following the Distant NADP procedures.


Residential
Non-Residential
3.5 Miles from Start of Take-Off (South Flow)
0
1
2
4
Miles


Residential
Non-Residential
3.5 Miles from Start of Take-Off (North Flow)
0
1
2
4
Miles

NOISE OVERSIGHT COMMITTEE
MARCH 15, 2017

Item 8: Public Comment

NOISE OVERSIGHT COMMITTEE
MARCH 15, 2017

Item 9: Announcements

Next NOC meeting
May 17, 2017 @ 1:30 PM
MAC General Offices
6040 28th Avenue South
Minneapolis, MN 55450

Spring Listening Session
April 19, 2017 @ 7:00 PM
Eagan Community Center
1501 Central Parkway
Eagan, MN 55121