



# NOISE OVERSIGHT COMMITTEE

January 18, 2023

*Audio recordings are made of this meeting*

# Agenda

---

## 1. Consent

1.1 – Approval of November 16, 2022 Meeting Minutes

1.2 – Reports

1.2.1 – Monthly Operations Reports: November and December 2022

## 2. Public Comment Period

## 3. Business

## 4. Information

4.1 – VOR Minimum Operational Network

4.2 – 2022 Fleet Mix and Nighttime Operations Assessment

4.3 – 2022 Complaint Data Assessment

4.4 – MSP Air Service Updates

## 5. Announcements

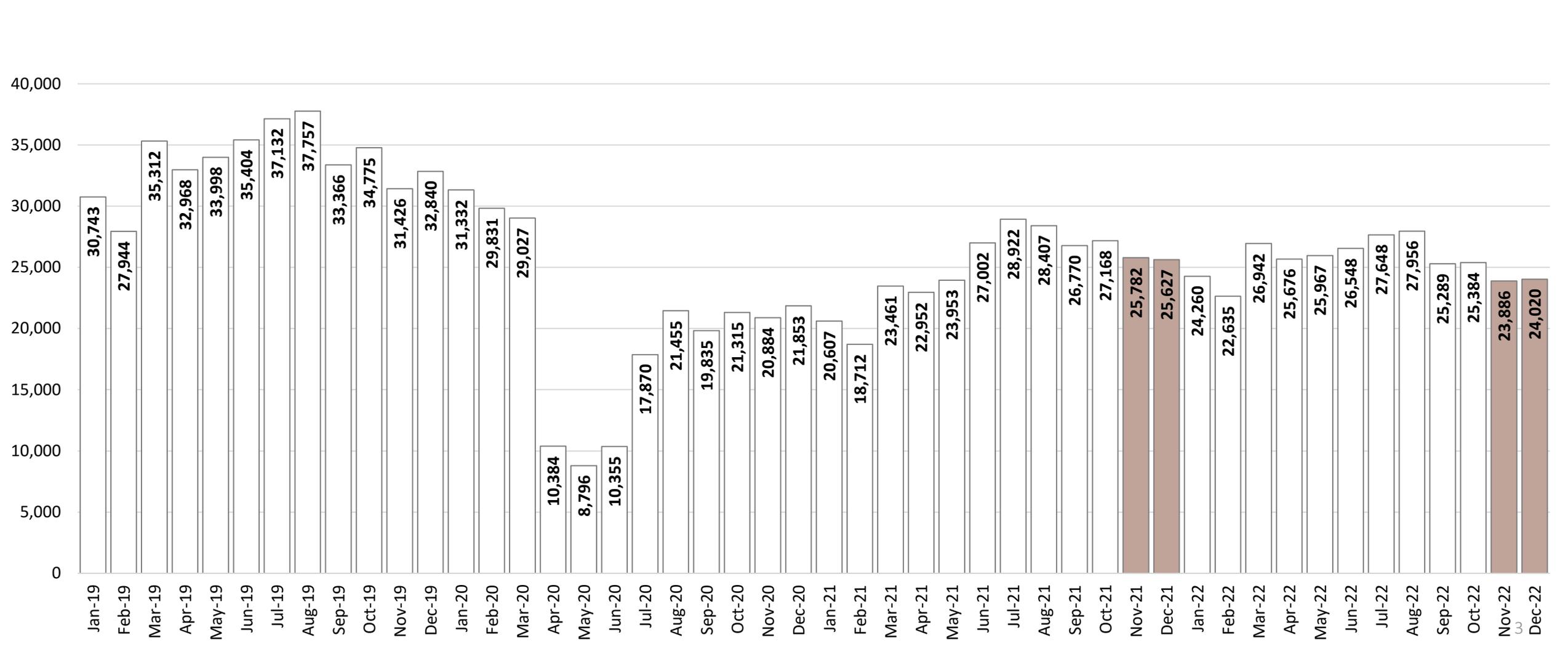
**Adjourn**



**NOISE OVERSIGHT COMMITTEE  
JANUARY 18, 2023**

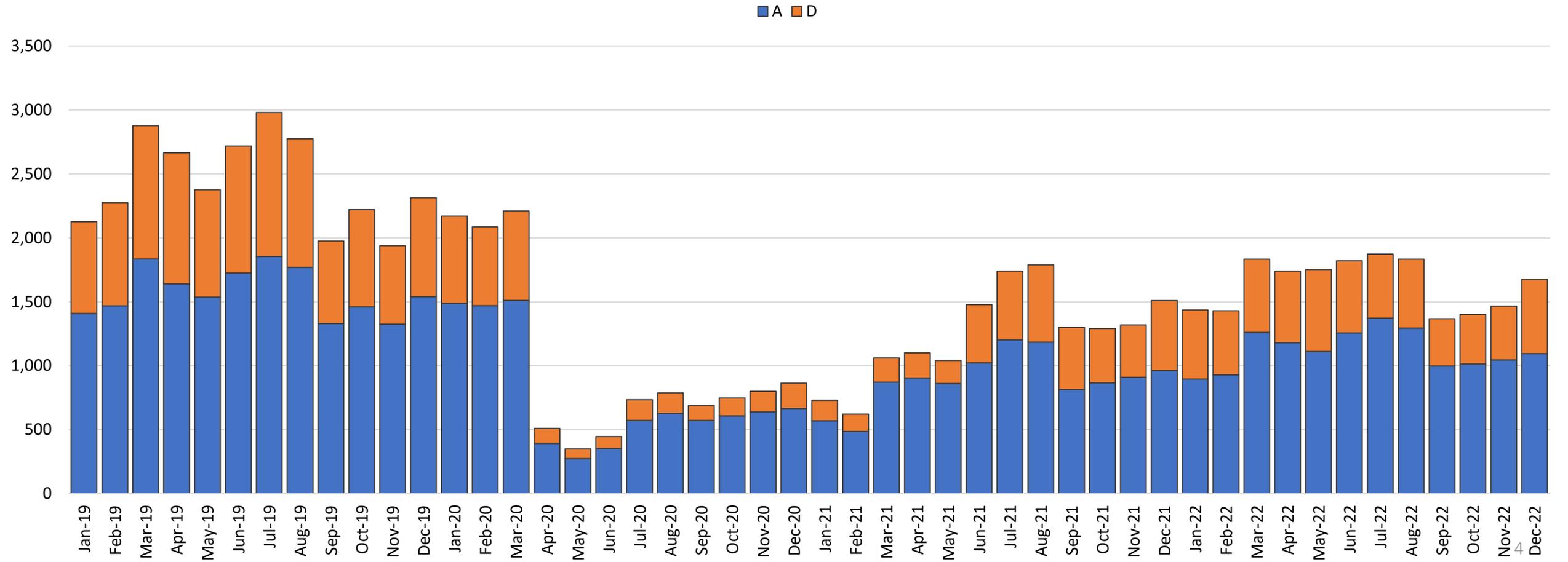
# MSP OPERATIONS

November 2022		December 2022	
<b>23,886</b> Operations	<b>1,466</b> Nighttime Operations (10:30 PM – 6:00 AM)	<b>24,020</b> Operations	<b>1,676</b> Nighttime Operations (10:30 PM – 6:00 AM)



# MSP OPERATIONS

November 2022		December 2022	
<b>23,886</b>	<b>1,466</b>	<b>24,020</b>	<b>1,676</b>
Operations	Nighttime Operations (10:30 PM – 6:00 AM)	Operations	Nighttime Operations (10:30 PM – 6:00 AM)



# RUNWAY USE

NOV 2022		
NORTH FLOWS	SOUTH FLOWS	MIXED FLOWS
40%	43%	10%

DEC 2022		
NORTH FLOWS	SOUTH FLOWS	MIXED FLOWS
39%	49%	4%

2021 JAN – DEC		
NORTH FLOWS	SOUTH FLOWS	MIXED FLOWS
39%	47%	7%

2022 JAN – DEC		
NORTH FLOWS	SOUTH FLOWS	MIXED FLOWS
41%	44%	7%

**North Flow**



**South Flow**



**Mixed Flow**



# NOV – DEC RUNWAY USE

**47,906**  
OPERATIONS IN NOV – DEC

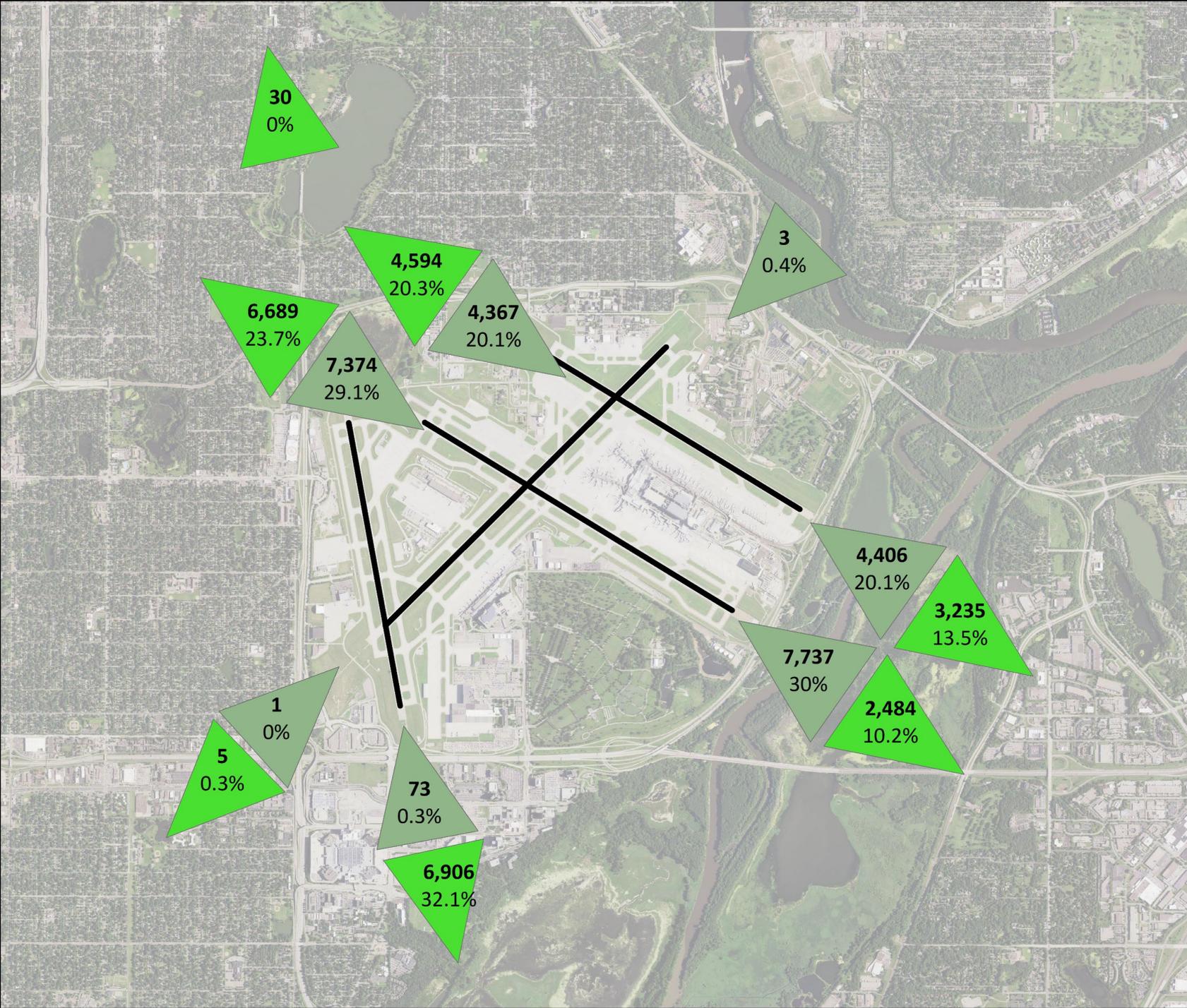
PRIORITY 1	PRIORITY 2	PRIORITY 3	PRIORITY 4
<b>51%</b>	<b>0%</b>	<b>0%</b>	<b>49%</b>

**23,961**  
ARRIVALS

PRIORITY 1	PRIORITY 2	PRIORITY 3	PRIORITY 4
<b>24%</b>	<b>29%</b>	<b>0%</b>	<b>47%</b>

**23,945**  
DEPARTURES

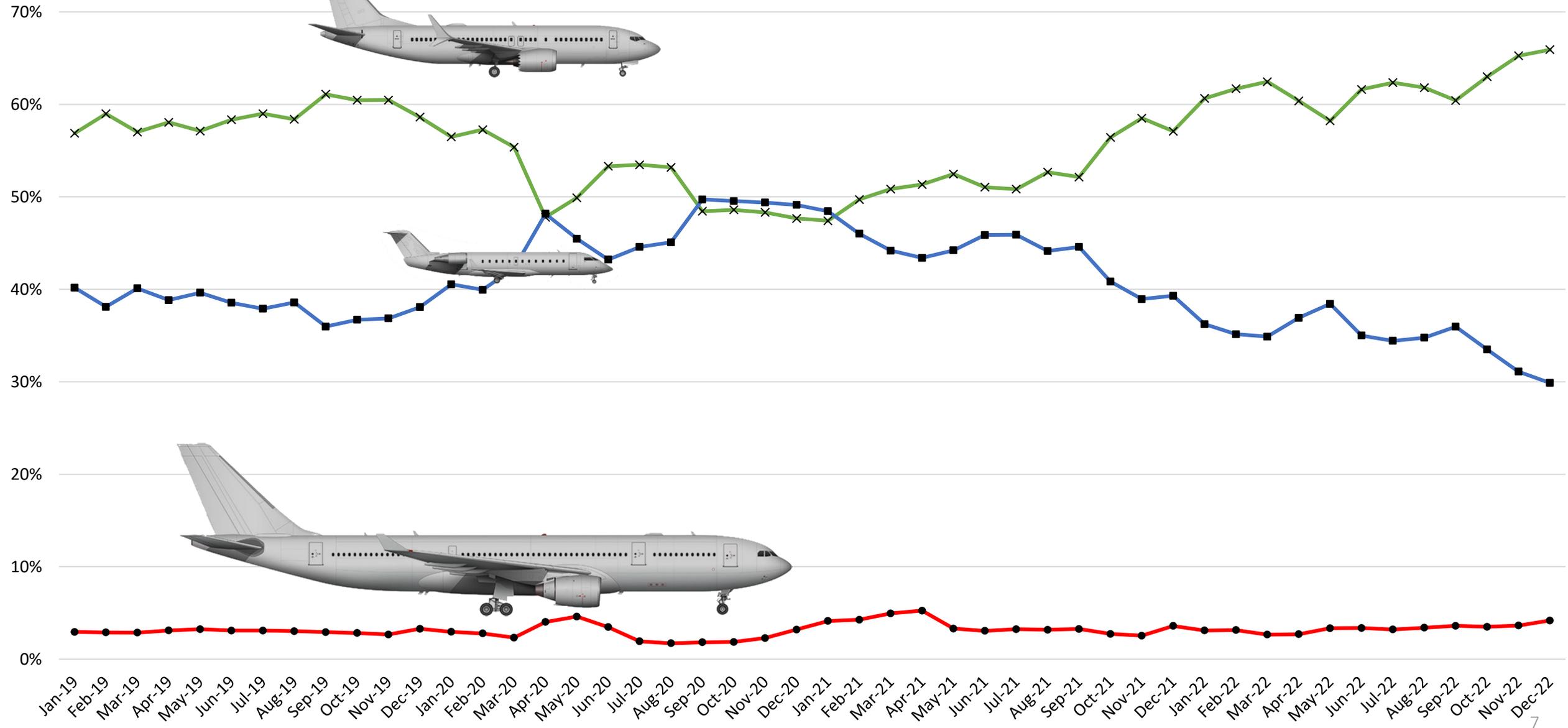
PRIORITY 1	PRIORITY 2	PRIORITY 3	PRIORITY 4
<b>37%</b>	<b>15%</b>	<b>0%</b>	<b>48%</b>



# MSP OPERATIONS

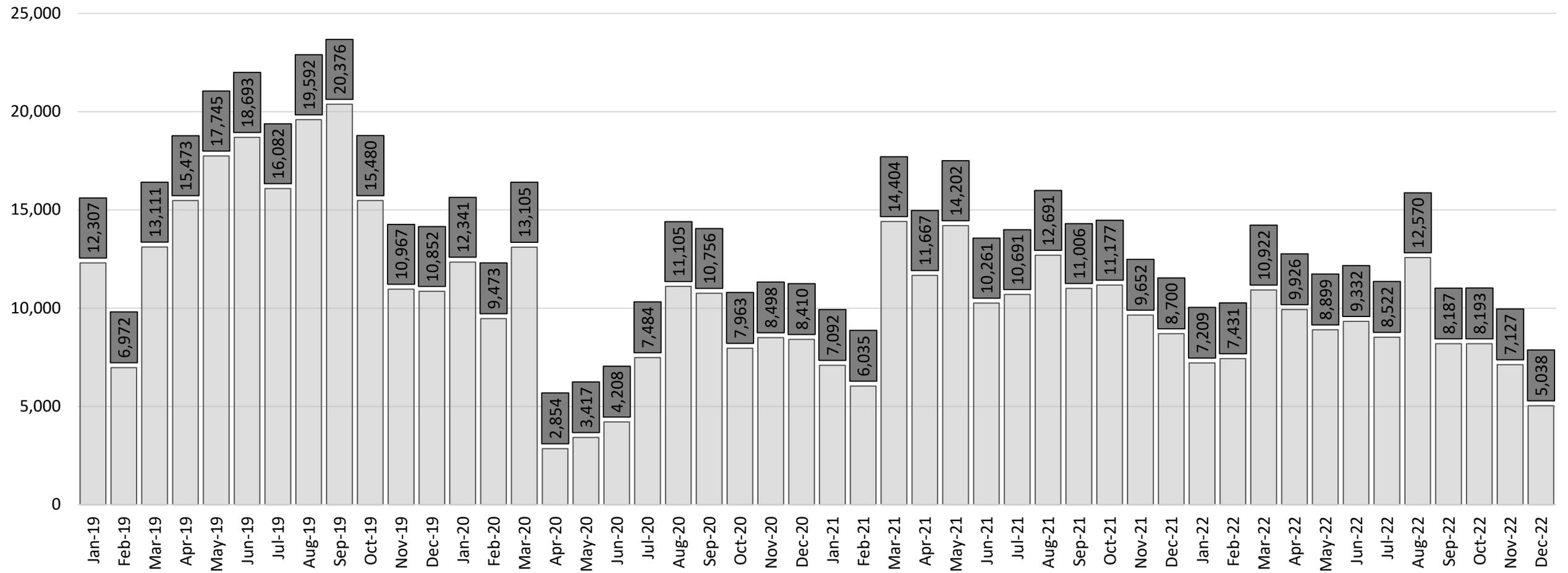
## CARRIER JET FLEET MIX

—x— NARROWBODY —■— RJ —●— WIDEBODY



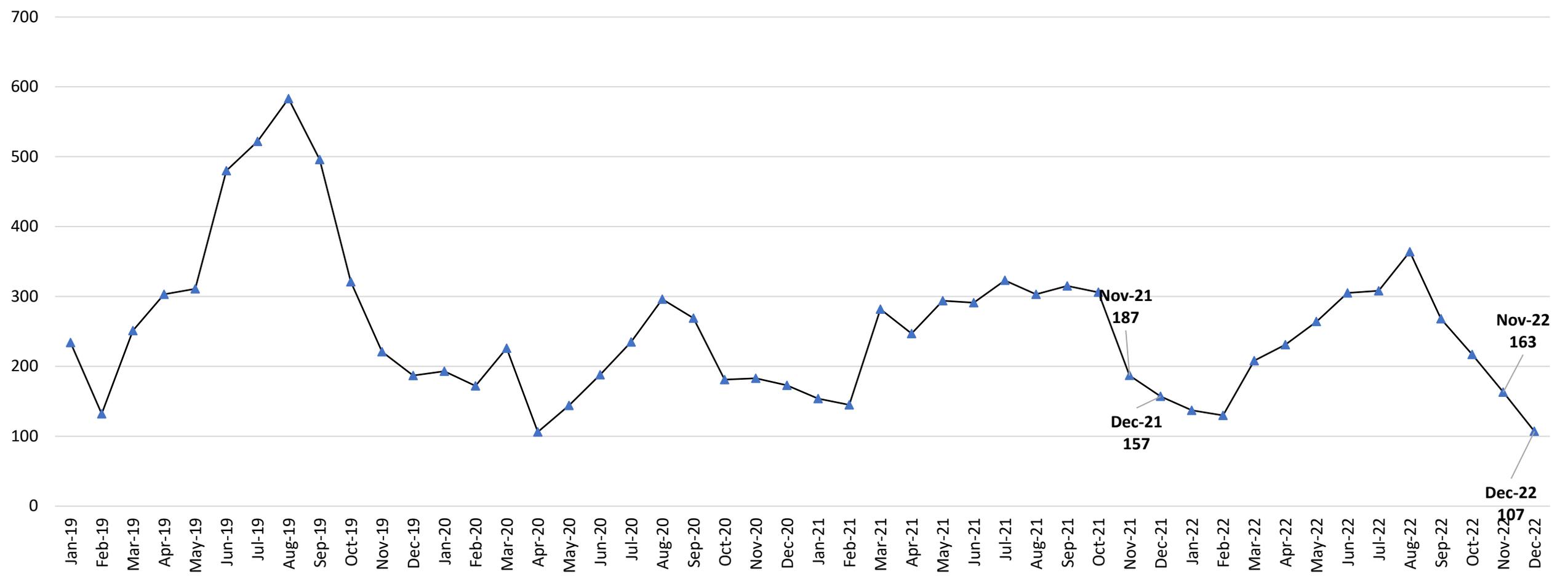
# MSP COMPLAINTS

November 2022				December 2022			
COMPLAINTS		LOCATIONS		COMPLAINTS		LOCATIONS	
7,127		163		5,038		107	
Ops per Complaint	New Locations	Average	Median	Ops per Complaint	New Locations	Average	Median
3.4	9	44	6	4.8	4	47	6



# MSP COMPLAINTS

November 2022				December 2022			
COMPLAINTS		LOCATIONS		COMPLAINTS		LOCATIONS	
7,127		163		5,038		107	
Ops per Complaint	New Locations	Average	Median	Ops per Complaint	New Locations	Average	Median
3.4	9	44	6	4.8	4	47	6



# TOP 10 LOCATIONS

FILED

**8,325**

(68%)

COMPLAINTS DURING NOV & DEC

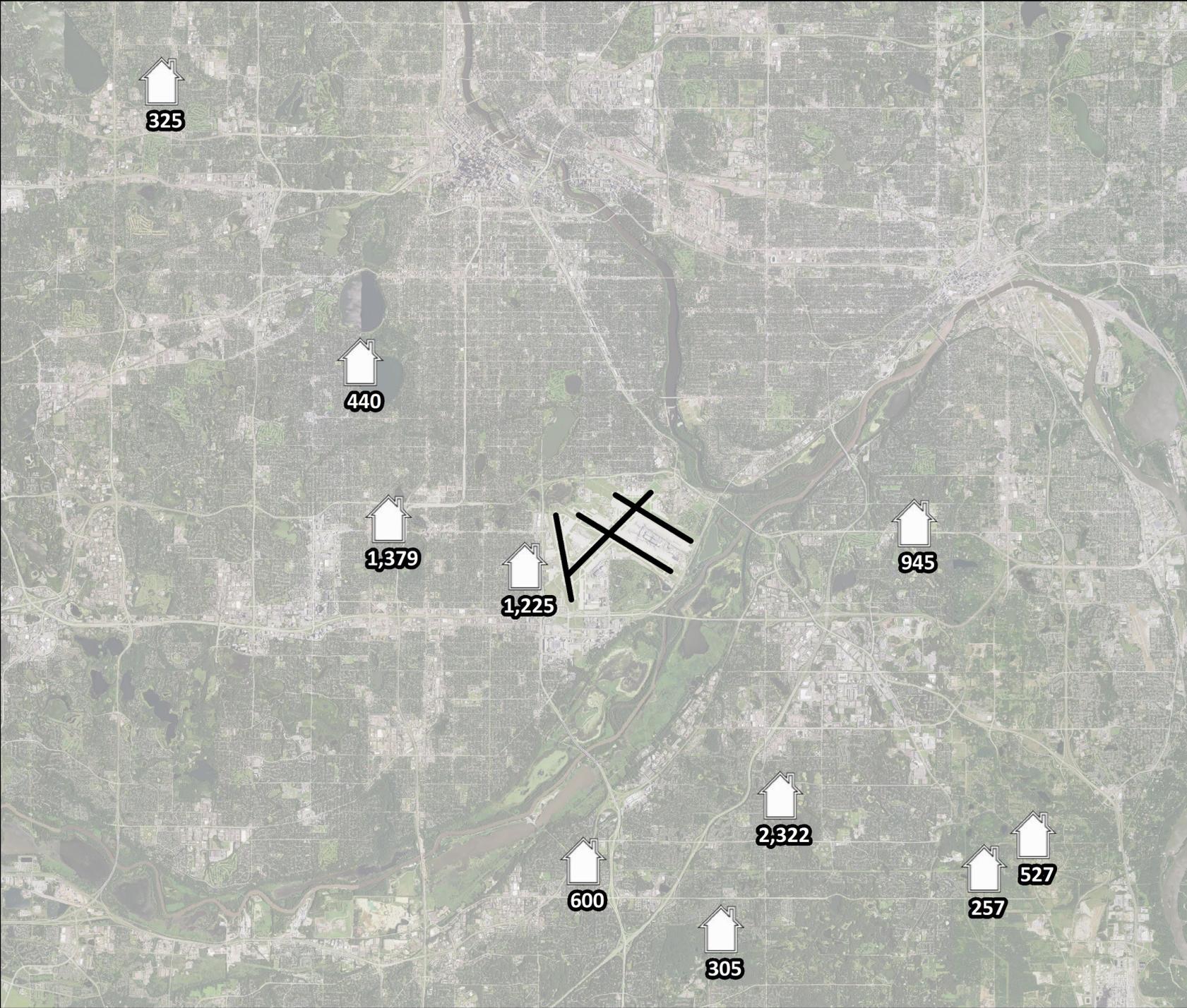
**7 OF 10**

LOCATIONS WERE IN THE TOP 10  
FOR SEPT – OCT DATA

**116**

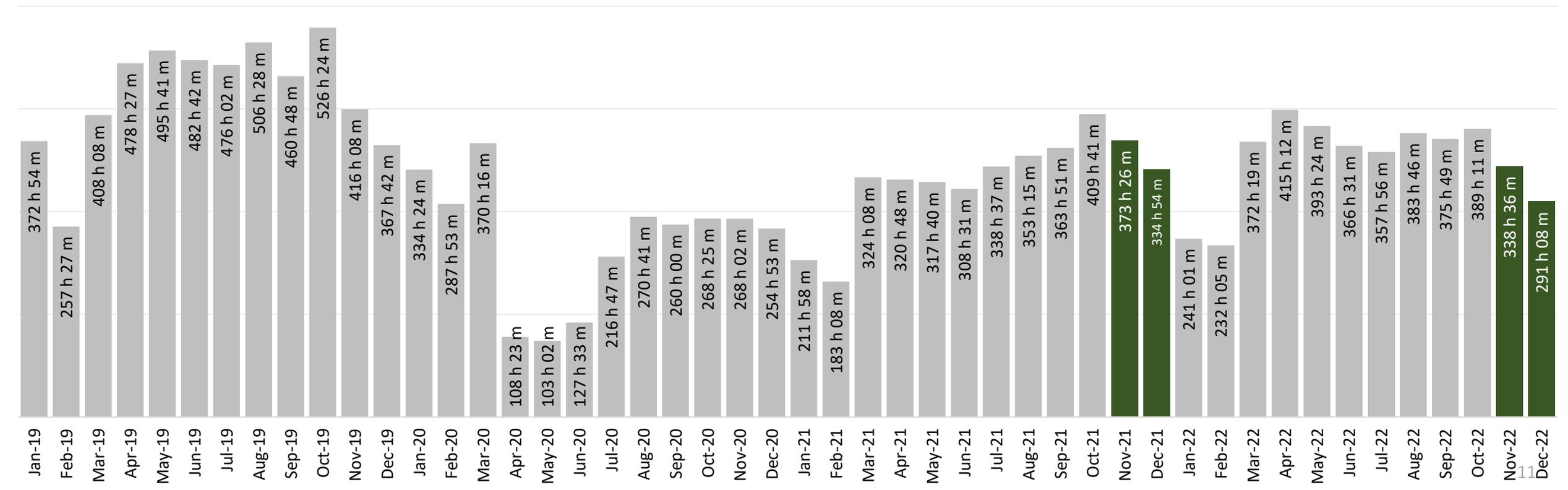
(60%)

LOCATIONS FILED 10 OR FEWER  
COMPLAINTS



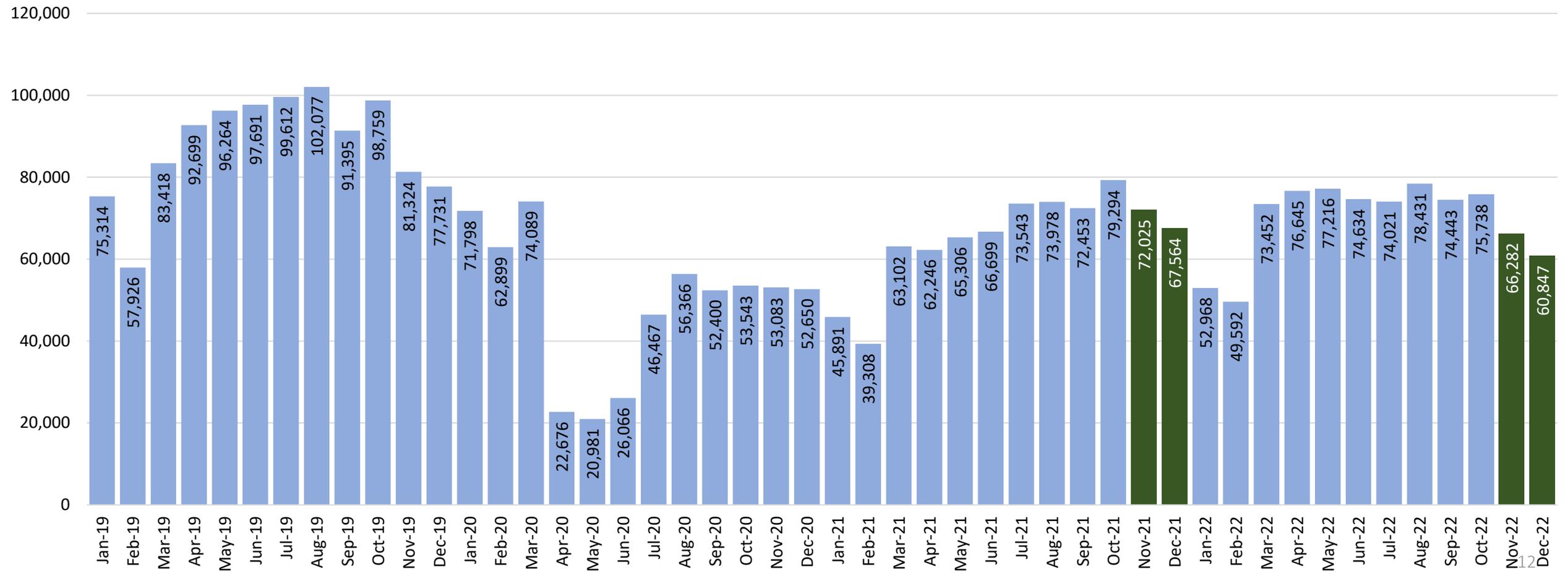
# SOUND MONITORING

November 2022			December 2022		
Time Above	51 TA <sup>65</sup> Per Operation	338 h 36 m TA <sup>65</sup>	Time Above	44 TA <sup>65</sup> Per Operation	291 h 08 m TA <sup>65</sup>
Count Above	2.78 N <sup>65</sup> Per Operation	66,282 N <sup>65</sup>	Count Above	2.53 N <sup>65</sup> Per Operation	60,847 N <sup>65</sup>



# SOUND MONITORING

November 2022			December 2022		
Time Above	51 TA <sup>65</sup> Per Operation	338 h 36 m TA <sup>65</sup>	Time Above	44 TA <sup>65</sup> Per Operation	291 h 08 m TA <sup>65</sup>
Count Above	2.78 N <sup>65</sup> Per Operation	66,282 N <sup>65</sup>	Count Above	2.53 N <sup>65</sup> Per Operation	60,847 N <sup>65</sup>



# NOISE ABATEMENT

November 2022

<b>Runway 17</b>	<b>99.7%</b>
<b>EMH Corridor</b>	<b>96.3%</b>
<b>Cross Day</b>	<b>22.9%</b>
<b>Cross Night</b>	<b>40.0%</b>

December 2022

<b>Runway 17</b>	<b>99.7%</b>
<b>EMH Corridor</b>	<b>92.9%</b>
<b>Cross Day</b>	<b>24.4%</b>
<b>Cross Night</b>	<b>41.0%</b>

**RUS**

**52.7%**

Arrive - 55%

Depart - 50%

**RUS**

**51.0%**

Arrive - 47%

Depart - 55%

# ITEM 2

## PUBLIC COMMENT PERIOD



**NOISE OVERSIGHT COMMITTEE**  
**JANUARY 18, 2023**

# ITEM 2

## PUBLIC COMMENT PERIOD

### Speaking at a Meeting

- Each speaker will have one opportunity to speak and is allotted three (3) minutes.
- When called upon to speak, speak clearly, state your name and address. If you are affiliated with any organization, please state your affiliation.
- Commenters shall address their comments to the NOC and not to the audience.
- Use of profanity, personal attacks, or threats of violence will not be tolerated.



**NOISE OVERSIGHT COMMITTEE**  
**JANUARY 18, 2023**

# 4.1 – VOR MINIMUM OPERATIONAL NETWORK



**NOISE OVERSIGHT COMMITTEE**  
**JANUARY 18, 2023**

# MSP VOR Discontinuance

## FAA VOR MON Program

Presented to:  
By:  
Date:

MSP Noise Oversight Committee  
Nitin Rao, FAA  
January 18, 2023



Federal Aviation  
Administration



# Very High Frequency Omni-Directional Range (VOR)

- The Very High Frequency Omni-Directional Range (VOR) is a ground-based navigation aid/electronic system that provides information for high and low altitude routes and airport instrument flight procedures.
- Maintained as a critical component of the National Airspace System (NAS) since the 1950s.
- VOR is part of a conventional navigation procedure and is used in instrument flight procedures and navigation.
- The FAA is transitioning the National Airspace System (NAS) to Performance Based Navigation (PBN).



# MSP VOR



Federal Aviation  
Administration

# VOR MON Program Background

- **Purpose:** FAA is retaining a limited network of VORs, called the VOR Minimal Operational Network (MON), to provide a basic conventional navigation service for operators to use if Global Navigation Satellite Systems (GNSS) becomes unavailable
  - Support the National Airspace System (NAS) transition from VOR-based routes to a more efficient Performance-Based Navigation (PBN) structure, consistent with NextGen goals.
- FAA developed a national working group to develop a candidate list of VORs for discontinuance using relevant operational, safety, cost, and economic criteria.

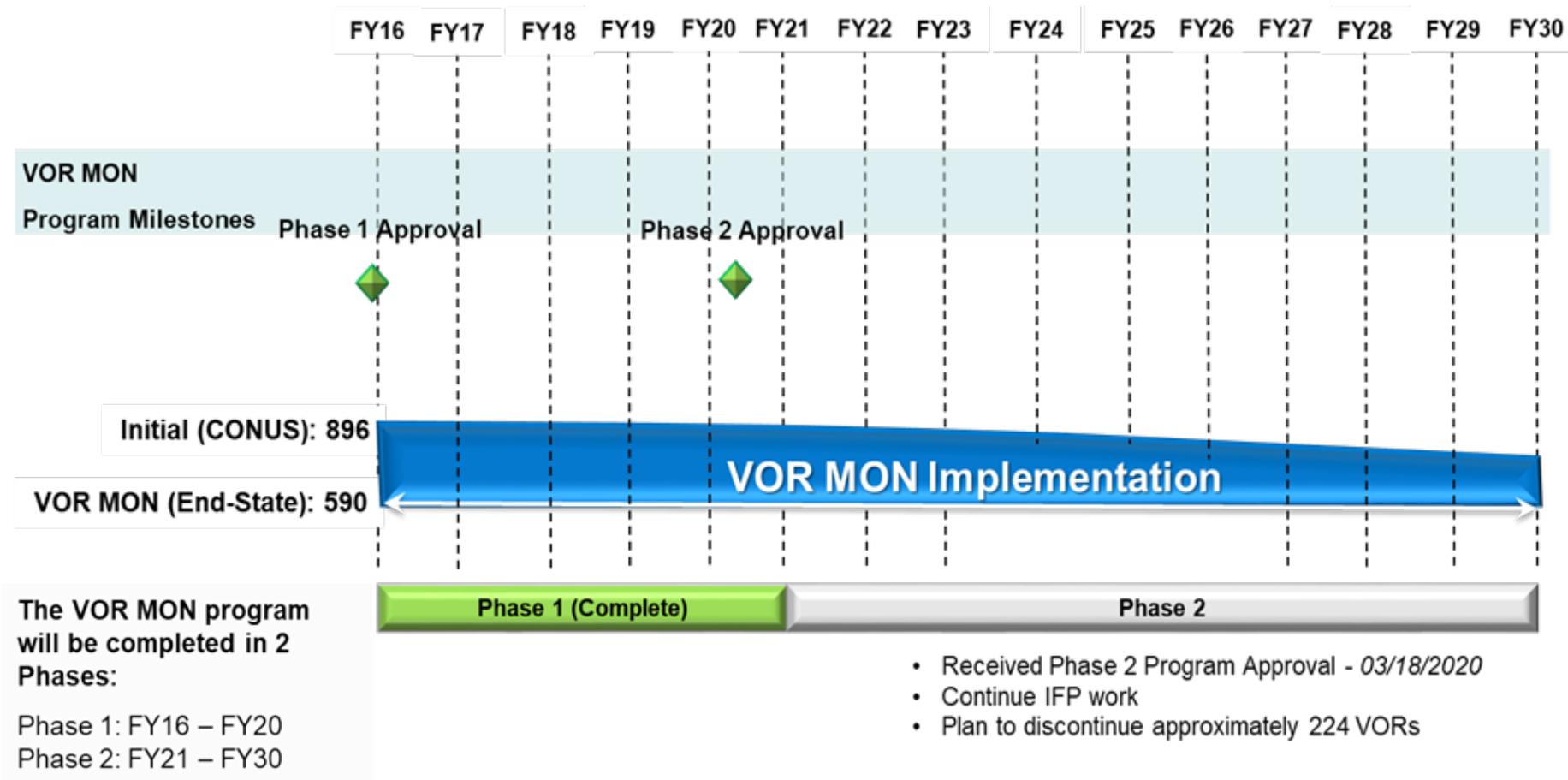


# VOR MON Program Background (cont.)

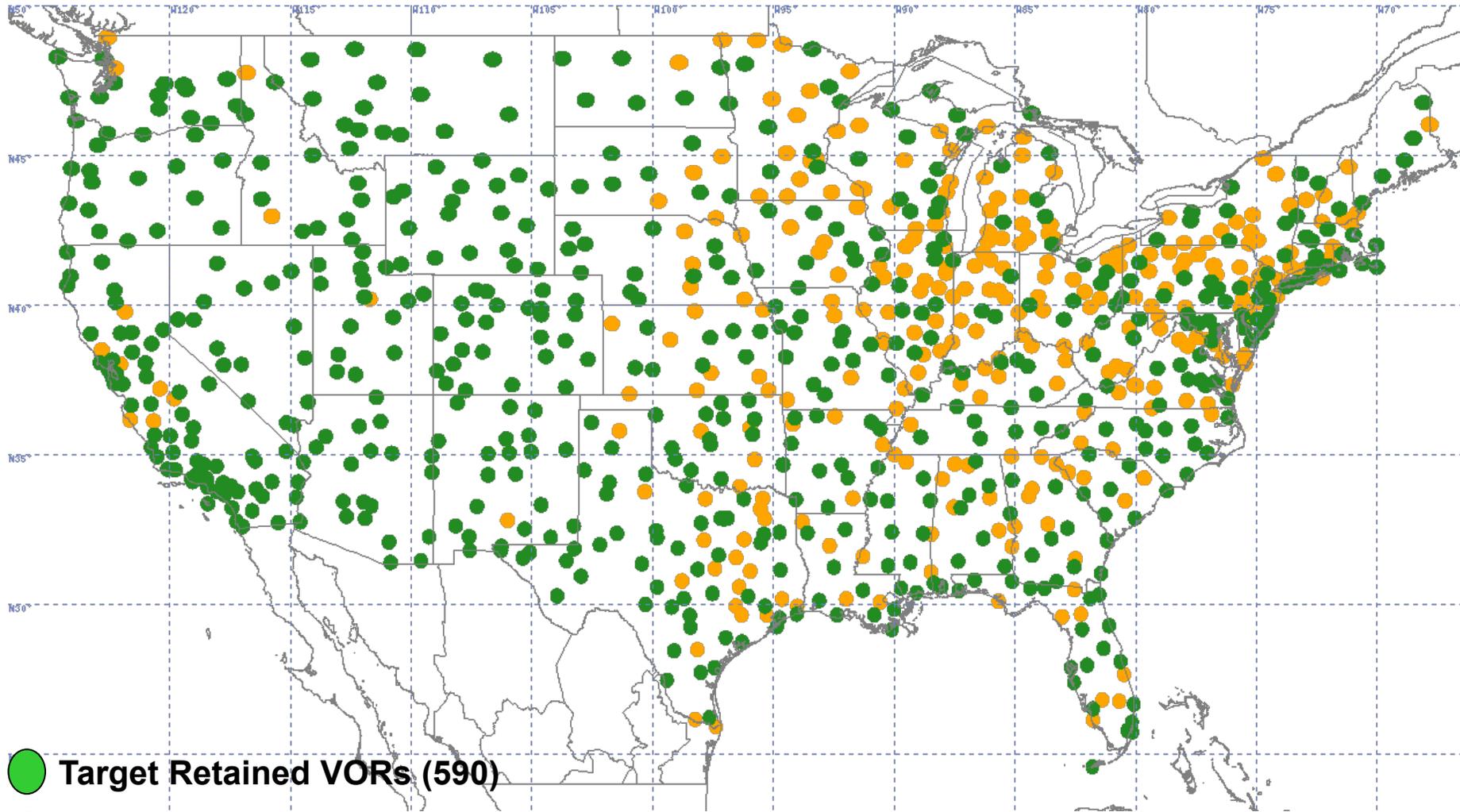
- Discontinue approximately 30% (306) of VORs by 2030, 141 have been discontinued to date.
- VOR MON will ensure that at 5,000 feet the aircraft will be able to navigate to an airport with ground based procedures within 100 miles of their location.
- Within the contiguous United States (CONUS), enable pilots to:
  - Revert from PBN to conventional / VOR navigation in the event of a Global Positioning System (GPS) outage;
  - The MON will ensure that an aircraft will be always be within 100 NM of an airport with an instrument approach that is not dependent on GPS.



# VOR MON Implementation Timeline



# VORs in the Continental US (CONUS)



- Target Retained VORs (590)
- Target to be Discontinued VORs (306)

\*Expected 30% reduction in VORs by 2030



Federal Aviation  
Administration

# MSP VOR



# Why Discontinue the MSP VOR?

This VOR, and many others, will be decommissioned as part of the FAA's NextGen program where Global Positioning System (GPS) based Area Navigation (RNAV) and Performance Based Navigation (PBN) will replace the legacy ground based system.

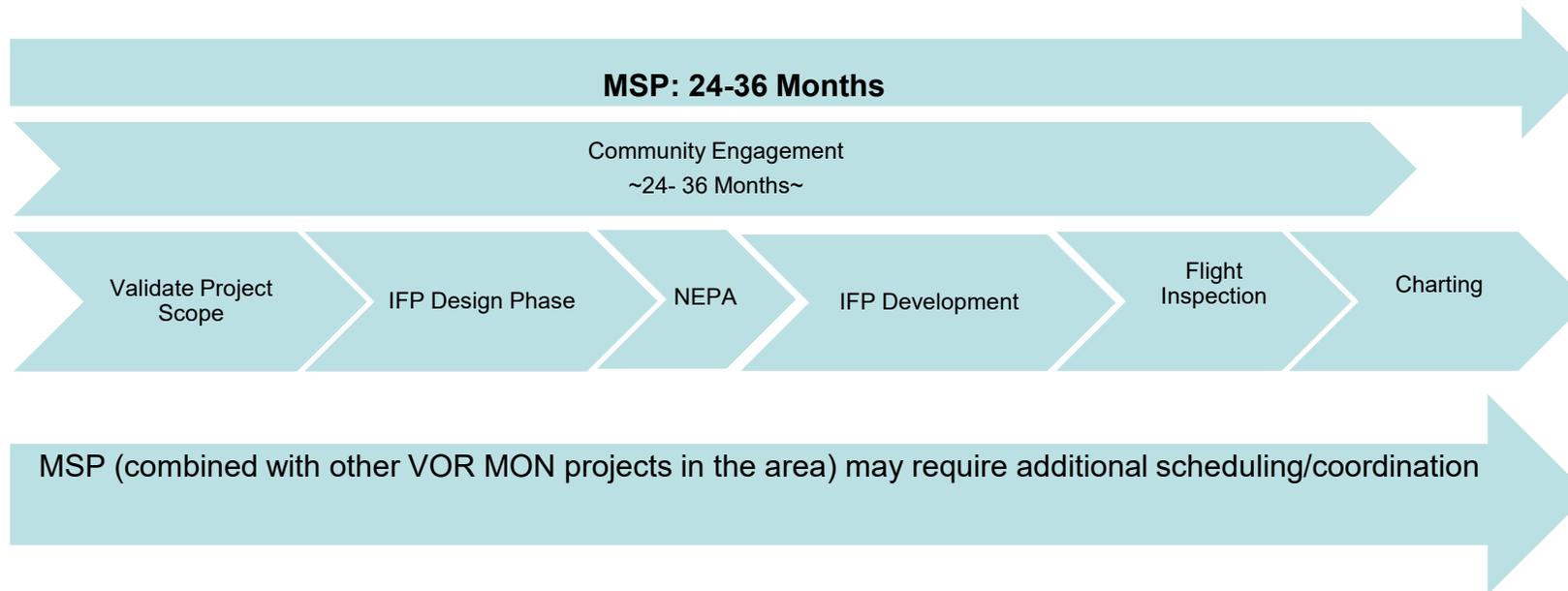
- ***It's just good governance.*** Decommissioning superfluous VORs will direct efforts for future investments in the National Airspace System (NAS) by:
  - ***Reducing cost while increasing reliability and maintainability of the existing VOR-based airway navigation system.*** Current ground lease costs, repair parts, routine and restorative maintenance costs as well as costs associated with manpower necessary to maintain the system are unsustainable.
  - ***Decreasing redundancy.*** Given the proliferation of GPS equipment in aircraft and the wide use of this technology during flight procedures, much of the existing ground-based navigation network is redundant and unused during normal operations.
- The VOR Minimum Operational Network (MON) provides a conventional navigation recovery system in the event of a loss of GPS signal. The MSP VOR is not part of the MON.



# Projected Timeline for MSP VOR Discontinuation

Identify Collaborative Workgroup and schedule meetings

Project Kickoff: January 24-26, 2023



List of area VORs on the VOR MON Schedule: OTG, MKT, DWN, ODI, MSP, ROX, RST, FCM, GPZ



# MSP VOR Anticipated Procedure Impacts

- Procedure changes that will be reviewed during designs:
  - Standard Instrument Departure Procedures (SIDs) may be cancelled or amended
  - Standard Terminal Arrival Routes (STARs) may be cancelled or amended
  - Instrument Approach Procedures may be amended
  - Existing PBN procedures may be amended or cancelled



# Preliminary MSP VOR Analysis

- **Early Analysis:**
  - Replicate current departures to the North
  - Develop RNAV vector departures off the ground to the south to allow for more use of noise abatement.
    - Utilize departure procedures over the 12L and 12R over the industrial park
    - Utilize departure procedures for Runway 17 over the riverbed
  - Early in the process, but the FAA believes that we will be able to develop vector based Standard Instrument Departures (SIDS).



# Preliminary MSP VOR Analysis (cont.)

- Most procedures will be replicated to the extent possible with PBN and GPS navigation.
- Current departure procedures will be replicated to the extent possible with satellite-based Vector Standard Instrument Departures (SID) vs. ground-based navigation.
- Coordination and synchronization will be required between FAA, MAC, NOC, Airlines, and the Public.



# MSP VOR Community Engagement

- **FAA is committed to meaningful public engagement throughout process**
  - Have had initial discussions with MAC officials prior to project kickoff next week
  - Plan to include numerous stakeholders once project officially kicks off in January 2023 to obtain views
    - Includes MAC staff to communicate the NOCs views on the project.
    - Includes airlines, FAA personnel, and other stakeholders.



# MSP VOR Community Engagement (cont.)

- Working Group Kick-Off Meeting (January 2023)
- Core work group deliberate and take input on preliminary design from stakeholders (ideally 6 to 9 months)
- Preliminary Designs Presented to the NOC
  - Obtain Feedback from NOC and other aviation stakeholders
  - If feasible, incorporate feedback and revise the designs



# MSP VOR: What this All Means

- Attempt to replicate departure procedures to the north, and design departure procedures to the south to continue to increase noise abatement.
- The FAA understands the development of procedures are of high interest to the NOC.
  - Will work closely with the MAC and the NOC as the project progresses to understand concerns and make adjustments.



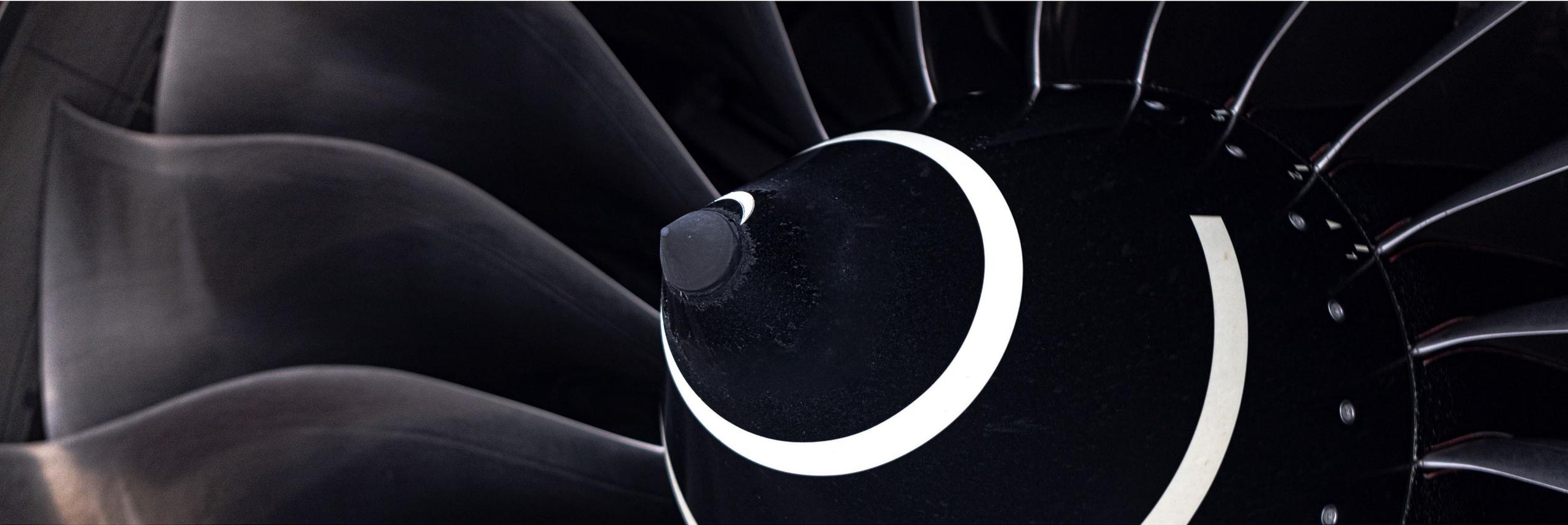
# Questions?

## Contact Information:

- Joe Miniace, Regional Administrator for the Great Lakes Region
  - (p) 847-294-7294
  - (e) [Joseph.N.Miniace@faa.gov](mailto:Joseph.N.Miniace@faa.gov)
- Nitin Rao, Community Engagement Officer for the Regional Administrator
  - (p) 847-294-7375
  - (e) [Nitin.Rao@faa.gov](mailto:Nitin.Rao@faa.gov)

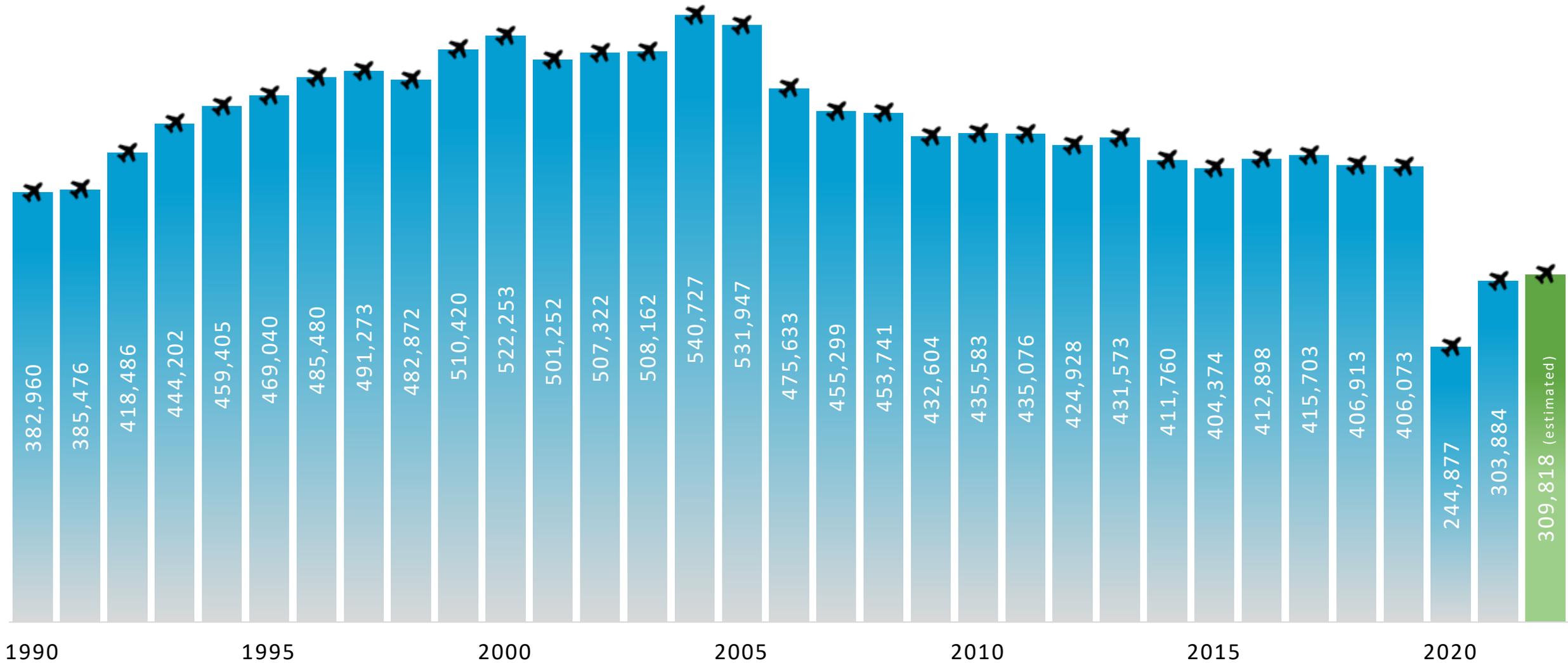


# 4.2 – 2022 FLEET MIX AND NIGHTTIME OPERATIONS ASSESSMENT

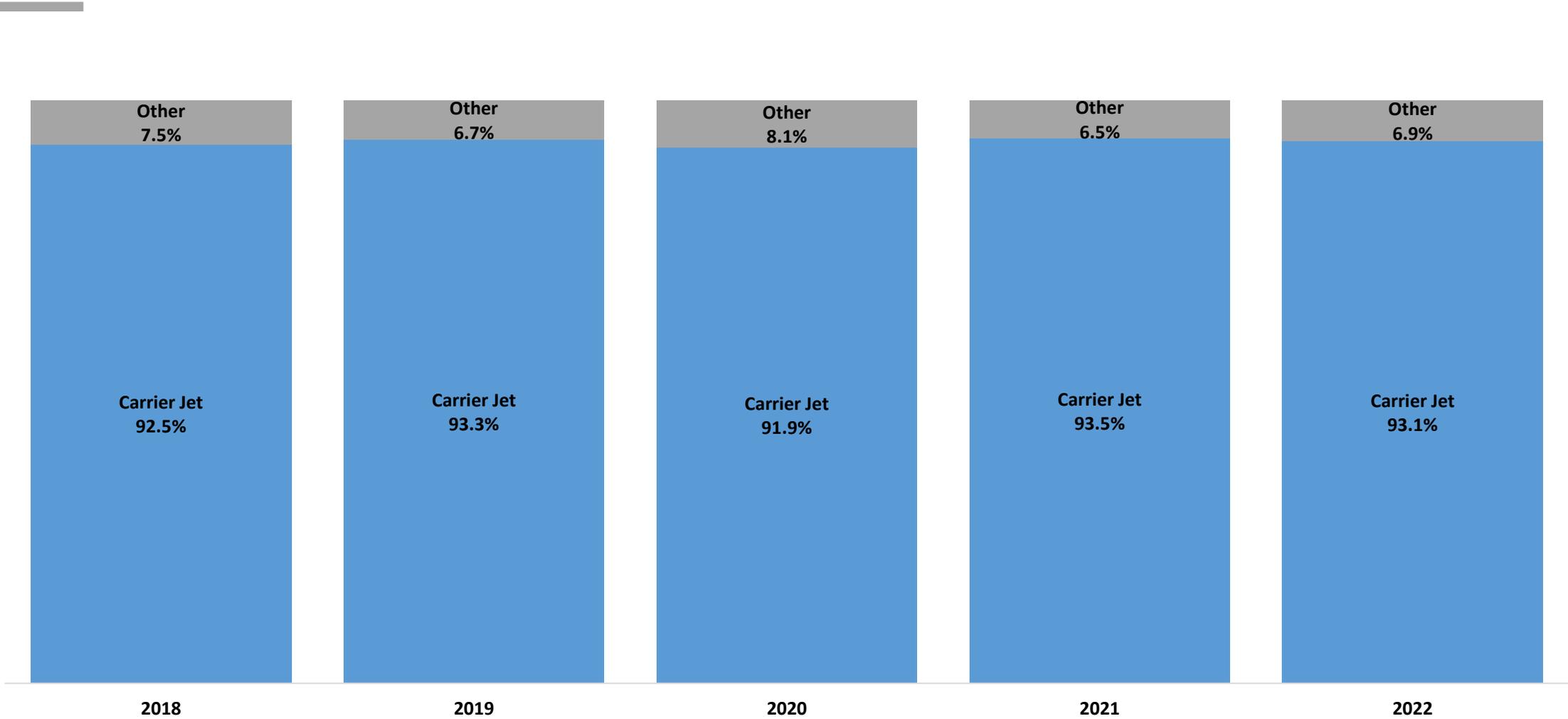


**NOISE OVERSIGHT COMMITTEE  
JANUARY 18, 2023**

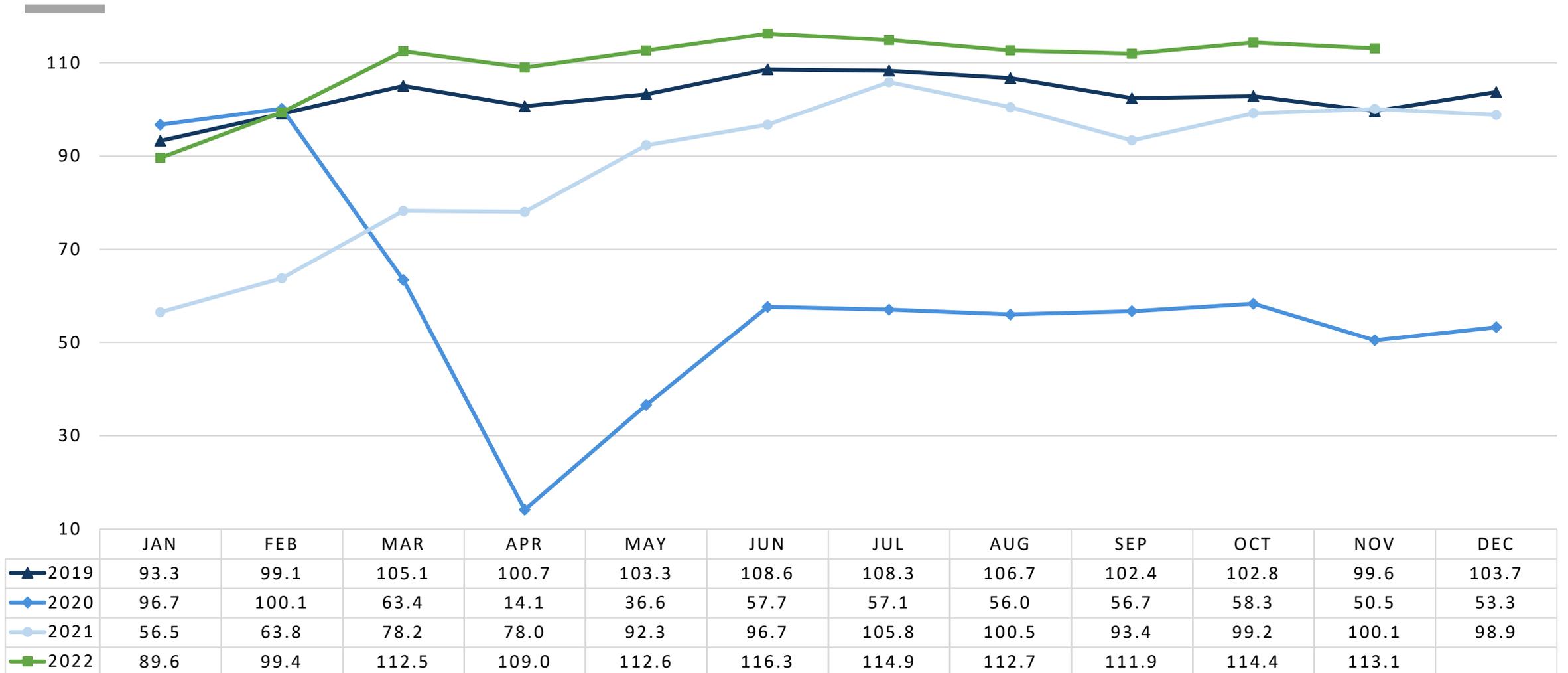
# MSP Operations *(FAA Opsnet)*



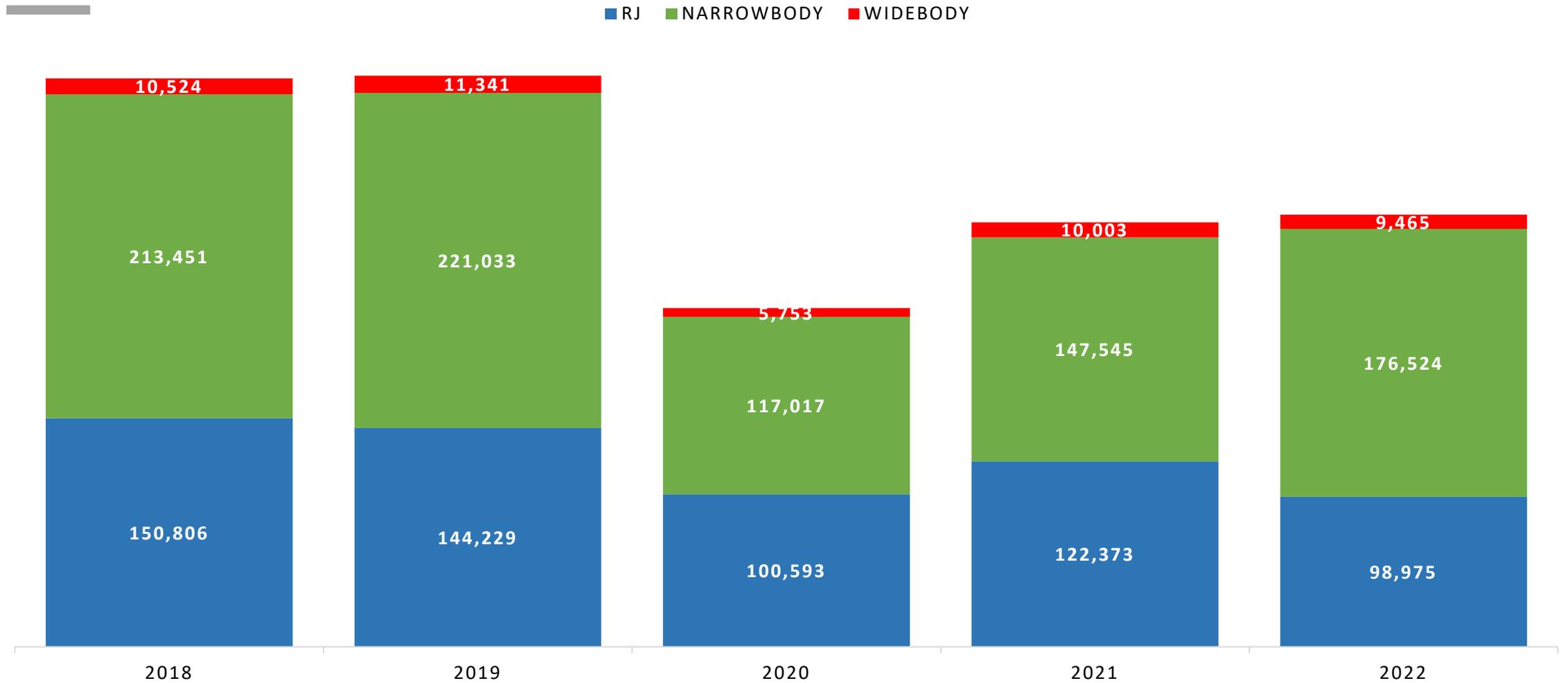
# MSP Operational Fleet Mix



# MSP Passengers Per Flight

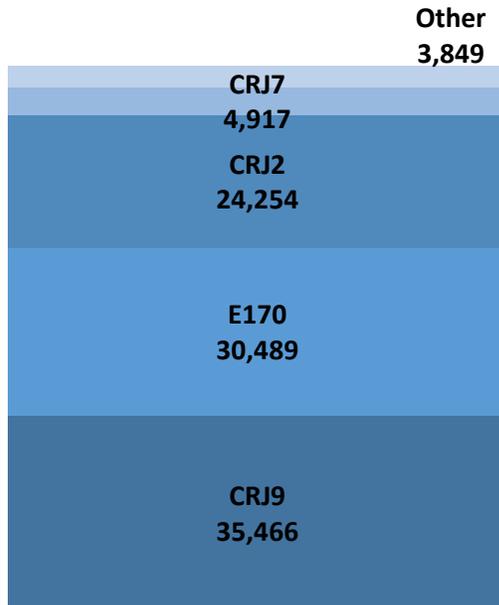


# MSP Operations Fleet Mix



# MSP Operations Fleet Mix

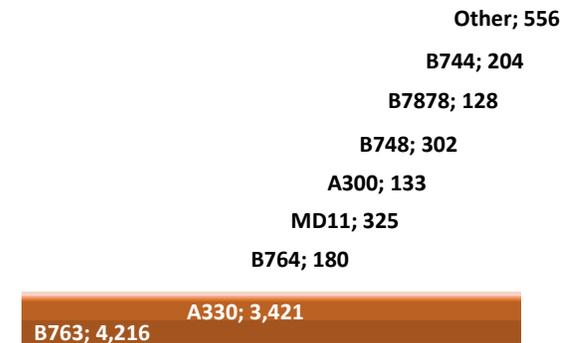
## Regional Jet



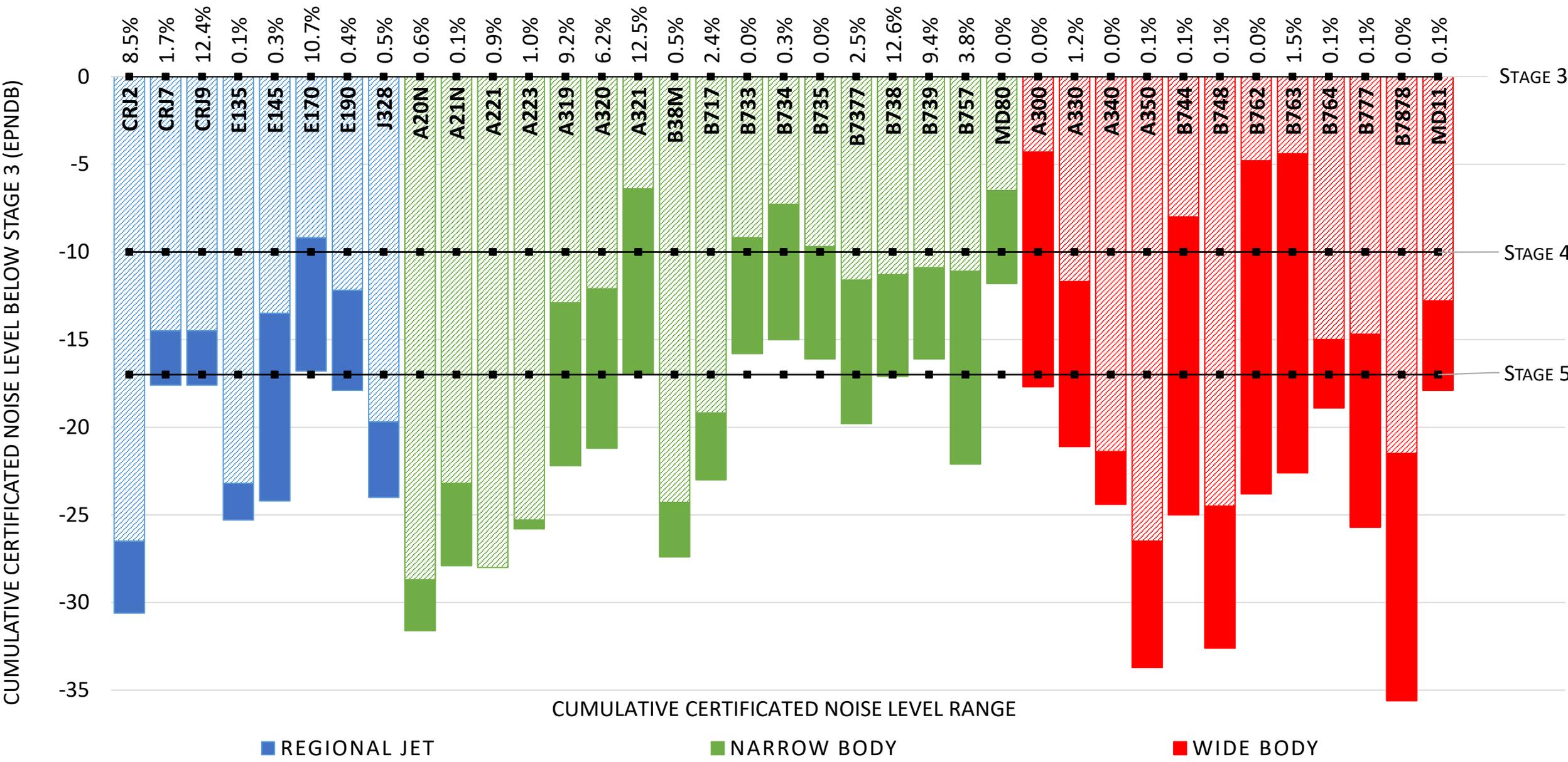
## Narrow Body



## Wide Body



# 2022 MSP CARRIER JET USAGE WITH CUMULATIVE CERTIFICATED NOISE LEVELS

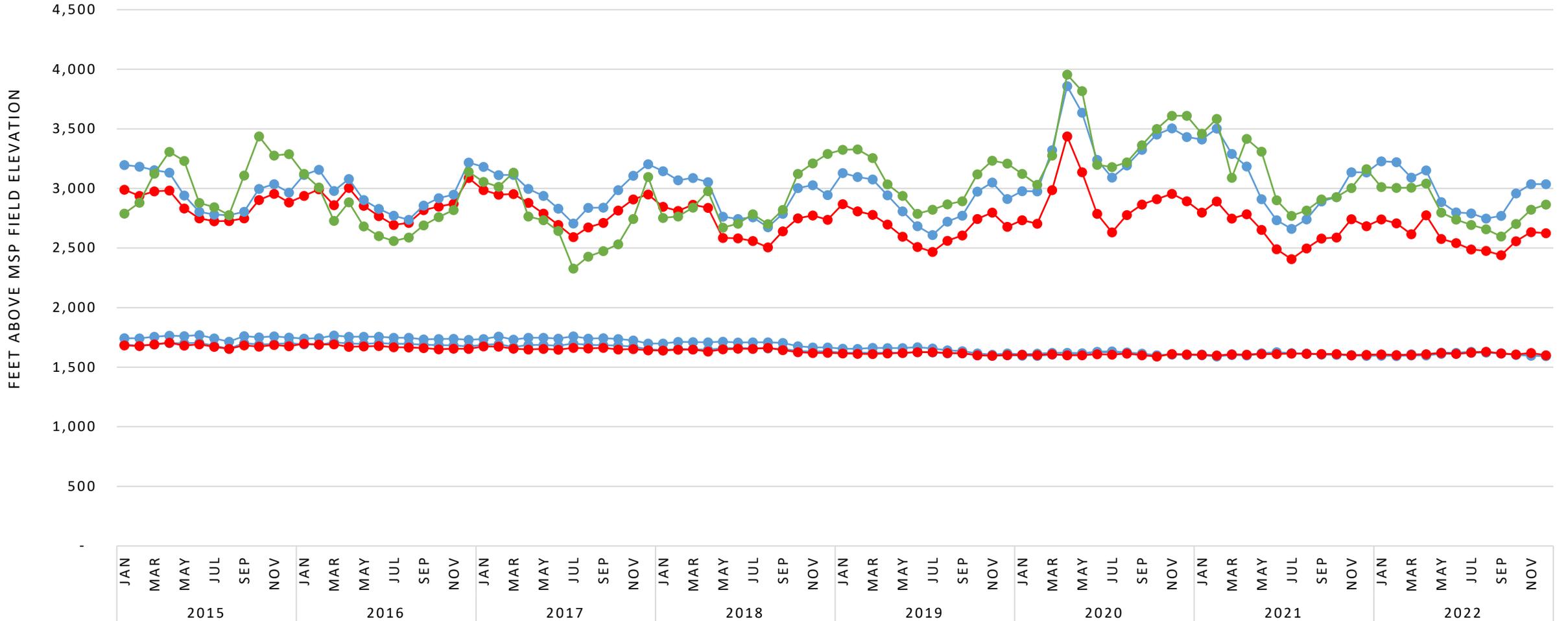


SOURCE: USAGE DATA: MACNOMS; NOISE CERTIFICATION DATA: EUROPEAN AVIATION SAFETY AGENCY

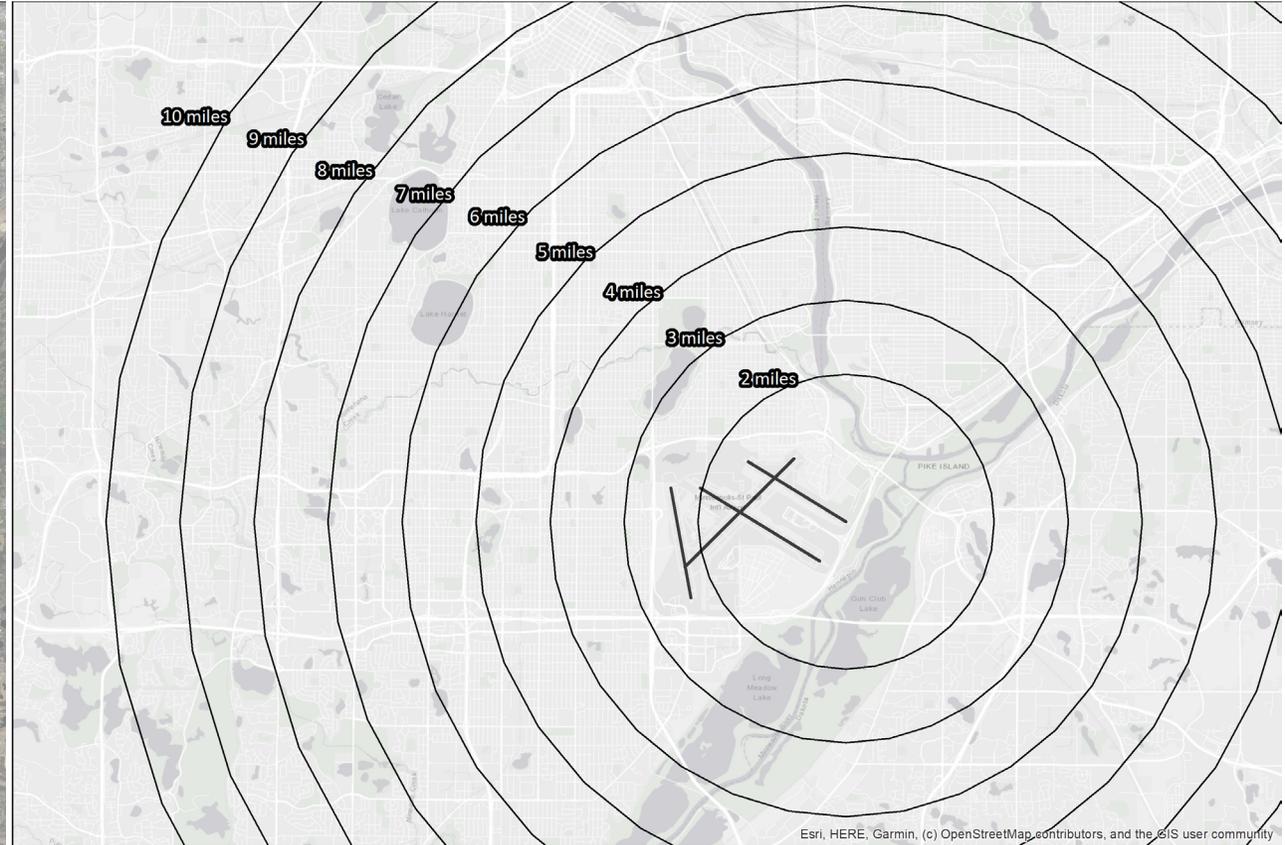
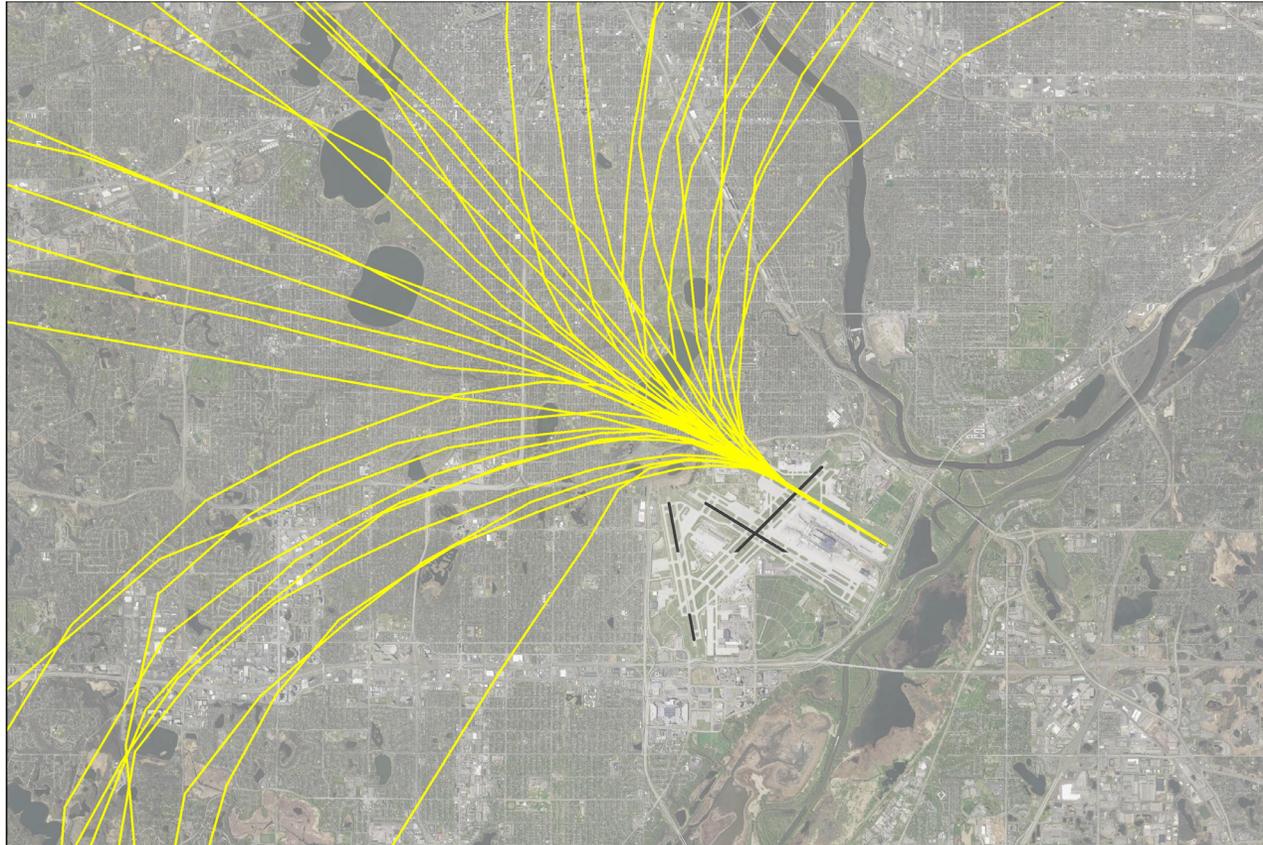
CUMULATIVE CERTIFICATED NOISE LEVELS REPRESENTED AS A RANGE TO ACCOUNT FOR MULTIPLE CERTIFICATION VARIABLES (WEIGHT, MODEL, ENGINE TYPE, AIRFRAME CONFIGURATION, ETC)

# Average Altitude

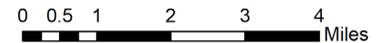
● NARROWBODY - A   
 ● NARROWBODY - D   
 ● RJ - A   
 ● RJ - D   
 ● WIDEBODY - A   
 ● WIDEBODY - D



# Runway 30R AEDT Model Flight Tracks

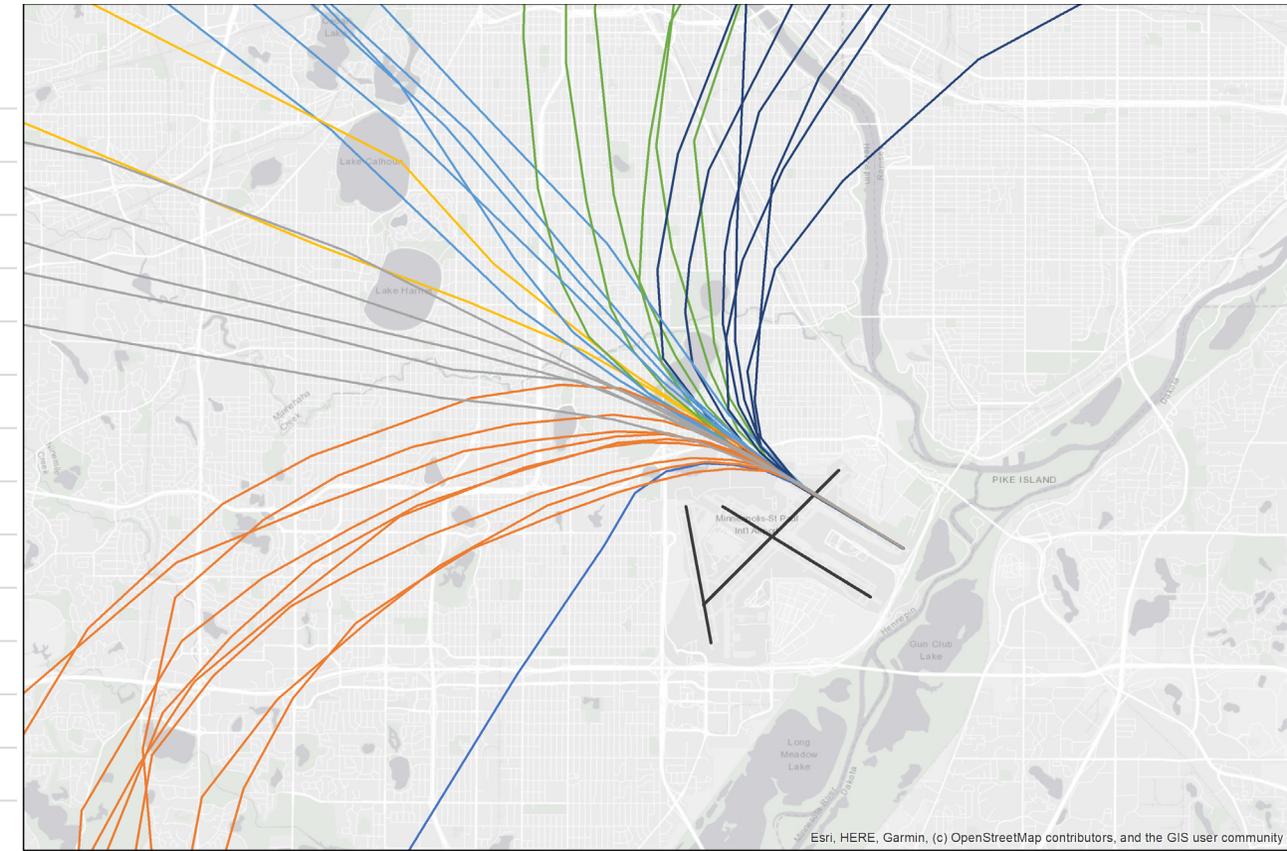
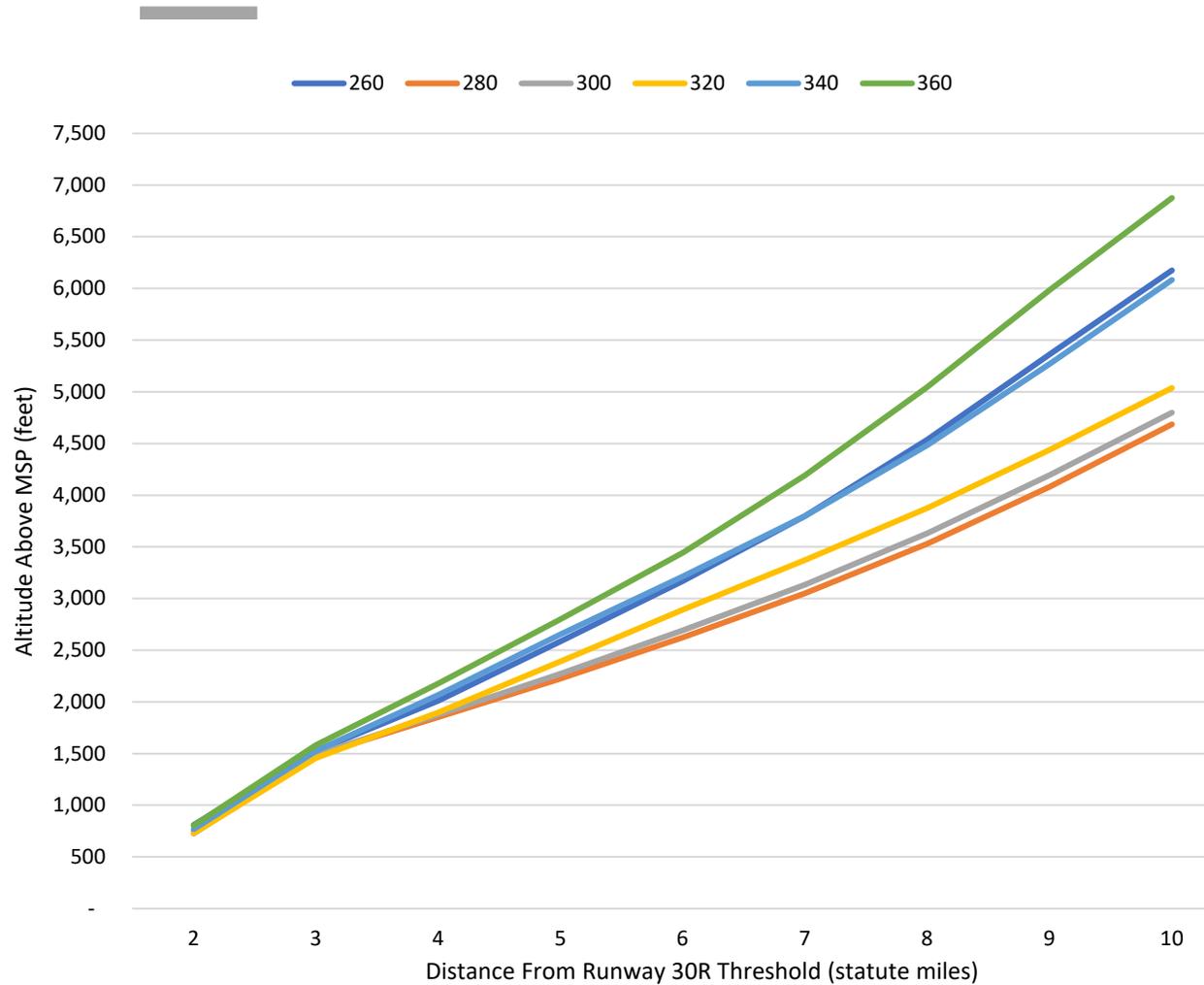


Runway 30R Departure Model Tracks



Note: AEDT modeled flight tracks shown, flight paths from actual operations have greater dispersion.

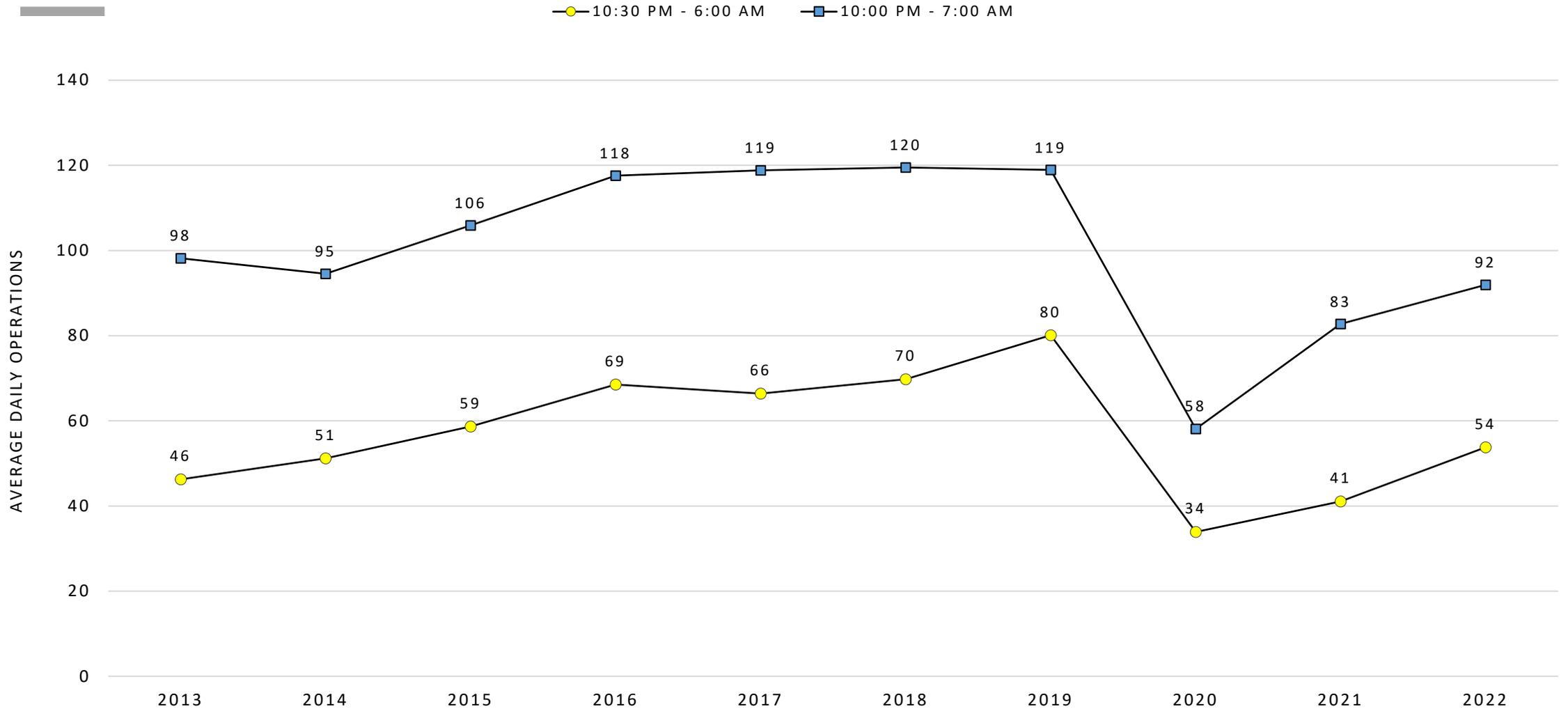
# 2022 MSP Average 30R Departure Altitude by Heading



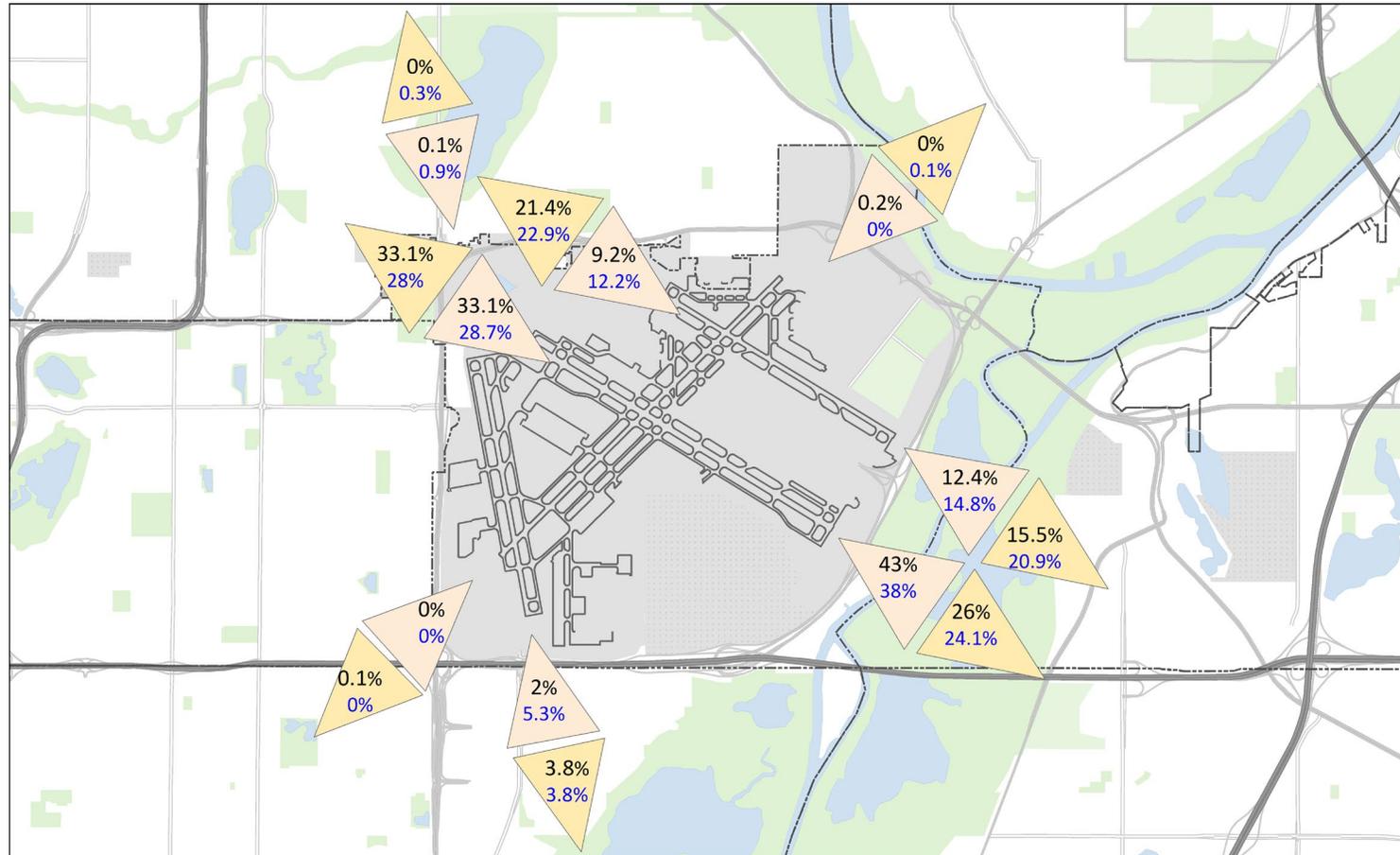
— 210 — 260 — 280 — 300 — 320 — 340 — 360

0 0.5 1 2 3 4 Miles

# Average Daily Nighttime Operations



# Nighttime Runway Use



# Nighttime Operations by Airline and Aircraft

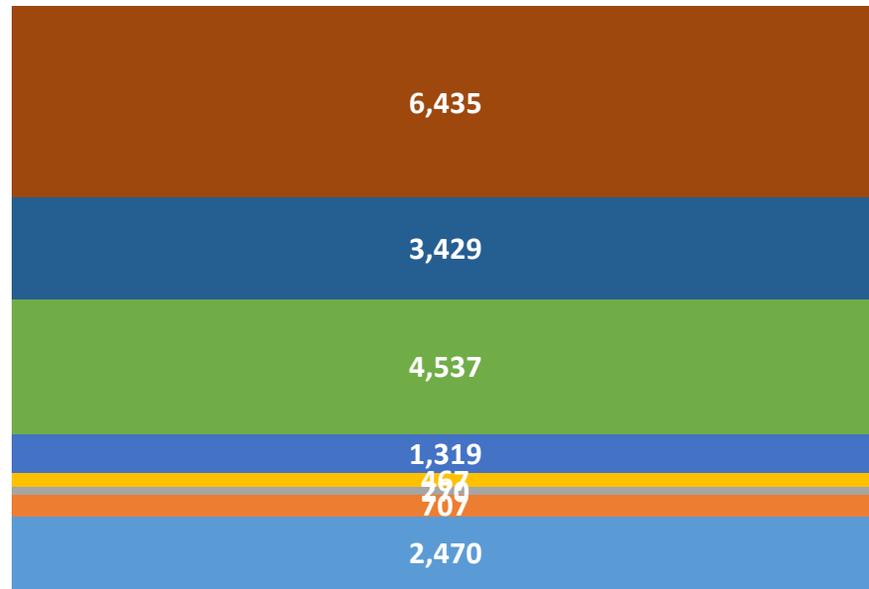
AIRLINE	ID	COUNT	PERCENT OF AIRLINE OPERATIONS' OCCURRING AT NIGHT	PERCENT OF CONTRIBUTION TO NIGHTTIME TOTAL
DELTA	DAL	5,824	4.9%	31.0%
SUN COUNTRY	SCX	3,591	15.3%	19.1%
SKYWEST AIRLINES	SKW	2,149	3.1%	11.4%
SOUTHWEST	SWA	1,679	15.9%	8.9%
AMERICAN	AAL	1,239	17.6%	6.6%
UPS	UPS	1,119	33.6%	6.0%
UNITED	UAL	781	9.7%	4.2%
FEDEX	FDX	693	22.6%	3.7%
GULF & CARIBBEAN CARGO	TSU	356	96.0%	1.9%
JETBLUE AIRWAYS	JBU	350	18.4%	1.9%
ALASKA	ASA	284	18.0%	1.5%
FRONTIER AIRLINES	FFT	232	19.2%	1.2%
SPIRIT	NKS	230	7.9%	1.2%
ENDEAVOR AIR	EDV	163	0.9%	0.9%
SWIFT AIR (USA)	SWQ	85	16.4%	0.5%

AIRCRAFT CODE	DESCRIPTION	COUNT	NOISE LEVEL CERTIFICATION (EPNdB BELOW STAGE 3)
B738	BOEING 737-800	5,532	11.3 - 17.1
A321	AIRBUS INDUSTRIES A321	2,487	6.4 - 17
B739	BOEING 737-900	1,773	10.9 - 16.1
B757	BOEING 757-200	1,482	11.1 - 22.1
CRJ9	CANADAIR REGIONAL JET CRJ-900	1,259	14.5 - 17.6
A320	AIRBUS INDUSTRIES A320	1,156	12.1 - 21.2
A319	AIRBUS INDUSTRIES A319	872	12.9 - 22.2
B7377	BOEING 737-700	851	11.6 - 19.8
B763	BOEING 767-300	807	4.4 - 22.6
CRJ2	CANADAIR REGIONAL JET CRJ-200	707	26.5 - 30.6
E170	EMBRAER 170	676	9.2 - 16.8
B38M	BOEING 737-8 MAX	259	24.3 - 27.4
E190	EMBRAER 190	233	12.2 - 17.9
CRJ7	CANADAIR REGIONAL JET CRJ-700	209	14.5 - 17.6
A330	AIRBUS INDUSTRIES A330	164	11.7 - 21.1

# Nighttime Operations by Hour

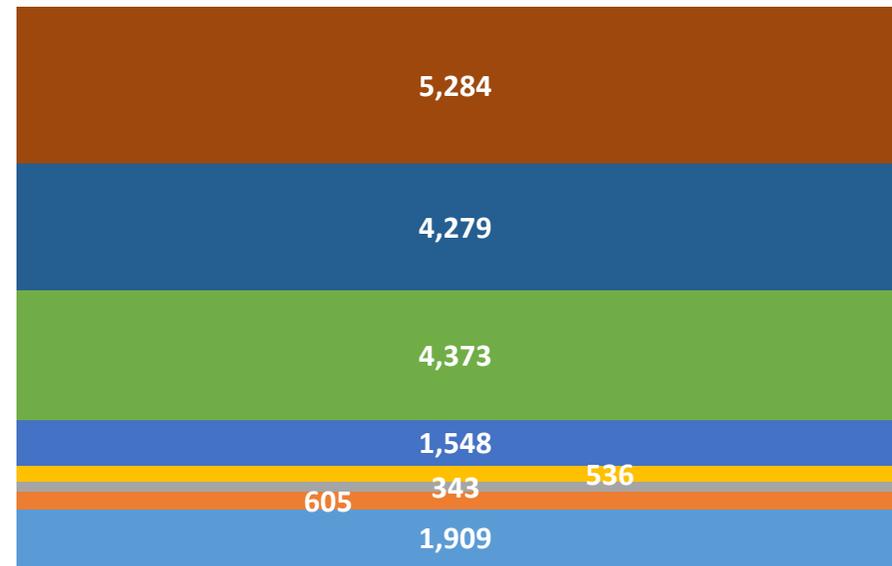
2022

0:00 1:00 2:00 3:00 4:00 5:00 22:30 23:00



3-YEAR HISTORICAL AVERAGE

0:00 1:00 2:00 3:00 4:00 5:00 22:30 23:00

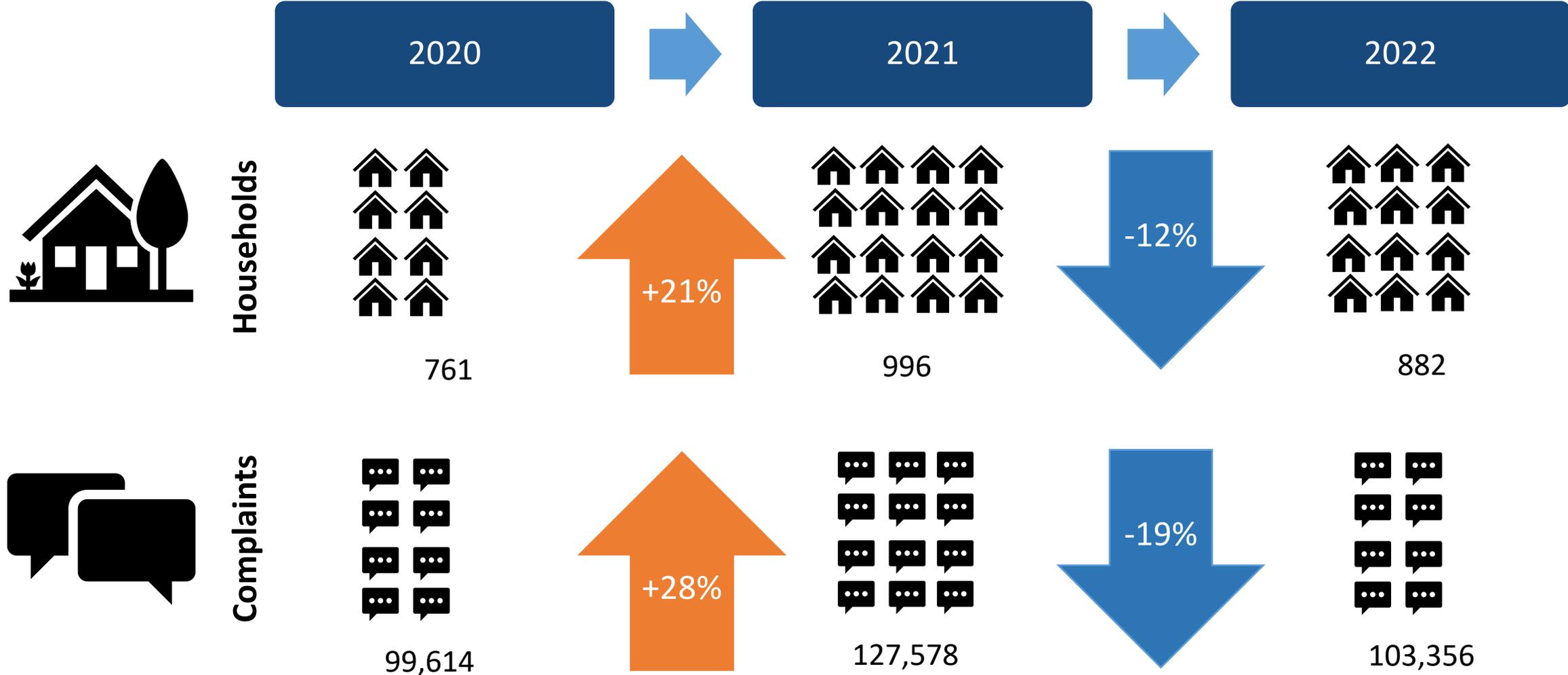


# 4.3 – 2022 COMPLAINT DATA ASSESSMENT



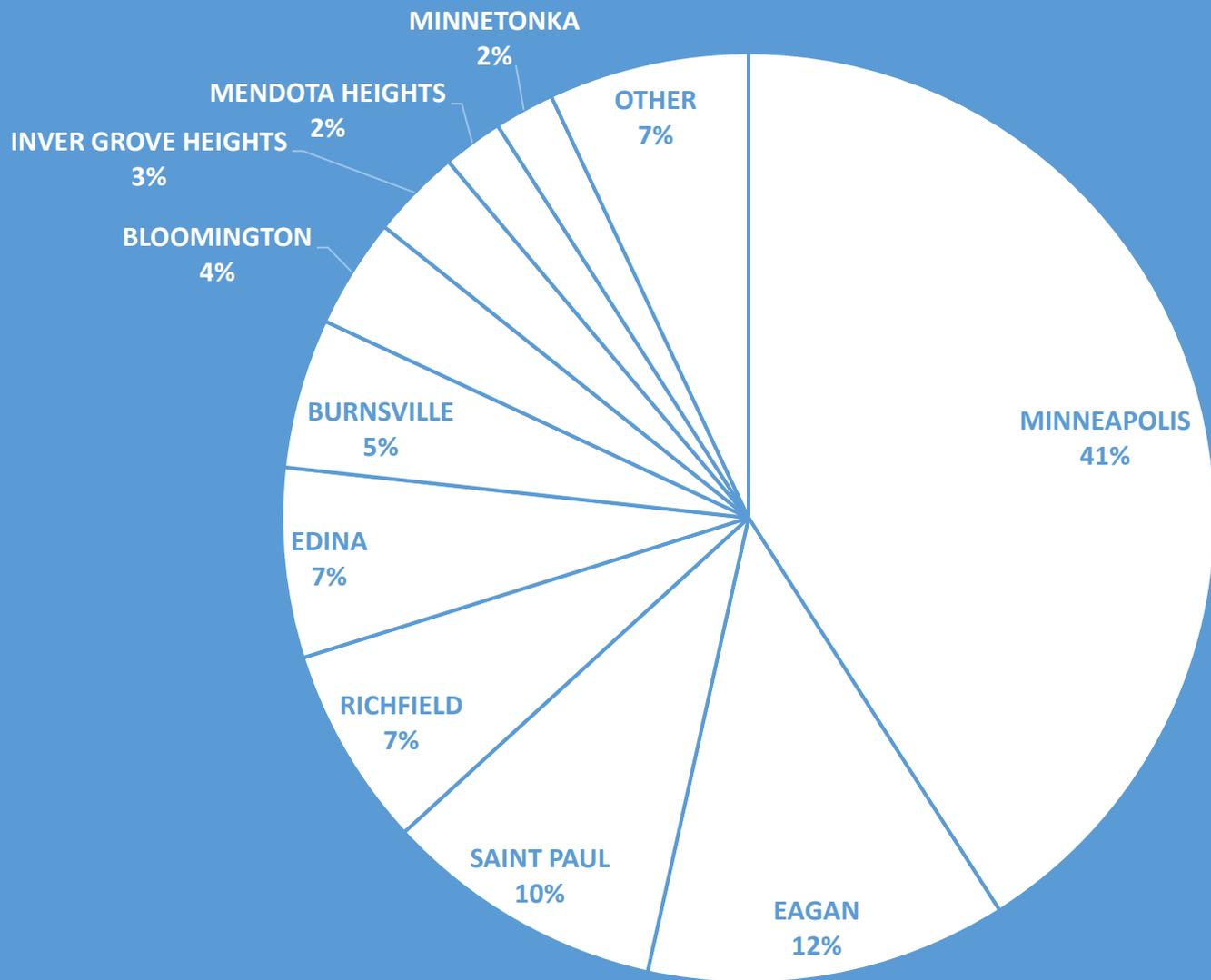
**NOISE OVERSIGHT COMMITTEE**  
**JANUARY 18, 2023**

# Total Households and Total Complaints 2020-2022





# New Households Filing Complaints 2022 By City





# Change in Complaints By City

**MINNEAPOLIS**  
2022 COMPLAINTS: 22,593  
2021 COMPLAINTS: 35,650  
CHANGE: -13,057

**SAINT PAUL**  
2022 COMPLAINTS: 3,694  
2021 COMPLAINTS: 3,631  
CHANGE: 63

**SAINT LOUIS PARK**  
2022 COMPLAINTS: 493  
2021 COMPLAINTS: 903  
CHANGE: -410

**MENDOTA HEIGHTS**  
2022 COMPLAINTS: 3,965  
2021 COMPLAINTS: 4,928  
CHANGE: -963

**EDINA**  
2022 COMPLAINTS: 3,800  
2021 COMPLAINTS: 4,763  
CHANGE: -963

**SUNFISH LAKE**  
2022 COMPLAINTS: 1,743  
2021 COMPLAINTS: 2,678  
CHANGE: -935

**RICHFIELD**  
2022 COMPLAINTS: 15,599  
2021 COMPLAINTS: 18,911  
CHANGE: -3,312

**INVER GROVE HEIGHTS**  
2022 COMPLAINTS: 12,205  
2021 COMPLAINTS: 13,365  
CHANGE: -1,160

**BLOOMINGTON**  
2022 COMPLAINTS: 2,271  
2021 COMPLAINTS: 1,271  
CHANGE: 1,000

**EAGAN**  
2022 COMPLAINTS: 25,575  
2021 COMPLAINTS: 29,117  
CHANGE: -3,542

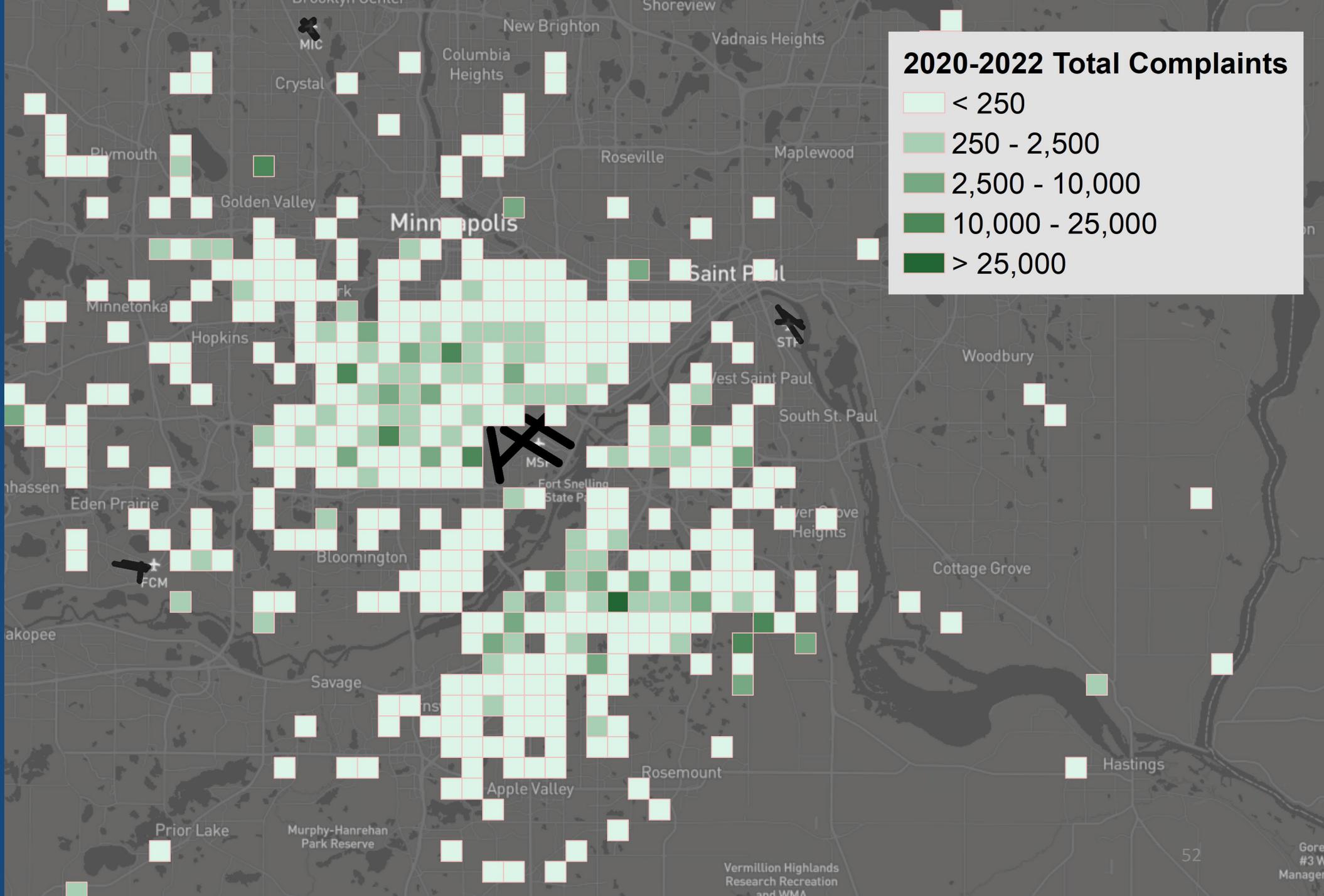
**BURNSVILLE**  
2022 COMPLAINTS: 5,027  
2021 COMPLAINTS: 2,504  
CHANGE: 2,523

**APPLE VALLEY**  
2022 COMPLAINTS: 615  
2021 COMPLAINTS: 1,062  
CHANGE: -447



# Total Complaints

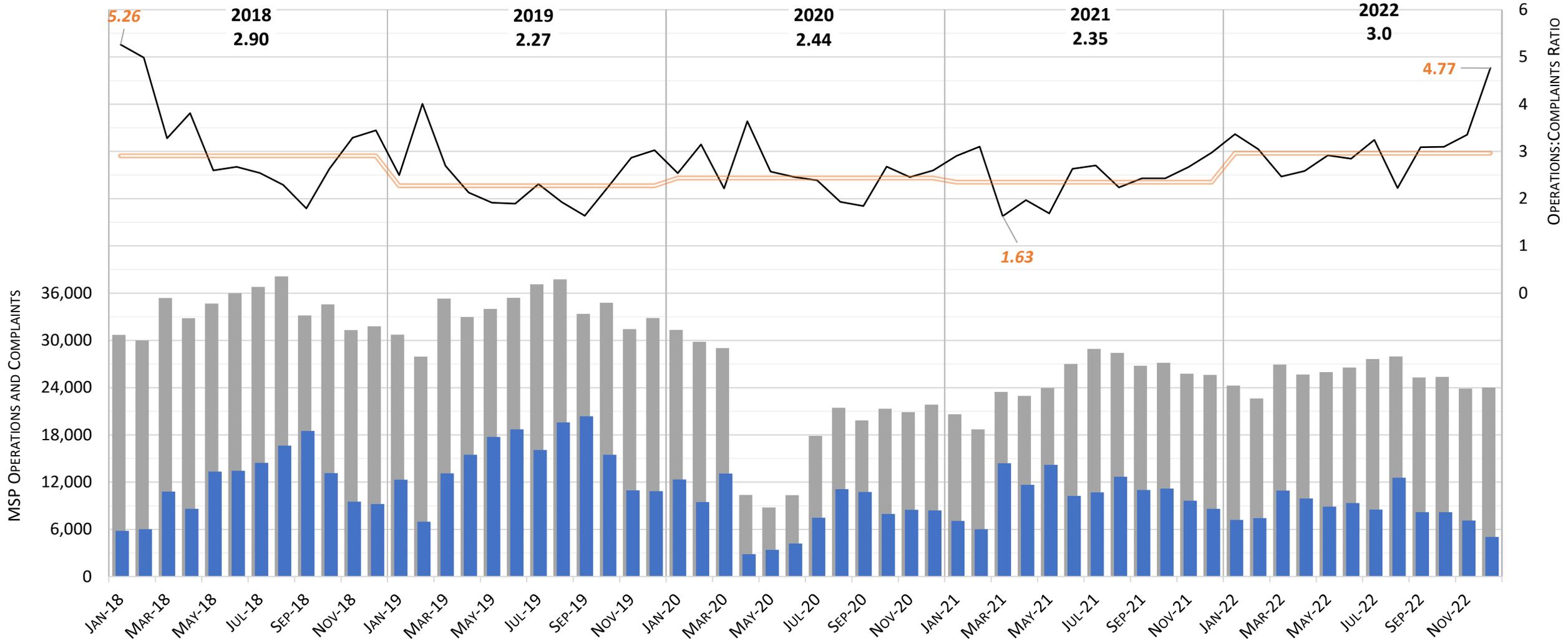
## 2020-2022





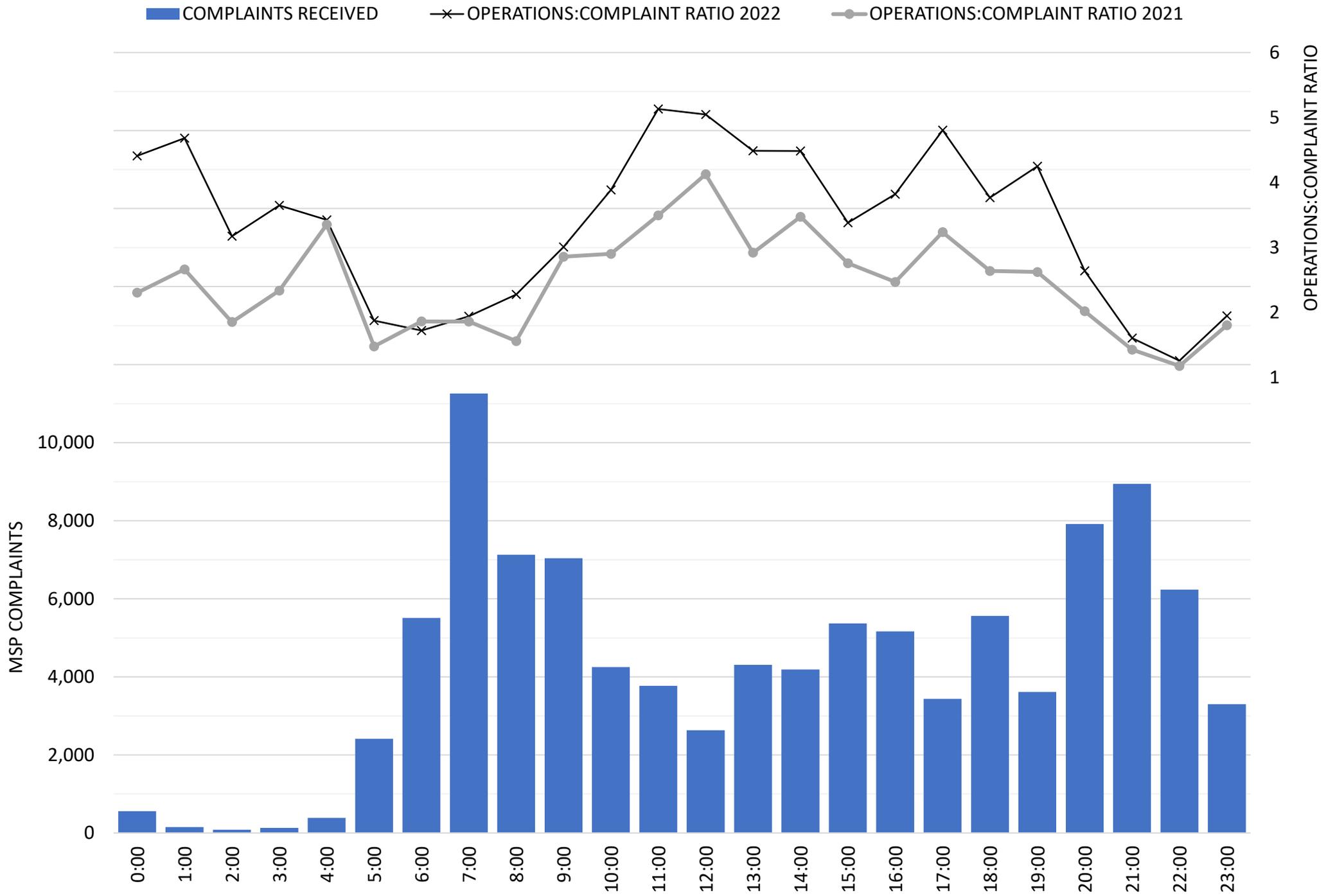
# 2018-2022 Operations to Complaints Ratio

■ OPERATIONS   ■ COMPLAINTS   — OPS:COMPLAINTS MONTHLY RATIO   — OPS:COMPLAINTS ANNUAL RATIO



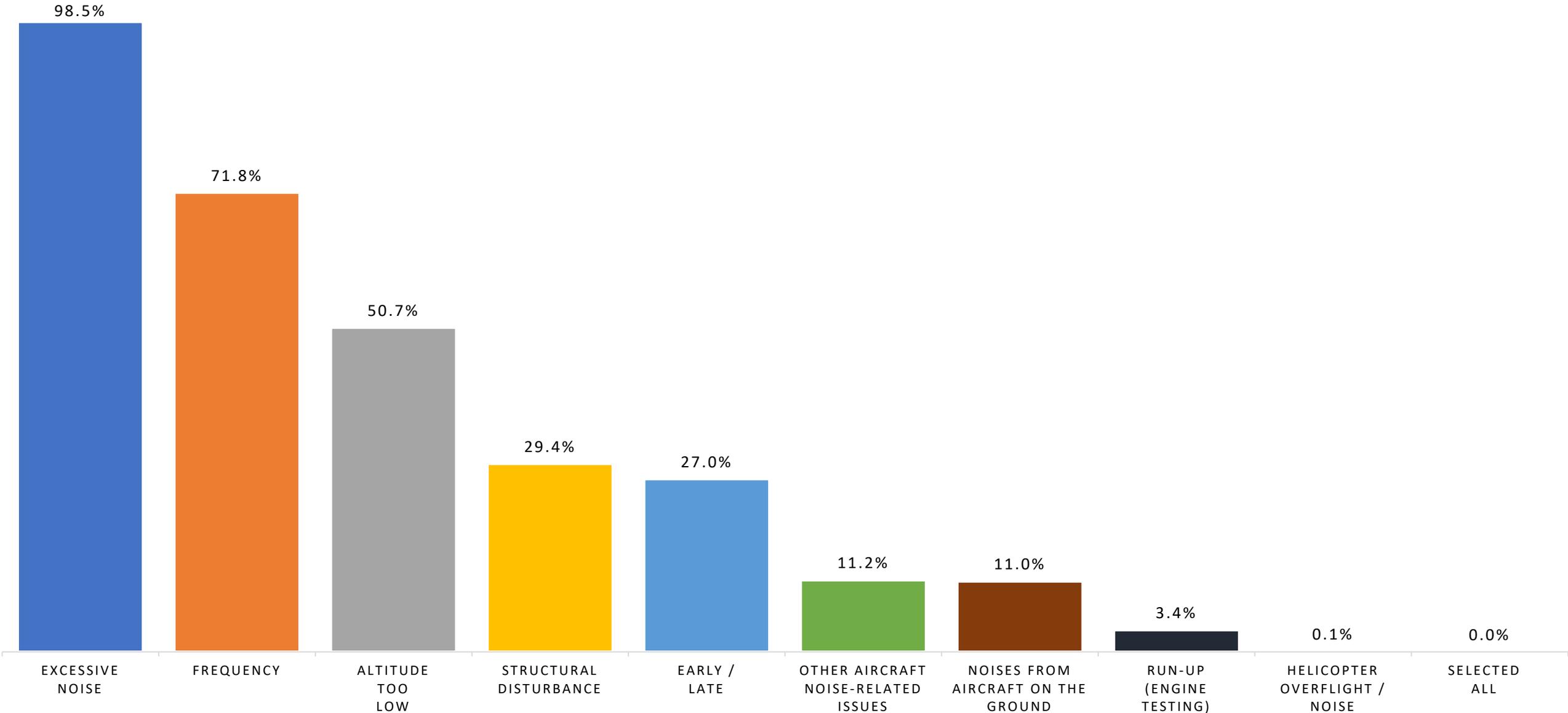


# 2021 & 2022 Complaints to Operations Ratio by Hour





# 2022 Complaints Filed By Complaint Reason





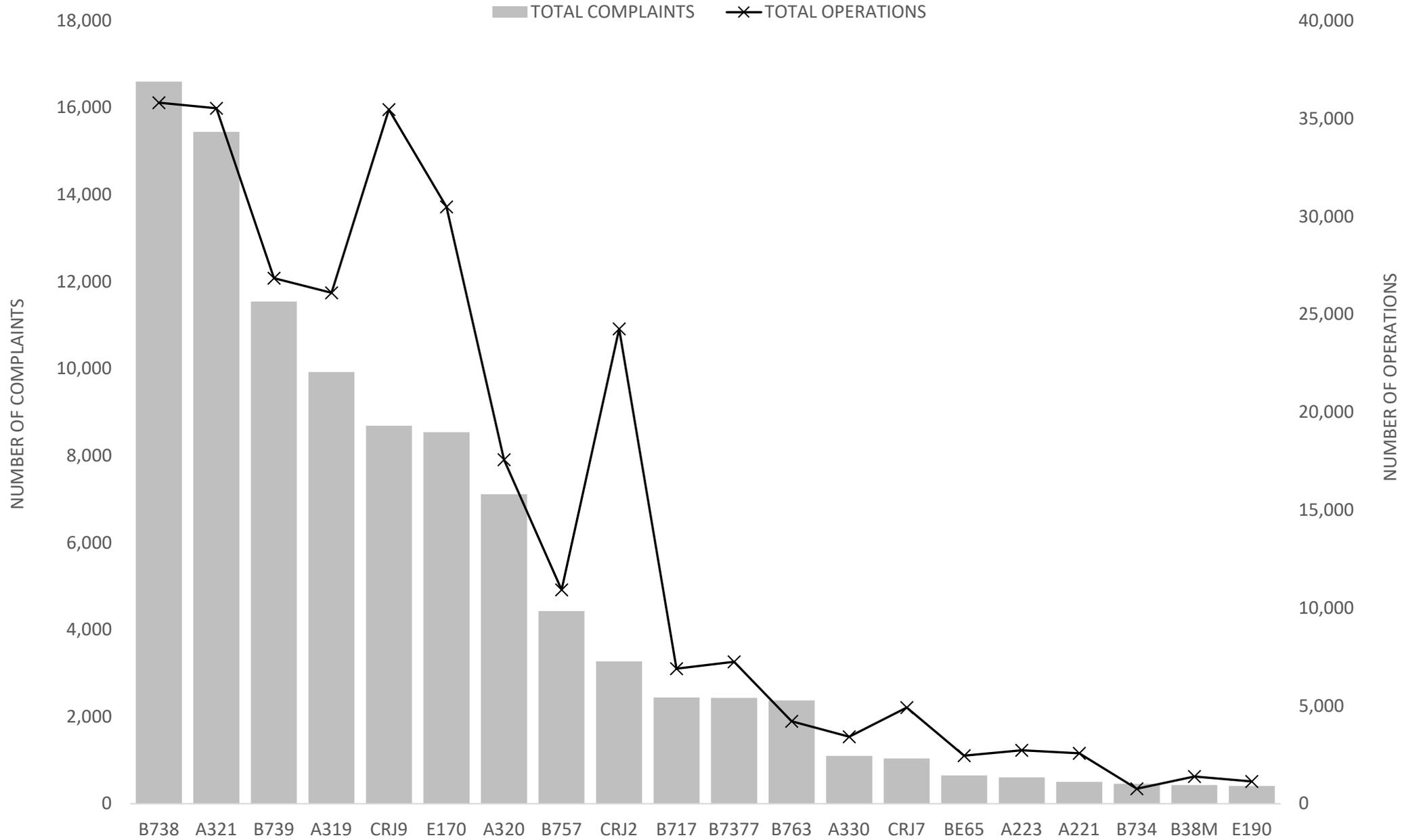
<b>Operation Type</b>	<b>Total Operations</b>	<b>Total Complaints</b>	<b>Ratio</b>
<b>Commercial Jet</b>	<b>284,965</b>	<b>99,330</b>	<b>2.9</b>
<b>Jet</b>	<b>11,786</b>	<b>1,257</b>	<b>9.4</b>
<b>Turboprop</b>	<b>5,371</b>	<b>882</b>	<b>6.1</b>
<b>Propeller</b>	<b>2,830</b>	<b>696</b>	<b>4.1</b>
<b>Unknown</b>	<b>1,091</b>	<b>45</b>	<b>24.2</b>
<b>Military</b>	<b>138</b>	<b>106</b>	<b>1.3</b>
<b>Helicopter</b>	<b>31</b>	<b>10</b>	<b>3.1</b>



**2022**  
**Complaints By**  
**Aircraft Category**



# 2022 Complaints By Aircraft Type





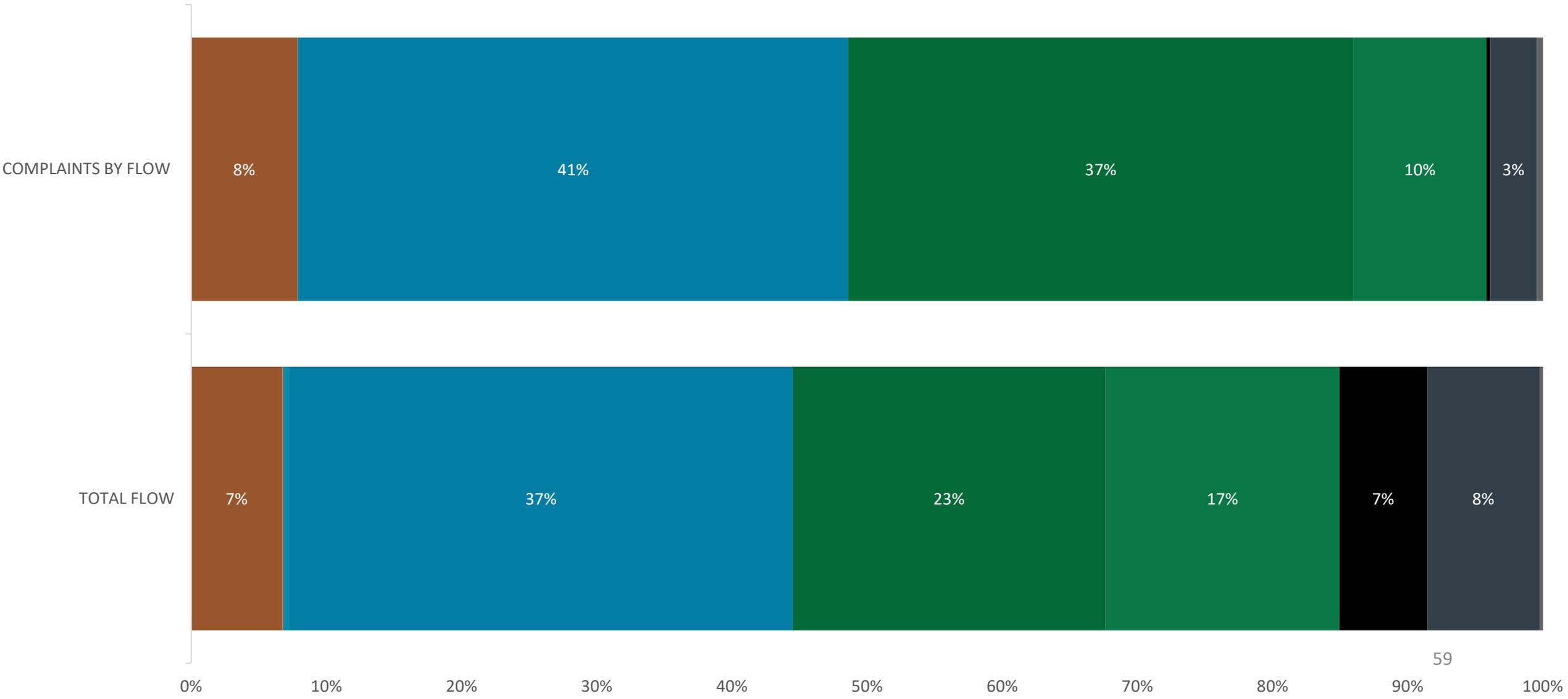
Operation Number	Aircraft Type	Flight ID	Date and Time	Number of Complaints	Number of Households
27918240	F35	NAVY	6/2/2022 12:07	48	47
27688893	B738	SCX745	3/20/2022 8:15	11	8
27931990	B763	FDX1618	6/6/2022 21:57	9	8
27683054	A320	NKS772	3/18/2022 6:51	11	7
28219819	B738	AAL1578	8/1/2022 21:47	15	7
28017434	A321	DAL2326	6/29/2022 21:24	7	7
28446551	B734	ASH185	10/5/2022 22:07	7	7
28229927	MD11	UPS559	8/12/2022 21:43	7	7
28530536	MD11	UPS559	10/31/2022 21:48	8	7
28528440	B738	AAL1325	10/31/2022 6:16	7	7

**2022**  
**Top 10 Flights**  
**That Generated**  
**Complaints**



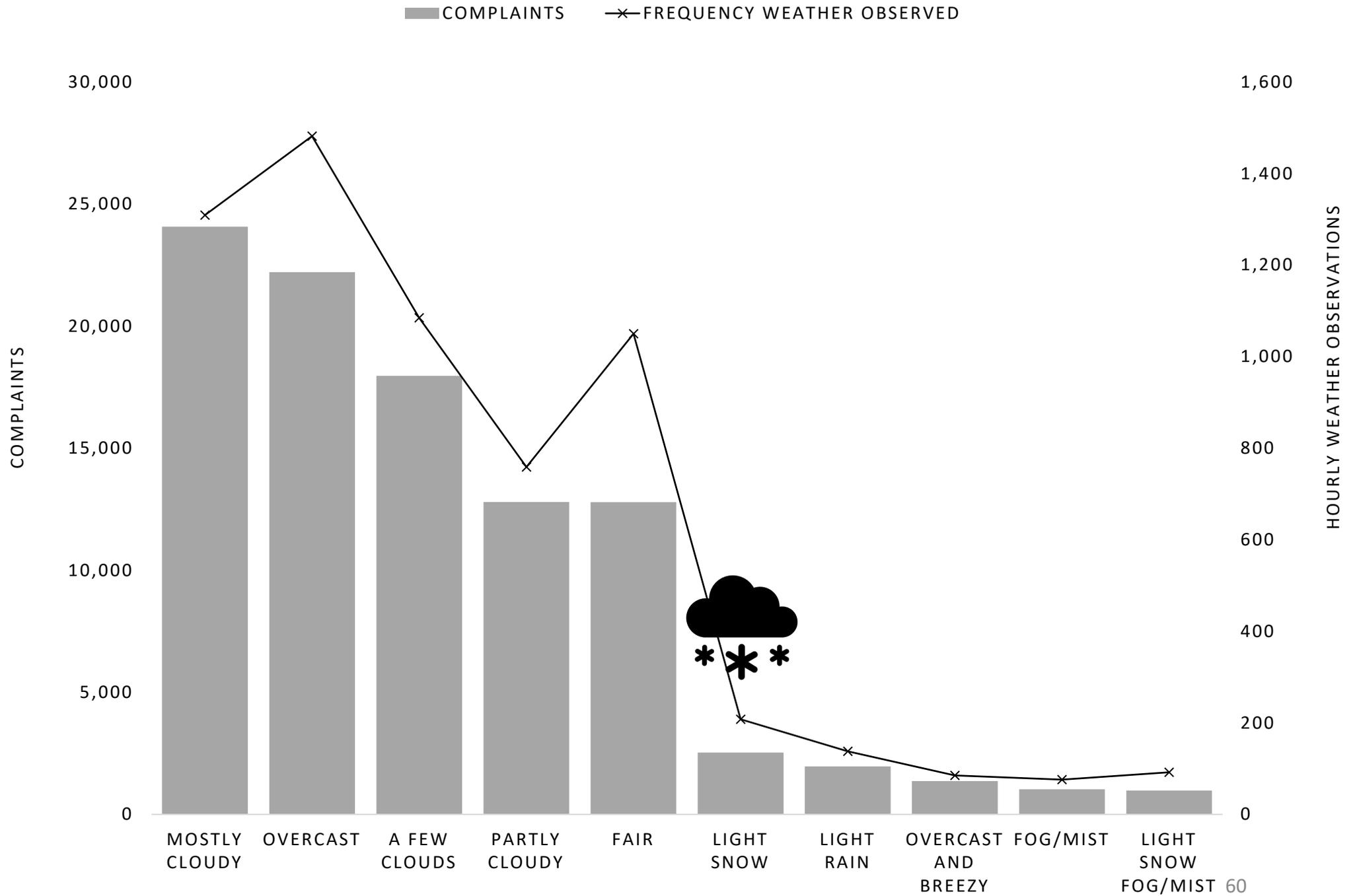
# 2022 Complaints By Flow

MIXED A MIXED B NORTH STRAIGHT NORTH SOUTH STRAIGHT SOUTH OPPOSITE UNLABELED UNUSUAL





# 2022 Complaints By Weather

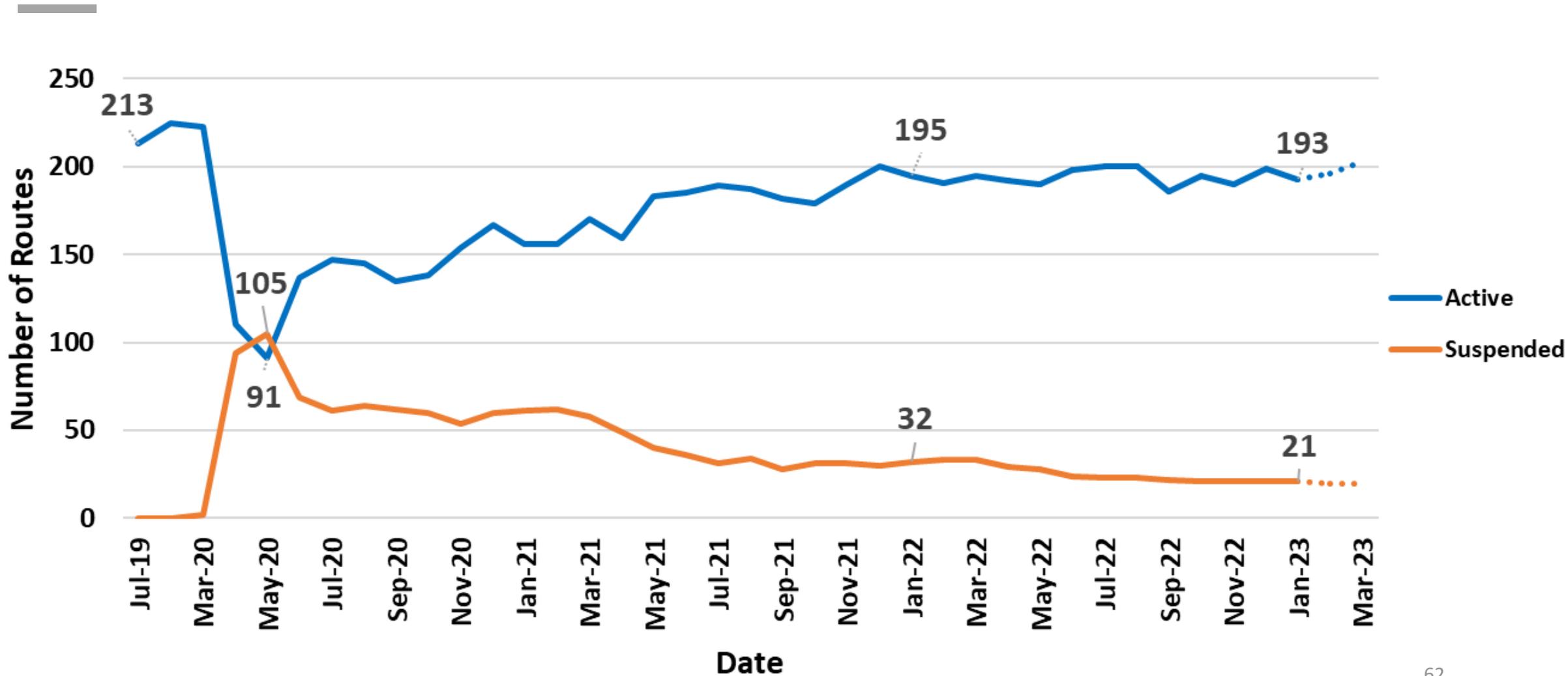


# 4.4 – MSP AIR SERVICE UPDATES

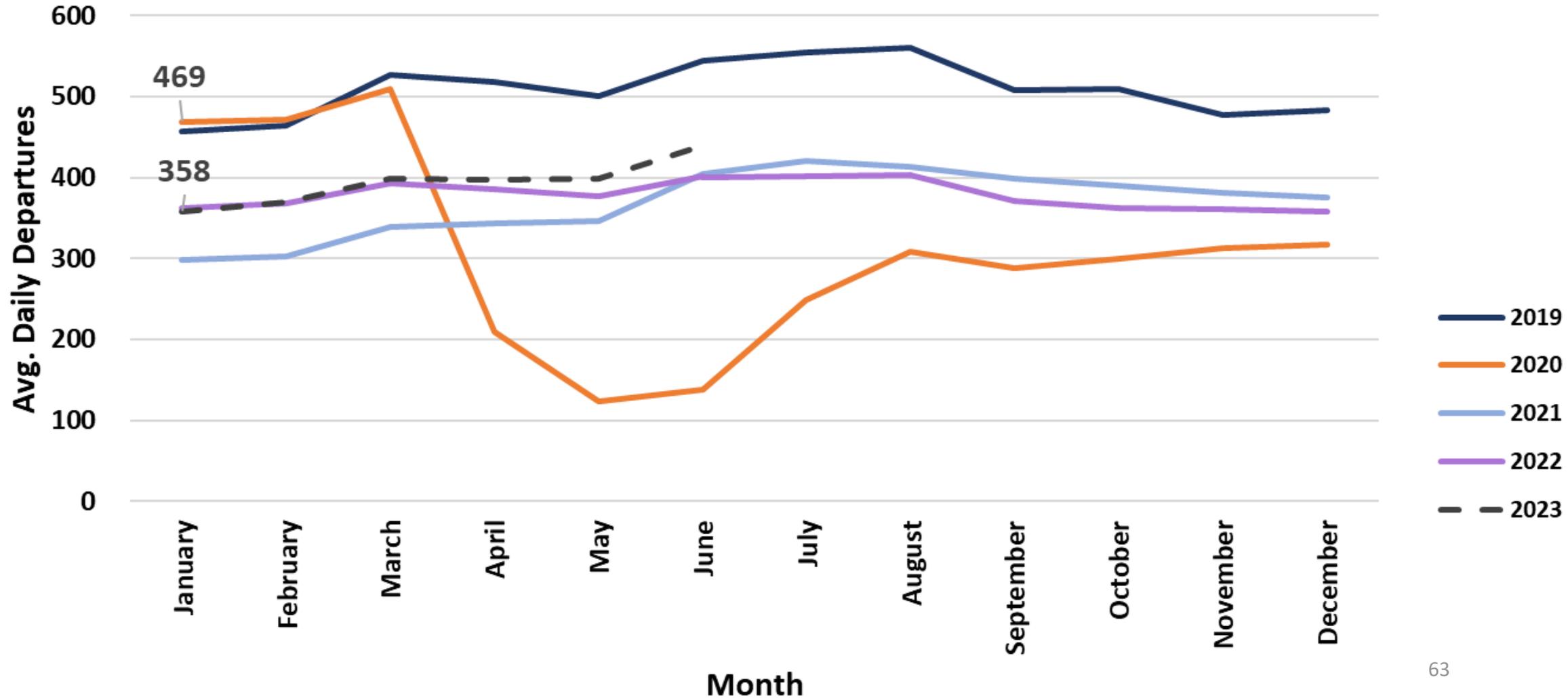


**NOISE OVERSIGHT COMMITTEE  
JANUARY 18, 2023**

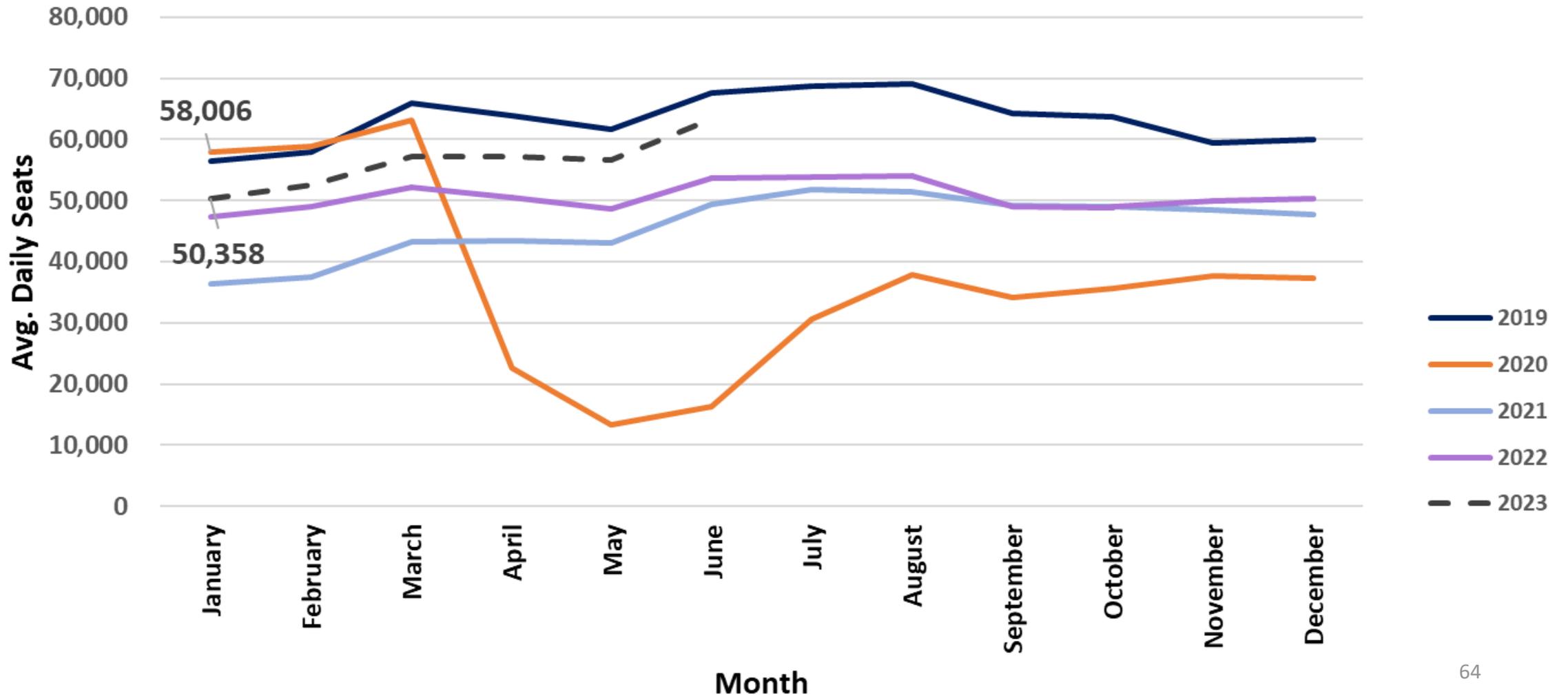
# MSP Direct Active / Suspended Routes



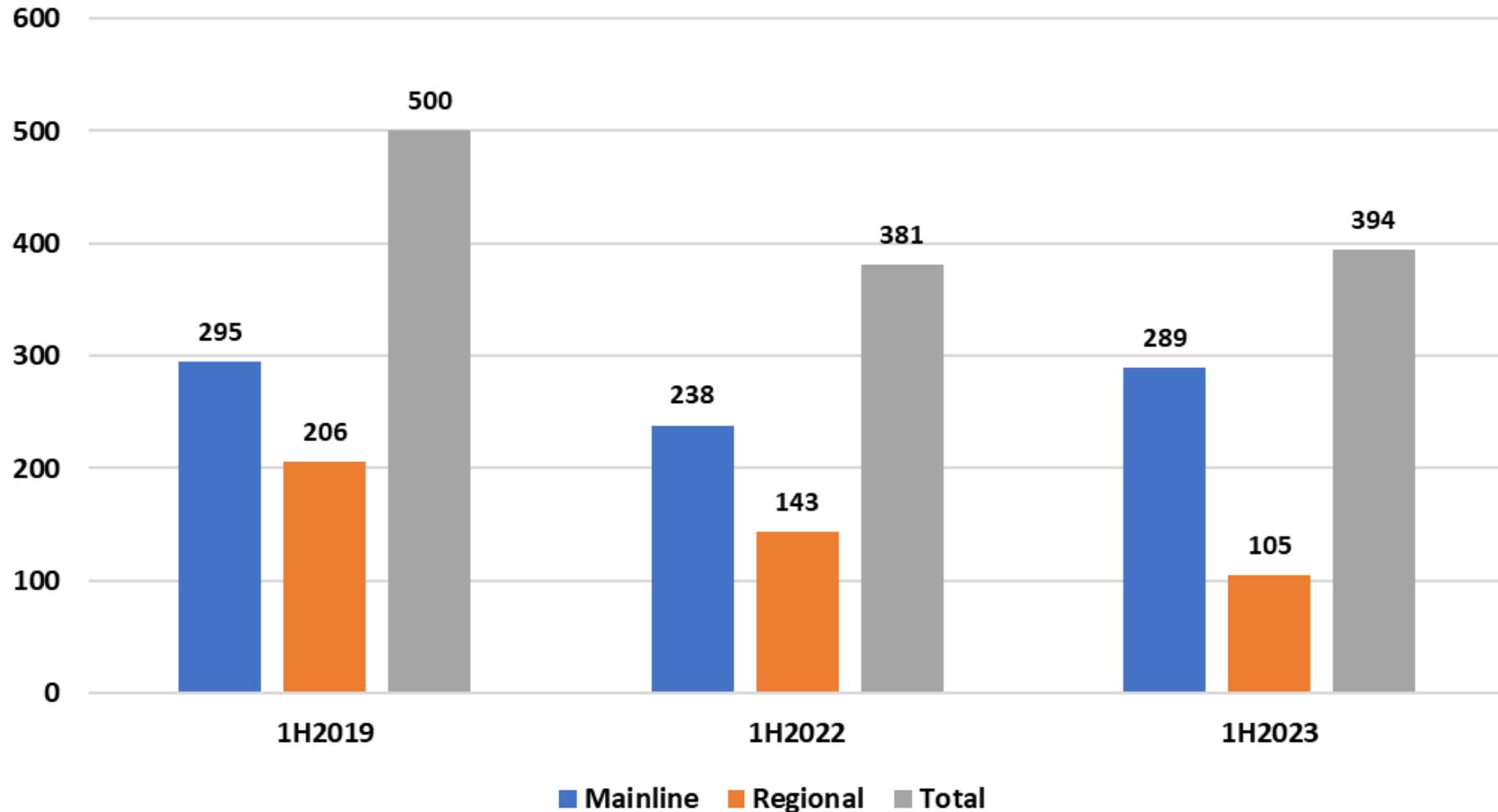
# MSP Average Daily Departures Scheduled by Month



# MSP Average Daily Departing Scheduled Seats



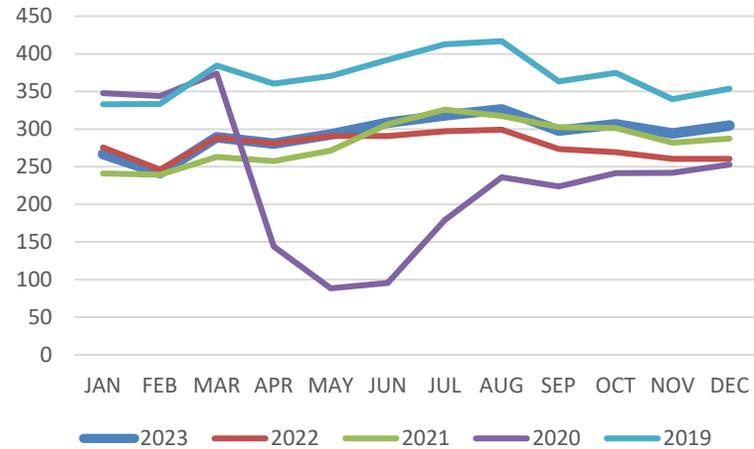
# MSP Passenger Airline Average Daily Departures by Aircraft Type



## DL MSP Scheduled Operations – 2019-2023

DL MSP Departures at ~80% of pre-covid levels.....

### DL MSP Avg Daily Departures



- Data shown is for flights operated thru JAN23 and for flights available for sale FEB23-DEC23
- Actual 2023 operations are subject to change

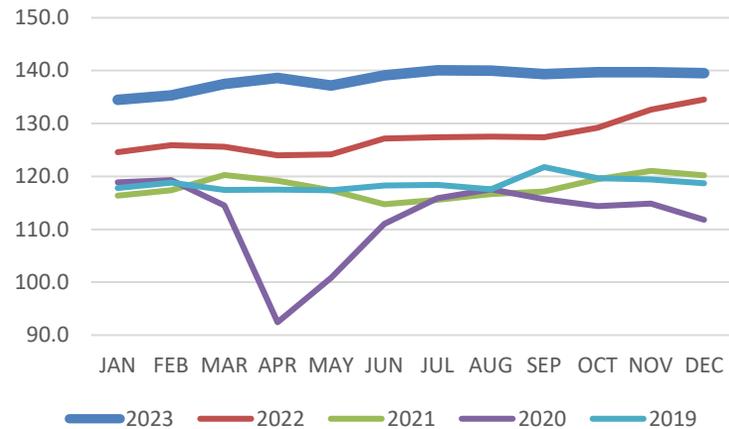
### Summer Schedule Highlights

- **Pacific** – HND restored on 330-900
- **Atlantic** - AMS #3 restored; CDG #2 starts May (from AF)
- **Canada** – increase frequencies to YVR, YYC and YWG
- **Domestic** – new service to CHS, JAX, AVL, BTV, COS, JAC, RNO; increased frequencies to AUS, SFO, SJC, BOS, PIT, SAT, PHL, ORD, DEN, MIA and FLL

## DL MSP Scheduled Operations – 2019-2023

...but total seats are recovered to ~95% due to ~17% growth in average gauge

### DL MSP Avg Gauge

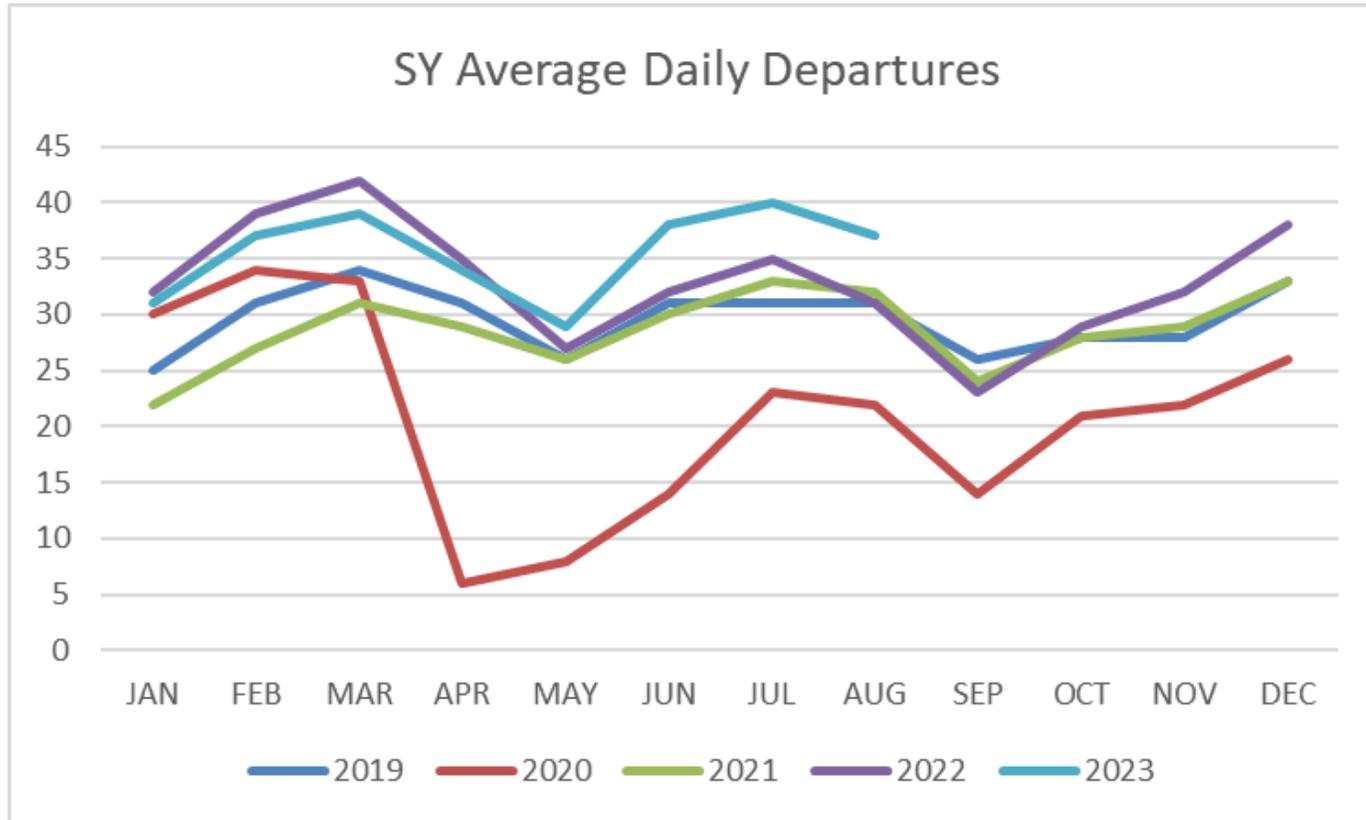


- Data shown is for flights operated thru JAN23 and for flights available for sale FEB23-DEC23
- Actual 2023 operations are subject to change

### Fleet Mix Evolution

- 757 departures decrease 43% YOY
- CRJ-200 departures decrease 27% YOY
- 737-800/900 departures increase 72% YOY
- Long-term plan is to remove all CRJ-200 and 757 aircraft
- 321ceo expected to be introduced in 2024

# Sun Country Service Update



## 2023 New destinations from MSP

- ACY
- CLT
- CMH
- COS
- DTW
- ILM
- JFK
- MCI
- MKE
- OMA
- RAP
- RIC
- SDF
- STL
- TVC

# ITEM 5

## ANNOUNCEMENTS

Winter Listening Session

Wednesday, January 25, 2023 @ 6:00 PM

March NOC Meeting

Wednesday, March 15, 2023 @ 1:30 PM



**NOISE OVERSIGHT COMMITTEE**  
**JANUARY 18, 2023**