Minneapolis-St. Paul International Airport
Noise Oversight Committee (NOC)

NOC Committee Members

Rich Benz	User Co-Chair Scheduled Airline Representative (Delta Air Lines)
Cheryl Jacobson	Community Co-Chair, City of Mendota Heights Representative
Sarah Alig	City of Eagan Representative (City of Eagan)
Grant Fitzer	Minnesota Business Aviation Association Representative
John Bergman	At-Large Community Representative (Apple Valley City Council)
Connor Arnold	At-Large Airport User Representative (Endeavor Air, Inc.)
Courtney Miller	City of Richfield Representative (City of Richfield)
John Klinger	Chief Pilot Representative (Delta Air Lines)
Emily Koski	City of Minneapolis Representative (Minneapolis City Council)
Dwayne Lowman	City of Bloomington Representative (Bloomington City Council)
Angie Moos	Cargo Carrier Representative (United Parcel Service)
Casey Potter	Charter/Scheduled Operator Representative (Sun Country Airlines)

MEETING AGENDA

November 20, 2024 at 1:30 PM

IN-PERSON AND VIRTUAL MEETING FORMATS AVAILABLE

MAC General Office Building, Legends Conference Room, 6040 28th Avenue S, Mpls, MN 55450

Microsoft Teams Link: Click here to join the meeting or **By Phone**: 612-405-6798, ID: 525 771 545#

Rich Benz, Delta Air Lines, will be the Chairperson for the meeting

Note: 1:00 to 1:30 PM – Committee Agenda Review Session

(NOC members, alternates, and at-large contacts only in the Coleman Conference Room)

1. **Consent**
   - 1.1. Approval of September 18, 2024, Meeting Minutes
   - 1.2. Reports
     - 1.2.1. Monthly Operations Reports: September and October 2024
     - 1.2.2. Review of Fall Listening Session
     - 1.2.3. Summary of Aviation-Related Research Initiatives
     - 1.2.4. Review of Residential Noise Mitigation Program Implementation Status
2. **Public Comment Period**
3. **Business**
   - 3.1. Review and Approval of the 2024 NOC Accomplishments, 2025 NOC Work Plan, and 2025 NOC Meeting Dates
4. **Information**
   - 4.1. MAC/MSP Update Brian Ryks, MAC Executive Director/CEO
   - 4.2. Runway 30L and 30R Departure Operations Report
5. **Announcements**

Adjourn

MSP NOISE OVERSIGHT COMMITTEE
DRAFT MEETING MINUTES
Wednesday, September 18, 2024, at 1:30 PM
MAC General Offices
6040 28th Avenue South
Minneapolis, MN 55450

Call to Order

A regularly scheduled meeting of the Minneapolis, Saint Paul International Airport (MSP) Noise Oversight Committee, (NOC) having been duly called, was held Wednesday, September 18, 2024, at the Metropolitan Airports Commission (MAC), General Offices, Legends conference room, a videoconference option was also provided. Chair Jacobson called the meeting to order at 1:30 p.m. The following participated in the meeting:

Representatives:	S. Alig, C. Arnold, R. Benz, J. Bergman, C. Jacobson, R. Jaeger, D. Lowman, C. Miller, A. Moos, L. Olson, C. Potter
Staff:	Y. Bizen, K. Fisher, J. Lewis, K. Martin, C. Metcalfe, P. Mosites, N. Pesky, M. Ross, M. Schommer, J. Sonju, M. Takamiya, J. Welbes, A. Miller
Others:	S. Fortier – FAA, K. Gallatin – St. Paul, B. S. Hammer-Smith, B. Hoffman – St. Louis Park, S. Norling, N. Rao – FAA, M. Ray - Burnsville, K. Regotti – FAA, M. Simmons – FAA, M. Thissen, J. Barnier, M. Johnson, B. Raker, D. O'Leary – Sunfish Lake, and others

A quorum of at least four Community and four User Representatives was established.

Community Representatives: Alig, Bergman, Jacobson, Lowman, Miller, Olson
Industry Representatives: Arnold, Benz, Fitzer, Jaeger, Moos, Potter

1. Consent

1.1. Approval of July 17, 2024, Meeting Minutes

1.2. Reports

1.2.1. **Monthly Operations Report: July and August 2024**

Carey Metcalfe, Assistant Technical Advisor, provided the following July/August operations updates prefacing that each month, the MAC reports information on MSP aircraft operations, aircraft noise complaints, sound levels associated with MSP aircraft operations, and compliance with established noise abatement procedures on its interactive reporting website: https://customers.macnoms.com/reports

July	August
• Total Operations: 31,008	• Total Operations: 31,062
• Nighttime Operations: 2,690	• Nighttime Operations: 2,416
• North/South/Mixed: 8/56/33(%)	• North/South/Mixed: 15/44/38 (%)
• RUS (Priority 1/2/3/4):24/45/0/30 (%)	• RUS(Priority1/2/3/4):30/43/0/26(%)
• RJ/Narrow/Wide: 22.9/73.1/4.0 (%)	• RJ/Narrow/Wide:23.0/72.9/4.1(%)
• Complaints: 19,314	• Complaints: 17,726
• Complaint locations: 336	• Complaint locations: 367
• Top 10 Households: 69%	• Top 10 Households: 57%
• Hours of events*: 372	• Hours of events*: 394
• Number of events*: 75,934	• Number of events*: 78,895
• R17 procedure: 98.3%	• R17 procedure: 98.2%
• EMH Corridor procedure: 95.2%	• EMH Corridor procedure: 91.5%
• Crossing procedure day: 39.4%	• Crossing procedure day: 37.8%
• Crossing procedure night: 28%	• Crossing procedure night: 28.3%
• RUS: 69.3%	• RUS: 73%

* Aircraft sound events above 65dB.

Questions:

Member Lowman asked a question about the sound monitoring sites which showed a decrease in events and he wondered what may have caused the decrease.

Metcalfe responded that some noise monitoring sites were down due to weather and a power outage.

Chair Jacobson asked for a motion to approve the Consent Agenda. Member Lowman moved to accept the consent agenda and Member Olson seconded. The motion carried by unanimous vote.

2. Public Comment Period

There were no public comments.

3. Business

3.1. Nomination and Election of User Co-Chair

Michele Ross, Technical Advisor, provided some background information about the User Co-Chair election. Member Buckley, Delta Airlines, served in the role since January 2024. He has recently moved to Atlanta so he is no longer able to serve on the committee.

The Noise Oversight Committee consists of equal representation of airport users and community representatives, and each is represented by a Co-Chair. The Airport User representatives will vote to elect their chairperson. Only the Airport User representatives can participate in the vote for their Chair.

Per NOC bylaws the role of the Co-chair is to alternate chairing the NOC meeting, provide input, approve agenda items, call special meetings as necessary, and sign documents. The Airport User Co-chair will serve the remainder of the term from September 18 through June

2025.

Action Requested:
CONDUCT AIRPORT USER CO-CHAIR NOMINATIONS AND ELECTIONS TO ESTABLISH THE AIRPORT USER CO-CHAIR TO SERVE FROM SEPTEMBER 18, 2024, THROUGH JUNE 25, 2025.

Member Arnold nominated Member Benz and Member Jaeger seconded the nomination. There were no other nominations. Member Benz was elected serve as User Co-chair via unanimous voice vote.

4. Information

4.1. MSP Runway Construction Update

Pat Mosites, Project Manager Airport Development, reported that the airfield electrical work was almost finished along with the grooves and the markings for the new pavement. On September 21, at 4pm, the runways will be open for MAC Operations to do a safety check and upon completion they will notify ATC that the runways can be opened for traffic.

Member Olson asked if a communication could be sent out to let people know that construction is wrapping up and full airport operations will be resuming. She asked that it include details on the 2025 construction schedule as well.

Michele Ross, Technical Advisor, replied that she would be presenting more information on the topic, which should answer Member Olson's question, and apologized for any confusion.

Ross presented three months of data gathered June through August of this year representing noise complaint activity during the construction period. Total operations increased seven percent overall. Comparing June through August of 2024 to 2023, there was an increase in nighttime operations (10 P.M. to 6 A.M.) which based on conversations with air traffic control was likely due to both the reduction of available runways, as well as a result of summer weather activity not only here but also in other areas of the country which can affect downline operation by pushing arrivals later and in some cases into nighttime hours. In the 5 A.M to 6 A.M hours there was a slight reduction in activity; the total percentage of operations that occurred during the day for both 2023 and 2024 was about the same at 87%.

Regarding runway use, in 2023 about 20% of arrivals occurred on runway 12L, and 18% of arrivals occurred on runway 30R. There was a significant change to the use of runway 35. In 2023 this runway was used only 2% of the time for arrivals during the summer months. In 2024, as a result of the construction, runway 35 was used 45% of the time and Community Relations team reported that they heard from residents in the areas that those arrivals overflew.

In terms of the number of complaints received in July and August, there were increases from some communities and decreases from others. When construction is finished and runways reopen, there may be a reduction in complaints from communities that were more heavily overflown due to reduced runway availability and there may be an increase in

complaints from other communities as air traffic resumes a more typical pattern with full runway access.

Regarding departure activity in the months of June, July and August, Runway 30R had 19% of departures in 2023 and 12L had 16% of departures. There are no corresponding 2024 percentages for those runways due to the runway closures. Runway 17 was used about 6% more often and runway 30L was used about the same at about 22% of departures. The largest increase in departures was on runway 12R which increased from 9% in 2023 to 36% in 2024. The Mixed B runway configuration at MSP is arrivals on runway 35 and departures from 12R. With the increases in arrivals on runway 35 there is a corresponding increase in the Mixed B configuration of departures on runway 12R.

In terms of noise complaints received in the months of June, July, and August, in 2024 there were decreases in the households filing complaints from the cities of Richfield, Edina, St Louis Park, Minneapolis, and St Paul. There were 67 fewer households that filed complaints in Minneapolis, and 10 fewer households that filed complaints in the city of Richfield. Increases in households filing complaints in the same time period were seen from the City of Eagan with 6 additional households, the City of Bloomington had 10 additional households, and the City of Apple Valley had 73 additional households that filed complaints this year compared to 2023. When the runways re-open, and traffic is distributed among the open runways these complaint patterns may change.

Communication about the 2024 construction project will be ongoing. The web page will be updated, and information sent out early next week, once the runways have reopened. Information regarding 2025 runway construction plans will also be sent out. The south parallel runways 12R / 30L will be closed next summer for two separate 6-week periods between April and May, and again between August and September of 2025. More information can be found on the website: https://metroairports.org/runway-construction

Questions:

Member Olson asked a question regarding the Household Filing Complaints slide in the presentation. For the people who experienced an increase compared to last year. How many complaints are we talking about and what is the difference?

Ross answered that the illustration on the slide shows the number of households filing complaints. The City of Bloomington had ten additional households that filed complaints, but there were only about 125 additional complaints that were filed. The City of Apple Valley had thousands of additional complaints in addition to 75 additional households. The lighter pink on the map represents 10 or fewer households that filed complaints. The darker pink represents 20 to 25 additional households filing complaints. The darker red is more than fifty additional households that filed complaints. In Minneapolis, there were about 2,000 fewer complaints in addition to the decrease in the number of households.

Member Olson said that she was interested to see what could be learned about noise complaints with the reduced runway conditions. She went on to say that she thinks some people who were negatively impacted might have withheld their complaints due to understanding the need for the construction project and its limited time duration.

Member Bergman, City of Apple Valley, mentioned that he resides under the flight path and the first time he experienced the airplane noise he was surprised by how loud it was. He went on to say that airplane noise is significantly increased when the plane's landing gear is down and that pilots are not supposed to lower the landing gear until they are in the area of highway 35E, 3.1 nautical miles from MSP. This is where the airplanes come in and line up with runway 17/35.

Member Olson thanked Member Bergman for sharing his experience. She mentioned that arrivals on Runway 35 are not very common though there was a significant increase due to the construction. She asked if data could be reviewed to parse out how much noise was specifically related to airplanes with their landing gear down versus planes over the area lining up to land. The people sending in complaints may not be typically affected by departures because planes tend to turn before reaching this area.

Member Bergman said that the FAA made a point of specifying when airplane landing gear should be in place although there are exceptions. The airplane noise has been excessive and sometimes it's the 5 A.M. flights coming from the West Coast and banking hard to line up for the runway with their wheels down. That's where the City of Apple Valley complaints are coming from and that's what's represented here in the slide.

Ross said that there was a significant increase in the number of arrivals that were using the runway. It went from 2% in 2023 to 45% in 2024, which is a big difference in terms of the number of aircraft that were over flying the area. She agreed that was probably a large part of the complaints and consistent with what was heard from residents who were not used to that type of activity and that they were hoping that traffic could be more dispersed around the airport. Most people that Community Relations spoke to understood that the construction was necessary, but it was still impactful to them.

Ross mentioned that she coordinated with air traffic control and reached out for more information about the wheels down issue to see if that could be addressed and will continue to investigate that, especially going into the runway construction period next year. She noted that the use of Runway 35 for arrivals used to represent about 12% to 13% of arrivals back in about 2013/2014 and so at this time the usage has gone down for several for reasons. When the runways reopen and both parallels available for arrivals, ATC has said that they do not anticipate that usage as high as 45% will continue, but there may be an opportunity to utilize runway 35 more often as it is the second priority runway for arrivals at MSP in terms of the runway use system. Usage may be in the 10% to 15% range; it is a demand and capacity issue when they use that runway.

Chair Jacobson thanked Ross and asked her to speak about the Mendota Heights data specifically due to the increase in complaints from Mendota Heights residents as planes were departing off of 12R.

Ross replied that typically, when both runways are open, departures from Runway 12L utilize a 105° departure heading in order to maintain separation. During construction there was an increase in the number of departures off of Runway 12R being assigned a105° departure heading because there were no aircraft on Runway 12L being assigned that

heading. Those aircraft were turning over Mendota Heights. As Metcalfe had reported, there was still high use of crossing in the corridor and the Eagan Mendota Heights corridor best practices, but they were crossing over the city in different ways than people were used to. Looking at construction communication, there was perhaps an expectation there would be no traffic over that area with the closure of that runway, so having traffic in different places is something that the MAC can work to better communicate in 2025 construction.

Chair Jacobson agreed and said that she thought that Mendota Heights residents had been under the impression that they would have a quieter summer and were surprised with the aircraft turning in areas that hadn't seen before and that it would be important to try to explain that a differently in the next construction season.

4.2. Draft 2025 Work Plan

Michele Ross, Technical Advisor, shared that a 2025 NOC draft work plan has been assembled and included in today's meeting packet. The items included are only a starting point of important work items that the NOC undertakes each year as well as requests to FAA to receive important updates. The work plan will be finalized at the November 20 NOC meeting and input from NOC members is welcome any time before that date.

The Fall Listening Session, October 23rd, will be a brainstorming session with airport neighbors to solicit input on items they may like to see on the Work Plan. Their recommendations will be brought to the committee in November.

Questions:
Member Lowman mentioned that at a past community meeting in Richfield a guest speaker had presented information regarding environmental impacts.

Ross said that she would look into his request.

Chair Jacobson asked about how members can request an action item.

Ross stated that NOC members are welcome to email her with their agenda item requests up until the November NOC meeting when the work plan would be finalized.

5. Announcements

November NOC Meeting:
Wednesday, November 20, 2024 @ 1:30 pm
Location: MAC General Offices, Legends conference room + Teams

NOC Fall Listening Session:
Wednesday, October 23, 2024 @ 6:00 pm
Location: MAC General Offices + Teams
Listening Session website

Member Olson mentioned the State of the Airport meeting will be held September 26.

The meeting was adjourned at 2:20 PM.

MEMORANDUM

ITEM 1.2.1

TO: MSP Noise Oversight Committee (NOC)

FROM: Carey Metcalfe, Assistant Manager, Community Relations

SUBJECT: **REVIEW OF MSP MONTHLY OPERATIONS REPORTS: SEPTEMBER AND OCTOBER 2024**

DATE: November 6, 2024

Each month, the MAC reports information on MSP aircraft operations, aircraft noise complaints, sound levels associated with MSP aircraft operations, and compliance with established noise abatement procedures on its interactive reporting website:
customers.macnoms.com/reports.

At the November NOC meeting, MAC staff will provide a summary of this information for September and October 2024. To view these summary reports prior to the meeting, visit the "Archive" section at the link above.

MEMORANDUM

ITEM 1.2.2

TO: MSP Noise Oversight Committee (NOC)

FROM: Carey Metcalfe, Assistant Manager, Community Relations

SUBJECT: **REVIEW OF FALL LISTENING SESSION**

DATE: November 6, 2024

One of the elements of the framework for the MSP Noise Oversight Committee (NOC) includes convening a quarterly meeting with the public. This report reviews the recently held Fall Listening Session.

The primary goal of Listening Session meetings is to ensure residents' concerns are heard and considered as part of the ongoing effort by the MAC and the NOC to address noise and other topics around MSP.

On October 23, 2024, at 6:00 P.M., MAC Community Relations staff conducted a Listening Session at MAC General Offices and via Teams. Attendees included two residents from Minneapolis. Also in attendance were NOC members Rich Benz, Cheryl Jacobson, Loren Olson, Courtney Miller, Sarah Alig and staff from the FAA and the MAC.

During the fall listening session, MAC staff typically request work plan item suggestions for the coming year. Staff provided a brief overview of past work plans and the draft work plan for 2025. After the presentation, staff opened the floor to discussion. There were no suggestions for 2025 NOC Work Plan items; however, the Minneapolis residents had multiple questions related to noise mitigation and noise contours.

The next Listening Session is anticipated to be held at the MAC General Office on January 22, 2024 at 6 P.M. Additional information will be made available on the Listening Session website.

At the November meeting, staff will be available to answer questions on this item.

MEMORANDUM

ITEM 1.2.3

TO: MSP Noise Oversight Committee (NOC)

FROM: Jennifer Lewis, Community Relations Coordinator

SUBJECT: **SUMMARY OF AVIATION-RELATED RESEARCH INITIATIVES**

DATE: November 6, 2024

In accordance with the 2024 NOC Work Plan, MAC staff have enclosed an updated listing of aviation-related research initiatives pertaining to aircraft noise, technology, human health, and environmental topics.

A summary of the research projects that were completed, active, initiated, or anticipated in 2024 or 2025 is provided in the attached report, and includes work by the Transportation Research Board (TRB), the FAA's Centers of Excellence (ASCENT), and other researchers.

Aviation-Related Research Summary

Summary of Research Related to Aircraft Noise, Technology, Human Health, and Environmental Topics Pertaining to Aircraft Operating at Minneapolis-St. Paul International Airport

October 2024

Contents

Introduction

Research is ongoing by various agencies in the U.S. and across the globe to evaluate the effects of aviation noise and other environmental impacts associated with aircraft operations. Much of this research explores technological solutions and leverages evolving science.

This summary provides a description of research efforts in 2024 that are most applicable to passenger service airports like Minneapolis-St. Paul International Airport (MSP) and are highlighted for consideration by the MSP Noise Oversight Committee (NOC) for future exploration.

Federal Aviation Administration (FAA)

Noise Policy Review

Aircraft Noise Advisory Committee (ANAC)

In accordance with the FAA Reauthorization Act of 2024, passed on May 16, 2024, the FAA revised its Noise Policy Review (NPR) approach and timelines as needed to comply with Congressional directives in the Act.

Pursuant to Section 792 of the Act, the FAA is required to form an Aircraft Noise Advisory Committee (ANAC) comprised of representatives from stakeholders across the aviation industry, institutions of higher education, and community representatives. The goal of the ANAC is to advise the FAA on issues facing the aviation community that are related to aircraft noise exposure and existing FAA noise policies and regulations.

The work conducted by the ANAC will include recommendations that may inform and be considered in the FAA Noise Policy Review changes.

Airport Noise Compatibility Program

Section 786 of the FAA Reauthorization Act of 2024 directs FAA to update the Airport Noise Compatibility Program regulations (14 C.F.R. part 150), which provides framework for evaluating land uses compatible with various levels of aviation-related noise exposure; and the program prescribes a process for aviation noise measurement and evaluation.

Here is a link to the FAA's website to learn more: https://www.faa.gov/noisepolicyreview

Special Federal Aviation Regulation (SFAR)

The FAA announced in October 2024 that it finalized Special Federal Aviation Regulations (SFAR) that establish requirements for safe and efficient integration of advanced air mobility (AAM) aircraft into the national airspace system. AAM aircraft include electric powered-lift aircraft such as those with vertical takeoff and landing (EVTOL) capability.

The SFAR also specifies flight training standards and requirements for pilot certification.

More information is available here: https://www.faa.gov/newsroom/new-rule-faa-ready-air-travel-future

National Sleep Study

The FAA is in the process of conducting a National Sleep Study. The Study was expected to be completed by September 2024, however, the completion timeframe is currently estimated to be in March 2026 and involves collecting information from study participants related to the effects of aircraft noise on their sleep. The FAA stated it will use the information from this collection to inform potential updates to or validation of the national aviation noise policy.

More information may be found: https://clinicaltrials.gov/study/NCT05035940

Research Agency Overview

Research collaborations are conducted on an ongoing basis and managed through the Transportation Research Board (TRB) and ASCENT.

Information about each research agency and their respective projects is accessible through the website links provided below and in **Table 1: Research Agency Projects 2024** on the following pages.

A. Transportation Research Board

The mission of the Transportation Research Board (TRB) promotes innovation and progress in transportation through research. According to the TRB website, the organization facilitates the sharing of information on transportation practice and policy by researchers and practitioners; stimulates research and offers research management services that promote technical excellence; provides expert advice on transportation policy and programs; and disseminates research results broadly and encouraged their implementation.

The Airports Cooperative Research Program (ACRP) is sponsored by the Federal Aviation Administration (FAA) and managed by the National Academies through TRB. ACRP research topics are selected by an independent governing board appointed by the U.S. Secretary of Transportation that includes individuals from airports, universities, FAA, and the aviation industry.

For more information: http://www.trb.org/AboutTRB/AboutTRB.aspx

B. ASCENT

The Aviation Sustainability Center, called ASCENT—previously referred to as the FAA's Center of Excellence program—conducts aviation-related research to develop "science-based" solutions to challenges posed by aircraft operations. Projects undertaken by ASCENT are funded by the FAA, NASA, DOD, Transport Canada, and the US EPA.

For more information: https://ascent.aero/

Table 1: Research Agency Projects 2024				
Agency	**Project #**	**Project Title**	**Project URL**	**Status**
TRB	02-95	***Understanding Airport Air Quality and Public Health Studies Related to Airports: An Update to ACRP Report 135***	http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5083	***Completed***
TRB	02-96	***Update ACRP Report 99: Guidance for Treatment of Airport Stormwater Containing Deicers***	http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5084	***Completed***
TRB	02-99	***Incorporating Environmental Justice and Equity Principles and Data into Airport Decision-Making***	http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5200	***Completed***
TRB	03-71	***Guidance for Planning for Future Electric Vehicle Growth at Airports***	http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5399	***Phase I Completed. Phase II In Progress***
TRB	03-72	***A Guide on the Economic Impacts of E-Commerce on Airports and Airport Stakeholders***	http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5400	***Underway***
TRB	03-73	***Airport Guide for Transitioning to Unleaded Aviation Gasoline***	http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5401	***Underway***
TRB	03-75	***Preparing for Hydrogen at Airports***	http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5580	***Underway***
ASCENT	3	***Cardiovascular disease & aircraft noise exposure***	https://ascent.aero/project/noise-impact-health-research/	***Annual Report 2023***
ASCENT	18	***Health impacts quantification for aviation air quality tools***	https://ascent.aero/project/health-impacts-quantification-for-aviation-air-quality-tools/	***Annual Report 2023***
ASCENT	22	***Evaluation of FAA climate tools***	https://ascent.aero/project/evaluation-of-faa-climate-tools/	***Annual Report 2023***

Table 1: Research Agency Projects 2024				
Agency	**Project #**	**Project Title**	**Project URL**	**Status**
ASCENT	23	***Analytical approach for quantifying noise from advanced operational procedures***	https://ascent.aero/project/analytical-approach-for-quantifying-noise-from-advanced-operational-procedures/	***Annual Report 2023***
ASCENT	37	***CLEEN II technology modeling & assessment***	https://ascent.aero/project/cleen-ii-technology-modeling-and-assessment/	***Annual Report 2023***
ASCENT	44	***Aircraft noise abatement procedure modeling & validation***	https://ascent.aero/project/aircraft-noise-abatement-procedure-modeling-and-validation/	***Annual Report 2023***
ASCENT	51	***Combustion concepts for the next-generation aircraft engines***	https://ascent.aero/project/combustion-concepts-for-the-next-generation-aircraft-engines/	***Annual Report 2023***
ASCENT	52	***Comparative assessment of electrification strategies for aviation***	https://ascent.aero/project/comparative-assessment-of-electrification-strategies-for-aviation/	***Annual Report 2023***
ASCENT	53	***Validation of low-exposure noise modeling by open-source data management & visualization systems integrated with AEDT***	https://ascent.aero/project/validation-of-low-exposure-noise-modeling-by-open-source-data-management-and-visualization-systems-integrated-with-aedt/	***Annual Report 2023***
ASCENT	54	***AEDT evaluation & development support***	https://ascent.aero/project/aedt-evaluation-and-development-support/	***Annual Report 2023***
ASCENT	55	***Noise generation & propagation from advanced combustors***	https://ascent.aero/project/noise-generation-and-propagation-from-advanced-combustors/	***Annual Report 2023***
ASCENT	61	***Noise certification streamlining***	https://ascent.aero/project/noise-certification-streamlining/	***Annual Report 2023***
ASCENT	67	***Impact of fuel heating on combustion and emissions***	https://ascent.aero/project/impact-of-fuel-heating-on-combustion-and-emissions/	***Annual Report 2023***

Table 1: Research Agency Projects 2024				
Agency	**Project #**	**Project Title**	**Project URL**	**Status**
ASCENT	72	***Aircraft noise exposure and market outcomes in the us***	https://ascent.aero/project/aircraft-noise-exposure-and-market-outcomes-in-the-us/	***Annual Report 2023***
ASCENT	75	***Improved engine fan broadband noise prediction capabilities***	https://ascent.aero/project/improved-engine-fan-broadband-noise-prediction-capabilities/	***Annual Report 2023***
ASCENT	80	***Hydrogen and power-to-liquid (ptl) concepts for sustainable aviation fuel production***	https://ascent.aero/project/hydrogen-and-ptl-concepts-for-sustainable-aviation-fuel-production/	***Annual Report 2023***
ASCENT	82	***Integrated Noise and CO2 Standard Setting Analysis***	https://ascent.aero/project/integrated-noise-and-co2-standard-setting-analysis/	***Annual Report 2023***
ASCENT	84	***Noise Modeling of Advanced Air Mobility Flight Vehicles***	https://ascent.aero/project/noise-modeling-of-advanced-air-mobility-flight-vehicles/	***Annual Report 2023***
ASCENT	86	***Study on the use of broadband sounds to mitigate sleep disruption due to aircraft noise***	https://ascent.aero/project/study-on-the-use-of-broadband-sounds-to-mitigate-sleep-disruption-due-to-aircraft-noise/	***Annual Report 2023***
ASCENT	93	***Collaborative Research Network for Global SAF Supply Chain Development***	https://ascent.aero/project/collaborative-research-network-for-global-saf-supply-chain-development/	***Annual Report 2023***
ASCENT	94	***Probabilistic Unmanned Aircraft Systems (UAS) Trajectory and Noise Estimation Tool***	https://ascent.aero/project/probabilistic-unmanned-aircraft-systems-uas-trajectory-and-noise-estimation-tool/	***Annual Report 2023***
ASCENT	96	***Future Transportation System Opportunities and Constraints***	https://ascent.aero/project/future-transportation-system-opportunities-and-constraints/	***Planned***
ASCENT	101	***Sustainable Aviation Fuel Repository***	https://ascent.aero/project/sustainable-aviation-fuel-repository/	***Planned***
ASCENT	102	***Assessment of Contrail Formation via Combustion of Sustainable Aviation Fuel***	https://ascent.aero/project/assessment-of-contrail-formation-via-combustion-of-sustainable-aviation-fuel/	***Planned***

International Civil Aviation Organization (ICAO)

ICAO provides updates to its initiatives regarding environment and aircraft noise, which includes a policy based on a balanced approach to aircraft noise management since 2001. More information is available here: https://www.icao.int/environmental-protection/Pages/noise.aspx

Other Noteworthy Research Efforts

A. Advanced Air Mobility (AAM)

Electric and Hybrid Aircraft at NBAA-BACE

Aircraft powered by electricity and hybrid power have been in development for decades; however, technology advancements have enabled these types of aircraft to move from concept and prototype into testing. The following aircraft manufactures were highlighted and displayed their AAM aircraft during the recent National Business Aviation Administration Business Aviation Convention and Exposition (NBAA-BACE) held in October 2024.

Electra

Electra developed a hybrid-electric Ultra Short Take-off and Landing (ESTOL) aircraft designed to takeoff and land within 150-300 feet. The sound level is reported at or below 55 decibels at 500 feet altitude, and the aircraft is considered less expensive and produces fewer emissions than fixed-wing aircraft, helicopters or electric vertical takeoff and landing (EVTOL) aircraft. The company's website is: https://www.electra.aero/

Lilium

Lilium claims it is developing the first fully-electric vertical take-off and landing jet, which is intended to serve a regional jet market. The aircraft is currently in testing and achieves speed of a jet and versatility of a helicopter. The company's website is: https://lilium.com/

Joby Aviation

Joby created a fully-electric vertical takeoff and landing aircraft (EVTOL) that is currently being testing for certification in urban areas for use as an air taxi and aerial ridesharing. It is reported to be quiet, fast, and versatile. The company's website is: https://www.jobyaviation.com/

Beta

Beta has developed two versions a fully-electric Alia aircraft: A250 Vertical (VTOL), and CX300 Conventional Takeoff & Landing (CTOL). Both configurations are designed to meet passenger and cargo needs. There is a mobile charging capability. The company's website is: https://www.beta.team/

EcoPulse

While this aircraft was not present at the NBAA-BACE, it is noteworthy to highlight an update to EcoPulse because it took its first flight on November 29, 2023. EcoPulse is the culmination of collaboration with Airbus, Daher and Safran in France to develop a distributed hybrid-electric aircraft demonstrator. The design leverages the benefits of distributed propulsion to improve aircraft performance.

Read more here https://www.daher.com/en/ecopulse/

B. NASA and Boeing Partnership

The National Aeronautics and Space Administration (NASA) continues to partner with Boeing to on development of the X-66, which is known as the Sustainable Flight Demonstrator. The goal of this partnership is to develop a commercial airline service ready aircraft by 2030.

More information is available here: https://www.nasa.gov/image-article/new-look-at-nasa-boeing-sustainable-experimental-airliner/#:~:text=Under%20the%20Sustainable%20Flight%20Demonstrator,passenger%20airlines%20around%20the%20world.

C. More Results in Nurses' Health Study

According to a May 2024 article in Environment International (Volume 187) the Nurses' Health Study results show a connection between aircraft noise exposure and body mass index among female participants living around 90 airports in the United States. There were 74,848 female participants averaged 50.1 years old. More information is available here: https://www.sciencedirect.com/science/article/pii/S0160412024002460

MEMORANDUM

ITEM 1.2.4

TO: MSP Noise Oversight Committee (NOC)

FROM: Michele Ross, Director, Stakeholder Engagement

SUBJECT: **REVIEW OF RESIDENTIAL NOISE MITIGATION PROGRAM IMPLEMENTATION STATUS**

DATE: November 6, 2024

The NOC 2024 Work Plan includes a review of the residential noise mitigation program implementation.

For nearly three decades, the MAC has administered one of the most aggressive noise mitigation programs in the world for communities surrounding Minneapolis-St. Paul International Airport (MSP). Since 1992, the MAC has spent over $513 million on noise mitigation programs. This includes insulating more than 15,000 single-family homes, 3,300 multi-family units, 18 schools and acquiring over 400 residential properties affected by MSP aircraft activity. The MAC is committed to continue mitigating homes impacted by MSP activity based on an amended Consent Decree until the year 2032.

Amended Noise Mitigation Program

Under the provisions of the First, Second, and Third Amendments to the Consent Decree, filed by the MAC, the cities of Minneapolis, Richfield, Eagan, and the Minneapolis Public Housing Authority, properties must meet certain criteria to be considered eligible for participation in the MAC noise mitigation program.

First, as stated in the Amendment:

> *"The community in which the home is located has adopted local land use controls and building performance standards applicable to the home for which mitigation is sought that prohibit new residential construction, unless the construction materials and practices are consistent with the local land use controls and heightened building performance standards for homes within the 60 DNL Contour within the community in which the home is located."*

Second, as stated in the Amendment:

> *"The home is located, for a period of three consecutive years, with the first of the three years beginning no later than calendar year 2020 (i) in the actual 60-64 DNL noise contour prepared by the MAC under Section 8.l(d) of this Consent Decree and (ii) within a higher noise impact mitigation area when compared to the Single-Family home's status under the noise mitigation programs for Single-Family homes provided in Sections 5.1 through 5.3 of this Consent Decree or when compared to the Multi- Family home's status under the noise mitigation programs for Multi-Family homes provided in Section 5.4 of this Consent Decree. The noise contour boundary will be based on the block intersect methodology. The MAC will*

offer noise mitigation under Section IX of this Consent Decree to owners of eligible Single-Family homes and Multi-Family homes in the year following the MAC's determination that a Single-Family or Multi-Family home is eligible for noise mitigation under this Section."

In cases where homes have received previous reimbursements or mitigation from the MAC, those improvements will be deducted from the efforts required to increase the homes' mitigation relative to the actual noise level, per the amended Consent Decree. A second amendment was made to the Consent Decree in 2017. This amendment allows the use of the Aviation Environmental Design Tool (AEDT) to run the actual noise contours each year, beginning with the 2016 actual noise contour. In 2015, AEDT became the federally-approved computer model for determining and analyzing noise exposure and land use compatibility issues around United States airports. The second amendment also provided clarity on the opt-out eligibility criteria. Specifically, single-family homes that previously opted out of the Partial Noise Reduction Package may participate in the Full 5-decibel Reduction Package, provided the home meets the eligibility requirements. The third amendment extends the program to 2032.

2017 Noise Mitigation

In 2017, the MAC began the project to provide mitigation to 138 single-family homes that became eligible by virtue of the 2015 actual noise contour. 118 homes were completed in this program, 10 homes declined to participate, and 12 homes were moved to later programs.

Two multi-family structures were eligible to participate in the Multi-Family Mitigation Program in 2017; one property was completed, and one property declined to participate.

The total cost for the 2017 Mitigation Program was $2,442,685.

2018 Noise Mitigation

In 2017, the MAC began the project to provide mitigation to 283 single-family homes that became eligible by virtue of the 2016 actual noise contour. 230 homes were completed in this program, 16 homes declined to participate while 36 homes were moved to later programs.

The total cost for the 2018 Mitigation Program was $7,294,999.

2019 Noise Mitigation

In 2018, the MAC began the project to provide mitigation to 429 single-family homes that became eligible by virtue of the 2017 actual noise contour. As of October 21 2024, 371 homes have been completed and 55 homes have declined to participate. The total cost for the 2019 Mitigation Program to date is $13,333,018.

2020 Noise Mitigation Program

In 2019, the MAC began the project to provide mitigation to 243 single-family homes that became eligible by virtue of the 2018 actual noise contour. As of October 21, 2024, including the homes transitioned from previous programs, 256 homes have been completed, 15 homes are in the

construction or pre-construction phase and 36 homes have declined to participate. The total cost for the 2020 Mitigation Program to date is $9,834,147.

2021 Noise Mitigation Program

In 2020, the MAC began the project to provide mitigation to 16 single-family homes that became eligible by virtue of the 2019 actual noise contour. As of October 21, 2024, 15 homes have been completed and 1 home has declined to participate. The total cost for the 2021 Mitigation Program to date is $286,121.

The 2020, 2021, and 2022 actual noise contours did not qualify any additional homes for mitigation.

First year eligibility was achieved for 245 single-family residences and 539 multi-family units within the 2023 60 dB DNL noise contour in the City of Minneapolis. An additional 97 single-family residences within the 2023 63 dB DNL noise contour in the City of Minneapolis achieved first year eligibility for the 2025-2032 Program.

The MAC will continue to implement the mitigation program for homes that remain eligible from previous years analyses. Homeowners who were eligible to participate in the 2017-2024 Program but who have not participated in the program were contacted in June 2024. The opportunity to participate in that phase of the program will end on December 31, 2024.

At the November meeting, staff will be available to answer questions on this item.

MEMORANDUM

ITEM 2

TO: MSP Noise Oversight Committee (NOC)

FROM: Michele Ross, Director, Stakeholder Engagement

SUBJECT: **PUBLIC COMMENT PERIOD**

DATE: November 6, 2024

Members of the public are welcome to listen to the NOC meeting. During the meeting, a public comment period of no more than 20 minutes is included on the agenda. Individuals who wish to speak during the public comment period may do so by following the directions of the chairperson.

Below are some rules of decorum for speaking at NOC meetings.

- Each speaker will have one opportunity to speak and is allotted three (3) minutes. The public comment period is limited to 20 minutes.
- The chairperson will open the public comment period by asking for participants who wish to speak to indicate their desire following the direction of the chairperson. Comments can be made in-person or virtually for those participating using Microsoft Teams.
- Commenters shall address their comments to the NOC and not to the audience.
- No response from the NOC is provided during the comment period.
- Use of profanity, personal attacks, or threats of violence will not be tolerated.
- Interruptions from the audience, such as speaking out of turn, shouting, and other disruptive behavior are not permitted.
- If special assistance is needed to make a public comment, please contact the NOC Secretary at least two days prior to the meeting by sending an email to: nocsecretary@mspmac.org.

MEMORANDUM

ITEM 3.1

TO: MSP Noise Oversight Committee (NOC)

FROM: Michele Ross, Director, Stakeholder Engagement

SUBJECT: **REVIEW AND APPROVAL OF THE 2024 NOC ACCOMPLISHMENTS, 2025 NOC WORK PLAN, AND 2025 NOC MEETING DATES**

DATE: November 6, 2024

At the September 18, 2024, NOC meeting, members reviewed a proposed 2025 Work Plan Draft. The NOC's Fall Listening Session was held on October 23, 2024, to solicit ideas for what citizens also would like the NOC to consider in 2025; however, no additional Work Plan items were offered from Listening Session attendees.

The pages following include the Draft 2024 NOC Accomplishments, the Draft 2025 NOC Work Plan and the Draft 2025 NOC Meeting Dates.

If approved by the NOC, the 2025 Work Plan will be presented to the MAC Planning, Development and Environment (PD&E) Committee by the NOC Co-Chairs on December 2, 2024, at 10:30 AM.

REQUESTED ACTION

APPROVE AND RECOMMEND TO THE MAC PLANNING, DEVELOPMENT AND ENVIRONMENT COMMITTEE APPROVAL OF THE 2024 MSP NOC ACCOMPLISHMENTS, 2025 MSP NOC WORK PLAN AND 2025 NOC MEETING DATES.

MSP NOISE OVERSIGHT COMMITTEE
DRAFT 2024 NOC ACCOMPLISHMENTS

1. Received ongoing review of MSP monthly operations reports which include aircraft noise complaints, operations, runway use, noise events, and compliance with noise abatement procedures.
2. Evaluated citizen input received during quarterly Listening Sessions as possible discussion topics at future NOC meetings.
3. Completed a Fleet Mix and Nighttime Operations Assessment which, in addition to evaluating fleet mix and nighttime operations, included certificated noise levels for aircraft operating at MSP and aircraft altitude trends.
4. Completed the 2023 MSP Complaint Data Assessment.
5. Pursuant to the Consent Decree, reviewed the MSP 2023 Annual Noise Contour Report published February 2024. The report noted that based on the 323,945 total operations at MSP in 2023, the actual 60 dB DNL contour is 33% smaller than the 2007 forecast contour, and the 65 dB DNL contour is 44% smaller.
6. Received an update MAC's Director of Air Service Development and representatives from Delta and Sun Country about airline schedules.
7. Received an update from the FAA on the VOR Minimum Operational Network project and development of Area Navigation (RNAV) Procedures.
8. Reviewed and approved recommendations to the FAA regarding proposed RNAV procedures.
9. Received updates on airfield construction activity.
10. Received updates on on-going outreach activities including the Meet the Fleet series.
11. Reviewed aviation-related research initiatives from FAA Center of Excellence/ASCENT, TRB, and other researchers.
12. Heard from MAC Executive Director/CEO, Brian Ryks on updates on the organization, recent accolades, trends in passengers and operations, and future development at MSP.
13. Elected a User Co-Chair.
14. Reviewed status of the MSP Residential Noise Mitigation Program Implementation.
15. Received an update on the MSP Long Term Plan and associated Stakeholder Engagement Program.
16. Received an overview of the Runways 30L and 30R Departure Operations Report.

1. Residential Noise Mitigation Program

a) Review Residential Noise Mitigation Program Implementation Status

Description: Staff from MAC Airport Development will update the NOC on the current Mitigation Program.

2. MSP Community Relations Specific Efforts

a) 2024 Actual Noise Contour Report and the Consent Decree Noise Mitigation Program Eligibility

Description: Each year in March, under the terms and conditions of the amended Consent Decree, MAC publishes an Annual Contour Report for the previous year. Staff will provide an update on the Contour Report and mitigation efforts underway in support of the Amended Consent Decree program.

b) MSP Fleet Mix and Nighttime Operations Assessment

Description: MSP is federally obligated to stay open 24 hours per day. Recognizing the impacts of nighttime operations, the NOC regularly assesses nighttime trends in airport operations. Reducing aircraft noise at the source is the largest factor of noise reduction. Over the past several years the numbers of noisy aircraft in the fleet at MSP has been declining. This annual assessment will review actual and scheduled nighttime operations at MSP as well as examine the current aircraft fleet mix.

c) MSP Annual Aircraft Noise Complaint Data Assessment

Description: Complaints are one of the tools the MAC uses to communicate with the community about aircraft activity and report to the NOC about concerns received from airport neighbors. This annual assessment reviews MSP complaints and households filing complaints.

d) Runways 12L and 12R Departure Analysis

Description: Based on requests received from Mendota Heights residents, conduct an analysis of departure activity and altitudes from Runways 12L and 12R, similar to the 2020 and 2024 MSP Runways 30L and 30R Departure Operations Reports.

e) Status of FAA Center of Excellence/ASCENT, TRB, and FICAN Research Initiatives

Description: This is an annual report on the status of scientific, engineering, and medical research literature prepared by universities, governmental organizations, and transportation boards located within the United States.

PARTNER – Partnership for AiR Transportation Noise and Emissions Reduction

TRB – Transportation Research Board, which manages Airports Cooperative Research Program (ACRP)

FICAN – Federal Interagency Committee on Aviation Noise

f) Guest Speaker: Brian Ryks, MAC Executive Director / CEO

Description: NOC will receive an update on the MAC organization, recent accolades, trends in passengers and operations, and future development at MSP in addition to other pertinent topics.

g) MSP Construction Updates

Description: Upcoming MSP airfield construction projects may impact typical runway use. In 2025, MAC will provide an update about construction MSP construction activity.

h) Converging Runway Operations at MSP

Description: The FAA began applying new CRO mitigation strategies for both parallel runways in March 2016. The FAA will be requested to provide updates on this topic in 2025.

i) Noise Policy Review

Description: In 2021, the FAA released a summary of the research programs it sponsors on civil aircraft noise that could potentially inform future aircraft noise policy. The agency is assessing the survey results to determine if changes to the federal noise measurement methods and/or compatible land use considerations are warranted. The FAA will be requested to provide updates on this topic in 2025.

j) VOR-MON Program and RNAV Procedure Development

Description: In 2020, the FAA presented to the NOC information about the nationwide VOR Minimum Operational Network (MON) program. The FAA will be invited to provide an update on the status of the regional VOR network set for decommissioning, development of new procedures for MSP, the proposed timeline

for these activities, and the potential impact to airport operations at MSP. The FAA will be requested to provide updates on this topic in 2025.

3. **Continue to Review Input Received from the NOC Listening Sessions as Possible Agenda and Work Plan Items**

MSP NOISE OVERSIGHT COMMITTEE
DRAFT 2025 NOC MEETING DATES

NOC meetings are held six times each year typically on the third Wednesday of January, March, May, July, September, and November (odd-numbered calendar months). Staff recommends the following 2025 NOC meeting dates:

- *January 15, 1:30 PM*
- *March 19, 1:30 PM*
- *May 21, 1:30 PM*
- *July 16, 1:30 PM*
- *September 17, 1:30 PM*
- *November 19, 1:30 PM*

The agenda packet for each meeting will be distributed and published two weeks prior to each meeting. An agenda review session will be arranged prior to NOC Meeting for all appointed NOC members and alternates. Each NOC meeting is scheduled to be held in the Legends Conference Room at the MAC General Office building, unless otherwise noted.

MEMORANDUM

ITEM 4.1

TO: MSP Noise Oversight Committee (NOC)

FROM: Michele Ross, Director, Stakeholder Engagement

SUBJECT: **GUEST SPEAKER: MAC/MSP UPDATE**
BRIAN RYKS, MAC EXECUTIVE DIRECTOR/CEO

DATE: November 6, 2024

At the November NOC meeting, MAC Executive Director / CEO, Brian Ryks, will provide a MAC/MSP update to the NOC.

MEMORANDUM

ITEM 4.2

TO: MSP Noise Oversight Committee (NOC)

FROM: Carey Metcalfe, Assistant Manager, Community Relations

SUBJECT: **RUNWAY 30L AND 30R DEPARTURE OPERATIONS REPORT**

DATE: November 6, 2024

The 2024 MSP Noise Oversight Committee Work Plan directs MAC staff to conduct an analysis of MSP Runway 30L and 30R departure activity.

Airport data from 2020 through 2023 was used to examine assess the use of Runways 30L and 30R. Specifically, the following topics were researched:

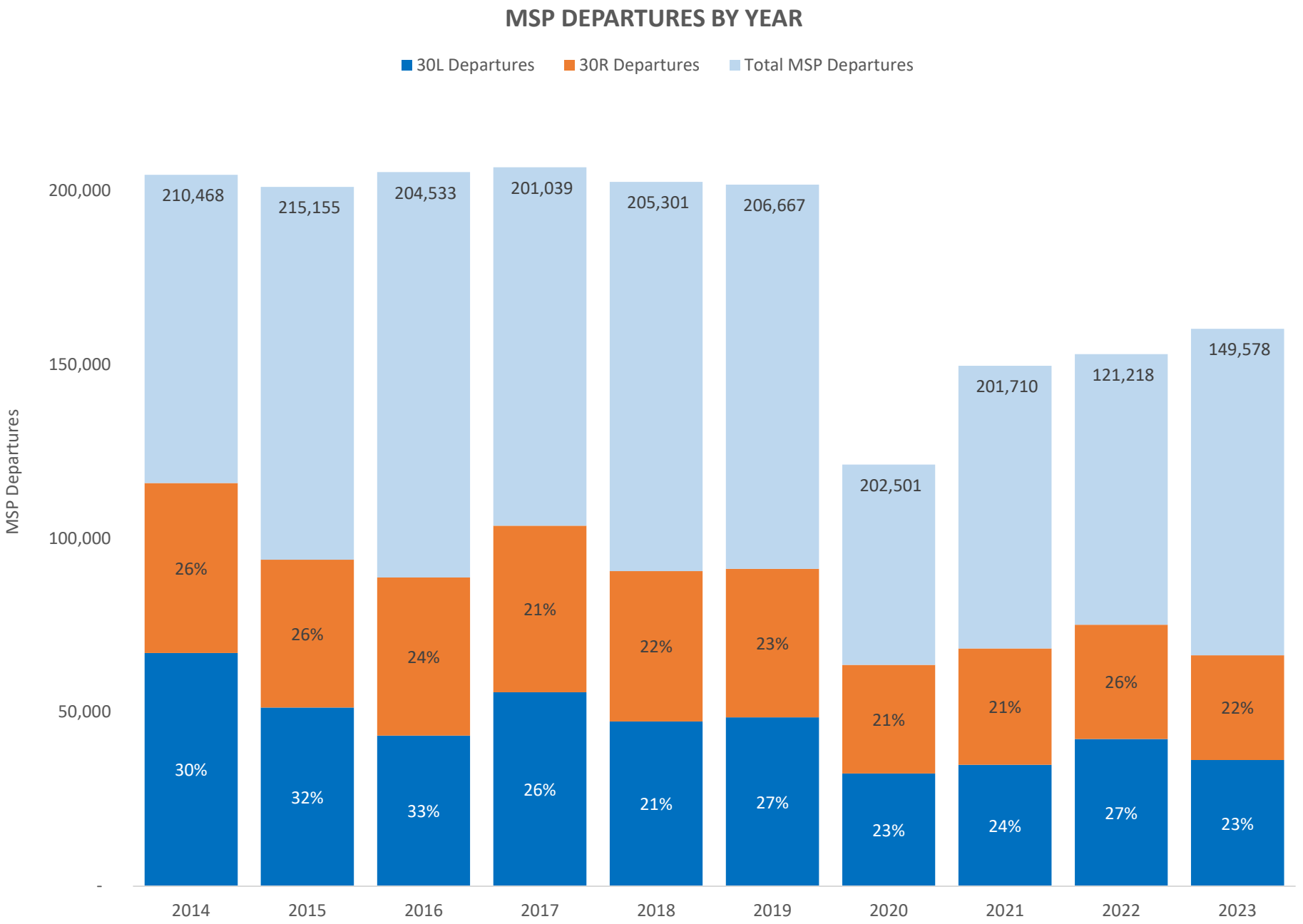
- Runway Use
- Flight Frequency
- Departure Headings

The completed Runway 30L and 30R Departure Study is attached, and the report will be presented and discussed at the November NOC meeting.

RUNWAYS 30L AND 30R DEPARTURE OPERATIONS REPORT

November 2024

Community Relations Office


MSP DEPARTURES BY YEAR
30L Departures
30R Departures
Total MSP Departures
MSP Departures
200,000
150,000
100,000
50,000
-
210,468
215,155
204,533
201,039
205,301
206,667
202,501
201,710
121,218
149,578
26%
26%
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2014
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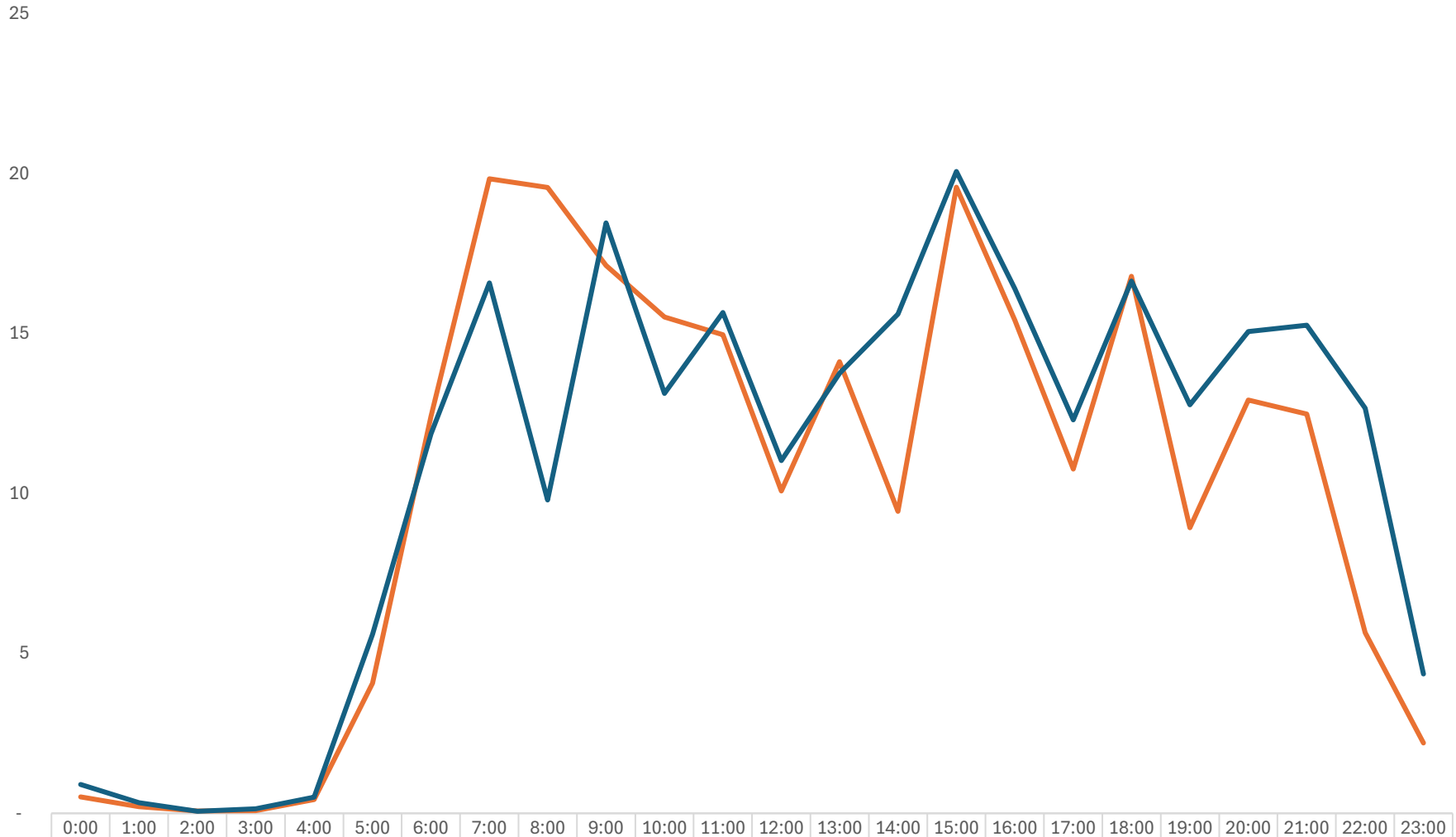
RUNWAY 30L DEPARTURES BY HOUR - AVERAGE ANNUAL DAY



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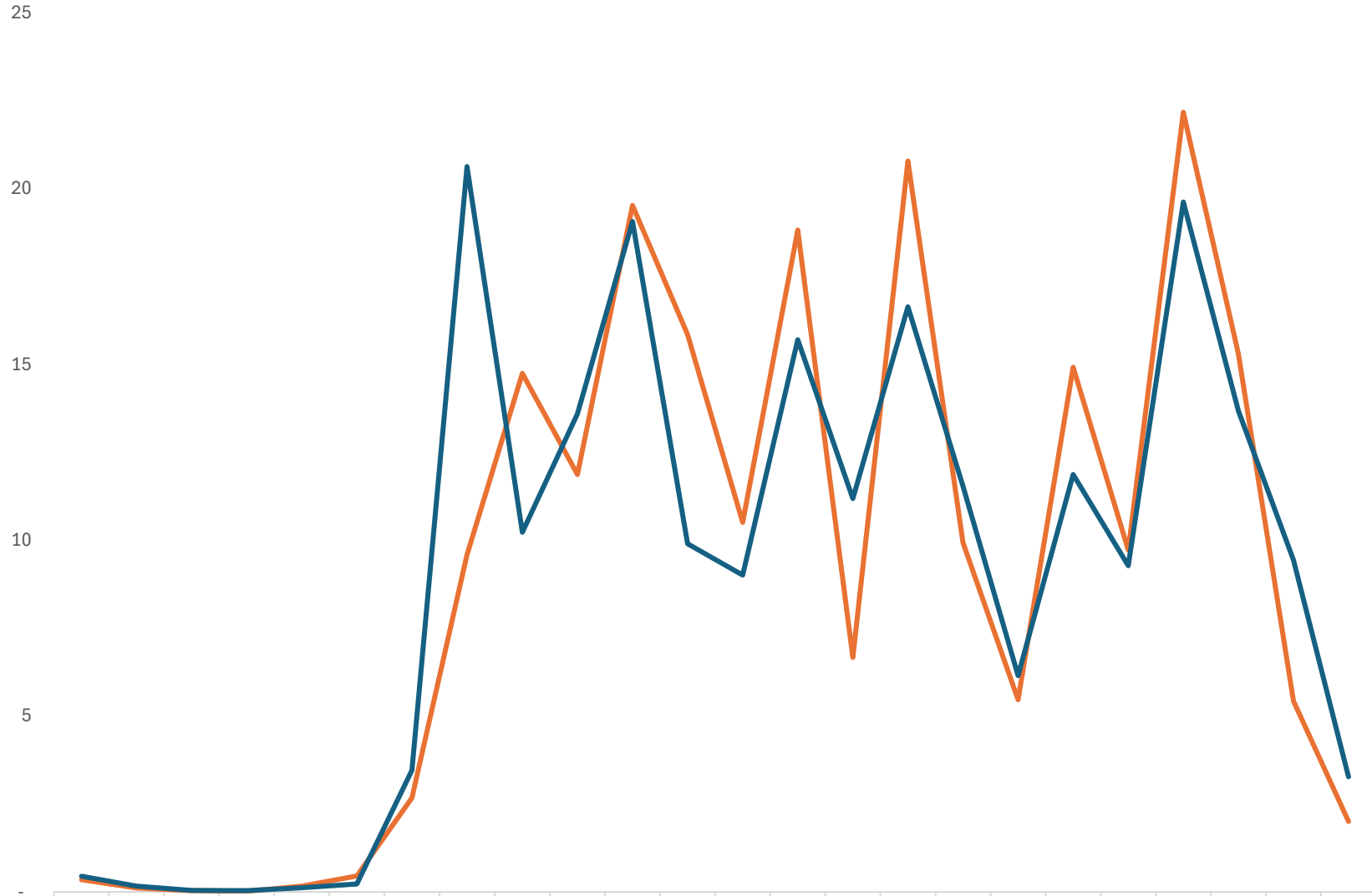
2020-2022	1	0	0	0	0	4	12	20	20	17	16	15	10	14	9	20	15	11	17	9	13	12	6	2
2023	1	0	0	0	1	6	12	17	10	18	13	16	11	14	16	20	16	12	17	13	15	15	13	4

RUNWAY 30R DEPARTURES BY HOUR - AVERAGE ANNUAL DAY



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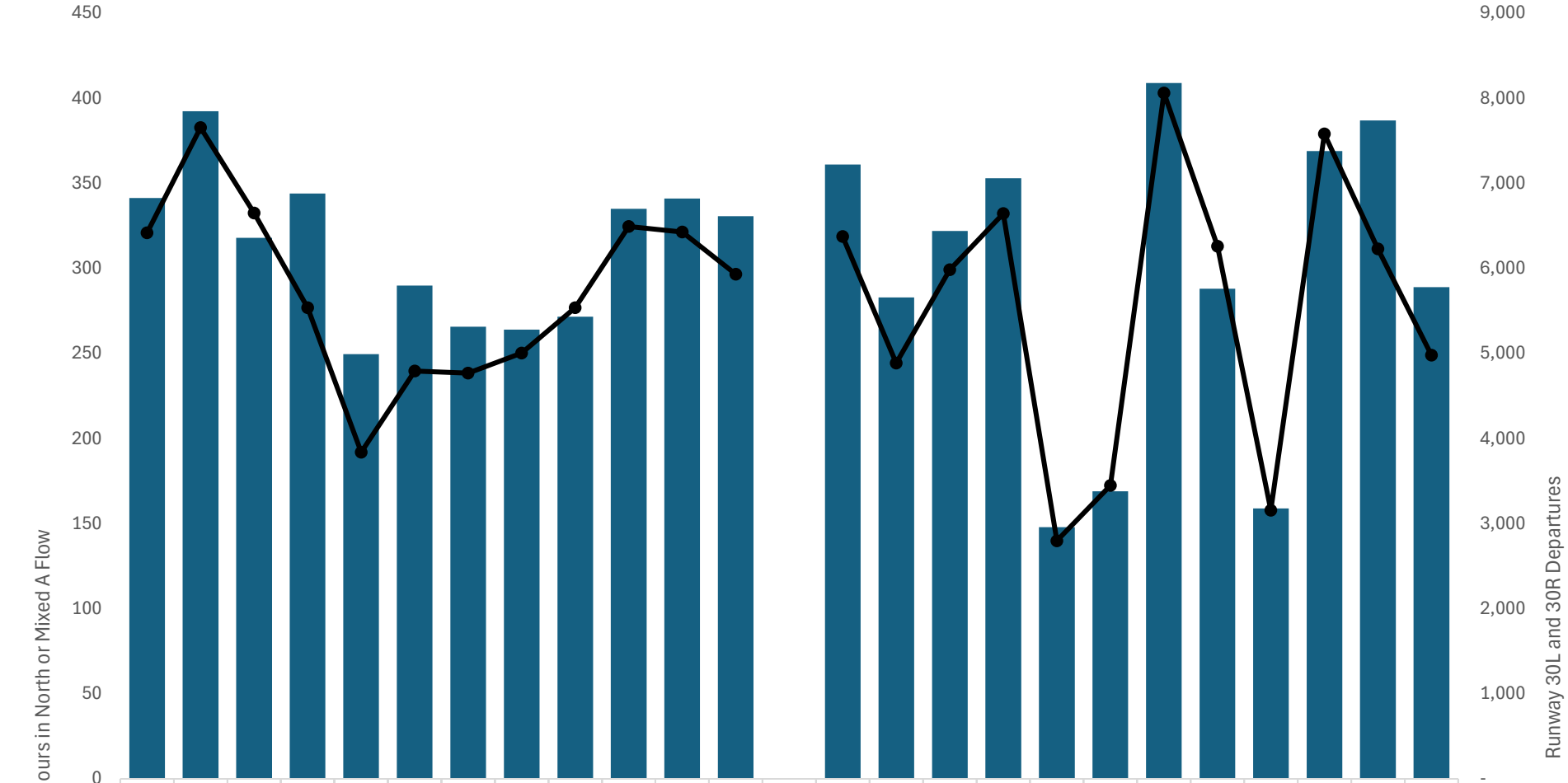
2020-2022	0	0	0	0	0	0	3	10	15	12	20	16	11	19	7	21	10	5	15	10	22	15	5	2
2023	0	0	0	0	0	0	3	21	10	14	19	10	9	16	11	17	12	6	12	9	20	14	9	3

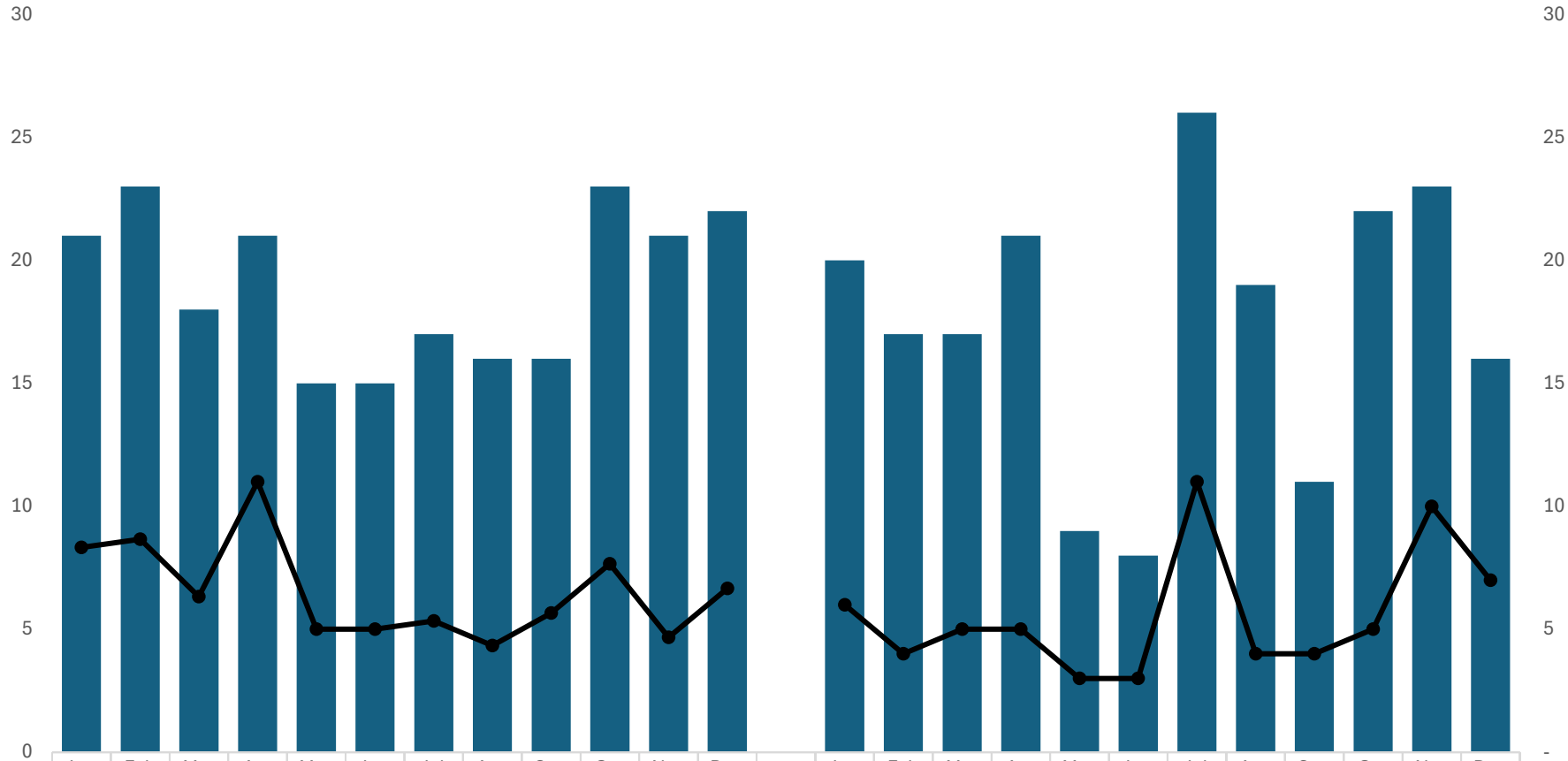
MSP HOURS IN NORTH FLOW OR MIXED FLOW A



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	2020-2022 (Average)													2023											
Hours	341	392	318	344	250	290	266	264	272	335	341	331		361	283	322	353	148	169	409	288	159	369	387	289
30s Dep	6,419	7,655	6,650	5,537	3,838	4,794	4,770	5,005	5,539	6,493	6,429	5,932		6,374	4,888	5,983	6,645	2,799	3,449	8,063	6,260	3,158	7,582	6,228	4,981

**Days were counted when North or Mixed A Flow was used at least 6 hours or more*

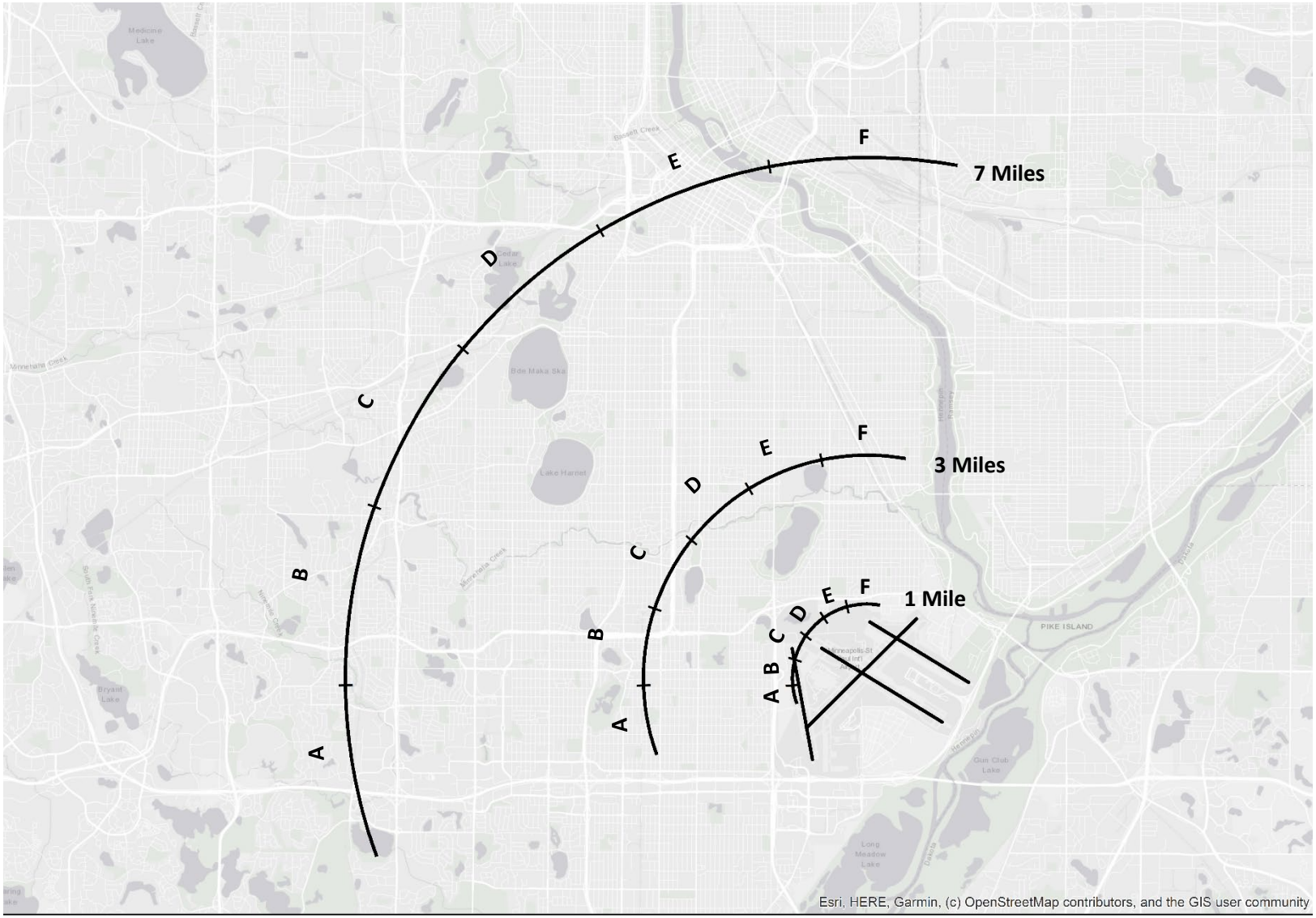
MSP DAYS IN NORTH FLOW OR MIXED FLOW A



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	2020-2022 (Average)												2023											
Total	21	23	18	21	15	15	17	16	16	23	21	22	20	17	17	21	9	8	26	19	11	22	23	16
Successive	8	9	6	11	5	5	5	4	6	8	5	7	6	4	5	5	3	3	11	4	4	5	10	7

**Days were counted when North or Mixed A Flow was used at least 6 hours or more*

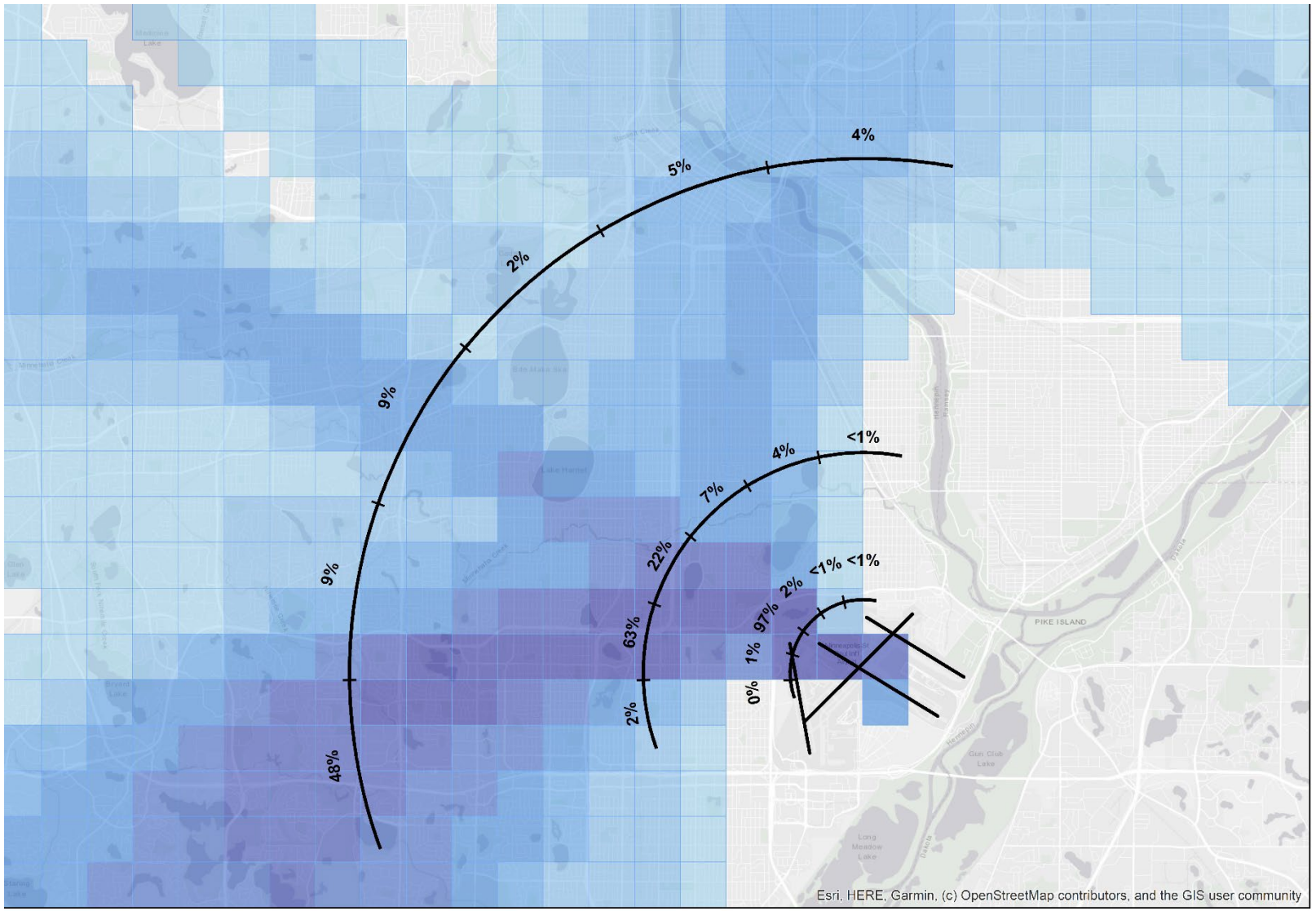
DEPARTURE GATES



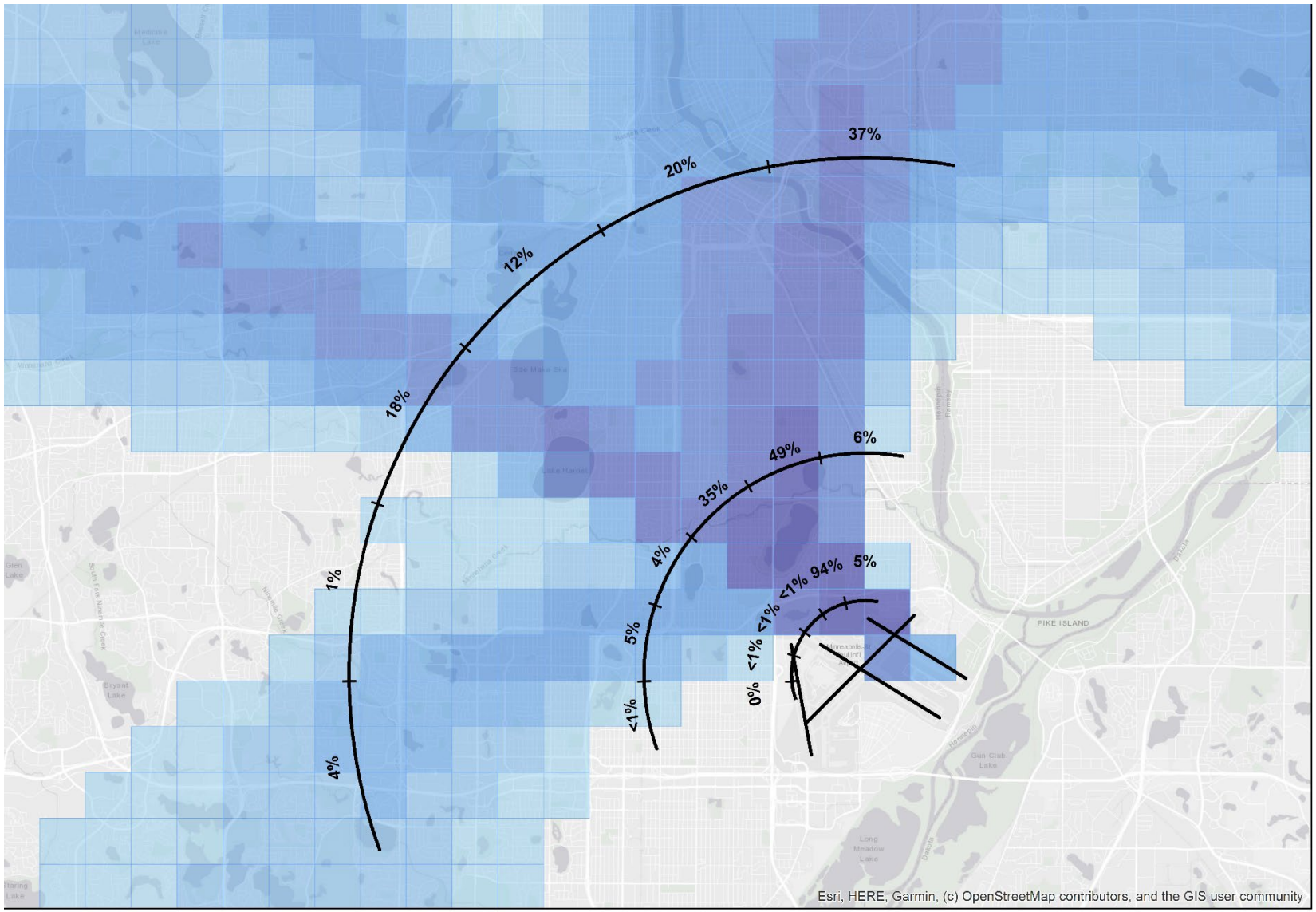
Note: Gates are based on cardinal direction from center of airport. Not representative of aircraft headings assigned by Air Traffic Control.

0 0.5 1 2 3 4 Miles

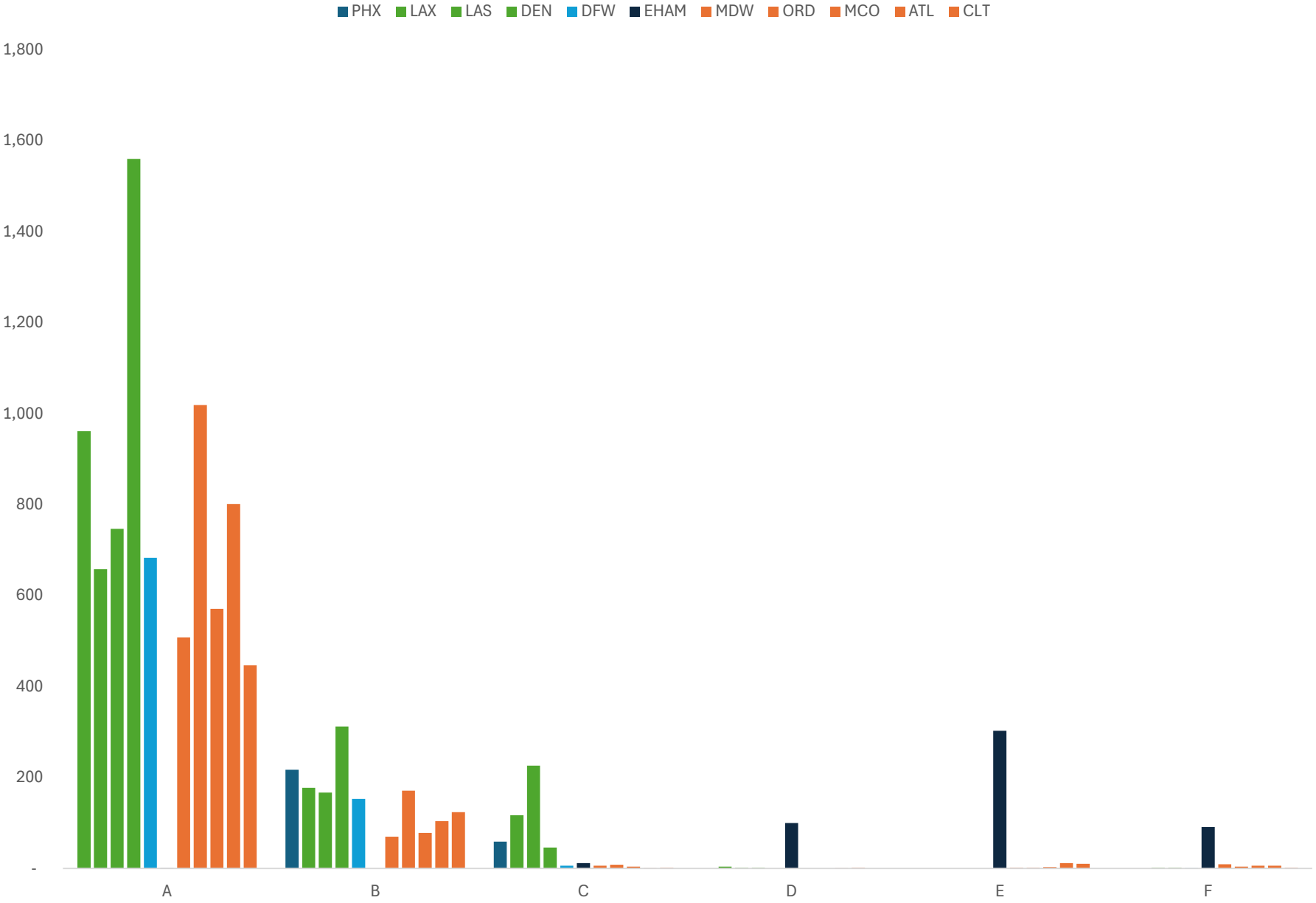
2023 30L DEPARTURES – PERCENTAGE OF DEPARTURES BY GATE



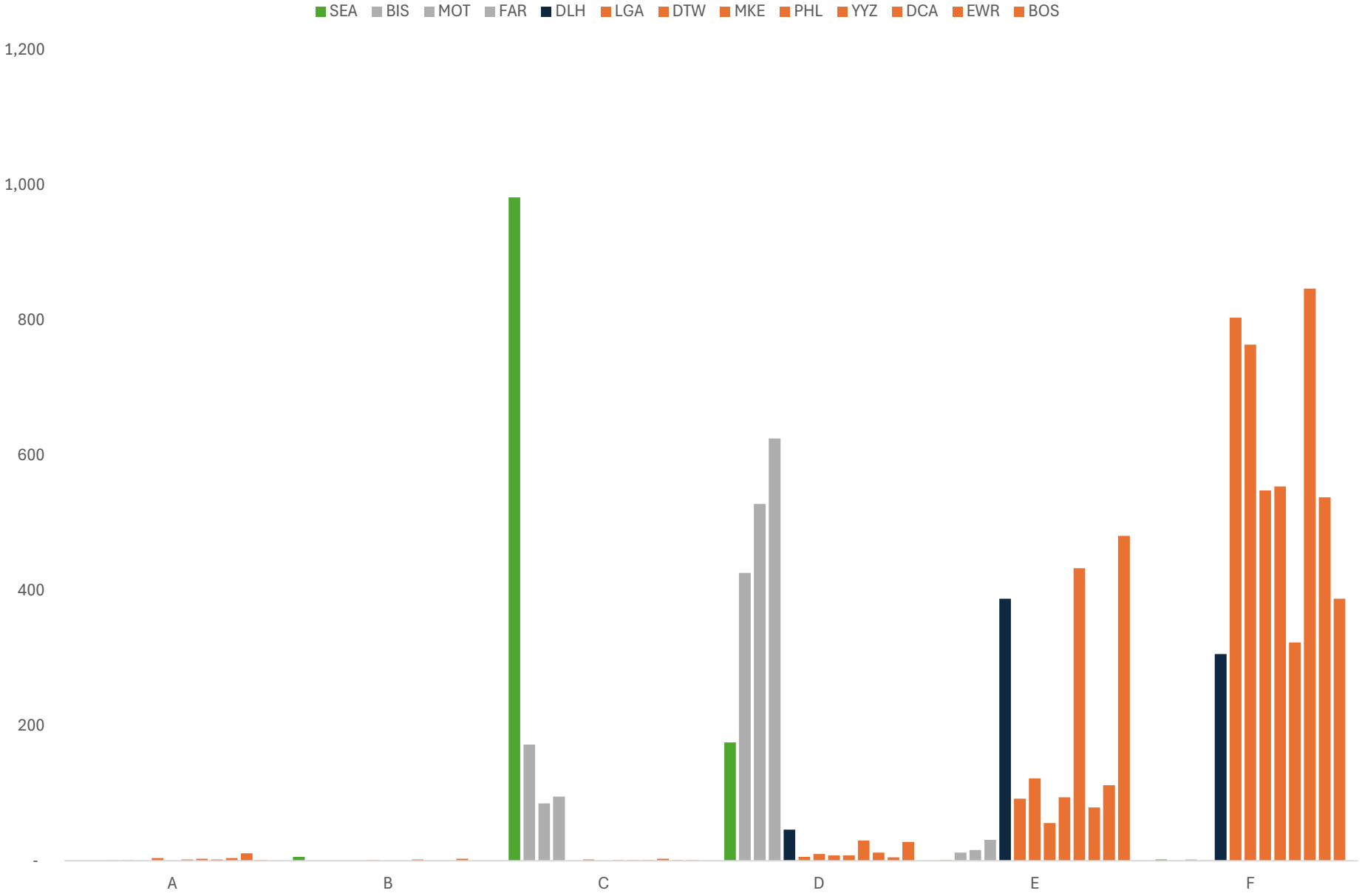
2023 30R DEPARTURES – PERCENTAGE OF DEPARTURES BY GATE



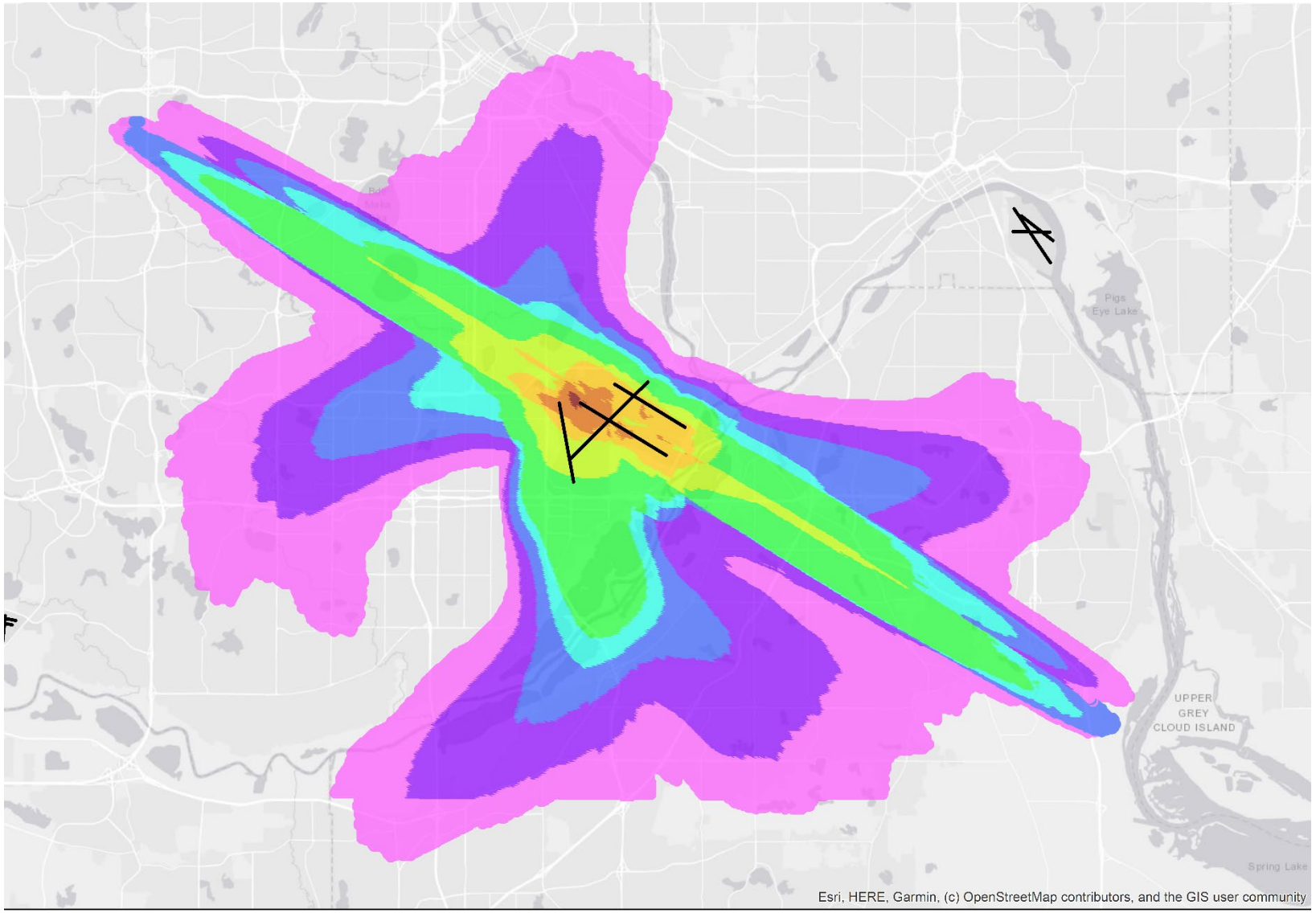
2023 30L DEPARTURES – TOP DESTINATIONS BY 7 MILE GATE



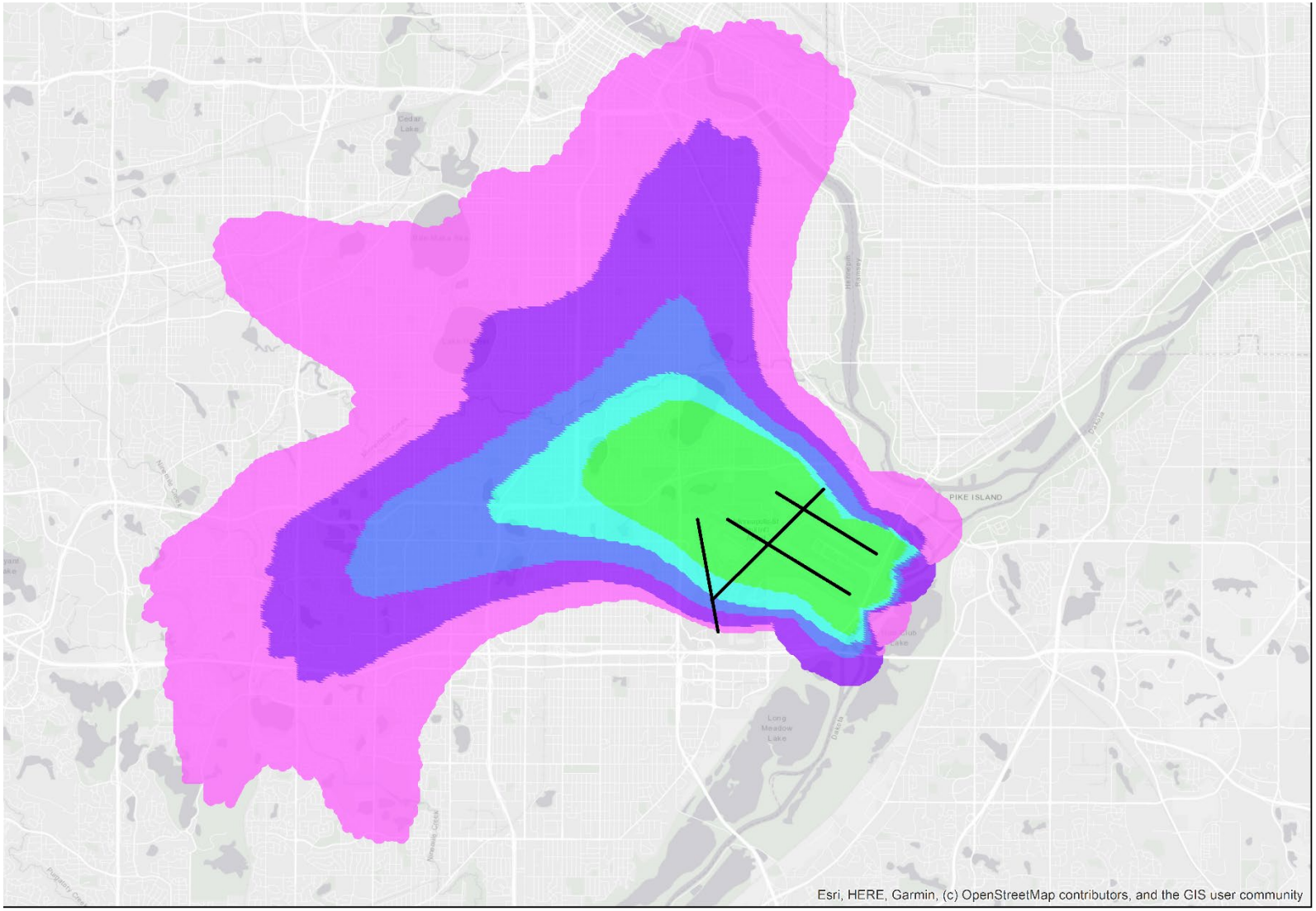
2023 30R DEPARTURES – TOP DESTINATIONS BY 7 MILE GATE



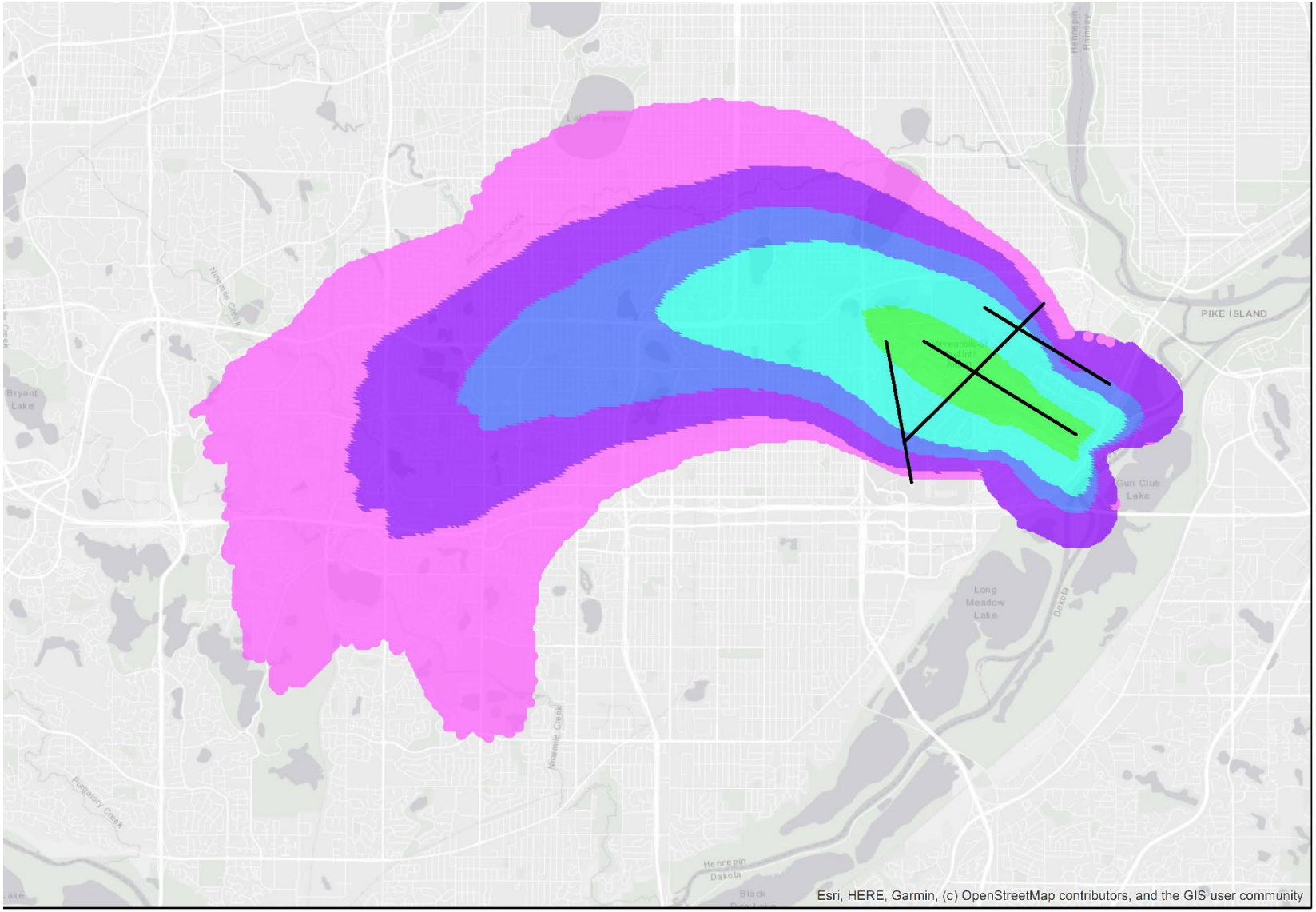
MSP 2023 AVERAGE DAILY AIRCRAFT SOUND EVENTS OVER 65 DB – ALL OPERATIONS



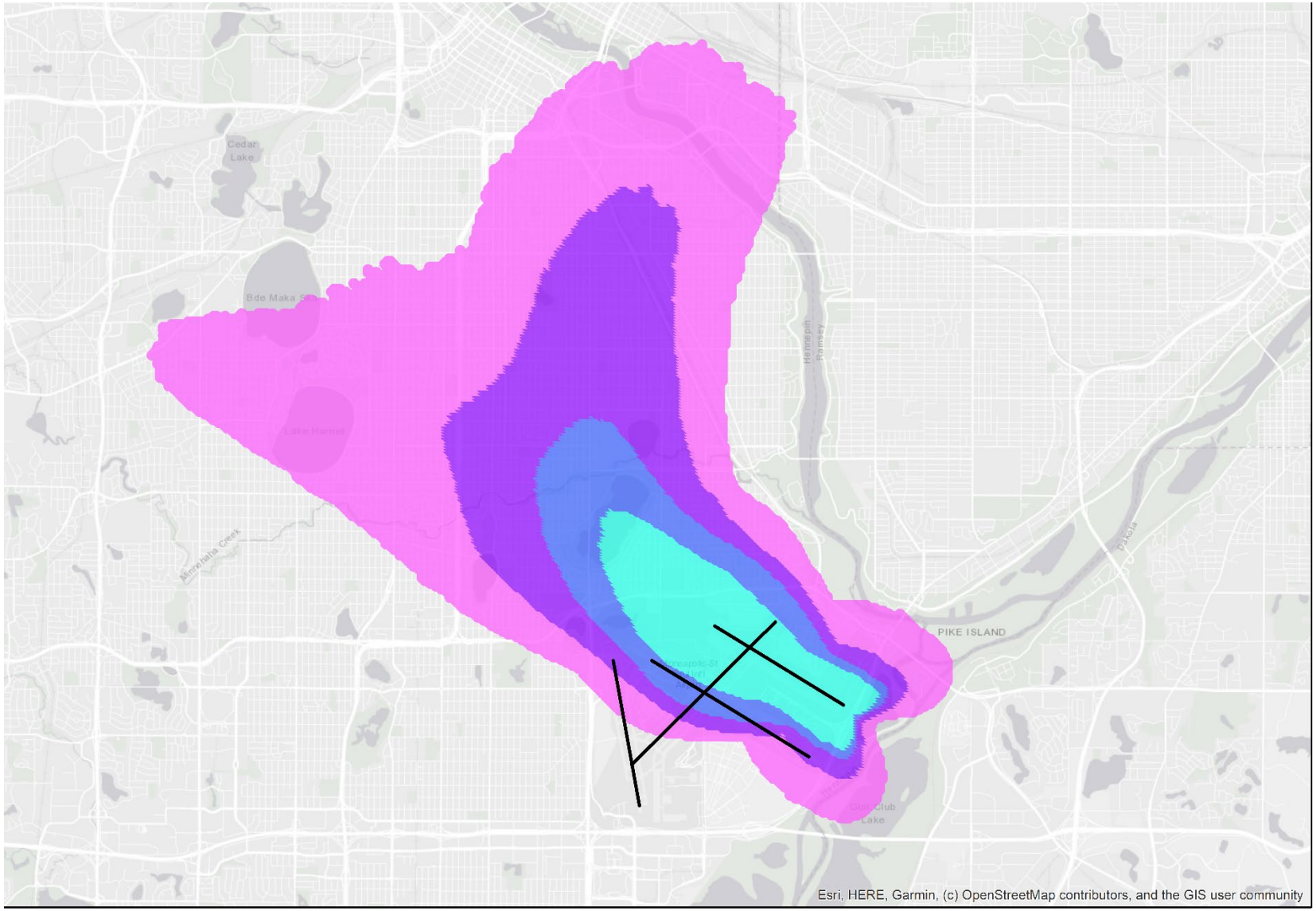
MSP 2023 AVERAGE DAILY AIRCRAFT SOUND EVENTS OVER 65 DB – RUNWAY 30L AND 30R DEPARTURES



MSP 2023 AVERAGE DAILY AIRCRAFT SOUND EVENTS OVER 65 DB – RUNWAY 30L DEPARTURES



MSP 2023 AVERAGE DAILY AIRCRAFT SOUND EVENTS OVER 65 DB – RUNWAY 30R DEPARTURES



Metropolitan Airports Commission
6040 28th Avenue South, Minneapolis, MN 55450
metroairports.org

This report is for informational purposes only.