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

NOC Committee Members

Jeff Hart	User Co-Chair, Scheduled Airline Representative (Delta Air Lines)
Dianne Miller	Community Co-Chair, City of Eagan Representative (City of Eagan)
Ryan Barette	Minnesota Business Aviation Association Representative
Paul Borgstrom	Chief Pilot Representative (Delta Air Lines)
Mary Brindle	At-Large Community Representative (Edina City Council)
Pam Dmytrenko	City of Richfield Representative (City of Richfield)
Chris Finlayson	At-Large Airport User Representative (Endeavor Air, Inc.)
Christine Koppen	Cargo Carrier Representative (United Parcel Service)
Todd Lawrence	Charter/Scheduled Operator Representative (Sun Country Airlines)
Patrick Martin	City of Bloomington Representative (Bloomington City Council)
Jay Miller	City of Mendota Heights Representative (Mendota Heights City Council)
Linea Palmisano	City of Minneapolis Representative (Minneapolis City Council)

MEETING AGENDA

July 15, 2020 at 1:30 PM

Dianne Miller, City of Eagan, will be the acting Chairperson for the meeting

TELECONFERENCE ONLY - The Teleconference is open to the public.
To participate, call 612-351-3093 and enter 239031.

1. **Consent**
   - 1.1. Approval of May 20, 2020 Meeting Minutes
   - 1.2. Reports
     - 1.2.1. Monthly Operations Reports: May and June 2020
     - 1.2.2. Status of Aviation Noise, Environment, and Health-Related Research Initiatives
2. **Public Comment Period**
3. **Business**
   - 3.1. Flight Procedure Change Request Guidelines
4. **Information**
   - 4.1. Guest Speaker: MAC/MSP Update Brian Ryks, MAC Executive Director/CEO
   - 4.2. Runway 30L and 30R Departure Operations Report
5. **Announcements**
6. **Adjourn**

Public Comment Notice

A public comment period of no more than 20 minutes will be added to each agenda. The chairperson will open the public comment period by asking for callers who wish to speak to indicate so by following the direction of the chairperson. When called upon to speak by the chairperson, your line will be unmuted. Each speaker will have one opportunity to speak and is allotted three minutes.

MSP NOISE OVERSIGHT COMMITTEE
DRAFT MEETING MINUTES
Wednesday, May 20, 2020 at 1:30 PM
By Teleconference Only

Call to Order

A regularly scheduled meeting of the Minneapolis-St. Paul International Airport (MSP) Noise Oversight Committee, (NOC) having been duly called, was held Wednesday, May 20, 2020, by teleconference only. Co-Chair Hart called the meeting to order at 1:30 p.m. The following were on the teleconference:

Representatives: M. Brindle; P. Dmytrenko; C. Jacobson; P. Martin; D. Miller; L. Olson; R. Barette; P Borgstrom; C. Finlayson; J. Hart; C. Koppen; J. Malin

Staff: B. Anderson; J. Felger; P. Hogan, B. Juffer; K. Martin; D. Nelson; N. Pesky; M. Ross; K. Verdeja

Others: Y. Bizen – MAC Commissioner, District H; R. Bassler – FAA; R. MacPherson – FAA; D. O`Leary – Mayor Sunfish Lake; L. Petschel – Mendota Heights; H. Rand – Inver Grove Heights; L. Moore – City of Bloomington; T. Gladhill – Eagan and other members of the public

A quorum of four Community Representatives and four Industry Representatives was established by roll call attendance:

Community Representatives: M. Brindle; P. Dmytrenko; C. Jacobson; P. Martin; D. Miller; L. Olson
Industry Representatives: R. Barette; P. Borgstrom; C. Finlayson; J. Hart; C. Koppen; J. Malin

1. Consent

1.1. Review and Approval of January 29, 2020 Meeting Minutes

1.2. Reports

1.2.1. January and February 2020 Operations Reports

1.2.2. March and April 2020 Operations Report

1.2.3. MSP Complaint Data Assessment

Member Olson, City of Minneapolis wanted to acknowledge that the City of Minneapolis continues to make up a vast majority of the complaints, the NOC is rightfully assessing concerns in other communities, but Minneapolis residents still make up most of the peopled concerned with noise. Member Olson also asked if a break down could be given by time of day, she noted that narrower bands of time would be helpful.

Member Dmytrenko moved and Member Finlayson seconded approval of the Consent Agenda items listed above.

The motion passed on the following roll call vote:

Ayes: Twelve **Barette, Borgstrom, Brindle, Dmytrenko, Finlayson, Jacobson, Koppen, Malin, Martin, Co-Chair Miller, Olson, and Chair Hart**
Nays: None
Abstain: None

2. Public Comment Period

Co-Chair Hart, Delta Air Lines, introduced the public comment period and gave the group guidelines for participating.

Mike Maguire, Mayor, City of Eagan, thanked the committee for the time spent addressing the City of Eagan's original nine requests, noting appreciation of the partnerships with the FAA and the MAC. Noted that Co-Chair Miller would read a formal letter from the City into the record.

The City of Eagan is seeking noise relief in a thoughtful way and want to continue to be a good neighbor. Eagan's request sought to find a better way to find noise compatible lands. The request also sought to adhere to the runway use system, which has long been the guiding policy document of the airport and the NOC. The Eagan/Mendota Heights Corridor was purposefully zoned for commercial and industrial uses. Many homes also have been mitigated for noise by the MAC. The Corridor is the best noise mitigation options at this airport. For this reason, the runway use system calls out 12L and 12R for the first priority for departing aircraft.

Mayor Maguire also stated that the second request the committee will discuss today attempted to use the river departure procedure. Unfortunately, the data showed adverse DNL noise impacts to those residents living along the Minnesota river. This demonstrates the difficulty to balance the burden of noise in and around our communities.

Mayor Maguire asked the MAC to continue to explore how to better use the river valley to reduce the impact to residents of airport noise and do what is in the best interest of the region and support sound policy. He asked that the NOC please support the city's first request in adherence to the runway use system.

Ted Gladhill, Eagan resident, stated that COVID-19 has brought a heightened state of awareness. With current operations running at a fraction of previous levels, there is no better time than now to try the requested changes. There is no rational excuse for using Runway 17 for planes flying to the east. **Mr. Gladhill** asked the NOC to please continue to support the City of Eagan's letter and the options regarding the use of Runway 17.

3. Business

3.1. City of Eagan Request to Federal Aviation Administration (FAA)

Brad Juffer, Technical Advisor, reviewed that in August 2019 the Eagan City Council sent a letter to the NOC requesting endorsement of the recommendations crafted by the Eagan Airport Relations Commission to modify specific procedures to reduce the number of departures from MSP that fly over residential portions of Eagan. In November 2019 the NOC forwarded four proposals to the MAC Planning, Development and Environment Committee (PD&E) for review. The MAC Commission approved the NOC recommendations and forwarded the proposals to the FAA in December 2019. The FAA completed a high-level feasibility review in February 2020.

Juffer gave an overview of the FAA Departure Procedure Adjustment Process. He then presented the FAA's response to the four requests from the City of Eagan:

Request 1: The original request from the Eagan City Council asked for departures from MSP Runway 17 with an initial fix of COULT or ZMBRO be directed instead to Runway 12R. When the NOC evaluated this proposal, two changes were made. First the NOC added Runway 12L to the request to give the FAA more latitude to accommodate the request. Additionally, the NOC added language to the request to ensure that no unnecessary delay would be experienced by arrivals to the to the runways. The FAA responded to this requested by indicating that "During times with low arrival demand, MSP Tower finds it feasible and safe to move departures with an initial fix of COULT to Runway 12L." The FAA determined they could not accommodate ZMBRO departures as part of this request. Additionally, the response from the FAA was isolated only to Runway 12L and Runway 12R was not included.

Requests 2 and 3 asked for the FAA to vary the use of Runway 17 departure headings and Request 3 asked for the FAA to better fan aircraft by increasing the use of a 180-degree heading. In both cases, "The FAA has determined that there is no value in further consideration of this request since it raises safety and efficiency concerns. Runway 17 departure headings are currently varied to the maximum extent possible".

Request 4 asked the FAA to move Runway 12R and 12L westbound departures to Runway 17. "The FAA has determined that this request potentially has merit if limited to night-time operations. It should be noted that MSP Air Traffic Control does not direct aircraft to follow landmarks or geographical features. "

The FAA's response letter also specifically addressed the outreach expected during this process. Specifically, the letter stated, "…the Agency recommends the MAC collaborate with its resident air carriers and other commercial entities with a stake in the outcome." The MAC has kept airport users up to date on this process primarily during a routine monthly forum of airport users conducted by the FAA. MAC staff shared an update with users in May and as of today have not heard any feedback from airport users on the proposals.

The FAA also discussed the community outreach in the letter with the following, "…the FAA anticipates that the MAC will work with the NOC to make sure there will be broad community acceptance of the proposed changes since some of the changes may simply move noise from one community to another."

Juffer discussed Requests 1 and 4 in more detail. After review of flight data from 2018 and 2019, MAC Staff modeled a change in 9.2 daily departures being redirected from Runway 17 to Runway 12L. The modeled change indicated that there would be no areas off airport where the DNL would increase by more than 0.25 dB DNL. Areas in southern Minneapolis, eastern Richfield, eastern Bloomington and central Eagan would experience a decrease in the number above noise level as a result of this request. Conversely, different areas in southern Minneapolis, Mendota Heights, northern Eagan and western Inver Grove Heights show an increase. In both cases, the change dissipated as you get further away from the runway.

The FAA's response to Request 4 would direct departures with an initial fix of SCHEP or ORSKY from Runways 12L or 12R to Runway 17. **Juffer** noted that the FAA's response indicated that this would be a night-time change, as westbound departures using the parallel runways to the south during the day typically only do so for operational reasons. Additionally, the FAA's response indicated that MSP Air Traffic Control does not direct aircraft to follow landmarks or geographical features. After review of flight data from 2018 and 2019, MAC Staff modeled a change of 3.1 average daily departures moving from the parallel runways to Runway 17. Areas of eastern Richfield, southern Bloomington and northern Burnsville saw a modeled change of up to 1.7 dB DNL increase and between a 1 to 3 event increase while areas in Mendota Heights, Eagan and Inver Grove showed modeled decrease in DNL up to 1.0 dB DNL and similar decreases in events above 65 dB.

Letters from neighboring cities were received by the NOC and are available attached to these minutes.

Co-Chair Miller, City of Eagan, read the letter sent by the City of Eagan to the NOC on May 20, 2020 into the minutes. Miller noted that the use of Runway 17 for operations with a COULT fix has put an undue burden on the residents of Eagan to have to formally make a request for a change to something that should never have happened in the first place. MSP should use the corridor and the crossing in the corridor procedure. **Member Brindle, At-Large,** read the letter from the City of Inver Grove Heights into the minutes. **Member Jacobson, City of Mendota Heights,** read the letter from the City of Mendota Heights into the minutes. **Mayor O'Leary, Sunfish Lake,** read the letter from the City of Sunfish Lake into the minutes.

Member Jacobson offered an amendment to the requested action, requesting that the MAC PD&E forward to the FAA a request to conduct a feasibility and safety assessment as amended by the NOC – Direct departures from Runway 17 with an initial departure fix of COULT to Runway 12R or Runway 12L unless the departure would impede or be impeded by arrival traffic to those runways and provided these departures would utilize the Crossing-in-the-Corridor noise abatement procedure. **Member Brindle** and **Member Rand** (City of Inver Grove Heights) asked if the change would shift noise to fly over their more densely populated residential areas**. Member Dmytrenko** and **Co-Chair Hart** had clarifying questions regarding the RUS. **Juffer** clarified that use of either parallel runway is considered Priority 1, regardless if operations are balanced across either runway. This request as listed or as amended would be more consistent with the RUS as it would move more operations to parallel runways during periods of low demands.

Member Martin, **City of Bloomington,** voiced concerns about Request 4 to the committee as this request would move operations over the residential areas adjacent to the river valley during nighttime hours. **Member Brindle** commented that Request 4 may create more noise and what the next steps

should be in this Request. **Member Dmytrenko** also felt that Request 4 would cause more harm than benefit, including sideline noise as well as an increase in nighttime overflights.

Juffer stated that the NOC would need to determine whether to pursue the request and forward to the FAA. Based on the letter read by **Co-Chair Miller, the City of Eagan** understood that this may not have had the intended impact they had hoped for, thus the City of Eagan requested to withdraw Request 4.

Request 1 to the FAA has been amended as follows:

Member Jacobson moved and Member Dmytrenko seconded to:

1. **Recommend that the MAC Planning, Development & Environment Committee (PD&E) forward the proposal for the Federal Aviation Administration (FAA) to conduct an appropriate feasibility and safety assessment of Request #1, as refined by the Noise Oversight Committee (NOC), which states: Direct departures from Runway 17 with an initial departure to fix of COULT to Runway 12R and Runway 12L unless the departure would impede or be impeded by arrival traffic to those runways and provided these departures would utilize the Crossing-in-the-Corridor noise abatement procedure; and**
2. **Recommend that the MAC Communicate to the FAA the desire for the FAA's findings to be provided in writing and contain rationale for their decision, how these changes will be put into practice and when and how the Crossing-in-the-Corridor procedure would be applied. The motion passed on the following roll call vote:**

Ayes:	**Twelve**	**Barette, Borgstom, Brindle, Dmytrenko, Finlayson, Jacobson, Koppen, Malin, Martin, Co-Chair Miller, Olson, and Chair Hart**
Nays:	**None**	
Abstain:	**None**	

4. Information

4.1. 2019 Annual Noise Contour Report and residential Noise Mitigation Program Eligibility

Brad Juffer, Technical Advisor, reviewed the background of the Consent Decree. In February 2020, the MAC published the 13th Annual Noise Contour Report. One of the purposes of producing the annual contour is to determine which homes may meet the requirements to be eligible for sound insulation as prescribed by the Amended Consent Decree. The Annual Contour Report also compares the 2019 contour against both the 2007 forecast contour as well as the 2018 actual contour.

Juffer reviewed the 2019 MSP contour and compared it to the 2018 contour and the 2007 forecast contour. Following review of the contours, the residential mitigation parcel eligibility was reviewed. After comparing the contour reports from 2019 to 2018, there are no areas in Minneapolis that have 1, 2 or 3 years of eligibility after the 2019 contour. There is one block in Dakota County that will receive the partial package treatment in 2021.

The MAC will contact eligible homeowners. At this time, there is nothing for the homeowners to do to initiate the 2021 mitigation process. Materials regarding the Residential Noise Mitigation Program are available at: http://www.macnoise.com/noise-mitigation-program.

4.2. Converging Runway Operations Update

Rebecca MacPherson, Great Lakes Regional Administrator, FAA, provided an update on Converging Runway Operations (CRO). FAA was unable to conduct the public outreach as intended this spring for the Categorical Exclusion (CATEX) for CRO procedures due to COVID-19. Given the circumstances, a temporary CATEX has been issued through December 2020. The ability to gather large crowds while ensuring social distancing as well as the travel required by FAA staff makes an in person CRO CATEX workshop infeasible at this time. FAA intends to hold a virtual workshop in August to allow enough time to prepare materials and work with NOC members and to notice, engage and allow for meaningful comment. There will likely be a website to submit written comments. The CRO workshop in August will not be as comprehensive as the virtual workshops for the Florida Metroplex project given the size and scope of that project, however, those meetings are a good example of the type of meaningful engagement that can be conducted in a virtual setting. Florida Metroplex meetings will start in Mid-June. More information is available on the FAA website. The setting allows for a better educational opportunity than in person workshops.

MacPherson briefly discussed the Eagan request item. She stated the amendment to Request 1 would have to revert it back to box three for a high-level safety and efficiency review. More extensive review would occur at a later time or part of the environmental review process. FAA will do their best to provide high-level review prior to the July NOC meeting, however current conditions may not allow that to be possible. The FAA has had to significantly change how they are using their personnel as a result of the pandemic. Specifically the FAA has undertaken a program to segregate crews so that there is no crossover so that in the event of a positive diagnosis, they can clean the towers and bring in new crews that have not been exposed. Segregated work schedules can often result in staff not being available at the same time which makes it very difficult to coordinate and may extend the amount of time it takes for review and other activities to be completed.

MacPherson also gave an update on the VOR-MON program related to MSP. VOR decommissioning at MSP has been significantly delayed as a result of COVID-19 by at least 10 months, from Sept 2022 to August 2023. It does give the FAA more time to plan the type of outreach discussed at the January NOC meeting. It also gives the FAA more time to look at the potential for the use of RNAV procedures to mitigate noise south of the airport. The pandemic has had an adverse impact on flight testing and other projects due to the safety of FAA staff. Delays related to moratorium (currently extended through June 12, 2020 and will likely be extended again) on FAA staff travel.

Co-Chair Hart shared his appreciation with Ms. McPherson on how the FAA is continuing to keep NAS open under unprecedented conditions – FAA has gone above and behind.

Co-Chair Miller requested a status on when the weblink will be provided to submit written comments on CRO. FAA indicated there is no timeline but will likely be around the time of the workshop.

4.3. MSP 2040 Long-Term Plan Stakeholder Engagement Update

Dana Nelson, Director, Stakeholder Engagement, gave an update on the Long-Term Plan for MSP. She gave a brief summary of the process that has taken place to date. Activity continues on finishing the airfield capacity study and the facility requirements analysis phases of the plan. Once these two phases are completed, MAC has decided to pause the long-term plan process. The decision was made to

allow MAC and its stakeholders to focus on recovery regarding COVID-19 and give time to better understand the lasting impacts the virus will have on the level of facility needs and alternatives.

The plans to pause the process have been shared with MetCouncil and the Stakeholder Advisory Panel as well as sent to our GovDelivery subscription list.

5. Announcements

Brad Juffer, Technical Advisor, presented a new NOC logo. The previous NOC logo had been with the committee since the NOC was formed. Special thanks to Abby Brownell in Stakeholder Engagement and Lisa Ruetten with the MAC Strategic Marketing team for creating an updated logo. The intent was for the logo to provide a sense of place and to connect the airport to our community to incorporate the balance that this group represents. One of the most iconic pieces of our airport is the roofline of Terminal 1. The new NOC logo includes that element of the roof. This feature continues from the street to the aircraft ramp and provides that visible connection between the community and the airport.

6. Adjourn

A motion to adjourn was requested by Chair Hart, moved by Member Olson, and seconded by **Member Dmytrenko**. The meeting adjourned at 3:32 pm.

The next meeting of the NOC is scheduled for **Wednesday, July 15, 2020 at 1:30 PM.**

Respectfully Submitted,
Kalae Verdeja, Recording Secretary

May 18, 2020

Noise Oversight Committee (NOC)
Metropolitan Airports Commission
6040 South 28th Avenue
Minneapolis, MN 55450

Dear Members of the NOC:

Thank you in advance for considering the operational requests of the City of Eagan at your May 20, 2020 NOC meeting. In light of the need to have the NOC meet virtually, I thought it best to share some thoughts in writing with the NOC in advance of the meeting.

First and foremost, thank you to the FAA, MAC staff, and NOC members for the time and effort you have given to Eagan's requested actions. The original nine requests resulted from dialogue between Eagan residents and our advisory Airport Relations Commission (ARC) as they together sought avenues to place more aircraft operations over noise-compatible land. Over the past several months, the FAA and MAC technical staff have delved into each of the requests and offered insight on the changes that could be feasible. I appreciate the FAA's responses are offered in the spirit of safety and operational efficiency.

After months of review, the NOC has before them two requested actions, referred in the NOC packet as "Request 1" and "Request 4." The following are some thoughts on the two requests, concluding with my requests of the NOC on how best to move forward.

Request 1

The first request moves approximately nine operations per day from Runway 17 to the Eagan/Mendota Heights Corridor. The City's initial request to the NOC and FAA was to move those flights with an initial departure fix of COULT or ZMBRO to 12R. By specifying Runway 12R, Eagan was demonstrating our desire not to move noise from one community to another. We recognized that the Corridor is the best place for operations given the commercial and industrial land use in that area, even if it means

that residents in Eagan living in and near the Corridor will be impacted by additional overflights.

Upon receiving input from the FAA and MAC staff, the NOC chose to modify the first recommendation to include both Runways 12L and 12R as it pertains to flights with an initial fix of COULT or ZMBRO. I understand the FAA came back and noted it would only be feasible to redirect departures with an initial fix of COULT to Runway 12L when the arrival demand on the airport is low.

I ask for your continued support of Request 1 as it is consistent with the goals of the Runway Use System (RUS). The NOC has long been supportive of the RUS as the guiding policy document for aircraft departures and arrivals at MSP Airport. This recommendation would place a handful of operations each day into the Corridor where they belong. The RUS clearly prioritizes departures on Runways 12L and 12R ahead of departures on Runway 17. This recommendation also results in minimal changes to DNL contours, with the only impact of more than .25 dB DNL occurring on airport property. The 6-month testing period that would ensue if this request moved forward would also be an opportunity to determine the true impact of the change. Simply put, this recommendation is the right thing to do, and I ask for your support.

Request 4

Request 4 would move approximately three westbound, nighttime departures per day from Runway 12L and 12R to Runway 17 to take advantage of the 2.5-mile river departure procedure. The request was made in response to residents who experienced sweeping turns over their homes in the evening hours as planes headed west.

While the request only impacts three departures per evening, there is a more significant DNL impact due to the DNL metric penalizing nighttime operations. For this reason, I can understand the cities of Richfield, Bloomington and Burnsville having concerns with the request moving forward due to the DNL increases that would occur in their communities. Furthermore, the area showing the greatest decrease in DNL is within the Eagan Mendota Height Corridor, which is counterintuitive to what the NOC is trying to accomplish.

Many Eagan residents would very much appreciate any noise relief they can get, but the data is clear on this request. Noise would be shifted from one community to another, and again, that was never Eagan's intent. Thus, while I would welcome your support for Request 4, I understand if the documented noise burden is unacceptable to the NOC.

Eagan's Request of the NOC

In closing, after months of letters, conversations with the FAA, and technical review by MAC staff, the NOC has reached a decision point. I kindly ask that you support Request 1 through a recommendation to the MAC Planning, Development and Environment Committee.

Thank you in advance for your consideration and your service to our airport and Twin Cities region.

Kindly,

Mike Maguire
Mayor

cc: Brad Juffer, MAC
Dana Nelson, MAC
Dave Osberg, Eagan City Administrator
Eagan Airport Relations Commission
Eagan City Council

City of Inver Grove Heights

www.invergroveheights.org

May 19, 2020

Noise Oversight Committee
Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

Dear Members:

In 2017-2019, the city with the third highest number of noise complaints filed with the MAC was the city of Inver Grove Heights. As MSP airport use continues to grow in the future, it is very important to the city of Inver Grove Heights that the increased noise implications of such growth be shared proportionately by MSP airport neighboring communities. It is with this principle of fairness in mind that the city of Inver Grove Heights wishes to go on public record as in opposition to any further consideration by the NOC, MAC and FAA of a September 2019 city of Eagan letter requesting FAA procedural modifications to direct departures to Runway 17 commonly referred to as procedural adjustment "Request #1" by Eagan and MAC staff.

According to recent modeling prepared by MAC staff of the impacts of Request #1, it has been suggested that an additonal 9.2 average daily flight departures would be redirected to fly on a new flight track directly over the most densely populated Inver Grove Heights' residential neighborhoods. As such, Request #1 can not be deemed a fair share solution but instead, a direct shift of a noise problem from one community to another. As such, we respectfully ask for the NOC to recognize the shift being proposed and to recommend rejection.

Sincerely,

Heather Rand
Director of Community Development
City of Inver Grove Heights

8150 Barbara Ave. ▪ Inver Grove Heights, MN 55077-3412
Telephone: 651-450-2500 ▪ Fax: 651-450-2502

Cc: Inver Grove Heights City Council
Inver Grove Heights Environmental Committee
Brad Juffer, MAC Manager of Community Relations

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CITY OF
MENDOTA HEIGHTS

May 20, 2020 ***REVISED***

Ms. Dianne Miller, Community Co-Chair
Mr. Jeff Hart, User Co-Chair
Noise Oversight Committee
Metropolitan Airports Commission
3800 E. 70th Street
Minneapolis, MN 55450

RE: Eagan Request to FAA

Dear Committee Co-Chairs, and Members of the NOC:

As a long standing member city of the NOC, the City of Mendota Heights has valued the partnership of neighboring communities in addressing MSP airport noise and takes great pride in the collaborative work that has been accomplished throughout the years.

Our city, being located at the end of the parallel runways, continues to be challenged by airport noise and growing resident concern. Through support of airport standard operating procedures, Mendota Heights has accepted its fair share of air traffic. We believe in a balanced approach and do not advocate for simply shifting noise from one city to another.

On the Committee agenda for the May 20 meeting is action regarding follow-up from the September, 2019, request from City of Eagan to the FAA. Initially, Eagan's request sought NOC endorsement of nine recommendations from the Eagan Airport Relations Commission, seeking modifications to a number of FAA procedures which were suggested as a way to reduce the amount of flight noise experienced by Eagan residents. Ultimately, four proposals were sent to the FAA for consideration.

The City of Mendota Heights appreciates the amount of effort by the NOC, MAC staff and the FAA to determine what proposals may be feasible in addressing Eagan resident concerns regarding airport noise. The FAA's February response has further narrowed down the list of feasible recommendations to two.

Of specific concern to the City of Mendota Heights is the impact of Adjustment Request #1 which asked to, ***"Direct departures from Runway 17, with an initial departure fix of COULT or ZMBRO to Runway 12R or Runway 12L, unless the departure would impede or be impeded by arrival traffic to those runways."*** The FAA in its response determined that this request potentially had merit, if limited to departure fix COULT to runway 12L.

Our issue with this request is that this would shift air traffic in this instance from one community (Eagan), to others—Mendota Heights, Sunfish Lake, and Inver Grove Heights. While Mendota Heights does not speak for those cities, we will note that NOC has never advocated the shifting of air traffic from one city to another to solve noise issues. We are concerned about the precedent that this would set, and believe that the NOC should be equally concerned. We feel that the FAA might not be constrained in the future by this single departure fix, and could approve similar fixes to other noise complaints.

NOC has always adhered to the Runway Use System (RUS), where air traffic could be directed to move to the parallel runways at times when airport landing and arrival volumes will permit. Our focus is on finding a solution and again feel that simply shifting flights and therefore the issue of noise from one city to another does not solve the problem. The City urges the NOC and FAA to reconsider initial adjustment request #1 to include the use of runways 12R and 12L for departures equally, and that the departure headings used when reverting to the RUS would be the Crossing in the Corridor headings.

Mendota Heights has had a long history of working collaboratively with neighboring impacted cities to find resolutions to airport noise issues—i.e., Crossing in the Corridor, use of the river corridor, and the like. Again, we have always accepted our fair share of MSP departure and arrival traffic, and will continue to do so.

The City of Mendota Heights is not supportive of the FAA's rationale outlined in Request #1, and we urge NOC to not endorse Adjustment Request #1 for action by the MAC Commission. To do so would be to set a very bad precedent.

Thank you for your consideration.

Sincerely,

Neil W Garlock

Neil Garlock, Mayor
City of Mendota Heights

cc: Mendota Heights ARC
Mayor George Tourville, City of Inver Grove Heights
Mayor Dan O'Leary, City of Sunfish Lake

City of Sunfish Lake
Sunfish Lake, Minnesota

May 19, 2020

Ms. Dianne Miller, Community Co-Share
Mr. Jeff Hart, User Co-Chair
Noise Oversight Committee
Metropolitan Airports Commission
3800 E. 70th Street
Minneapolis, MN 55450

Dear Committee Co-Chairs and Members of the NOC:

Perhaps the "Catchphrase" of our times is "We are all in this together!" With COVID-19 dominance; that is the phrase spread forth in the news media, celebrity announcements and comments from most State Governors.

That belief for decades has been the guiding principle for the NOC. All communities cooperate to reduce our traffic noise to its lowest possible levels by all reasonable means. It was critical to the success of the NOC that deviating noise from one community to another was not acceptable because "we are all in this together."

Sunfish Lake adopts in its entirety and joins in the excellent May 20, 2020 letter of the City of Mendota Heights. Thus, it would serve no purpose to repeat those same points. However, we would like to emphasize that there is a long-standing principle of the Runway Use System (RUS) to prioritize using both 12L and 12R equally for the benefit of all relevant communities. We would strongly urge the FAA to put 12R back into the consideration regarding Eagan request #1 to include the usage of both 12L and 12R equally in order to stay true to the Runway Use System.

Very truly yours,

Dan O'Leary
Mayor, Sunfish Lake, MN
10 Windy Hill Road
Sunfish Lake, Minnesota 55077

cc: Mayor Neil Garlock, City of Mendota Heights
Mayor George Tourville, City of Inver Grove Heights
Mayor Mike Maguire, City of Eagan
Dana Nelson, MAC

MEMORANDUM

ITEM 1.2.1

TO: MSP Noise Oversight Committee (NOC)

FROM: Michele Ross, Assistant Manager, Community Relations

SUBJECT: **REVIEW OF MSP MONTHLY OPERATIONS REPORTS: MAY AND JUNE 2020**

DATE: July 1, 2020

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.

At the July NOC meeting, MAC staff will provide a summary of this information for May and June 2020. 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: Jennifer Lewis, Community Relations Coordinator

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

DATE: July 1, 2020

In accordance with the 2020 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 2020 or 2021 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 Update

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

July 2020

Contents

July 2020

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 developing sciences evolving through many years of study.

This summary provides a description of research efforts in late 2019 and early 2020 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 for future exploration.

Federal Aviation Administration (FAA)

Report to Congress: FAA Reauthorization Act of 2018 (Pub. L. 115-254) Section 188 and Sec 173

Congress directed the FAA to evaluate alternative metrics for evaluating aircraft noise in response to Section 188 of the FAA Reauthorization Act of 2018. The FAA published its findings in a report to Congress on April 14, 2020 and included in its findings an evaluation of the current threshold of 65 dB Day-Nigh Level (DNL) in accordance with Section 173 of the Reauthorization Action of 2018.

The FAA found that *"… while the DNL metric is FAA's decision-making metric, other supplementary metrics can be used to support further disclosure and aid in the public understanding of community noise effects."* The study also found that noise modeling is the only practical way to predict geospatial noise effects in a surrounding community when analyzing proposals related to aviation noise. Also, noise modeling serves as a consistent method of evaluating predicted noise resulting from airfield changes or changes in airspace management.

Here is a link to the full report on the FAA's website:
www.faa.gov/about/plans_reports/congress/media/Day-Night_Average_Sound_Levels_COMPLETED_report_w_letters.pdf

National Sleep Study

The FAA announced in November 2019 its intention to conduct a two-year National Sleep Study, which involves collecting information from study participants related to the effects of aircraft noise on their sleep in order to determine relationships between aircraft noise levels and the probability of waking-up. The FAA stated it will use the information from this collection to derive and inform potential updates to or validation of the national aviation noise policy.

More information may be found: www.federalregister.gov/documents/2019/11/27/2019-25714/agency-information-collection-activities-requests-for-comments-clearance-of-a-new-approval-of

Research Agency Overview

Research collaborations are conducted on an ongoing basis and detailed by the Transportation Research Board and ASCENT. More information about each research agency and the

referenced projects is accessible through the website links provided for each organization and project on the following pages.

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

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/

Research Agency Project Table				
Agency	**Project #**	**Project Title**	**Project URL**	**Status**
TRB	02-79	***Improving AEDT Modeling for Aircraft Noise Reflection and Diffraction from Terrain and Manmade Structures***	http://www.trb.org/Main/Blurbs/180058.aspx	Published
TRB	11-03	***Current Landscape of Unmanned Aircraft Systems at Airports***	http://www.trb.org/Main/Blurbs/180032.aspx	Published
TRB	02-82	***Developing a Roadmap to Achieve Zero Emissions at Airports***	http://www.trb.org/Publications/Blurbs/180127.aspx	Published
TRB	03-51	***Electric Aircraft on the Horizon -- An Airport Planning Perspective***	http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4625	Underway
ASCENT	3	***Cardiovascular Disease & Aircraft Noise Exposure***	https://ascent.aero/project/noise-impact-health-research/	Annual Report 2019
ASCENT	17	***Pilot Study on Aircraft Noise & Sleep Disturbance***	https://ascent.aero/project/noise-exposure-response-sleep-disturbance/	Final Report 2019
ASCENT	18	***Health Impacts Quantification for Aviation Air Quality Tools***	https://ascent.aero/project/health-impacts-quantification-for-aviation-air-quality-tools/	Annual Report 2019
ASCENT	22	***Evaluation of FAA Climate Tools***	https://ascent.aero/project/evaluation-of-faa-climate-tools/	Annual Report 2019
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 2019
ASCENT	34	***National Jet Fuels Combustion Program***	https://ascent.aero/project/overall-program-integration-and-analysis-area-7-2/	Annual Report 2019

Research Agency Project Table				
Agency	**Project #**	**Project Title**	**Project URL**	**Status**
ASCENT	37	***CLEEN II Technology Modeling & Assessment***	https://ascent.aero/project/cleen-ii-technology-modeling-and-assessment/	Annual Report 2019
ASCENT	39	***Naphthalene Removal Assessment***	https://ascent.aero/project/naphthalene-removal-assessment/	Annual Report 2019
ASCENT	40	***Quantifying Uncertainties in Predicting Aircraft Noise in Real-world Situations***	https://ascent.aero/project/quantifying-uncertainties-in-predicting-aircraft-noise-in-real-world-situations/	Annual Report 2019
ASCENT	43	***Noise Power Distance Re-Evaluation***	https://ascent.aero/project/noise-power-distance-re-evaluation/	Annual Report 2019
ASCENT	44	***Aircraft Noise Abatement Procedure Modeling & Validation***	https://ascent.aero/project/aircraft-noise-abatement-procedure-modeling-and-validation/	Annual Report 2019
ASCENT	45	***Takeoff/Climb Analysis to Support AEDT APM Development***	https://ascent.aero/project/takeoffclimb-analysis-to-support-aedt-apm-development/	Annual Report 2019
ASCENT	48	***Analysis to Support the Development of an Engine nvPM Emissions Standards***	https://ascent.aero/project/analysis-to-support-the-development-of-an-engine-nvpm-emissions-standards/	Annual Report 2019
ASCENT	51	***Combustion Concepts for the Next-Generation Aircraft Engines***	https://ascent.aero/project/combustion-concepts-for-the-next-generation-aircraft-engines/	Underway
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/	Underway

Research Agency Project Table				
Agency	**Project #**	**Project Title**	**Project URL**	**Status**
ASCENT	54	***AEDT Evaluation & Development Support***	https://ascent.aero/project/aedt-evaluation-and-development-support/	Underway
ASCENT	55	***Noise Generation & Propagation from Advanced Combustors***	https://ascent.aero/project/noise-generation-and-propagation-from-advanced-combustors/	Underway

Other Noteworthy Research Efforts

Electric Aircraft

Two companies, magniX and AeroTEC, successfully completed a test flight in an all-electric commercial aircraft on May 28, 2020 at Grant County International Airport in Moses Lake, Washington. The aircraft used for the test flight is a single-engine turboprop Cessna eCaravan, which seats nine passengers. The gas-powered Caravan is commonly used for transporting passengers and cargo. Here is where you may learn more: https://www.magnix.aero/ecaravan/

International Civil Aviation Organization (ICAO)

The ICAO Environmental Report 2019 was published to share a summary of progress and the pace of change in international aviation environmental protection. The report consolidates various articles and case studies that highlight work conducted by ICAO, the aviation industry, and other stakeholders across the globe. Chapter two specifically addresses aircraft noise.

More information may be found here: www.icao.int/environmental-protection/Documents/ICAO-ENV-Report2019-F1-WEB%20(1).pdf

MEMORANDUM

ITEM 2

TO: MSP Noise Oversight Committee (NOC)

FROM: Brad Juffer, Manager, Community Relations

SUBJECT: **PUBLIC COMMENT PERIOD**

DATE: July 1, 2020

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 callers who wish to speak to indicate their desire following the direction of the chairperson. When called upon to speak by the chairperson, the meeting organizer will unmute your line. Speak clearly into your phone and 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.

- 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: Brad Juffer, Manager, Community Relations

SUBJECT: **FLIGHT PROCEDURE CHANGE REQUEST GUIDELINES**

DATE: July 1, 2020

In 2019, the City of Eagan and its residents sought to change the way certain air traffic was routed by the Federal Aviation Administration (FAA) at the Minneapolis-St. Paul International Airport (MSP). When they began to create adjustment requests, the residents did not have a standard process to follow. The recommendations were created and sent to the NOC in September.

The FAA presented a more formal process for procedure adjustments to the NOC after the recommendations were created. When the NOC considered the requests, some of those recommendations were found to be infeasible using long standing criteria to not move traffic to different residential areas and to not adversely affect the efficiency of the airport. These criteria had been used in the past, but no written process was in place. The City of Eagan could have potentially focused their efforts more judiciously had there been a written framework to follow and clear criteria to use.

MAC staff has developed the following proposed guidelines to circulate for the NOC's consideration. This document incorporates the process shared by the FAA and identifies the proposed criteria and process MAC staff and the NOC will use to evaluate future requests.

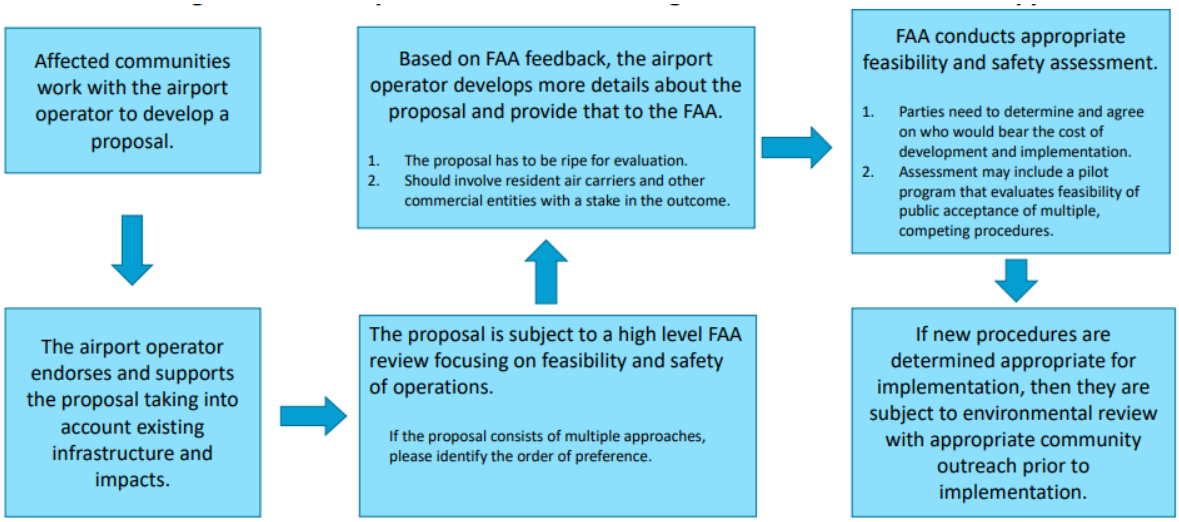
At the July 15, 2020 NOC meeting, staff will be seeking feedback from the Committee on the proposed guidelines with the intent to incorporate feedback and seek Committee approval in September.

Flight Procedure Change Request Guidelines

The Metropolitan Airports Commission (MAC) owns seven airports in the seven-county Twin Cities metropolitan area, however the authority over aircraft flight procedures rests solely with Federal Aviation Administration (FAA). Flight procedures are used to maintain an orderly flow of air traffic to and from airports. Systematic procedures are used to guide aircraft in predicable ways and are necessary to reduce conflicts to ensure the surrounding airspace is operating in the safest manner possible.

The process for creating or modifying flight procedures can take up to several years and involves input and examination by various aspects of the FAA before draft procedures are tested and implemented. This careful vetting and scrutiny are vital because each flight procedure being developed must be able to be flown in concert with other flight procedures to avoid airspace conflicts.

The FAA encourages communities to work together with their municipal leadership and with the MAC for proposals to develop new flight procedures or modify existing procedures when those procedures affect flight operations at MSP. The process is illustrated below for reference:



Citizens requesting a new flight procedure, or changes to an existing procedure, should work with their elected officials, City administrators, or Airport Advisory group to coordinate the request prior to submitting it to the MSP Noise Oversight Committee (NOC). Once a flight procedure has received broad support from a community group, then a flight procedure change request form can be submitted. Forms should be submitted to the NOC member appointed for your area. If your area does not have an appointed member, submit the form and documentation to the Metropolitan Airports Commission Community Relations Office.

NOC Criteria

Requests that are evaluated will be shared with NOC members during a regularly scheduled committee meeting. In order for the request to move forward, the following criteria must be met. These criteria may be evaluated by the NOC and some may be evaluated by the FAA.

- All portions of the Flight Procedure Request Form must be fully completed.
- The request must not duplicate a request that was previously evaluated.
- The request must not significantly reduce capacity or increase delay on a runway or across the airport as a whole.
- The request must not simply move noise from one residential area of a community to another.
- The procedure request must be usable by aircraft pilots.
- The FAA must determine that the request is operationally feasible and follow existing FAA regulations regarding air traffic.
- The FAA must determine that the request will maintain the safety of aircraft operations.
- The FAA must determine that the request cannot unduly increase air traffic controller workload.

Flight Procedure Request Form

Requests for new or modified flight procedures must consider numerous details. The MAC Aircraft Noise Basics video series (www.macnoise.com/aircraft-noise-basics) and online MAC FlightTracker tool (www.macnoise.com/tools-reports/flighttracker) are great references for runway use, collaboration, government roles, and more.

Please complete the following details for the flight procedure request (One procedure per form):

1. Date

2. Name of community sponsor

3. Describe the reason for seeking this flight procedure request

4. Indicate length of time the existing conditions have taken place

5. Describe the proposed flight procedure being requested with as much detail as possible, including airport runway names, aircraft types, day of week, time of day, unique operating situations, weather conditions, etc.

6. Describe the benefit of the flight procedure being requested:

7. Is this a new flight procedure or a modification to an existing flight procedure?

8. Provide MAP 1, which shows the existing condition that clearly indicates the affected runways, an illustration of the existing flight procedure you are seeking to change, and land uses being overflown by existing flight procedure. *(If assistance is needed, contact the MAC Community Relations Office).*

9. Provide MAP 2, which shows the proposed condition that clearly indicates the affected runways, an illustration of the proposed new/modified flight procedure, land uses being overflown by new/modified flight procedure being requested (residential, commercial, industrial, open space, etc.) *(If assistance is needed, contact the MAC Community Relations Office).*

MEMORANDUM

ITEM 4.1

TO: MSP Noise Oversight Committee (NOC)

FROM: Brad Juffer, Manager, Community Relations

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

DATE: July 1, 2020

At the July 15, 2020 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: Michele Ross, Assistant Manager, Community Relations

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

DATE: July 1, 2020

The 2020 MSP Noise Oversight Committee Work Plan directs MAC staff to conduct an analysis of MSP Runway 30L and 30R departure activity over cities to the northwest of the airport. The study was intended to model a study that was conducted in 2019 related to Runway 17 departures.

Airport data from 2016 through 2019 was used to examine changes in the use of Runways 30L and 30R. Specifically, the following topics were researched:

- Runway Use
- Flight Frequency
- Departure Headings
- AEDT Noise Model Data
- Departure Altitudes

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

RUNWAYS 30L AND 30R DEPARTURE OPERATIONS REPORT

July 2020

Community Relations Office

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

RUNWAYS 30L AND 30R DEPARTURE OPERATIONS REPORT

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EXECUTIVE SUMMARY

During an MSP Listening Session in July 2019, community members discussed concerns related to departures from Runway 30L. At the MSP Noise Oversight Committee (NOC) meeting in September 2019, NOC members echoed the concerns about the use of Runways 30L and 30R for aircraft departing Minneapolis-St. Paul International Airport (MSP). In response, the NOC included an item to conduct a Runway 30L and 30R Departure Study in the 2020 Work Plan.

This study provides trend information on the use of Runways 30L and 30R in 2019 and was prepared in fulfillment of the NOC 2020 Work Plan. For comparison purposes, aircraft activity from 2016 through 2018 was used to compare to 2019 activity. Differences in the use of runways is noted as applicable.

The use of Runways 30L and 30R has varied since 2010. In 2019, Runway 30L was used for 24 percent of MSP departures and Runway 30R was used for 21 percent of departures. The use of the runways has been decreasing, from a combined use of about 58 percent in 2010 down to 45 percent of departures in 2019. Runway 30L was used more often for departures than Runway 30R for most of the years in the study time period with the exception of 2010 and 2016.

Weather, special events and airfield maintenance all impact the operational flow of air traffic daily. Airline schedules and changing fleet characteristics affect runway use monthly and annually. The use of the runways during peak hours of the day is similar in 2019 when compared to an average of 2016-2018. The runways are utilized similarly in the 11pm to 5am time period but have variations throughout the remainder of the day.

The average number of days with at least six hours of North Flow (use of Runways 30L, 30R and 35) or Mixed Flow A (use of Runways 30L, 30R and 17) activity and the average number of successive days in these flows in 2016-2018 and 2019 were similar. While in North Flow, the use of Runway 30L increased three percent in 2019 compared to the previous three-year average while the use of Runway 30R decreased three percent.

The most common headings flown by aircraft departing Runway 30L are categorized by a 230° heading. This use has been above 60 percent of all Runway 30L departures every year included in this study. The most common headings flown by aircraft departing Runway 30R are categorized by a 340° heading. This use has been above 30 percent of all Runway 30R departures every year included in this study.

Altitudes for regional jets has remained consistent from 2016 through 2019 for both runways. Altitudes for narrow body jets decreased slightly (about 300 feet at 10 miles from MSP) on both runways since 2016. Alternatively, wide body jets increased departure altitude in 2019 on Runway 30L. No significant differences between the runways were identified.

1. Introduction

The Metropolitan Airports Commission (MAC) is a public corporation governed by a board of commissioners that reports to the Governor of Minnesota and the Minnesota State Legislature. The MAC is charged with managing a system of seven airports within the Minneapolis-St. Paul metropolitan area, including Minneapolis-St. Paul International Airport (MSP). In addition to the MAC, other air transportation entities play critical roles in the successful operation of an airport. The Federal Aviation Administration (FAA) regulates all aircraft activity. At MSP, the FAA's Air Traffic Control (ATC) is solely responsible for directing aircraft on the ground and in the air. ATC's highest priority is the safe and efficient movement of air traffic. Air transportation companies, such as airlines, provide transportation services for people and products. **Figure 1 - Air Transportation Entities** below outlines the primary air transportation units responsible for the successful operation of MSP.

Figure 1 - Air Transportation Entities

The MAC has designated the Noise Oversight Committee (NOC) as its primary advisory body regarding aircraft noise issues associated with flight operations at MSP. The NOC directed MAC staff to conduct an analysis of MSP Runways 30L and 30R departure activity. A graphic of the MSP runway layout is provided in **Figure 2 - MSP Runway Layout**.

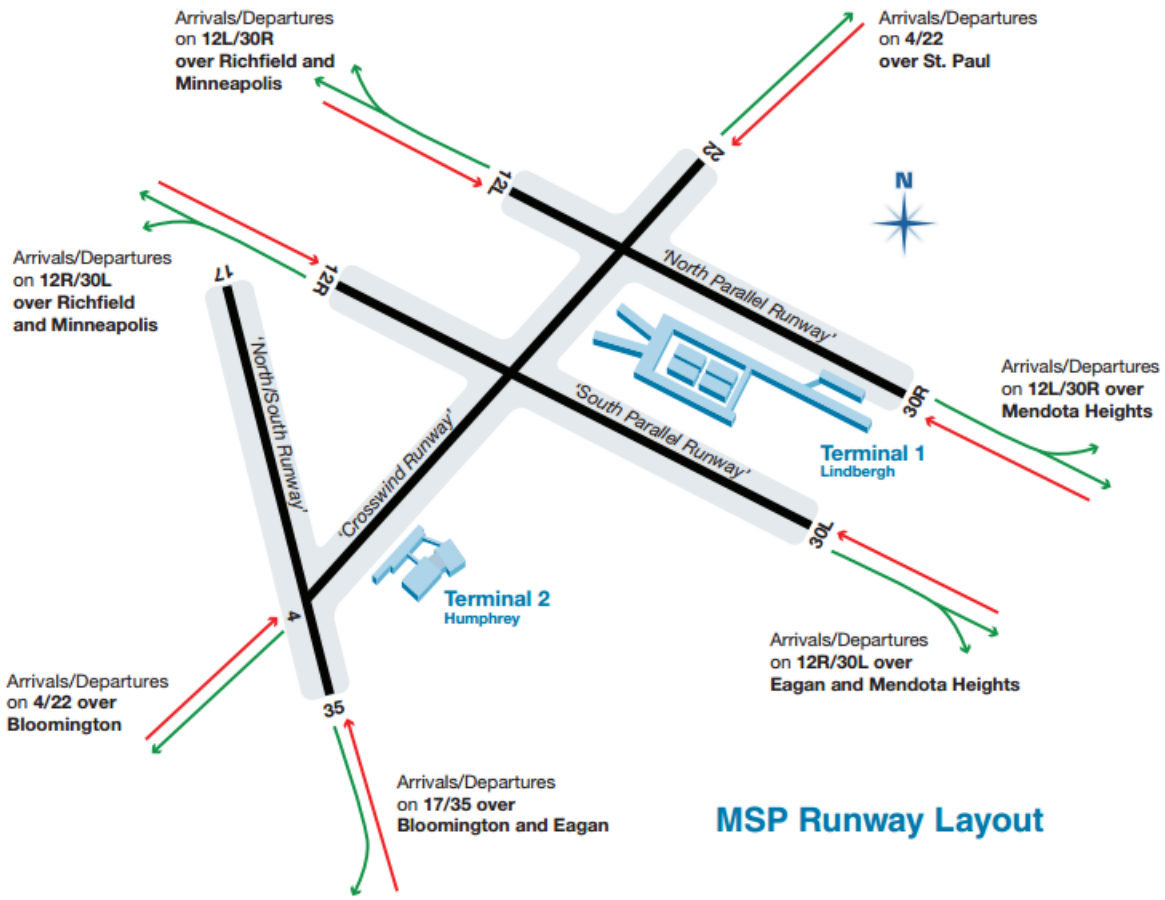


Figure 2 - MSP Runway Layout

2. BACKGROUND

As shown in **Figure 3 - MSP Runway Configurations**, Runways 30L and 30R are used during two primary airport configurations: (1) North Flow – where aircraft are departing from Runways 30L and 30R and arriving on Runways 30L and 30R and 35; and (2) Mixed Flow A – where aircraft are departing from Runway 17, 30L, and 30R, with aircraft arriving to Runways 30L and 30R.

The MSP Runway Use System (RUS) prioritizes arrival and departure runways to promote flight activity over less-populated residential areas as much as possible. During a North Flow, the Priority 4 departure runways (30L and 30R) are used for aircraft taking off. The RUS is maximized in Mixed Flow A, where the Priority 1 arrival runways (30L and 30R) are used for arrivals, while the Priority 2 departure runway (17) is used for departures in addition to Priority 4 departure runways (30L and 30R). In Mixed Flow A, departures that could utilize Runway 30L are redirected to Runway 17 to make use of the RUS.

As shown in **Figure 4 - MSP Departures by Year,** the use of Runways 30L and 30R has varied since 2010. The use of the runways has been decreasing, from a combined use of about 58 percent down to 45 percent of departures in 2019. In 2019, there were a total of 48,544 departures from 30L and 42,707 departures from 30R. The use of Runway 30L, as a percentage of MSP total departures, was highest in 2014. The use of Runway 30R as a percentage of total MSP departures was highest in 2010 and has been consistent since about 2014.

The last study on Runway 30L and 30R departures was conducted in 2013. During the previous year, the NOC recommended the FAA vector northbound departures from Runways 30L and 30R to headings of 320°, 340° and 360° in order to obtain greater dispersal of departure flights. This current study finds these divergent headings are being used by the FAA.

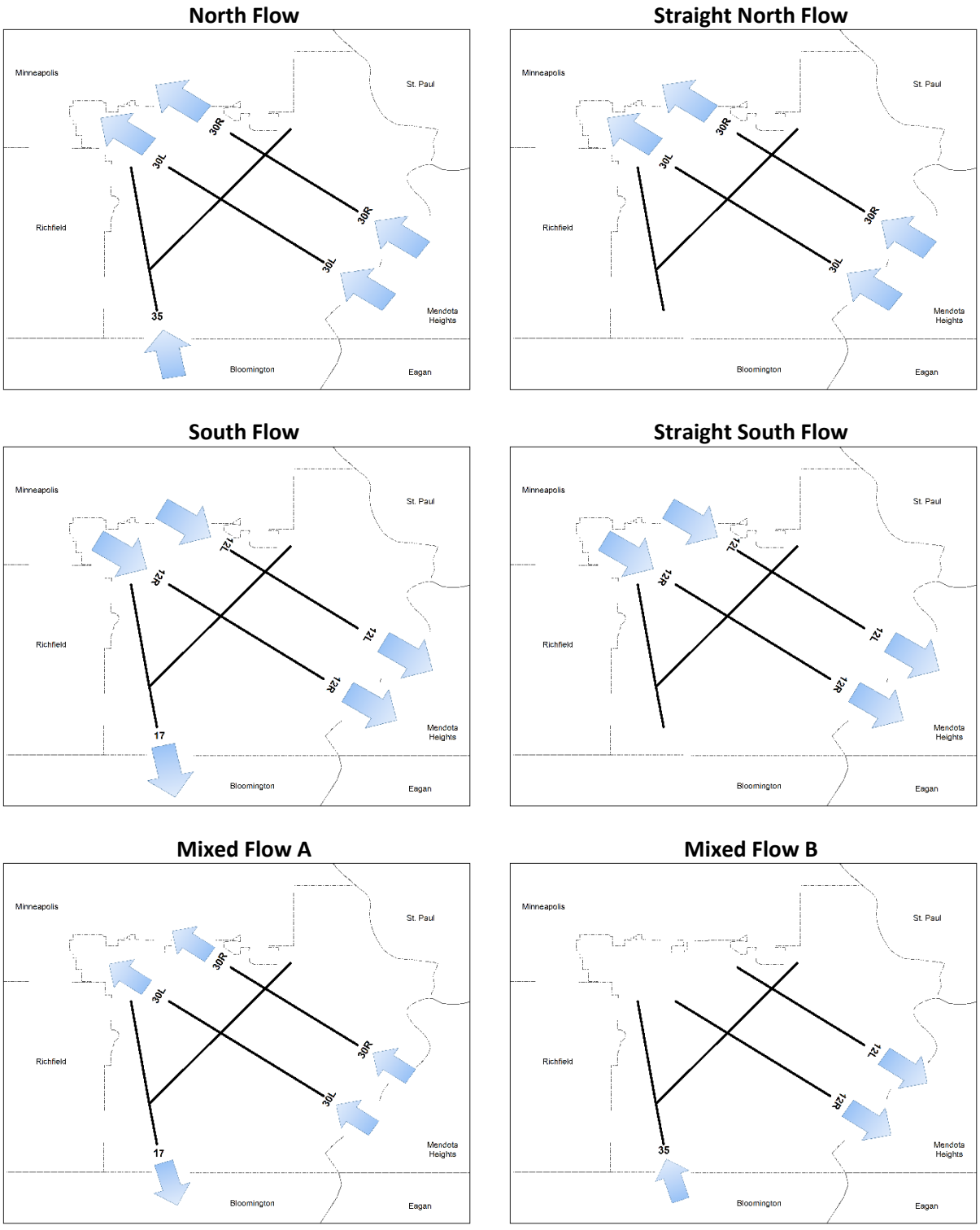


Figure 3 - MSP Runway Configurations

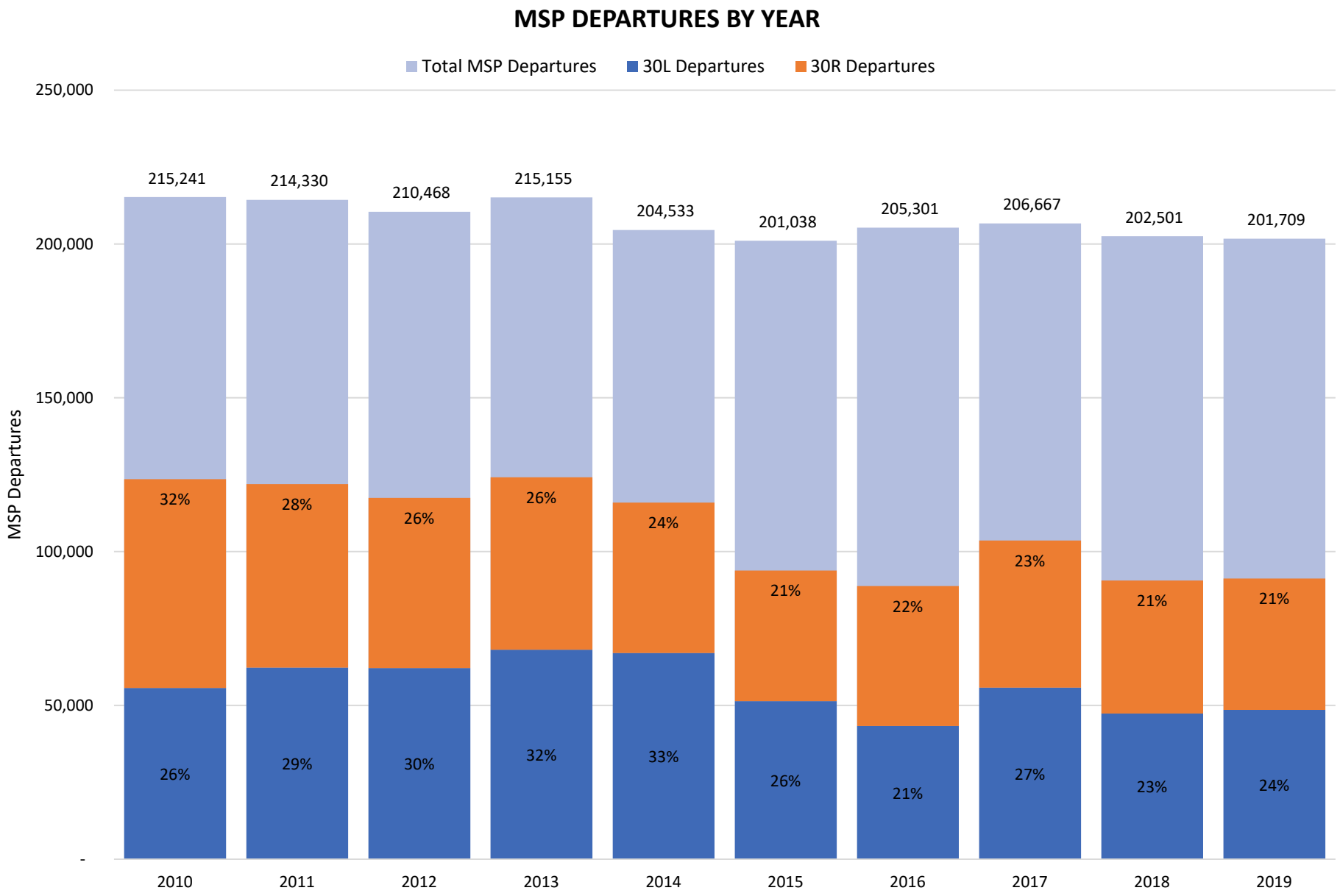


Figure 4 - MSP Departures by Year

3. Runway Use

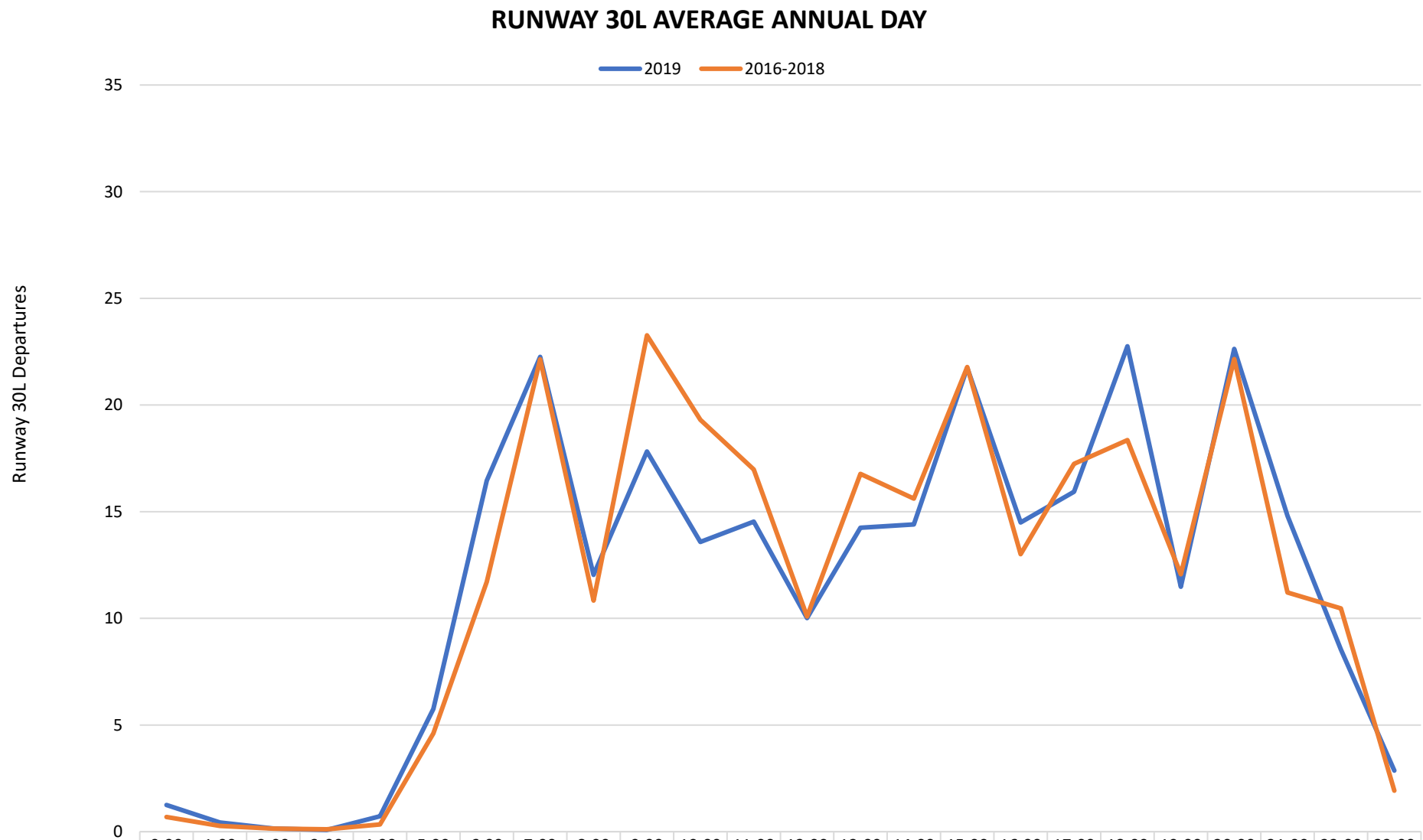
Weather, special events and airfield maintenance all impact the operational flow of air traffic daily. Airline schedules and changing fleet characteristics affect runway use monthly and annually.

Figure 5 - Runway 30L Average Annual Day and **Figure 6 – Runway 30R Average Annual Day** show the average number of departures during each hour when the airport was in either a North Flow or Mixed Flow A in 2019 compared to an average of the previous three years. As shown, Runway 30L and 30R are used very little between 11pm and 5am. Throughout the remainder of the day, peaks and valleys are prevalent, which are driven by airline scheduling trends. The first peak of the day for both runways occurred in the 7am hour followed by the first valley in the 8am hour. After 8am, differences and similarities occur between the runways. In 2019, there were 17 fewer average daily departures on Runway 30L between 9am and 3pm when compared to the previous three years. However, there were five more average daily departures on 30L in 2019 in the 6pm hour and four more average daily departures in the 9pm hour. In 2019, on average there were four more departures from 30R in the 6am hour and eleven fewer departures between 3pm and 8pm. In the 8pm hour, there is a peak number of departures that use Runway 30R.

Depictions of average days are informative, but averages can be misleading. **Figure 7 - Peak Hour Departure Operations** depicts the highest number of Runway 30L and 30R departures that occurred on any given hour in 2019. In general, the peaks and valleys are similar to the averages. Unusual departure peaks were often related to runway closures for weather or maintenance.

Figure 8 - MSP Days in North Flow or Mixed Flow A shows the number of days in which six or more hours were spent in North Flow or Mixed Flow A. The average number of days with at least six hours of North Flow or Mixed Flow A activity for 2016-2018 was about 174 days. This number was similar in 2019, with 173 days. The number of successive days in these flows was similar with an average of 5 days in 2019 and the three previous years.

Figure 9 - Departure Runway Distribution first lays out the distribution of North Flow and Mixed Flow A use in 2016-2018 (Average) and 2019. The use of North flow decreased by six percent in 2019 and was replaced by an equivalent increase in Mixed Flow A. The figure then lays out the distribution of runway use in 2016-2018 (Average) and 2019 in South Flow and Mixed Flow A. These percentages do not reflect the annual percent use of departures. They are only including the time the airport was configured in a North Flow and a Mixed Flow A, respectively. When MSP was configured in a North Flow in 2016-2018 (Average), 56 percent of all departures used Runway 30L and 44 percent of all departures used Runway 30R. That percentage changed to 59 percent and 41 percent in 2019. In the Mixed Flow A configuration, 14 percent of all departures used Runway 30L and 39 percent of all departures used Runway 30R in 2016-2018 (Average). That changed to 15 percent and 38 percent in 2019.



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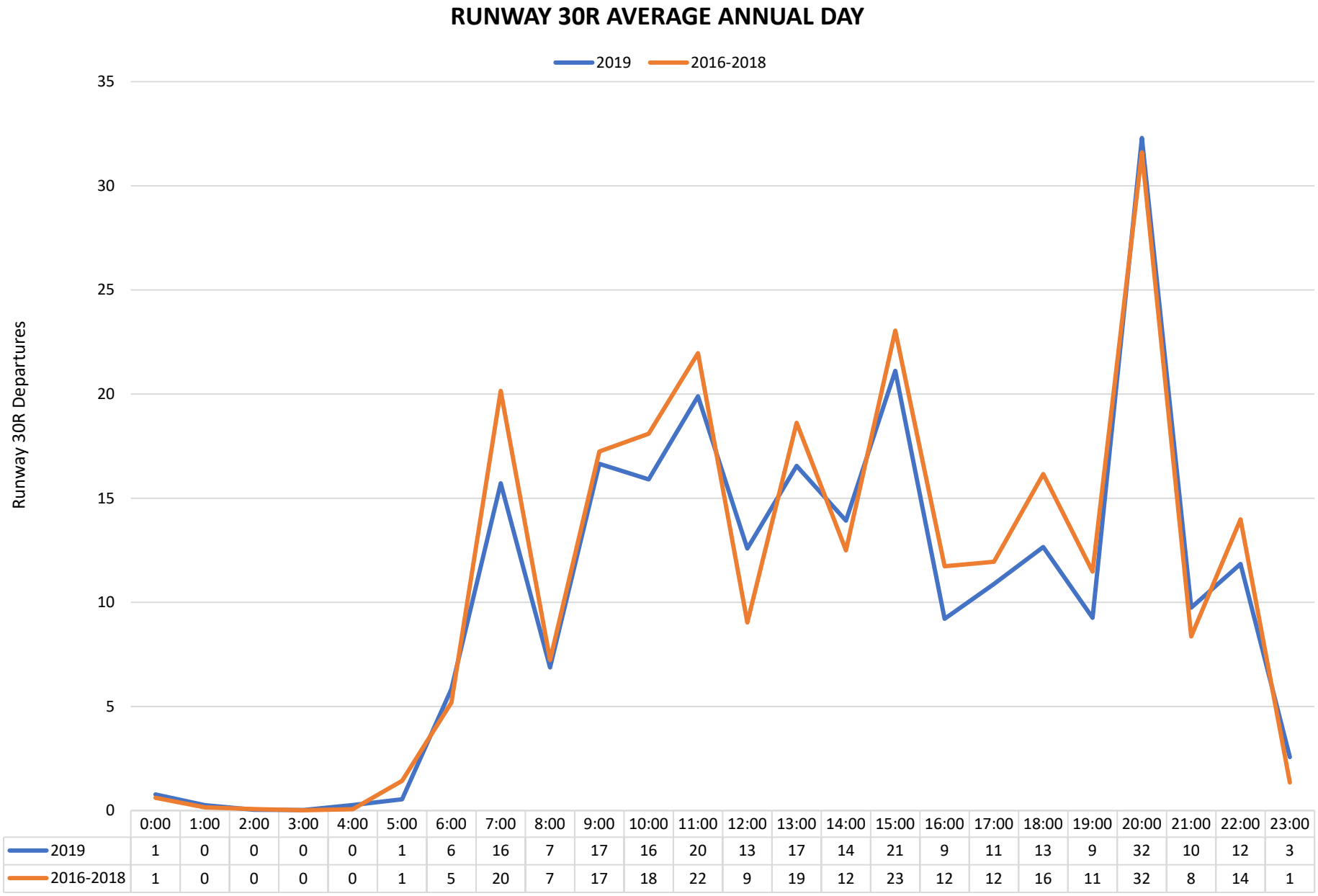
2019	1	0	0	0	1	6	16	22	12	18	14	15	10	14	14	22	14	16	23	11	23	15	9	3
2016-2018	1	0	0	0	0	5	12	22	11	23	19	17	10	17	16	22	13	17	18	12	22	11	10	2

Figure 5 - Runway 30L Average Annual Day



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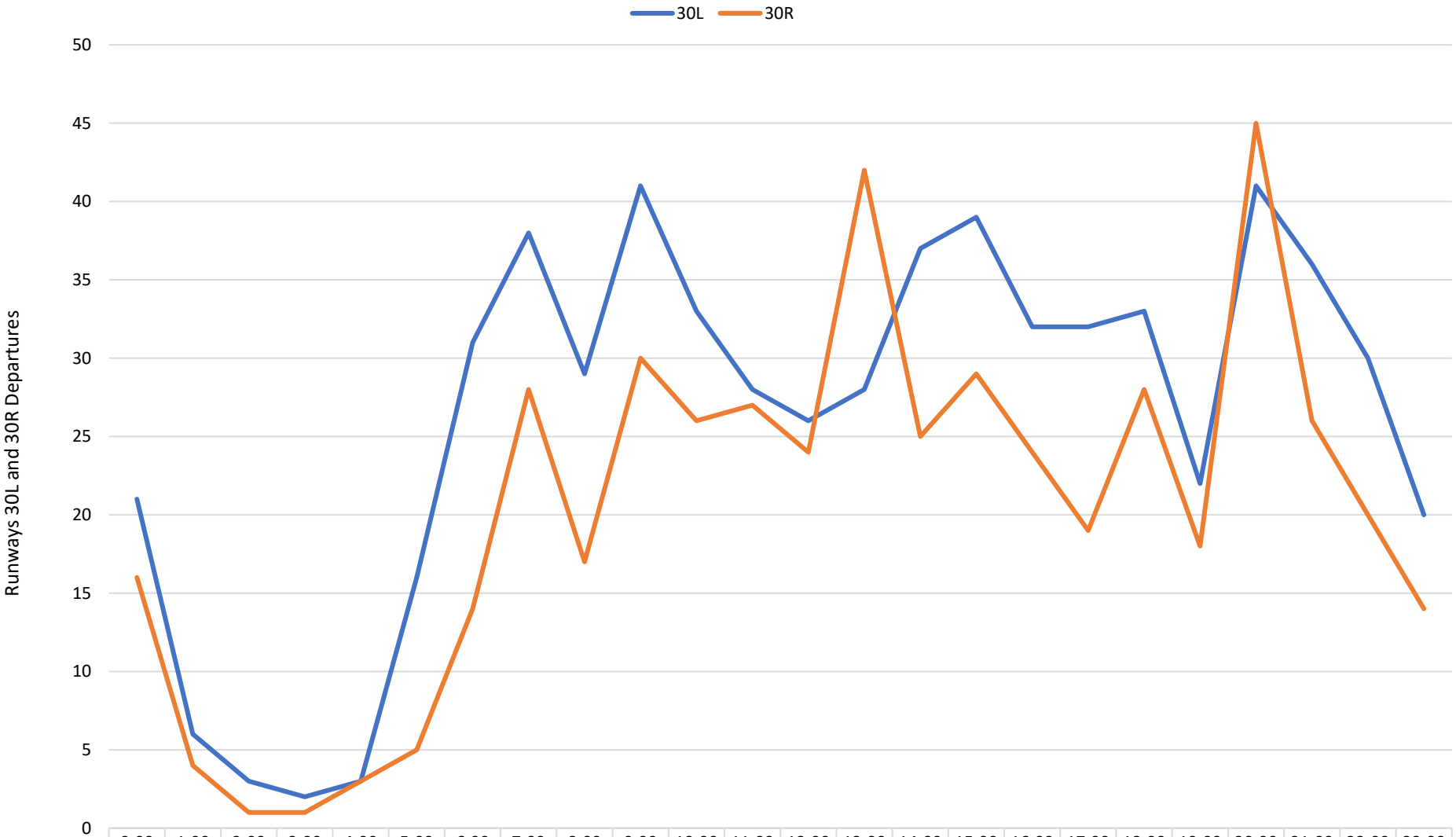
2019	1	0	0	0	0	1	6	16	7	17	16	20	13	17	14	21	9	11	13	9	32	10	12	3
2016-2018	1	0	0	0	0	1	5	20	7	17	18	22	9	19	12	23	12	12	16	11	32	8	14	1

Figure 6 – Runway 30R Average Annual Day

2019 PEAK HOUR DEPARTURE OPERATIONS



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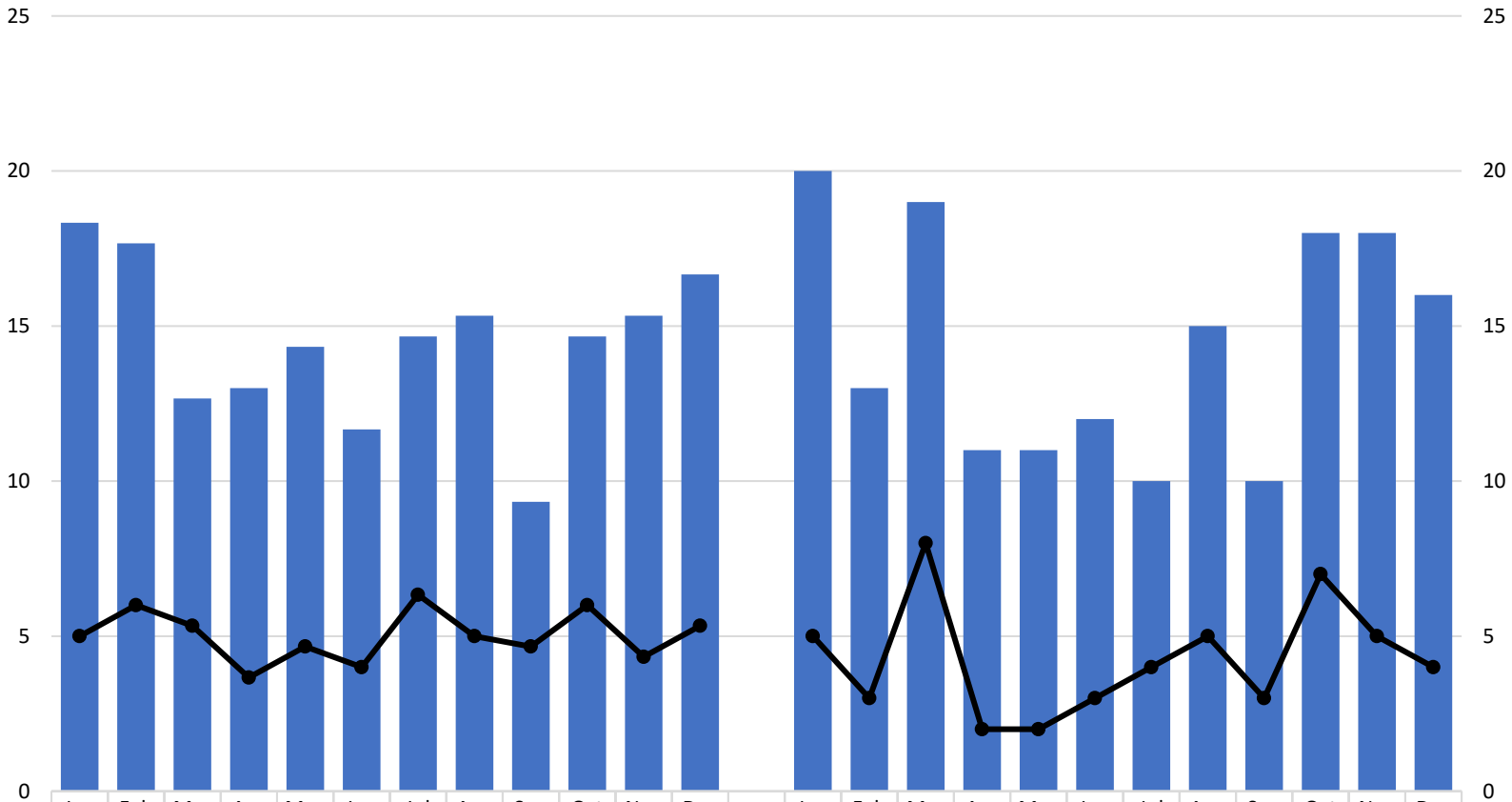
30L	21	6	3	2	3	16	31	38	29	41	33	28	26	28	37	39	32	32	33	22	41	36	30	20
30R	16	4	1	1	3	5	14	28	17	30	26	27	24	42	25	29	24	19	28	18	45	26	20	14

Figure 7 - Peak Hour Departure Operations

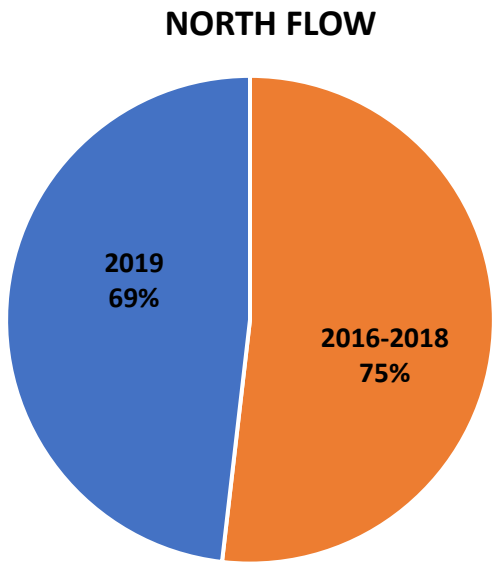
MSP DAYS IN NORTH FLOW OR MIXED FLOW A

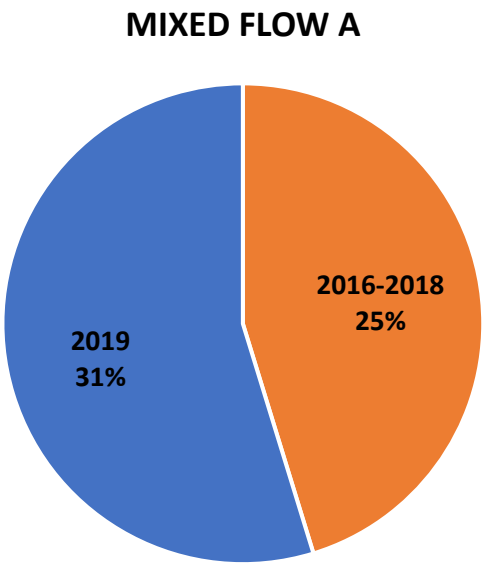


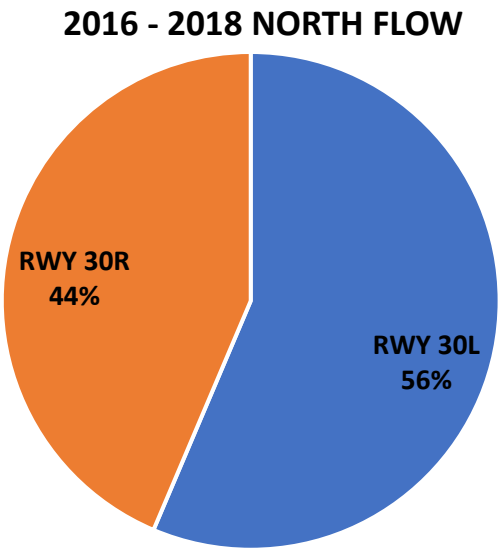
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	2016-2018 (Average)													2019											
Total Days	18	18	13	13	14	12	15	15	9	15	15	17		20	13	19	11	11	12	10	15	10	18	18	16
Successive Days	5	6	5	4	5	4	6	5	5	6	4	5		5	3	8	2	2	3	4	5	3	7	5	4

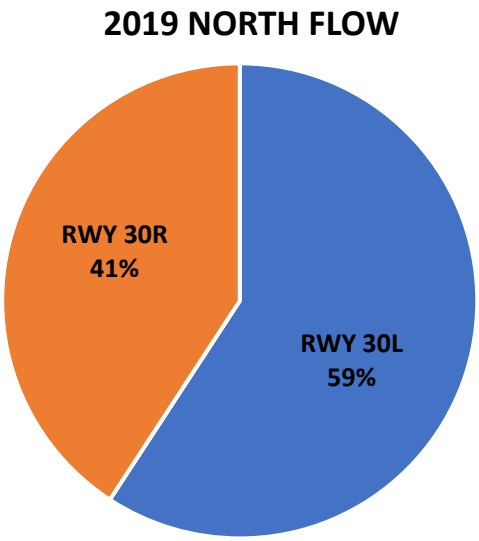
**Days were counted when North Flow or Mixed Flow A was used at least 6 hours or more*

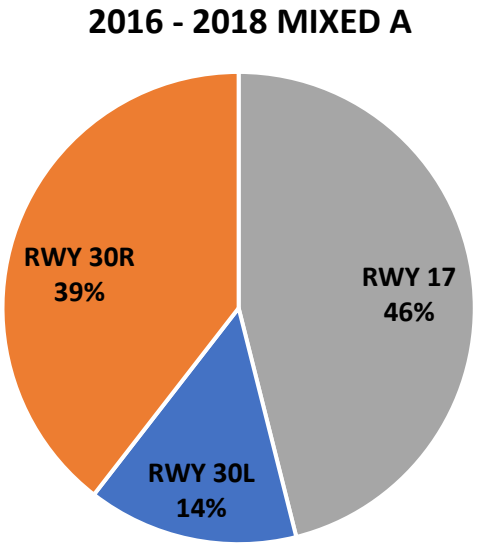
Figure 8 - MSP Days in North Flow or Mixed Flow A











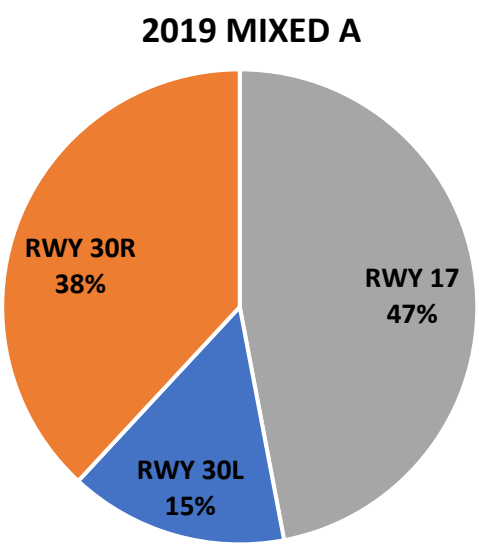
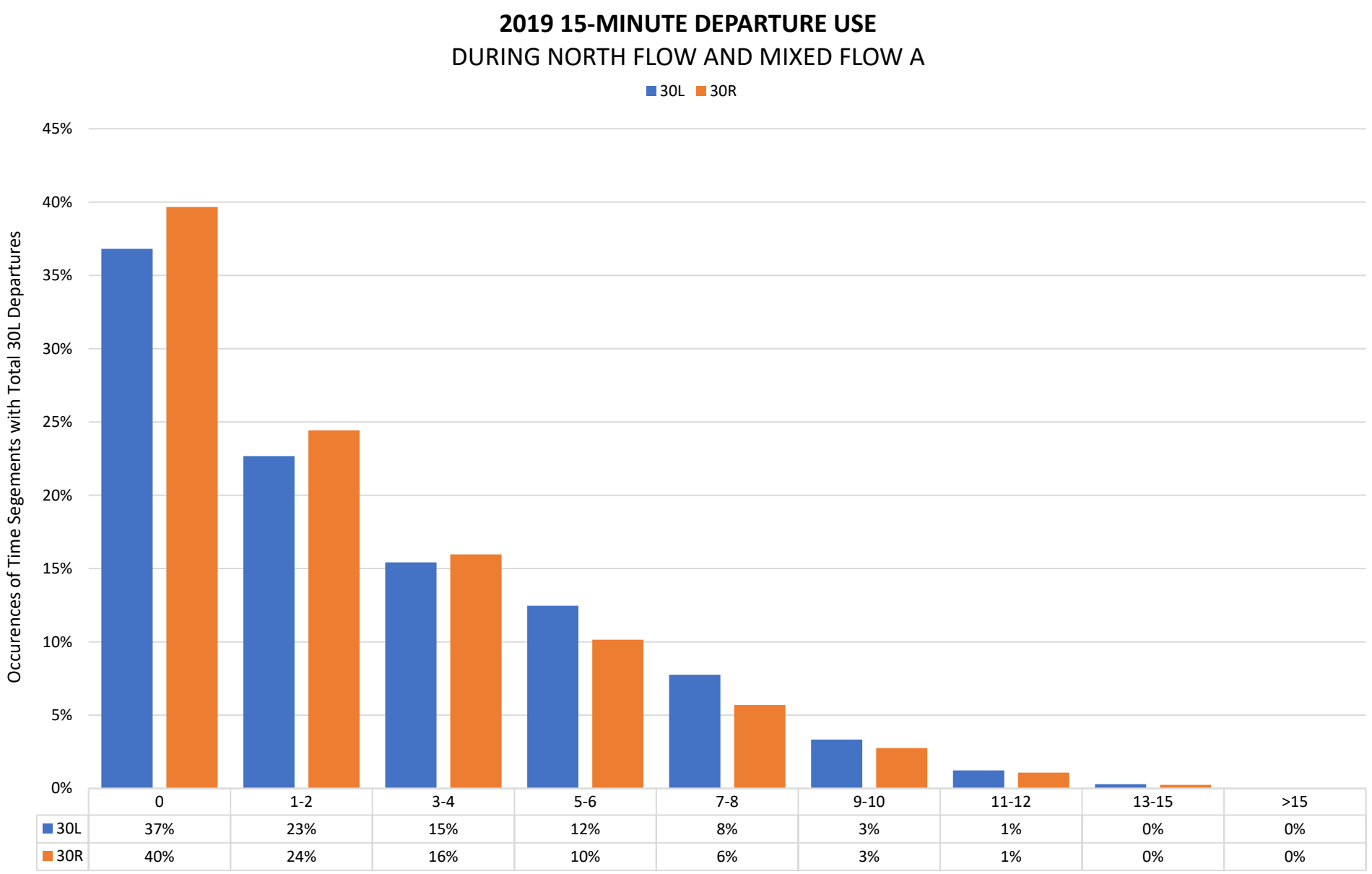


Figure 9- Departure Runway Distribution

4. Flight Frequency

To investigate whether the flight frequency within the 15-minute segments has changed, this analysis counts the number of Runway 30L and 30R departures during 15-minute segments in 2019 and compares to 2016-2018 (Average). **Figure 10 - 2019 15-Minute Departure Use** and **Figure 11 - 2016-2018 (Average) 15-Minute Departure Use** displays the percent of time the runway departures occurred at various levels of frequency (i.e. the number of Runway 30L departures per 15-minutes was 0, 1-2, 3-4, 5-6, etc.).

It is important to note that although the runways may be available for departure, they may not necessarily be used. Overnight hours are the most frequent occurrence of this situation. While there are many instances when the runways are available for use, Runway 30L was not used 37 percent and Runway 30R was not used 40 percent of the time they were available for use during the 2016-2018 time period. In 2019, this increased on Runway 30L by one percent and decreased on Runway 30R by one percent.

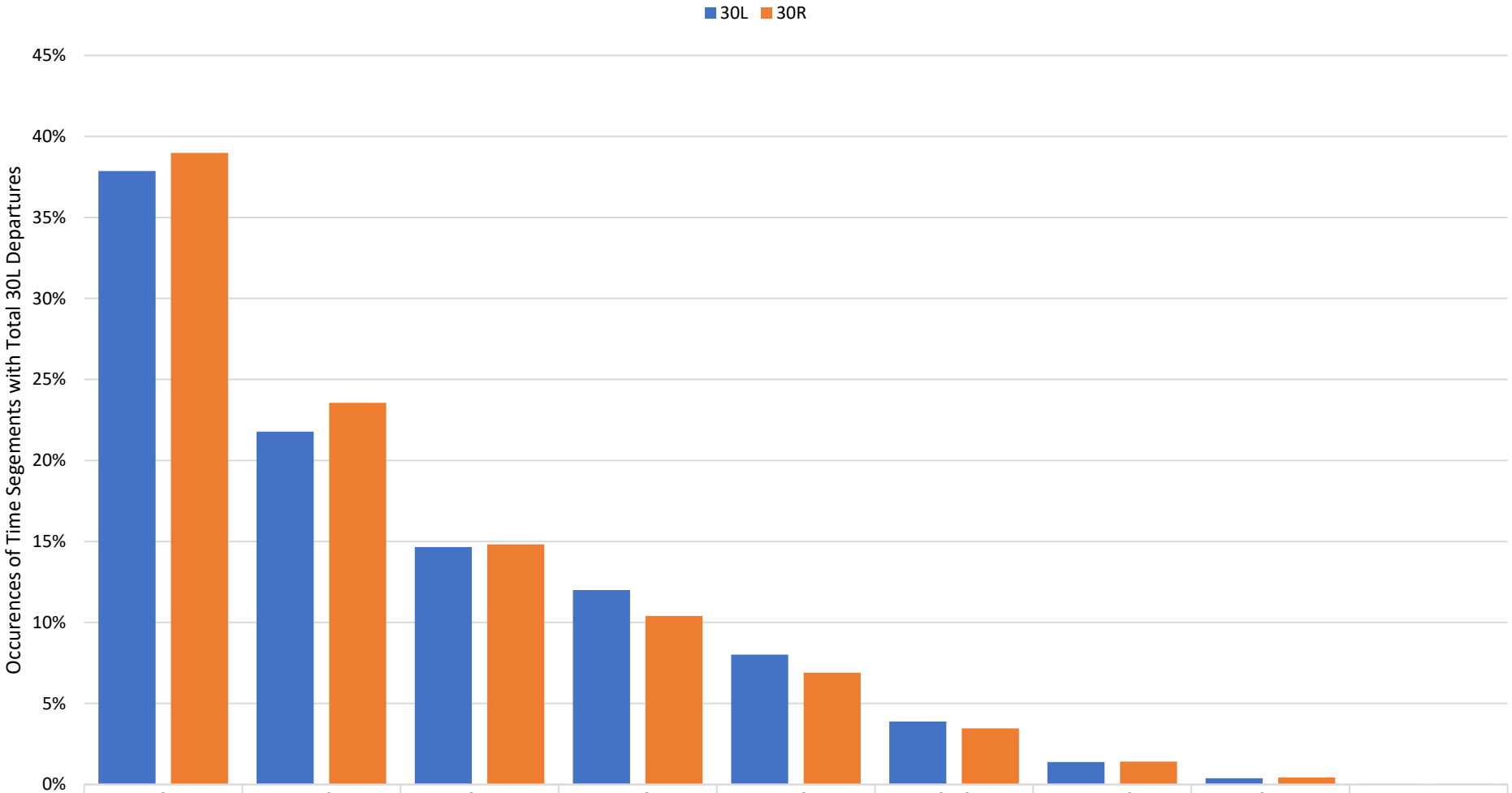


	0	1-2	3-4	5-6	7-8	9-10	11-12	13-15	>15
30L	37%	23%	15%	12%	8%	3%	1%	0%	0%
30R	40%	24%	16%	10%	6%	3%	1%	0%	0%

Figure 10 - 2019 15-Minute Departure Use

2016-2018 (AVERAGE) 15-MINUTE DEPARTURE USE

DURING NORTH FLOW AND MIXED FLOW A



	0	1-2	3-4	5-6	7-8	9-10	11-12	13-15	>15
30L	38%	22%	15%	12%	8%	4%	1%	0%	0%
30R	39%	24%	15%	10%	7%	3%	1%	0%	0%

Figure 11 - 2016-2018 (Average) 15-Minute Departure Use

5. Runways 30L and 30R Departure Headings

Runway 30L serves aircraft departing to destinations that are generally north, northwest, west, southwest and south of MSP. Additionally, Runway 30L is wider and longer than Runway 30R, which makes Runway 30L preferable for extra-large and/or extra-heavy aircraft. Runway 30R serves aircraft departing to destinations that are generally north, northeast, east, southeast and south of MSP. This covers a broad range of geographic locales. To accommodate that traffic, FAA Air Traffic Control (ATC) assigns a broad range of headings. While there is a range available to ATC, the FAA uses primary headings for departure. Using primary headings improves consistency, repeatability and safety and are chosen by ATC after considering numerous criteria including the aircraft's destination, routing, aircraft type, weather conditions, other air traffic and airport configuration. The aircraft destination and associated routing are important determinants to the heading assigned to a departure. For the purposes of this analysis, headings were assigned to the modeling tracks described below and may not representative actual ATC instruction for any given operation.

For the purpose of modeling aircraft noise, the Aviation Environmental Design Tool (AEDT) uses model tracks; however, the actual flight paths would be distributed along these tracks. Aircraft were assigned a modeled track and then dispersed from the base track using a standard distribution method within the model. The industry and the MAC continue to use this method during the development of aircraft noise exposure contours.

Figure 12 - Runway 30L Modeled Departure Tracks below shows the location of the different tracks for Runway 30L departures. These tracks were developed using actual flight data and continue to be evaluated on an annual basis. Actual flights can be assigned to a modeled track using a best-fit approach. The tracks in Figure 12 are categorized by general headings in **Figure 13 - Runway 30L Modeled Departure Tracks by Heading**. **Figure 16 - Runway 30R Modeled Departure Tracks** shows the location of the model tracks for Runway 30R departures. The tracks in Figure 16 are categorized by general headings in **Figure 17 - Runway 30R Modeled Departure Tracks by Heading**. The headings used were assigned by MAC staff and may not represent actual ATC instruction.

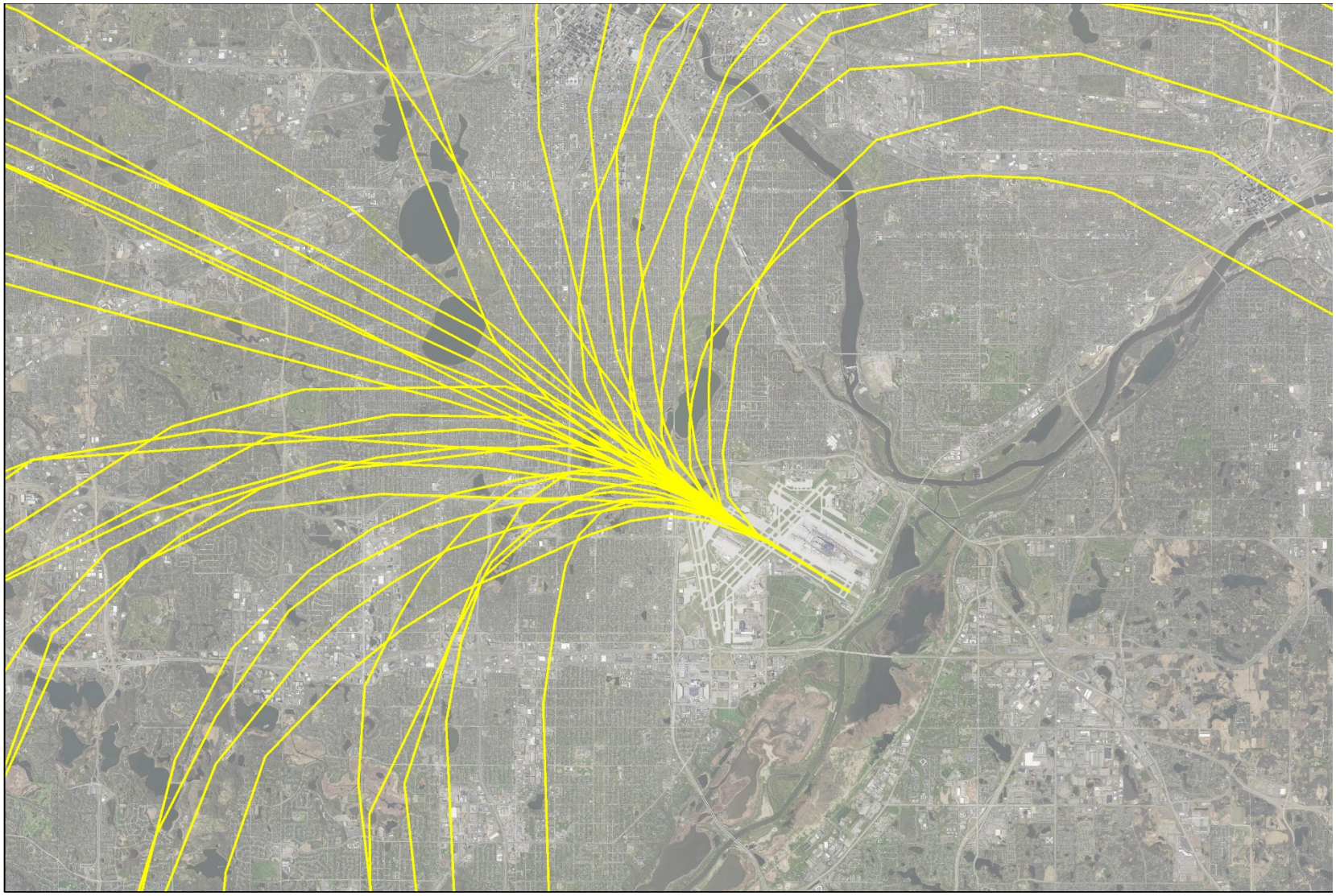
The result of this process is encapsulated in **Figure 14 - Runway 30L Departure Heading Use** and **Figure 18 - Runway 30R Departure Heading Use.** The figures show variation in departure heading usage. The most common tracks flown by aircraft departing Runway 30L are the tracks categorized by a 230° heading. This use has been above 60 percent of all Runway 30L departures every year. The most common tracks flown by aircraft departing Runway 30R are the tracks categorized by a 340° heading. This use has been above 30 percent for all Runway 30R departures every year.

Northbound aircraft departures on Runway 30R are using the 320°, 340° and 360° headings as previously requested by the NOC. This allows a greater dispersion of flight tracks over residential areas to the north of MSP.

As noted, the aircraft destination and associated routing are important determinants to the heading assigned to a departure. Destination is determined by the aircraft operator. At MSP, airlines determine

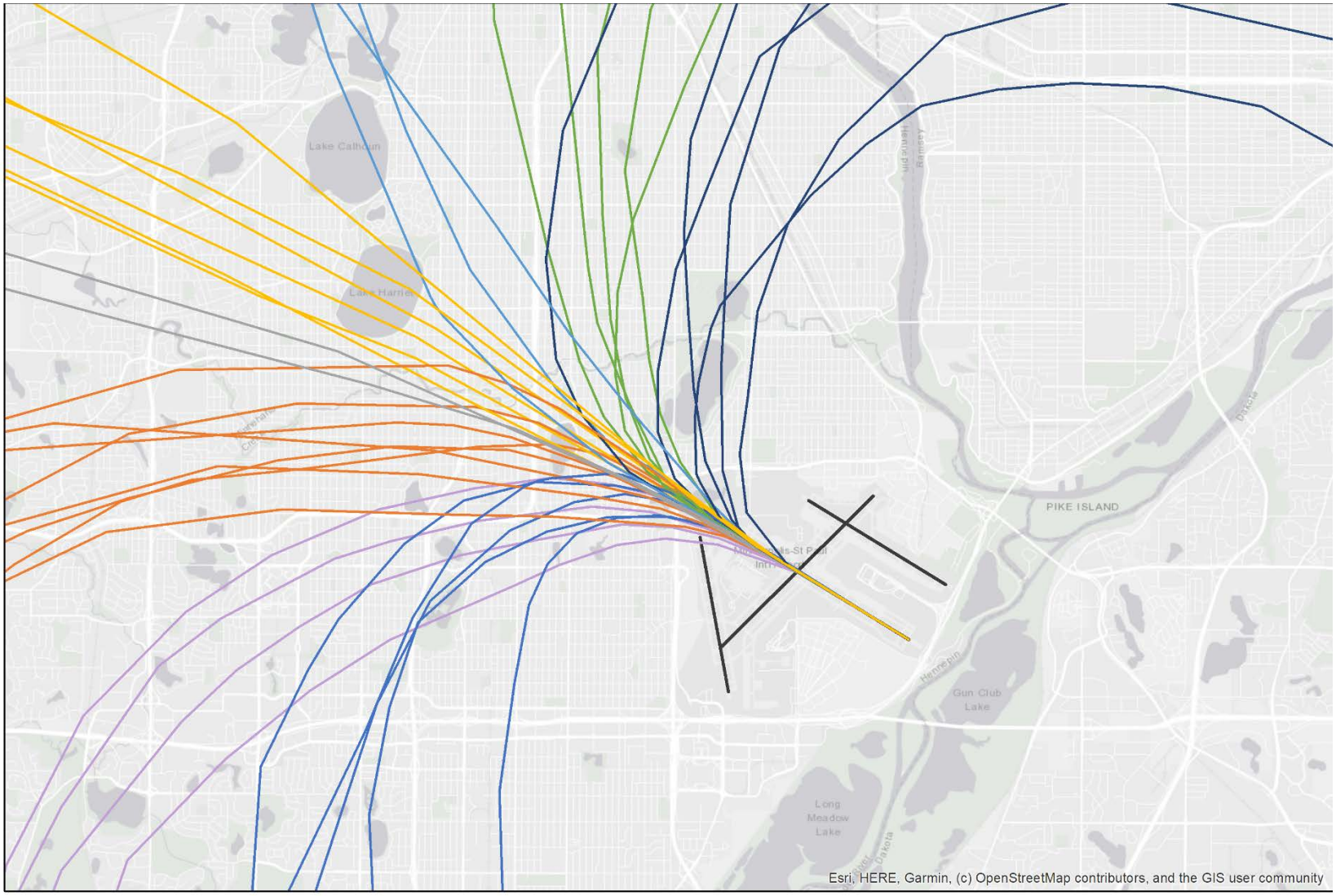
the schedule of aircraft operations, and the frequency of flights to their chosen destinations. How quickly the airlines change the schedule would be contingent on their responsiveness to market demand.

Because airline scheduling decisions vary throughout the day, headings that favor certain regions of the country may be more prevalent during certain hours of the day. **Figure 15 - 2019 Runway 30L Heading Use by Time** and **Figure 19 - 2019 Runway 30R Heading Use by Time** provide the utilization of headings by hours of the day in 2019. These charts only determine how heading-use fluctuates during the day; it does not account for total volume of departures during these hours.



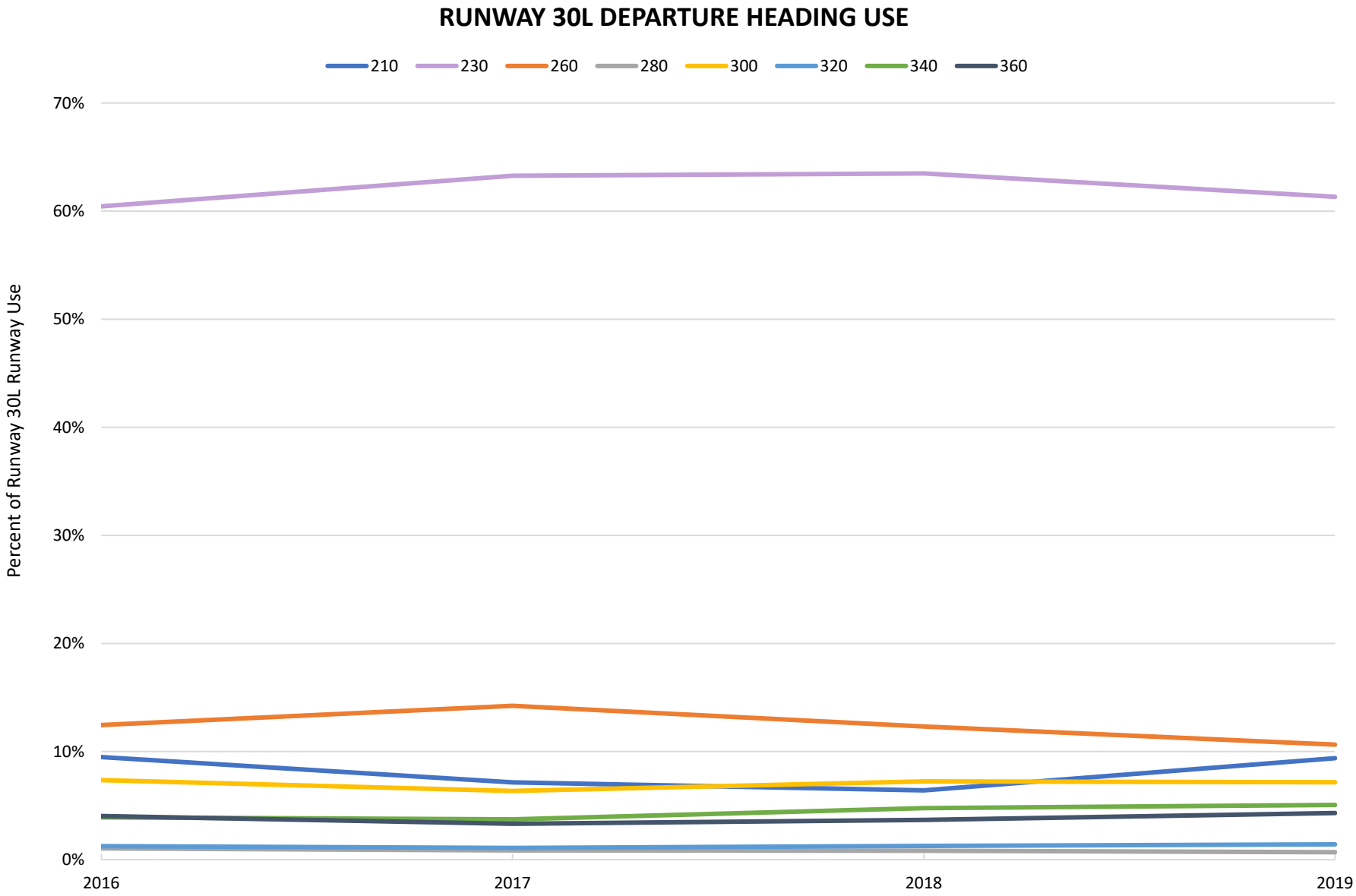
Note: AEDT modeled flight tracks shown, flight paths from actual operations have greater dispersion.

Figure 12 - Runway 30L Modeled Departure Tracks



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

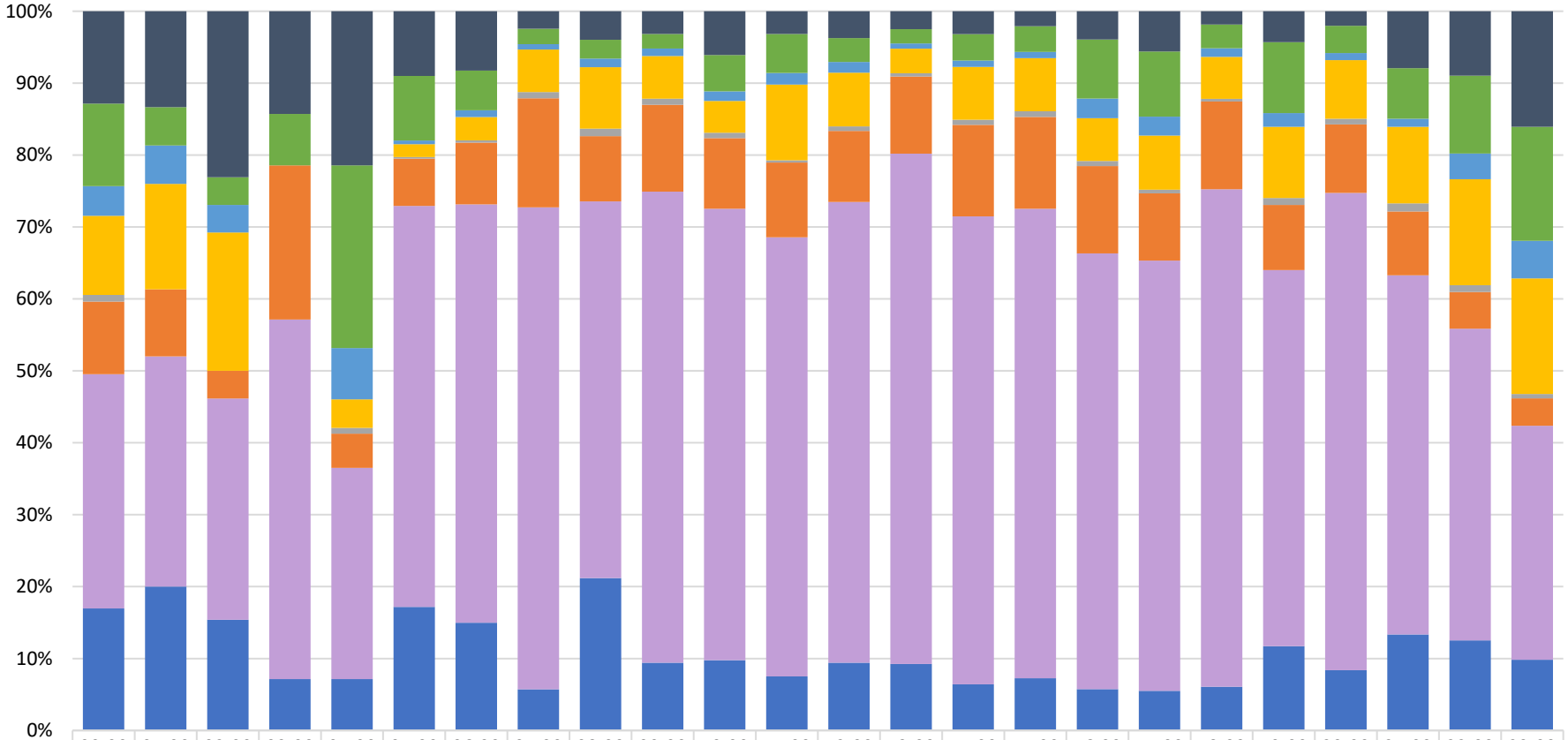
Figure 13 - Runway 30L Modeled Departure Tracks by Heading



Note: AEDT modeled flight tracks used for analysis, flight paths from actual operations have greater dispersion.

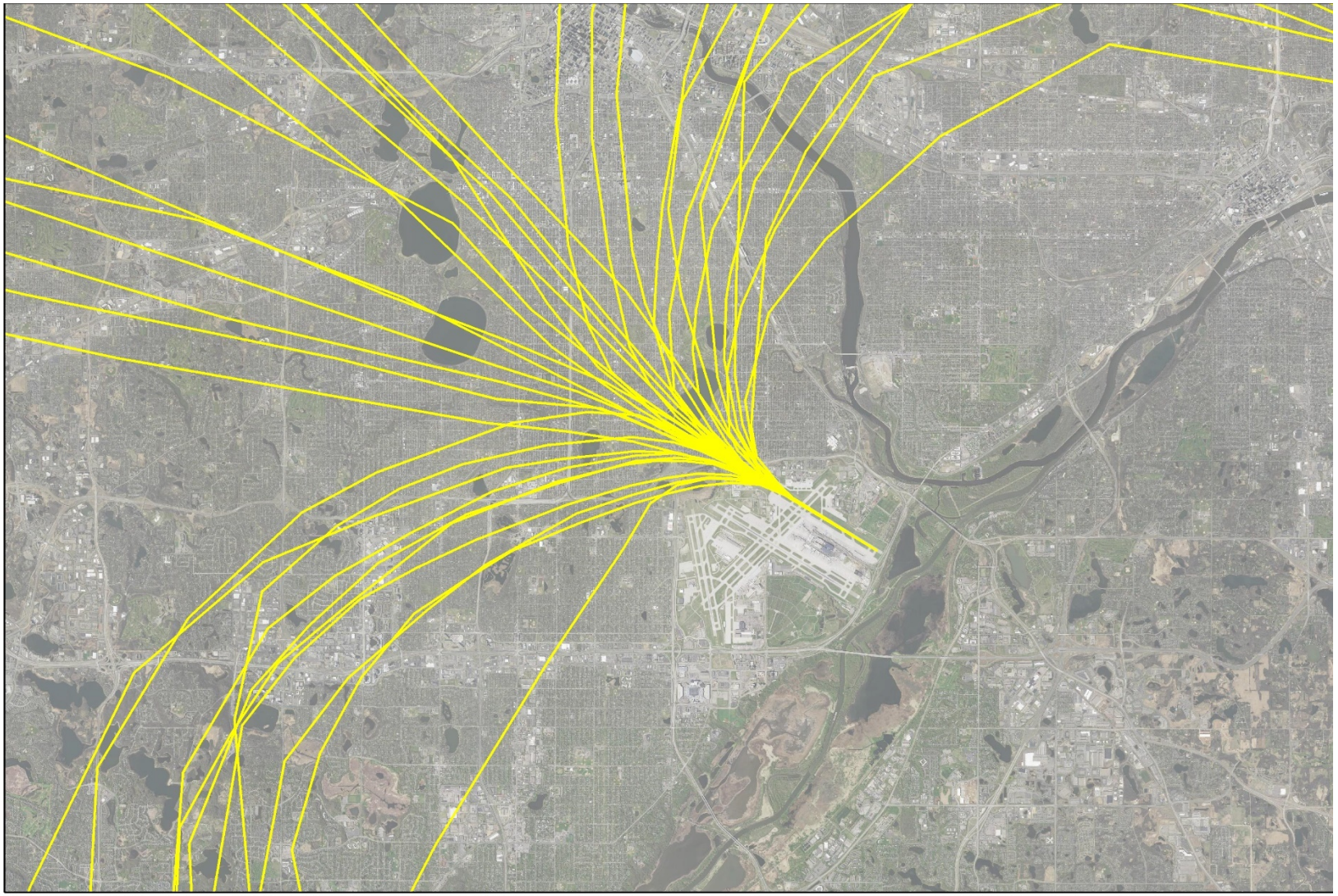
Figure 14 - Runway 30L Departure Heading Use

RUNWAY 30L DEPARTURE HEADING USE BY TIME



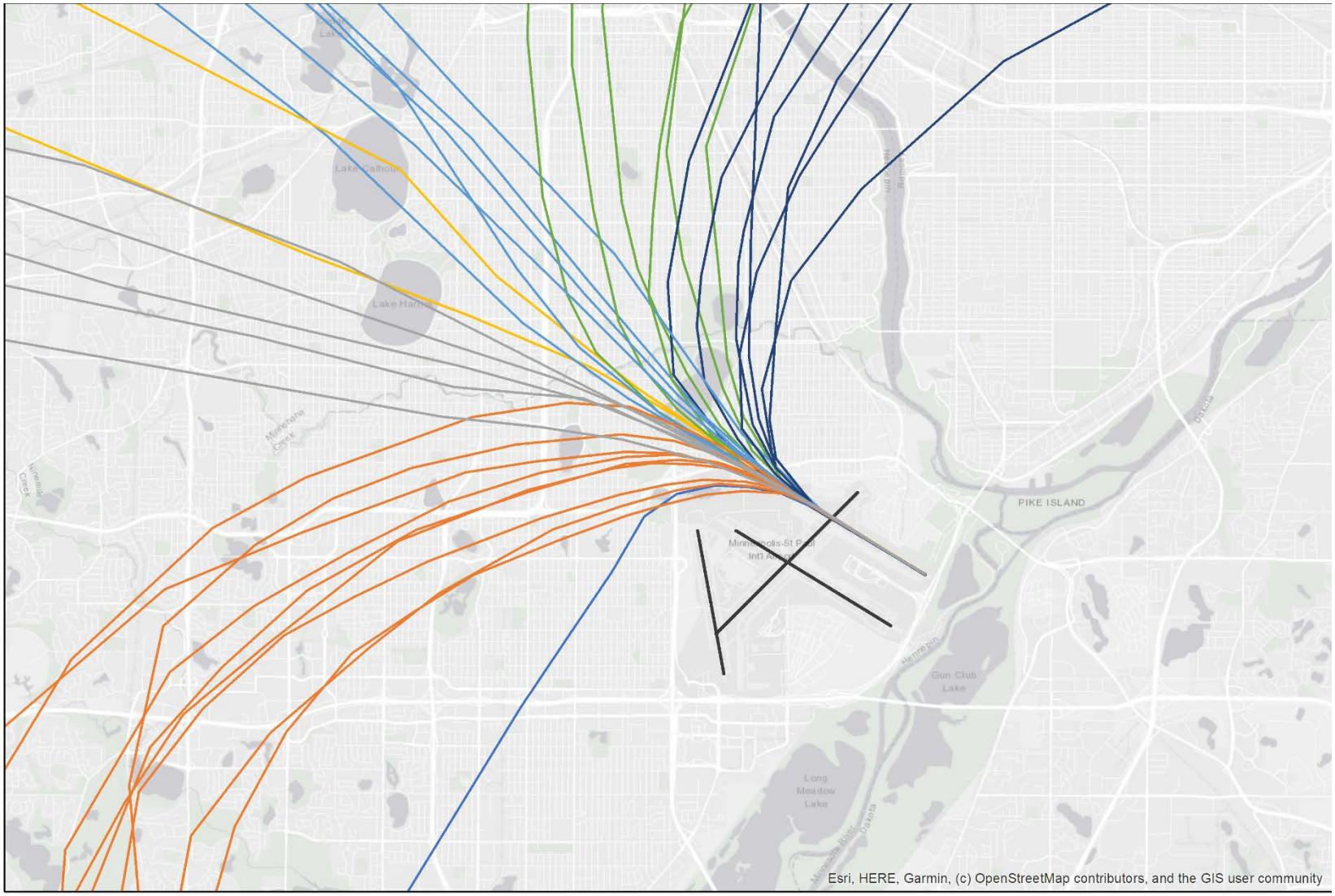
	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
360	13%	13%	23%	14%	21%	9%	8%	2%	4%	3%	6%	3%	4%	3%	3%	2%	4%	6%	2%	4%	2%	8%	9%	16%
340	11%	5%	4%	7%	25%	9%	6%	2%	3%	2%	5%	5%	3%	2%	4%	4%	8%	9%	3%	10%	4%	7%	11%	16%
320	4%	5%	4%	0%	7%	0%	1%	1%	1%	1%	1%	2%	1%	1%	1%	1%	3%	3%	1%	2%	1%	1%	4%	5%
300	11%	15%	19%	0%	4%	2%	3%	6%	9%	6%	4%	11%	7%	3%	7%	7%	6%	8%	6%	10%	8%	11%	15%	16%
280	1%	0%	0%	0%	1%	0%	0%	1%	1%	1%	1%	0%	1%	0%	1%	1%	1%	1%	0%	1%	1%	1%	1%	1%
260	10%	9%	4%	21%	5%	7%	9%	15%	9%	12%	10%	10%	10%	11%	13%	13%	12%	9%	12%	9%	10%	9%	5%	4%
230	33%	32%	31%	50%	29%	56%	58%	67%	52%	65%	63%	61%	64%	71%	65%	65%	61%	60%	69%	52%	66%	50%	43%	33%
210	17%	20%	15%	7%	7%	17%	15%	6%	21%	9%	10%	8%	9%	9%	6%	7%	6%	6%	6%	12%	8%	13%	13%	10%

Figure 15 - 2019 Runway 30L Heading Use by Time



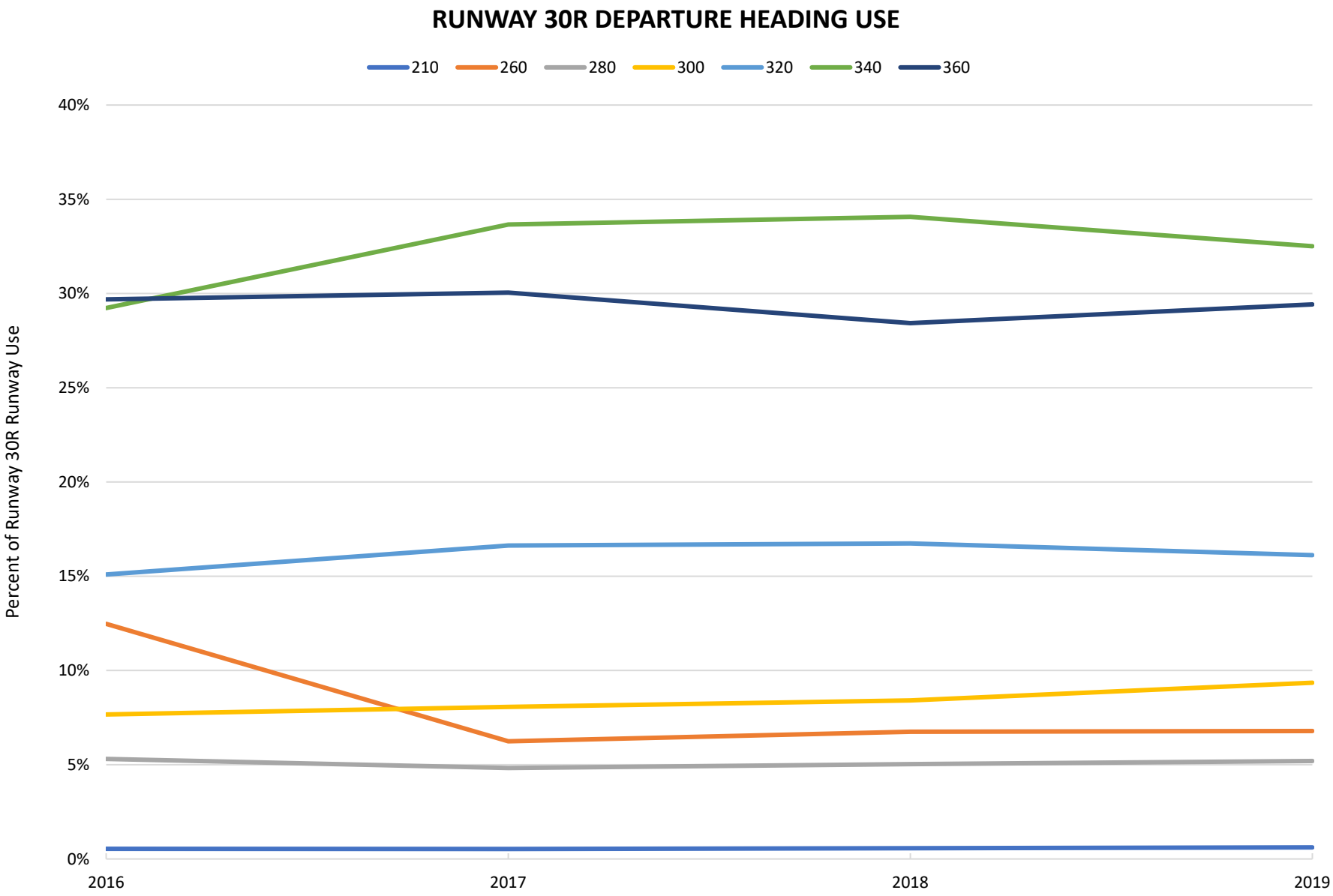
Note: AEDT modeled flight tracks shown, flight paths from actual operations have greater dispersion.

Figure 16 - Runway 30R Modeled Departure Tracks



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

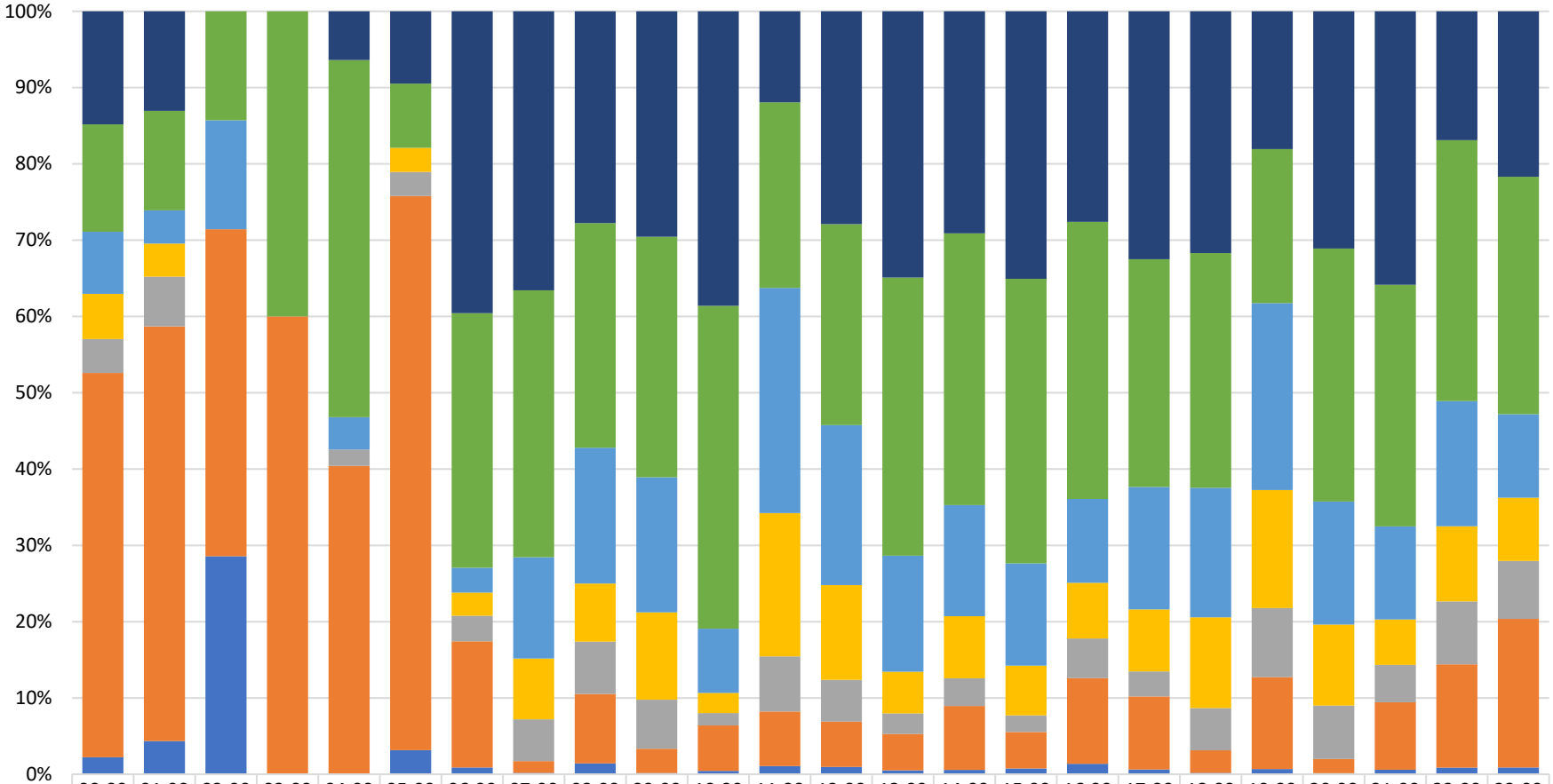
Figure 17 - Runway 30R Modeled Departure Tracks by Heading



Note: AEDT modeled flight tracks used for analysis, flight paths from actual operations have greater dispersion.

Figure 18 - Runway 30R Departure Heading Use

RUNWAY 30R DEPARTURE HEADING USE BY TIME



	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
360	15%	13%	0%	0%	6%	9%	40%	37%	28%	30%	39%	12%	28%	35%	29%	35%	28%	32%	32%	18%	31%	36%	17%	22%
340	14%	13%	14%	40%	47%	8%	33%	35%	29%	32%	42%	24%	26%	36%	36%	37%	36%	30%	31%	20%	33%	32%	34%	31%
320	8%	4%	14%	0%	4%	0%	3%	13%	18%	18%	8%	30%	21%	15%	15%	13%	11%	16%	17%	25%	16%	12%	16%	11%
300	6%	4%	0%	0%	0%	3%	3%	8%	8%	11%	3%	19%	12%	5%	8%	7%	7%	8%	12%	15%	11%	6%	10%	8%
280	4%	7%	0%	0%	2%	3%	3%	5%	7%	6%	2%	7%	5%	3%	4%	2%	5%	3%	6%	9%	7%	5%	8%	8%
260	50%	54%	43%	60%	40%	73%	17%	2%	9%	3%	6%	7%	6%	5%	8%	5%	11%	10%	3%	12%	2%	9%	14%	19%
210	2%	4%	29%	0%	0%	3%	1%	0%	1%	0%	0%	1%	1%	1%	1%	1%	1%	1%	0%	1%	0%	1%	1%	1%

Figure 19 - 2019 Runway 30R Heading Use by Time

6. AEDT Noise Model Data

The Federal Aviation Administration Office of Environment and Energy (FAA-AEE) recognizes that the environmental consequences stemming from the operation of commercial aviation – primarily noise, emissions, and fuel consumption – are highly interdependent and occur simultaneously throughout all phases of flight. The AEDT is a software system designed to model aviation related operations in space and time to compute noise, emissions, and fuel consumption.

AEDT is the federally prescribed model required under 14 CFR Part 150 to develop the annual Day-Night Average Sound Level (DNL) contour, which is the basis for the MSP Annual Noise Contour Report and related noise mitigation program. While the focus on traditional AEDT modeling efforts is typically a DNL noise exposure contour, the software has the capability to produce alternate supplementary noise metrics. One such metric option available is Number Above (NA) Noise Level, which counts the number of aircraft operating over a specified decibel threshold.

In April 2020, the FAA competed their Report to Congress regarding evaluation of the DNL metric. The report satisfies Sections 188 and 173 of the FAA Reauthorization Act of 2018. In the report the FAA notes that,

> "… while the DNL metric is FAA's decision-making metric, other supplementary metrics can be used to support further disclosure and aid in the public understanding of community noise effects."

The report further notes that,

> "Noise modeling is the only practical way to predict geospatial noise effects in a surrounding community when analyzing proposals related to aviation noise. Noise modeling is also necessary for a wide variety of other proposed federal actions, such as those resulting from airfield changes or changes in airspace management. The assessment of these actions requires the review of future case proposals and can therefore only be considered through predictive modeling."

AEDT allows for multiple noise metrics to be used for analysis. MAC's Noise and Operations Monitoring System (MACNOMS) data for aircraft operations including aircraft type, aircraft track, aircraft altitude and operation time were input into the AEDT software for modeling. In this evaluation, the number of noise events above 65 dBA (also referred to as NA65 or "count above 65") was used. Using a dense grid system, the model output displays how many times aircraft caused the sound pressure to rise above 65 dBA at various points throughout the community. To make the results applicable to this analysis, actual aircraft departures from Runways 30L and 30R over the course of 2019 were modeled.

The results of the AEDT model are shown in **Figure 20 - 2019 MSP Total Operations, Average Daily Aircraft Events Above 65 dB**, **Figure 21 - 2019 MSP Runway 30L and 30R Departures, Average Daily Aircraft Events Above 65 dB**, **Figure 22 - 2019 MSP Runway 30L Departures, Average Daily Aircraft Events Above 65 dB** and **Figure 23 - 2019 MSP Runway 30R Departures, Average Daily Aircraft Events Above 65 dB.** The pattern shown by the number of sound events over 65 dB on each runway is mirrored, with a higher number of events close to the airport and fewer events as flights are dispersed on different headings away from the airport. As shown, events from departures off Runway 30L occur primarily in areas of southwestern and western Minneapolis, Richfield, Edina, Bloomington and Saint Louis Park. Events from departures from Runway 30R occur primarily in areas of southeastern and central Minneapolis.

MSP 2019 AVERAGE DAILY AIRCRAFT SOUND EVENTS OVER 65 DB - ALL OPERATIONS

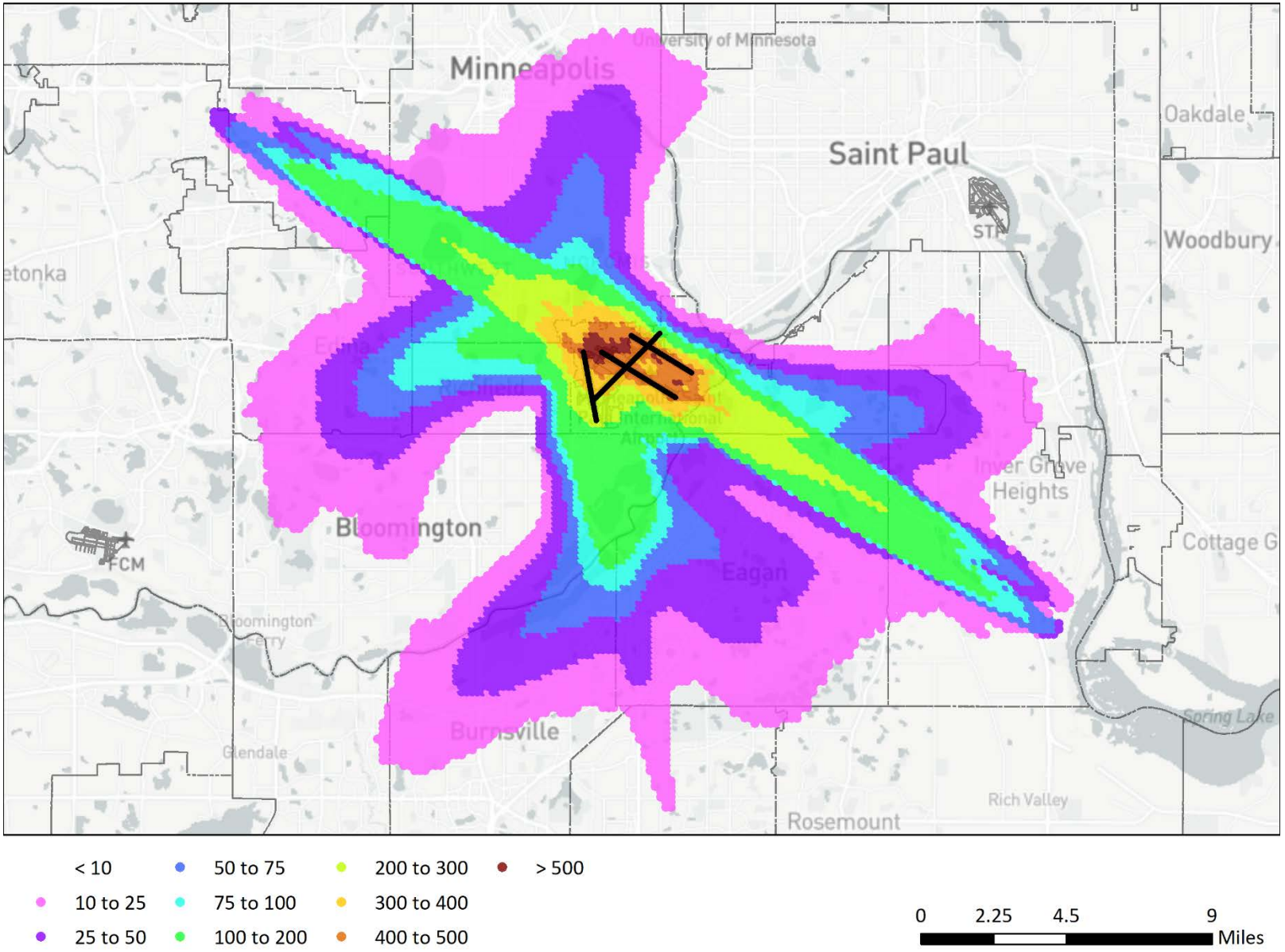


Figure 20 - 2019 MSP Total Operations, Average Daily Aircraft Events Above 65 dB

MSP 2019 AVERAGE DAILY AIRCRAFT SOUND EVENTS OVER 65 DB - 30L AND 30R DEPARTURES

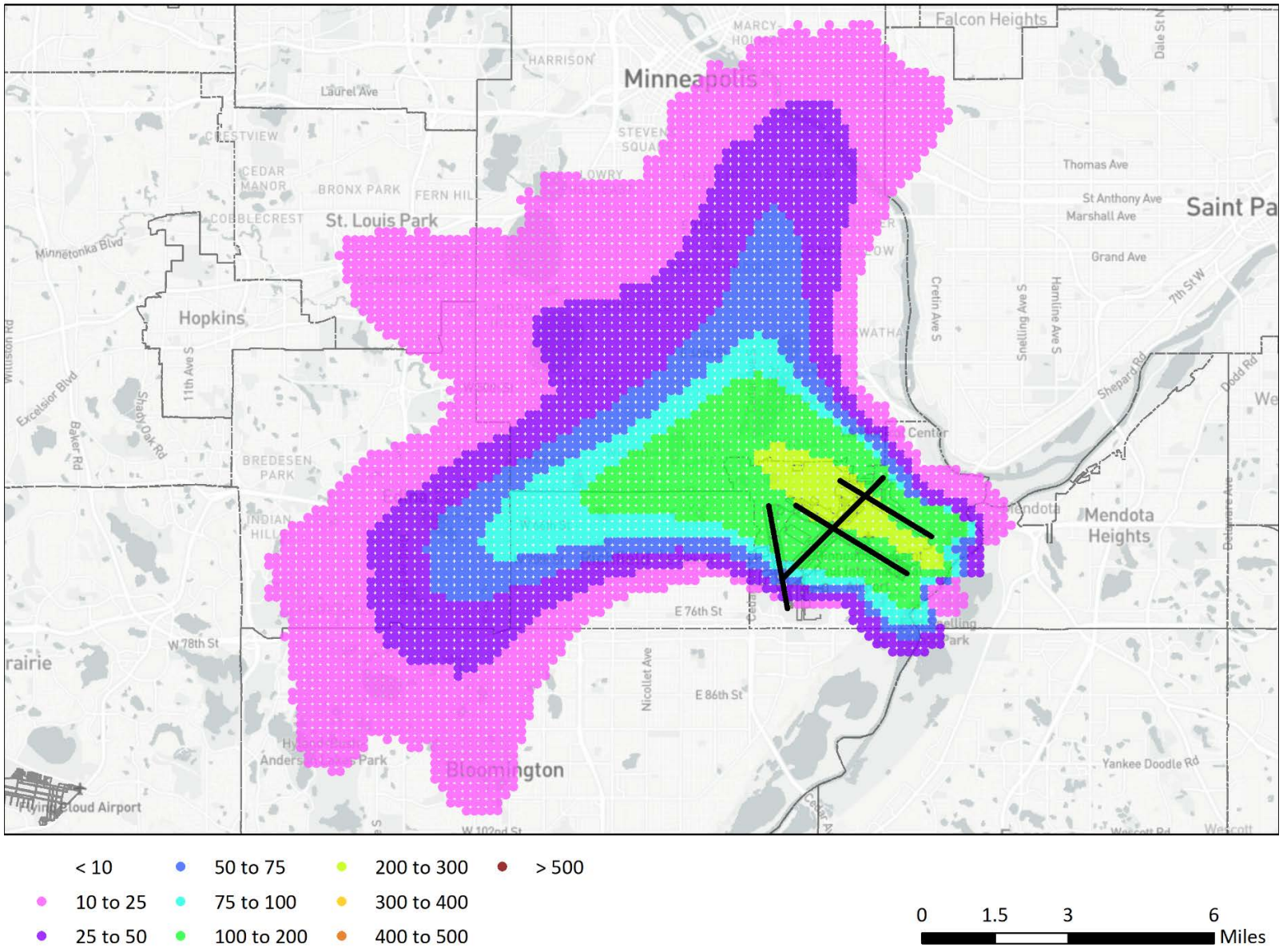


Figure 21 - 2019 MSP Runway 30L and 30R Departures, Average Daily Aircraft Events Above 65 dB

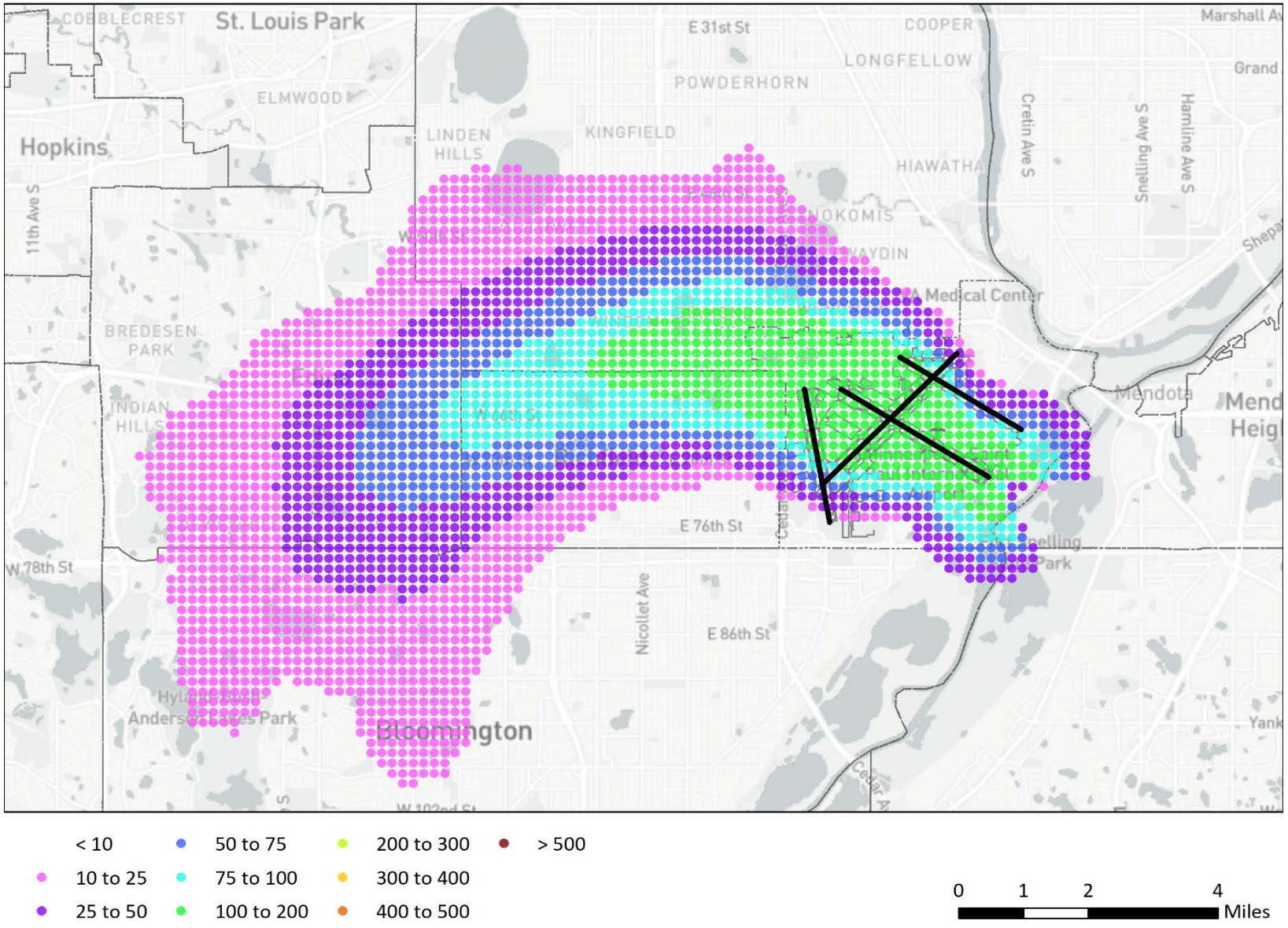


Figure 22 - 2019 MSP Runway 30L Departures, Average Daily Aircraft Events Above 65 dB

MSP 2019 AVERAGE DAILY AIRCRAFT SOUND EVENTS OVER 65 DB - 30R DEPARTURES

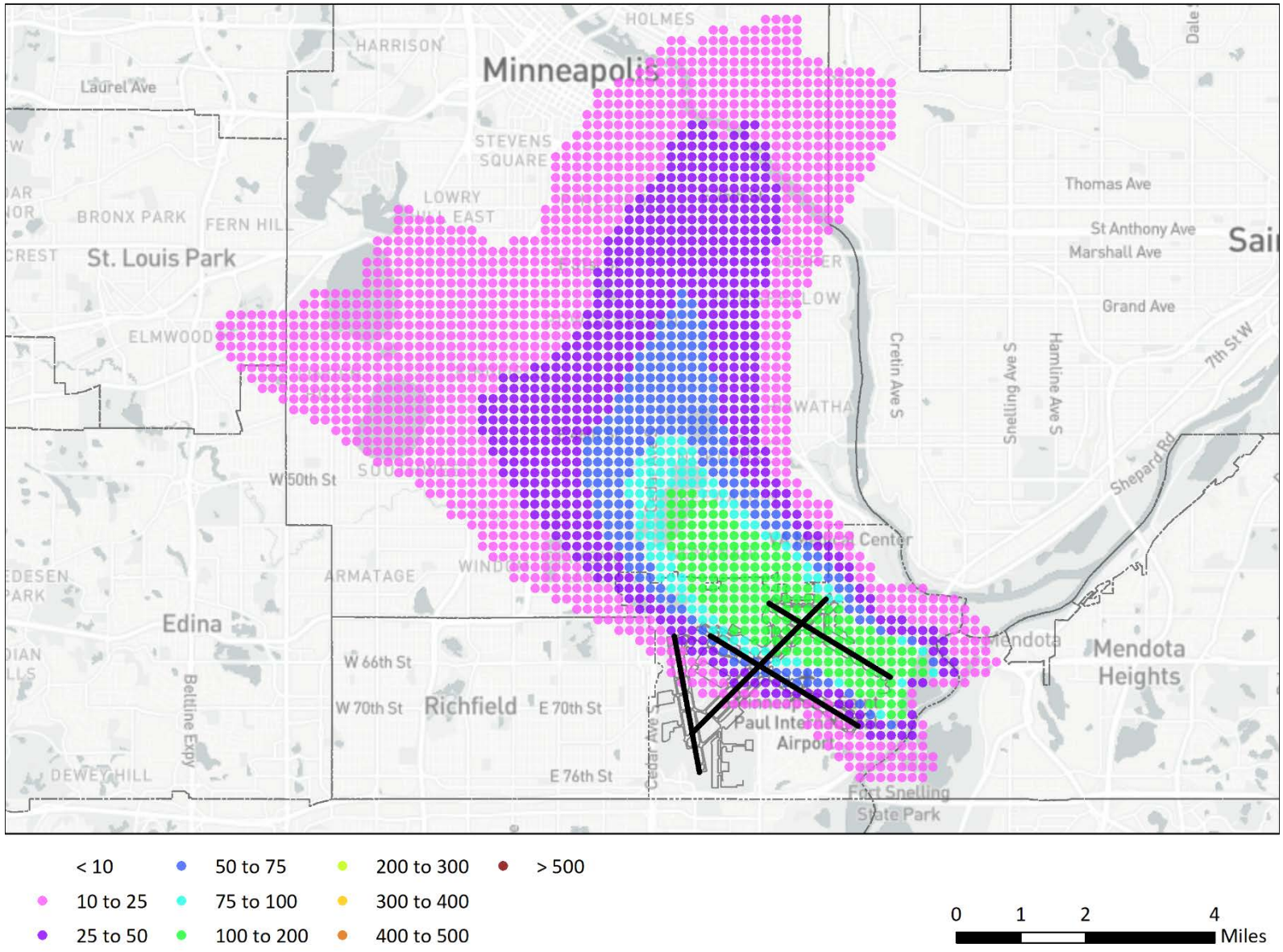


Figure 23 - 2019 MSP Runway 30R Departures, Average Daily Aircraft Events Above 65 dB

7. Runways 30L and 30R Departure Altitude

Departure procedures are an important part of any discussion related to aircraft overflights. Because sound pressure travels as a wave, the distance away from a sound source is important. For aircraft overflights, that is a combination of lateral distance—i.e. distance along the ground—as well as altitude or distance above the ground. The Inverse-Square Law can be used a general rule of thumb in this instance. This axiom states that sound pressure will decrease by 50 percent as the distance away from a sound source doubles. Due to the logarithmic scale for sound, that equates to a six-decibel reduction for every doubling of distance. Because sound waves are impacted by atmospheric and physical environment conditions, measured values may not fully conform to this rule. To reduce the sound of aircraft, the flight track could be moved away from the receiver or the aircraft could be higher.

To compare aircraft departures from 2016 and 2019, the study identified average departure altitudes at multiple measurement points along a track. Concentric rings centered on the start of takeoff roll from Runway 30L or 30R every mile between two miles and ten miles were used as measurement gates. **Figure 24 - Runway 30L Distance Measurement Rings** illustrates the location of those rings for Runway 30L and **Figure 25 - Runway 30R Distance Measurement Rings** illustrates the location of those rings for Runway 30R. **Figure 26 - Average Runway 30L Narrowbody Departure Altitude, Figure 27 - Average Runway 30L Widebody Departure Altitude,** and **Figure 28 - Average Runway 30R Narrowbody Departure Altitude** display the result of the comparison.

Altitudes for regional jets remained consistent from 2016 through 2019 for both runways on average, and altitudes for narrow body jets decreased on both runways since 2016. On Runway 30L the difference in altitude from 2016 to 2019 is 13 feet at two miles and 340 feet at ten miles. On Runway 30R the difference in altitude from 2016 to 2019 is 5 feet higher at two miles and 309 feet lower at ten miles.

Additionally, data show an increase in altitude for wide body jets departing in 2019 on Runway 30L. The difference in altitude from 2016 to 2019 is 106 feet at two miles increasing to 374 feet at ten miles.

Figure 29 – Departure Altitude Runway 30L and 30R compares the departure altitude of the runways and illustrates no substantial differences.

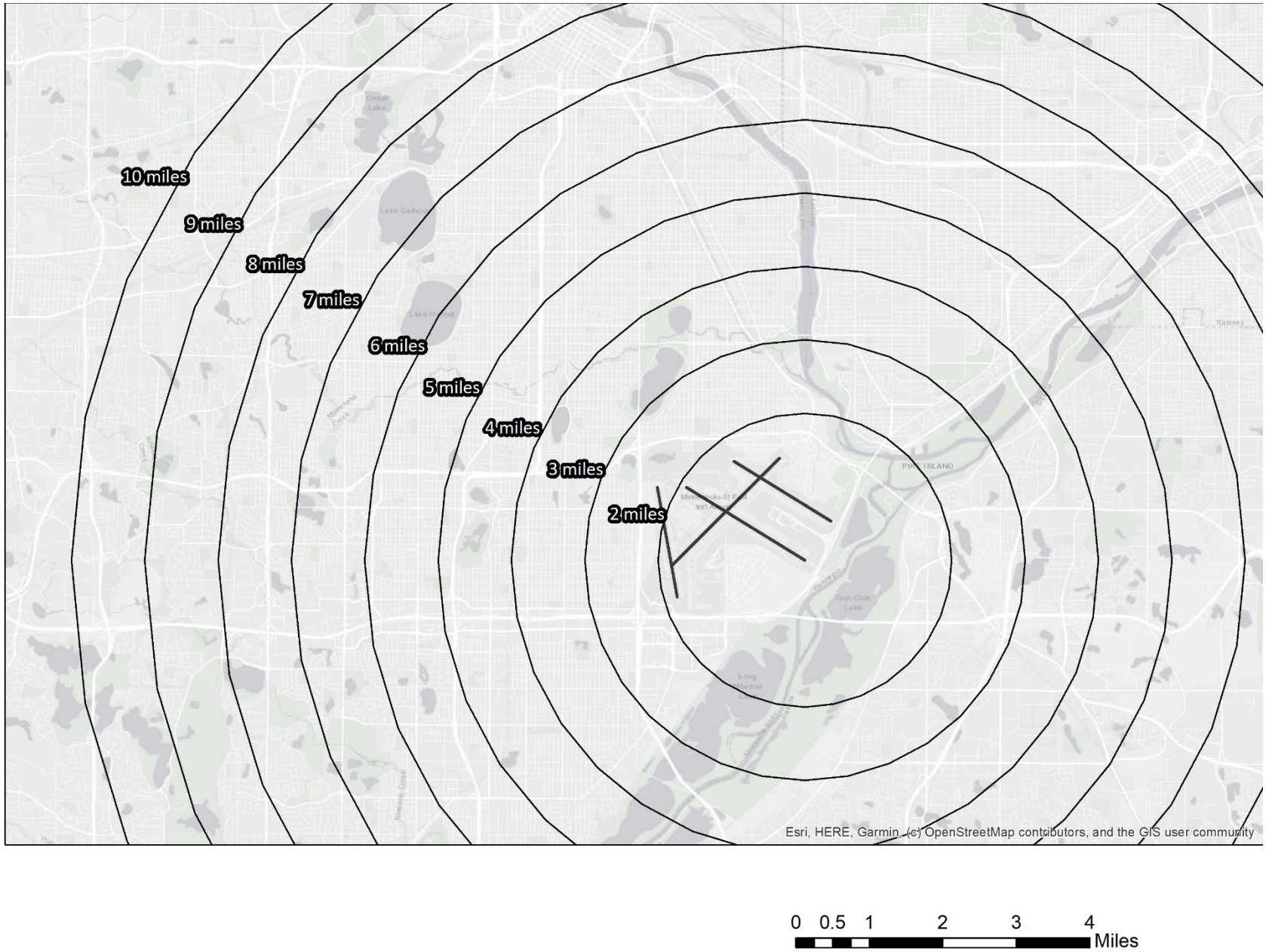


Figure 24 - Runway 30L Distance Measurement Rings

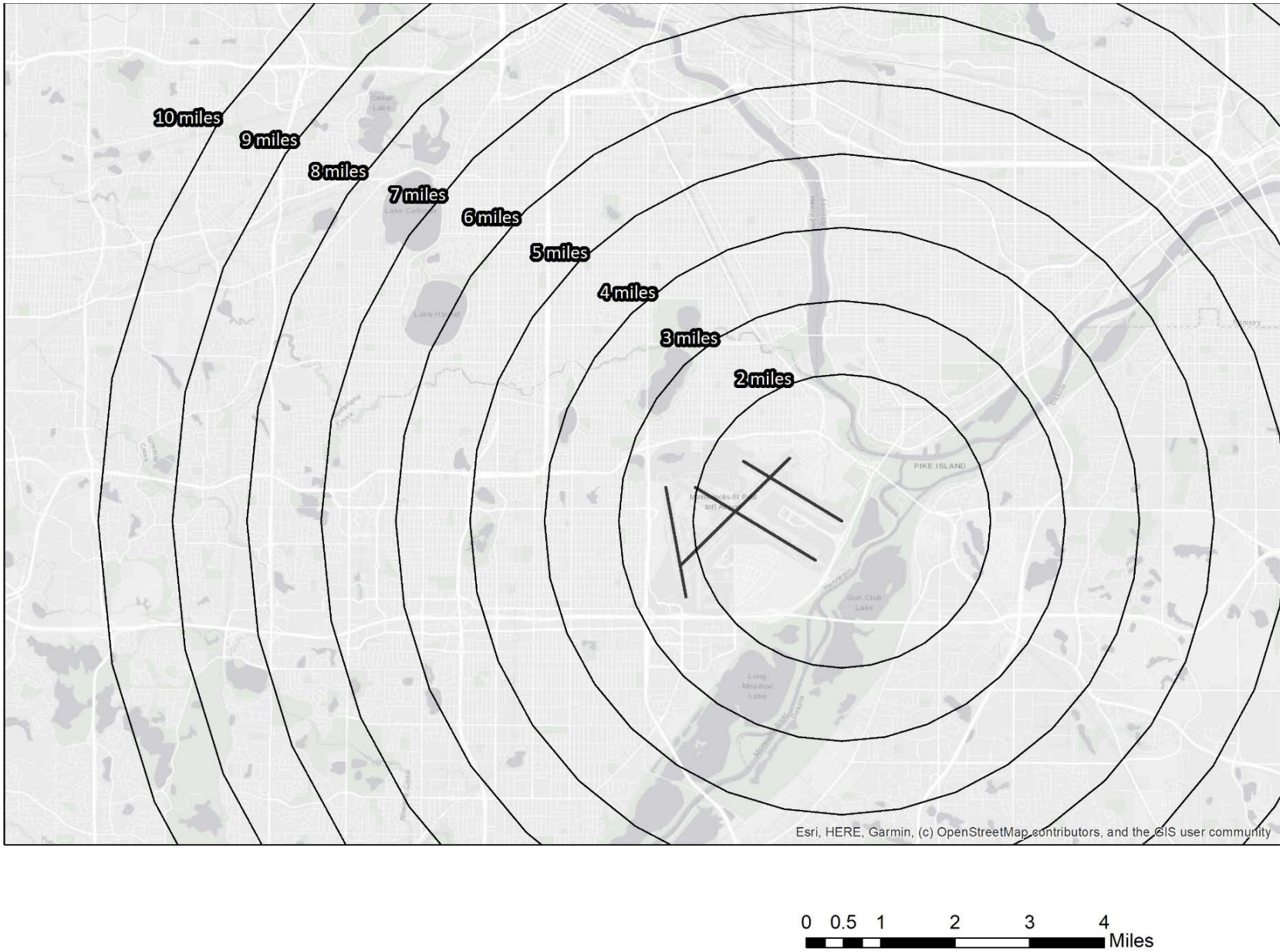


Figure 25 - Runway 30R Distance Measurement Rings

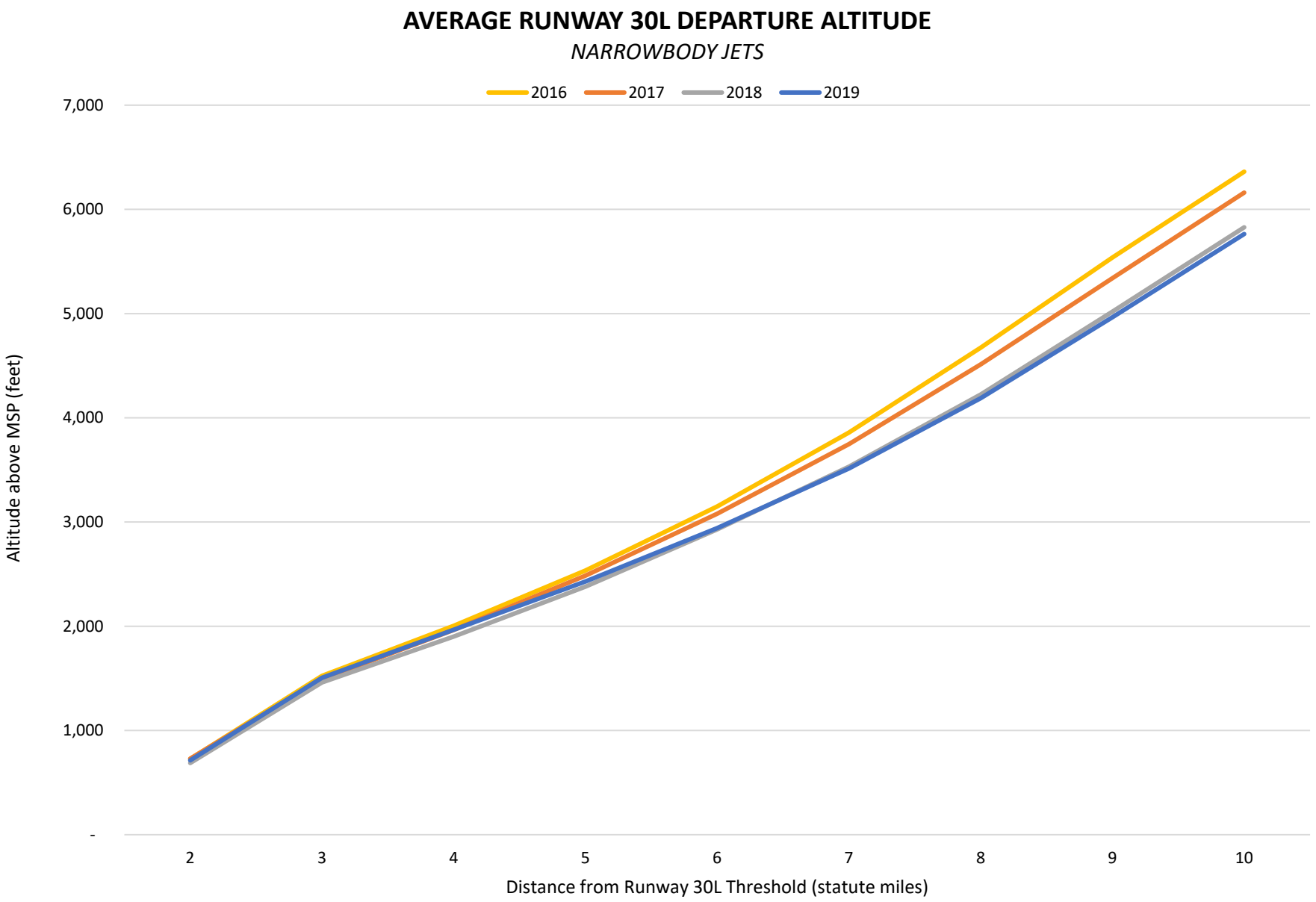


Figure 26 - Average Runway 30L Narrowbody Departure Altitude

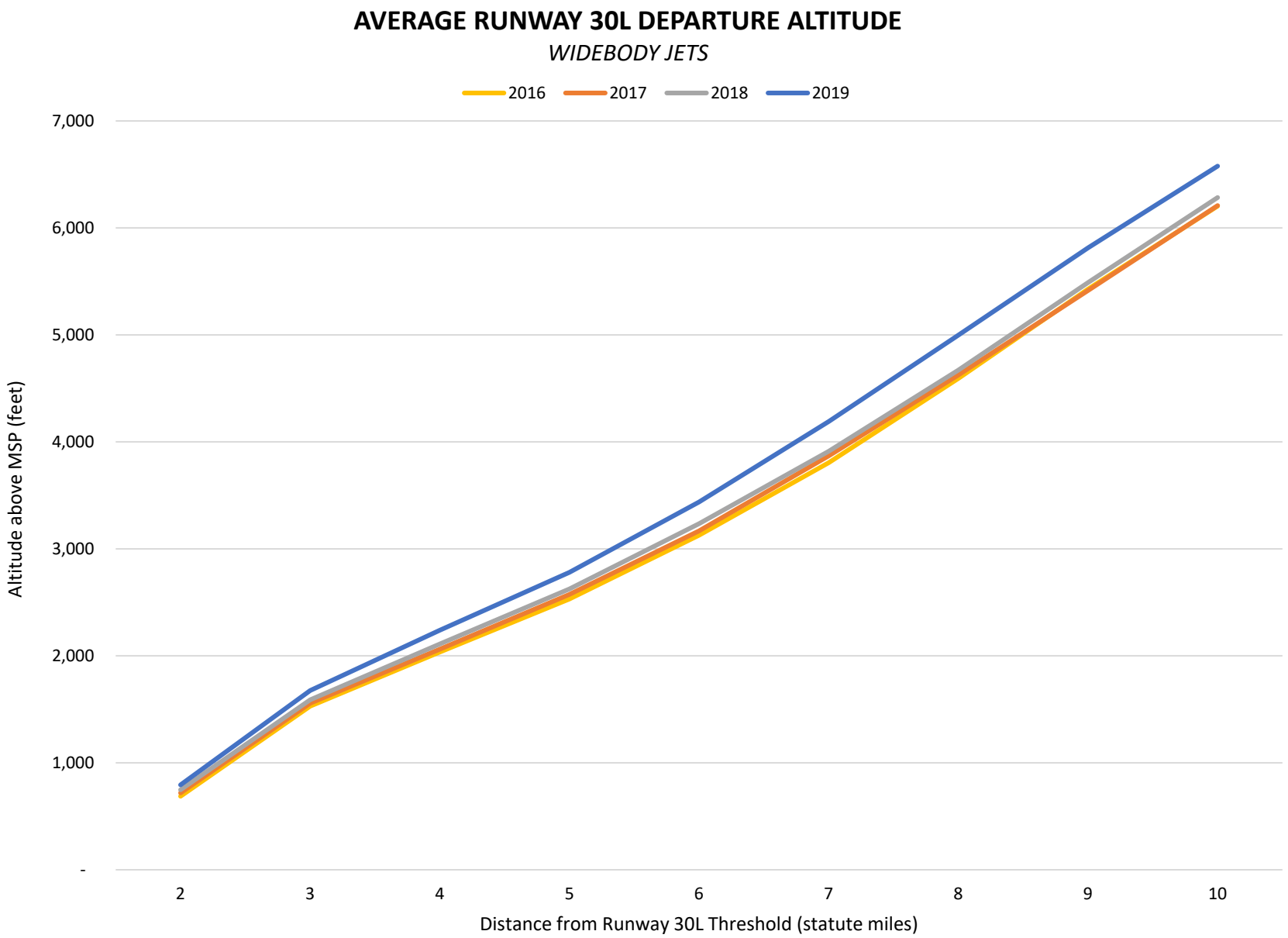


Figure 27 - Average Runway 30L Widebody Departure Altitude

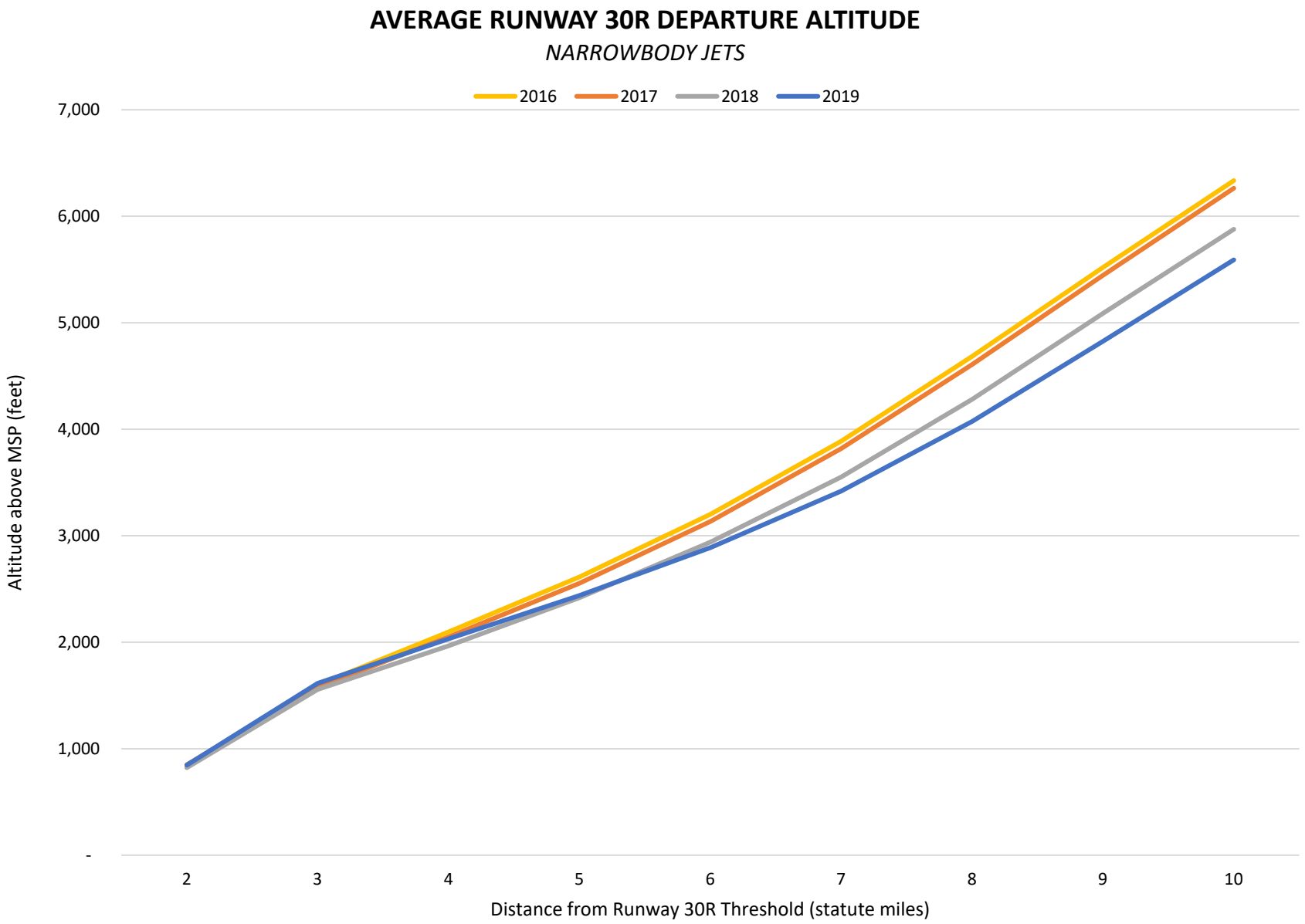


Figure 28 - Average Runway 30R Narrowbody Departure Altitude

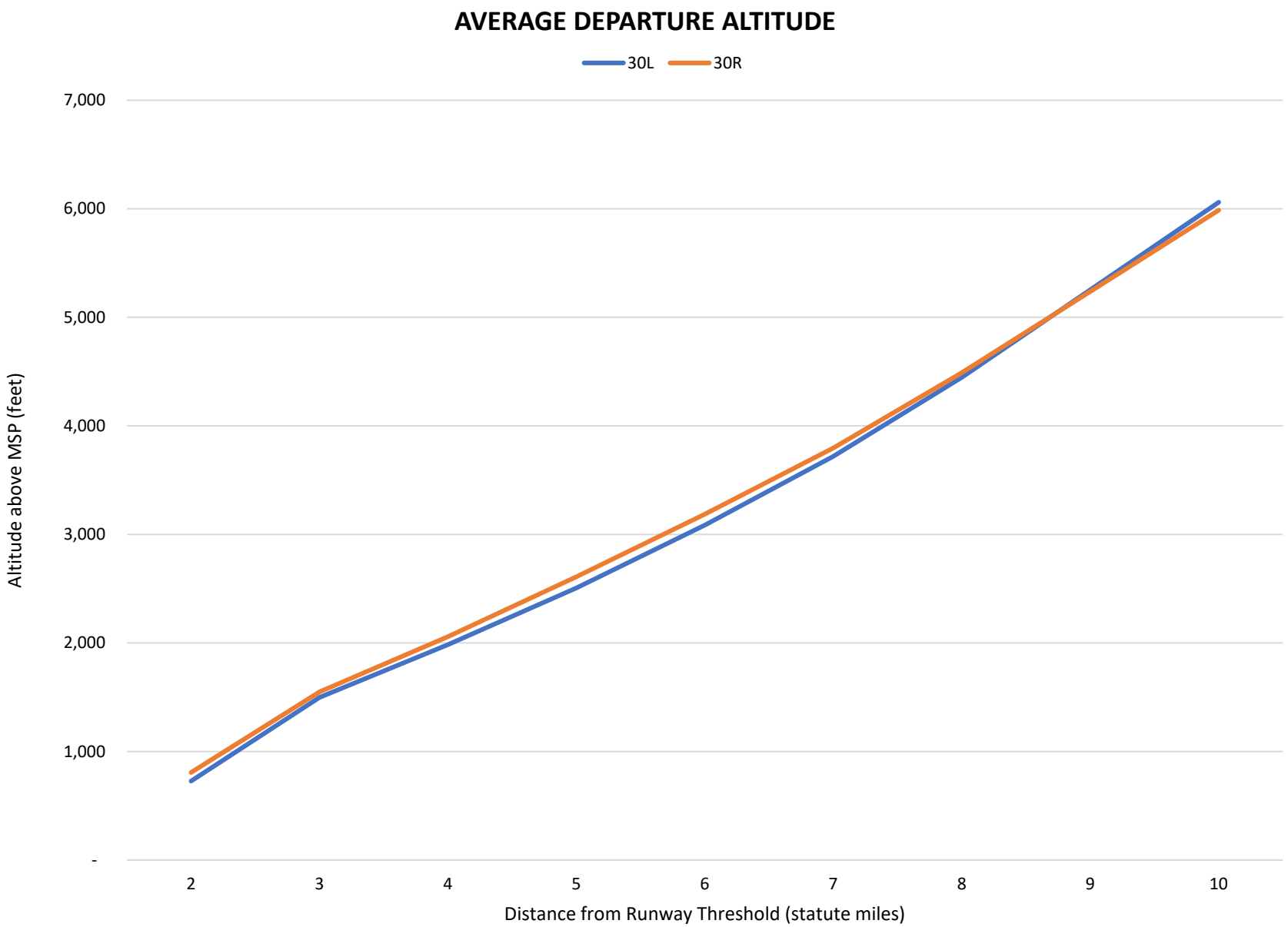


Figure 29 – Departure Altitude Runway 30L and 30R