

MEETING NOTICE

The May 20, 2020 Noise Oversight Committee will be held via teleconference. The meeting will begin at 1:30 p.m.

To participate call 612-351-3093 and enter 239031.



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

May 20, 2020 at 1:30 PM

Jeff Hart, Delta Air Lines, 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 January 29, 2020 Meeting Minutes
 - 1.2. Reports
 - 1.2.1. Monthly Operations Reports: January and February 2020
 - 1.2.2. Monthly Operations Reports: March and April 2020
 - 1.2.3. MSP Complaint Data Assessment
- 2. Public Comment Period**
- 3. Business**
 - 3.1. Eagan Request to FAA
- 4. Information**
 - 4.1. 2019 Actual Noise Contour Report and Residential Noise Mitigation Program Eligibility
 - 4.2. Converging Runway Operations Update
 - 4.3. MSP 2040 Long Term Plan Stakeholder Engagement Update
- 5. Announcements**
- 6. Adjourn**

Public Comment Notice

A public comment period of no more than 20 minutes will be added to each agenda. Members of the public wishing to address the NOC during this period are allotted 3 minutes to speak.



ITEM 1.1



MSP NOISE OVERSIGHT COMMITTEE

DRAFT MEETING MINUTES

Wednesday, January 29, 2020 at 1:30 PM

MAC General Office

Lindbergh Conference Room

Call to Order

A meeting of the MSP Noise Oversight Committee, having been duly called, was held Wednesday, January 29, 2020, in the Lindbergh Conference Room at the MAC General Office building. **Chair Miller** called the meeting to order at 1:33 PM. The following were in attendance:

Representatives: J. Hart; D. Miller; L. Olson; C. Koppen; P. Dmytrenko; C. Finlayson; P. Borgstrom; J. Bergman, L. Petschel, T. Cossalter, L. Moore

Staff: D. Nelson; B. Juffer; J. Lewis; M. Ross; R. Fuhrmann; B. Ryks; N. Pesky; B. Rief

Others: R. MacPherson – FAA; R. Mathews – FAA; H. Bjornson – FAA; S. Fortier – FAA; K. Mara – FAA; D. Nuccio – US Department of Housing and Urban Development (HUD); C. Diaz – US Representative Craig’s Office; D. O’Leary – Sunfish Lake; H. Rand – Inver Grove Heights; R. Goldser – Eagan; G. Norling – Mendota Heights; H. Leslie - Eagan; L. Grotz – Edina

1) Review and Approval of November 20, 2019 Meeting Minutes

A motion was made by **Co-Chair Hart, Delta Air Lines**, and seconded by **Representative Bergman, City of Apple Valley**. The motion passed unanimously; the minutes were approved.

2) Review of Monthly Operations Reports: November and December 2019

Michele Ross, Assistant Technical Advisor, reviewed and presented the November and December 2019 operations report for MSP airport.

November

- Total Operations: 31,426
- Nighttime Operations: 1,938
- North/South/Mixed (%): 44/36/11
- Complaints: 10,967
- Complaint locations: 221

December

- Total Operations: 32,840
- Nighttime Operations: 2,314
- North/South/Mixed (%): 35/45/12
- Complaints: 10,852
- Complaint locations: 187

- Hours of aircraft sound events: 416
- Runway 17 Dep Procedure: 99.5%
- Eagan/Mendota Heights Corridor: 86.9%
- Crossing-in-the-Corridor day: 25.7%
- Crossing-in-the-Corridor night: 38.0%
- Runway Use System: 53.8%
- Hours of aircraft sound events: 367
- Runway 17 Dep Procedure: 99.5%
- Eagan/Mendota Heights Corridor: 96.7%
- Crossing-in-the-Corridor day: 25.3%
- Crossing-in-the-Corridor night: 47.7%
- Runway Use System: 54.1%

Ross also pointed out that there was a weather event on November 26 with strong northeasterly winds. MAC staff was able to coordinate with the FAA to alert them to the flights that were out of the corridor. This was an opportunity to use the real-time noise abatement procedure tool to bring the awareness to the use of the procedure during the weather condition. **Ross** continued and presented the year end operations information from 2018 and 2019 for MSP airport.

2018

- Total Operations: 405,305
- North/South/Mixed (%): 34/46/12
- Complaints: 139,524
- Complaint locations: 1,484
- Hours of aircraft sound events: 4,938
- Runway 17 Dep Procedure: 99.4%
- Eagan/Mendota Heights Corridor: 94.4%
- Crossing-in-the-Corridor day: 34.5%
- Crossing-in-the-Corridor night: 40.7%
- Runway Use System: 53.8%

2019

- Total Operations: 403,665
- North/South/Mixed (%): 36/44/13
- Complaints: 177,650
- Complaint locations: 1,406
- Hours of aircraft sound events: 5,248
- Runway 17 Dep Procedure: 99.5%
- Eagan/Mendota Heights Corridor: 92.5%
- Crossing-in-the-Corridor day: 28.8%
- Crossing-in-the-Corridor night: 44.1%
- Runway Use System: 54.4%

3) Public Comment Period

Chair Miller, City of Eagan, introduced the public comment period protocol and announced there was one speaker who submitted a comment card.

Ron Goldser, Eagan, verbally asked a question about how valid the noise complaint statistics are. Some people have decided to come into the NOC meeting to make their comments in person.

Goldser went on to discuss nighttime operations noting the percentage of flights of have decreased over Eagan the absolute quantity of overall flights over the area has increased. He also pointed out to the committee that a fellow advocate in Eagan, Ted Gladhill, sent an email to the committee chair. He paraphrased the email regarding nighttime flight activity to reflect Mr. Gladhill's comments. Mr. Goldser indicated that nighttime flights should be held to a higher standard of noise reduction suggesting there should be a different corridor procedure for

nighttime departures. **Goldser** mentioned a discussion he had with Brad Juffer about flight elevations where he asked why flights don't take off higher and quicker which is due to the competition with arrivals. If you are flying longer out before you start turning at the same elevations, you will not run into the conflict with arrivals so use the longer distances for departures before you turn. He mentioned that this is part of the recommendation before the FAA currently.

4) **VOR Minimum Operational Network**

Brad Juffer, Technical Advisor, mentioned that the overview was included in the agenda. He introduced Rebecca McPherson from the Federal Aviation Administration (FAA).

Rebecca MacPherson, Great Lakes Regional Administrator, FAA, noted she appreciates the opportunity to brief the Committee about the partial decommissioning of the MSP Very-High Frequency Omnidirectional Radial / Distance Measuring Equipment (VOR/DME) that will take place two years from now and partner with the Committee and the public. The FAA acknowledged community concerns related to this issue due to the past (2012/2013) Area Navigation (RNAV) implementation proposal at MSP. RNAV is a tool that can be used in various ways. The FAA has no intention of implementing the types of changes that were proposed in 2012/2013.

MacPherson explained the initial VOR Minimum Operational Network (VOR MON) project purpose and intent, saying the MSP VOR/DME will be partially decommissioned affecting the lateral navigation capability for pilots. The distance measuring (or "DME") portion of the VOR/DME will remain in service. This equipment will continue to provide range information to pilots when procedurally required and GPS equipment is not used, or the GPS signal is not available. This VOR will be decommissioned as part of the FAA's NextGen program where GPS based RNAV and Performance Based Navigation (PBN) will replace the legacy ground-based system. The MON allows aircraft to fly at an altitude of at least 5,000 feet, coast to coast, to an airport of safe landing using ground-based navigation such as an Instrument Landing System or VOR. It will provide navigation services so that an aircraft will never be more than 100 miles away from a point of safe landing. Its sole purpose is to provide an orderly, reliable and safe way to get flying aircraft out of the National Airspace System (NAS) and into a suitable airport in the event of a widespread GPS system disruption. The MSP VOR is not required to be part of this streamlined network; therefore, it will need to be decommissioned.

MacPherson then stated that the effect of the change at MSP for communities in and around MSP – there will be no difference. The FAA does not expect there to be any difference using RNAV. The impact will not change.

The FAA is aware of the sensitivities in the communities. The FAA asked for the NOC members to assist the FAA in educating the community on these highly technical issues. A refresher course by the FAA could be offered if the members of the NOC are interested. In addition, because of the history at MSP, the FAA decided it will do an informational meeting in June or July to educate the community at large as to what the potential impacts of decommissioning

the MSP VOR and how that will or will not change from what they are experiencing today. **MacPherson** continued by noting that this informational meeting will be conducted independently from the environmental process and will serve an important educational component to the community. It is anticipated that an environmental review will be started in early December 2020. It is also anticipated that by end of March 2022 there would be a publication of the environmental report. The hope is that they will be able to decommission the VOR by the end of 2022.

Representative Petschel, City of Mendota Heights, said the FAA's first attempt to implement RNAV procedures at MSP created distress within the surrounding communities. As a result, the NOC developed a community engagement roadmap for the FAA to re-engage with the communities related to RNAV procedures. The communities have very low levels of trust. The community is deeply scarred by previous interaction with the FAA over this type of navigational change. The FAA needs to provide the staff and resources to engage with the communities directly. The FAA should review the roadmap and take the recommendations to heart versus what seems to be happening is the FAA is stating what they are willing to do as though the roadmap was never drafted.

Rebecca MacPherson noted the community outreach proposed for June and July is a direct result of the roadmap. This type of engagement will not be done in other communities. The FAA understands it is their role to communicate the impact of these changes to the communities in a manner that is easily understandable. The FAA would appreciate NOC members, to the extent that they feel comfortable, emphasizing to their communities that the proposed changes are not the same as 2012/2013. The FAA has adapted over the past eight years. **MacPherson** noted that a similar project was done at Chicago O'Hare. **Petschel** noted that is the type of example that was requested in reference to a case study to include additional information in terms of noise complaints, etc., to share with the group. **MacPherson** replied that the Chicago O'Hare case study and complaint profile will be incorporated into the outreach in June and July. **MacPherson** went on to note that there will be no narrowing of departure headings in Minneapolis.

Representative Bergman, City of Apple Valley, commented that this has been implemented in Chicago and Nashville and sharing the information from those cities, even with the differences between MSP, could serve to provide some level of comfort to communities. Illustrate the facts with figures, maps, diagrams, etc.

Representative Petschel, City of Mendota Heights, commented that outreach should be specific to communities at the end of each runway and not just one general overview. **MacPherson** responded that the FAA will provide that information during their outreach in June and July.

Representative Finlayson, Endeavor Air, asked if RNAV could be used to increase compliance with existing noise abatement procedures. He noted that as an operator, he wants to be 100% in compliance with what the community wants. **MacPherson** replied that the timing of

the project may preclude the FAA from adding that work but could be done through an alternate process.

Representative Olson, City of Minneapolis, questioned whether new procedures would be incompatible with existing abatement procedures. If it is indeed true that the new tracks mimic the existing tracks, then we can engage with our communities. But we cannot rush the process. **Olson** requested clarification about the technical aspects of the MSP VOR being decommissioned and the potential impact to navigation. Additionally, **Olson** requested clarification why RNAV procedures are required to be implemented when sufficient VOR coverage will remain in place to operate existing procedures. **MacPherson** clarified that redundancies exist and the FAA does not anticipate any impact to MSP in the event of a GPS outage. Additionally, the air traffic control can increase separation standards as needed. **MacPherson** noted that the procedures would be implemented whether in 2022 or 2026. Additionally, MSP was identified for decommissioning because it has other robust navigational tools that some smaller airports might not and therefore can function without a VOR whereas other smaller airports might not.

Representative Bergman, City of Apple Valley, encouraged the FAA to vet information with MAC staff and NOC before it is released. The working relationship with local FAA and the MAC is great and does not want to see that falter.

Chair Miller asked for a time frame when the FAA would be updating the NOC again. **MacPherson** indicated that the FAA would be back to update the NOC prior to June. **Co-Chair Hart** noted an expectation that there will be a series of three to four community meetings and concurred that the messaging should be vetted with the MAC. **MacPherson** replied that the outreach is still being formulated.

Representative Olson, City of Minneapolis stated that certain data is needed, time is needed to digest it, and time to gather and answer questions, we need to refer back to the resources, to outline the outreach plan. **Olson** noted an observed effort from the FAA to improve their engagement process. She emphasized this needs to be a collaborative, unrushed, public outreach process.

MacPherson responded to Chair Miller's questions regarding the time frame when the FAA would be updating the NOC regarding the Eagan request. The staff at the MSP Tower of the FAA has had the opportunity to review the four requests for changes to how the MSP Tower directs aircraft departures from Runway 17 at MSP submitted to the FAA by the NOC through the MAC. The requests that were outlined are based on a longer list of recommendations developed by residents of the City of Eagan and are intended to reduce the amount of noise experienced by Eagan residents.

The NOC made four recommendations to the FAA:

Adjustment Request #1: Direct departures from Runway 17 with an initial departure fix of COULT or ZUMBRO to Runway 12R or Runway 12L unless the departure would impede or be impeded by arrival traffic to those runways.

The FAA determined that this request potentially has merit if limited to departure fix COULT. A more detailed study will need to be performed to determine the time periods when this procedure would be feasible.

Adjustment Request #2: Vary the use of Runway 17 departure headings to limit the frequency of overflights in neighborhoods.

The FAA determined that this would raise safety and efficiency concerns and therefore would not be feasible.

Adjustment Request #3: Better fan aircraft departing Runway 17 by increasing the use of a 180 degree heading for those aircraft that would normally be assigned a 120, 140 degree, or 155 degree heading.

The FAA determined that this would raise safety and efficiency concerns and therefore would not be feasible.

Adjustment Request #4: Move runway 12R and 12L westbound departures to Runway 17 to take advantage of the 2.5 mile river departure procedure, provided the aircraft can be directed to follow the Minnesota River for no less than 5 nautical miles.

The FAA determined that this request potentially has merit if limited to nighttime operations. It was noted that air traffic control does not direct aircraft to follow landmarks or geographical features. Instead, MSP air traffic controllers direct aircraft via headings to be flown until they intercept their flight planned routes via established and published procedures that are flight checked and certified.

If the MAC decides to move forward, the MAC and the FAA will need to determine and agree upon who would bear the cost of development and implementation.

5) Airline Policies and Procedures

Item tabled from November 2019 Meeting.

Brad Juffer, Technical Advisor, explained that there are several variables that impact the flight of an aircraft. The MAC has received comments at recent community meetings that aircraft have been lower on departure in recent months and years. It has also been suggested that pilots can request any flight path they wish when departing from MSP. **Juffer** introduced **Delta Chief Pilot and NOC Member, Paul Borgstrom** and **Endeavor Chief Pilot and NOC Member, Chris Finlayson** to offer their companies' standard operating procedures and personal perspective as pilots on these topics.

Representative Borgstrom, Delta Air Lines and **Representative Finlayson, Endeavor Air**, noted each airport has unique noise abatement procedures but there are general procedures that are effective at reducing noise as well. Out of MSP there are no specific departure procedures, pilots fly headings provided to them by air traffic control. A typical departure

profile, also called the Distant Noise Abatement Departure Profile, across all Delta and Endeavor Air fleets, includes reduced thrust during departure for both engine efficiency and noise to about 1,000 feet. This means aircraft depart at the slowest speed to be safe and also to gain altitude as quickly as possible. Pilots are provided information and updates regularly. Go arounds are not a frequent occurrence but are a common part of trainings. Runway and airport specific procedures exist. Go arounds should not result in noise impacts to communities.

Borgstrom continued that at MSP, pilots fly the heading and altitude provided by air traffic control. Only exceptions would be a weather issue, such as a thunderstorm, or if there is an emergency situation then could use captain's authority as needed (very rare). **Representative Finlayson** noted that even if a pilot requests a specific runway that is not a guarantee that air traffic control will authorize that request.

Representative Petschel, City of Mendota Heights, requested clarification, regarding MSP deconfliction (for safety on the ground and safety in the air) and whether that has eliminated a lot of the ability of pilots to request different runways and headings. **Borgstrom** noted that the ability to make a request is still available.

Representative Olson, City of Minneapolis, asked whether there are certain procedures that vary from carrier to carrier. **Borgstrom** and **Finlayson** agreed there is not much variation.

6) MSP Fleet Mix and Nighttime Operations Assessment

Brad Juffer, Technical Advisor, explained that the 2020 NOC Work Plan includes an assessment of current fleet mix and nighttime operational trends. **Juffer** went on to discuss the 2019 year-end data in comparison with historical trends. The report included the following sections: Historical Carrier Jet Trends, Trends in Aircraft Passenger Load Factors, MSP Carrier Jet Usage with Cumulative Certificated Noise Levels, Average Altitude Trends, Average Daily Nighttime Operations, Nighttime Operations by Runway, Airline, Aircraft Type, Origin/Destination, Trends in Nighttime Operations by Hour and Scheduled versus Actual Nighttime Operations by Hour.

Representative Petschel, City of Mendota Heights, asked if the nighttime flight changes are the result of schedule changes or weather changes. **Juffer** responded that there are multiple factors that impact arrivals and departures but there is also an increase in scheduled departures in the 10:30 to 11pm timeframe, resulting in an increase in operations during MSP defined nighttime (6am to 10:30pm) versus a static number of departures during FAA-defined nighttime (7am to 10pm).

Representative Olson, City of Minneapolis, noted that flights at 2, 3, 4 in the morning, although less than other times of day, are increasing and that those flights are not a result of delays but seem to be scheduled. Those are the flights that would wake someone up and disrupt their sleep. **Juffer** replied that flights in the 1, 2, 3 am hours are not scheduled but are mostly a result of delays. Scheduling does have a nominal impact as the additional flights scheduled in the 10:30 to 11pm hour that are delayed could push into these hours.

Representative Olson commented that of the runways used at night – half of all departures are going over Minneapolis at night (40% of arrivals as well). There are other ways we could use the runways at night to fly over less populated areas. **Juffer** noted that whenever possible departures should be using Runways 12R and 12L to overfly less populated areas at night. **Juffer** also noted that air traffic control had more frequent use of Mixed Flow (arrivals on 30L and 30R with departures on 17 and, to a lesser extent, 30L and 30R) in 2019.

Chair Miller, City of Eagan, noted that there are voluntary agreements with carriers, and asked what authority does the MAC have in terms of restricting nighttime aircraft activity. **Juffer** replied the MAC is unable to restrict any aircraft that is properly certificated from utilizing MSP at any time of day without going through a rigorous Part 161 study and approval process with the FAA. The MAC cannot stop nor use differential landing fees by time of day or aircraft type due to federal legislation within the Airport Noise and Capacity Act. The MAC does make efforts to reinforce the voluntary agreements with carriers as feasible. The MAC also reviews how to best utilize the Runway Use System at nighttime and will be presenting a report regarding runway balancing later this year per the 2020 NOC workplan. **Miller** commented that the 30s are not balanced right now and glad we are looking into that. **Miller** asked if there were any opportunities to better use the Runway Use System at night. **Juffer** responded that the FAA has made strides in 2019 to use more unused flows at nighttime to take advantage of compatible land. The MAC does coordinate with FAA to utilize those procedures particularly at night. However, air traffic control only utilizes procedures as they exist today. Controllers will not deviate from established procedures.

7) Review of Winter Listening Session

Michele Ross, Assistant Technical Advisor, reviewed the Winter 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 related to MSP. On January 22, 2020 at 7:00 pm the Winter Listening Session was held at the MAC General Offices. One resident from Eagan attended the meeting. Also, in attendance were NOC Co-Chair Jeff Hart, NOC members Loren Olson, Dan O'Leary and Paul Borgstrom as well as MAC staff.

Topics raised during the meeting included:

- Balance between the airport as a community asset and the effect of noise on communities
- Efforts by MAC, NOC, FAA and neighbors to address noise concerns
- Variability and unpredictability of aircraft activity over Eagan
- Air traffic control standard operating procedures
- Education and engagement strategies for communities

8) Announcements

No announcements

9) Adjourn

A motion to adjourn was made by **Representative Dmytrenko, City of Richfield**, and seconded by **Co-Chair Hart, Delta Airlines**. The meeting adjourned at 3:45 pm.

Respectfully Submitted,
Kalae Verdeja, Recording Secretary

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: JANUARY AND FEBRUARY 2020**

DATE: May 6, 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 May NOC meeting, MAC staff will be available to respond to questions regarding this information for January and February 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: Michele Ross, Assistant Manager, Community Relations

SUBJECT: **REVIEW OF MSP MONTHLY OPERATIONS REPORTS: MARCH AND APRIL 2020**

DATE: May 6, 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 May NOC meeting, MAC staff will be available to respond to questions regarding this information for March and April 2020. To view these summary reports prior to the meeting, visit the “Archive” section at the link above.

MEMORANDUM

ITEM 1.2.3

TO: MSP Noise Oversight Committee (NOC)

FROM: Michele Ross, Assistant Manager, Community Relations

SUBJECT: **MSP COMPLAINT DATA ASSESSMENT**

DATE: May 6, 2020

The 2020 NOC Work Plan includes generation of an MSP Complaint Data Assessment. The attached assessment examines complaint data trends from 2017 through 2019 and includes the following sections:

- 2017 – 2019 Annual Complaint and Households
 - 2019 Top 10 Households by Complaints
 - 2019 New Households filing Complaints
 - 2019 Ground Noise and Runup Complaints
- 2019 Complaints by Complaint Reason
- 2017 – 2019 Complaint filed by City
- 2019 – 2019 Households by City
- 2019 Households by DNL Contour
- 2019 Households by Home Purchase Date
- 2017 – 2019 Complaint by Time of Day
- 2019 Complaints by Aircraft Category
- 2019 Complaints by Aircraft Type
- 2019 Top 10 Flights that Generated Complaints
- 2017 – 2019 Complaints by Airport Flow
- 2019 Complaints by Temperature and Weather Conditions

Staff will be available to respond to questions regarding this assessment at the May 20, 2020 NOC meeting.



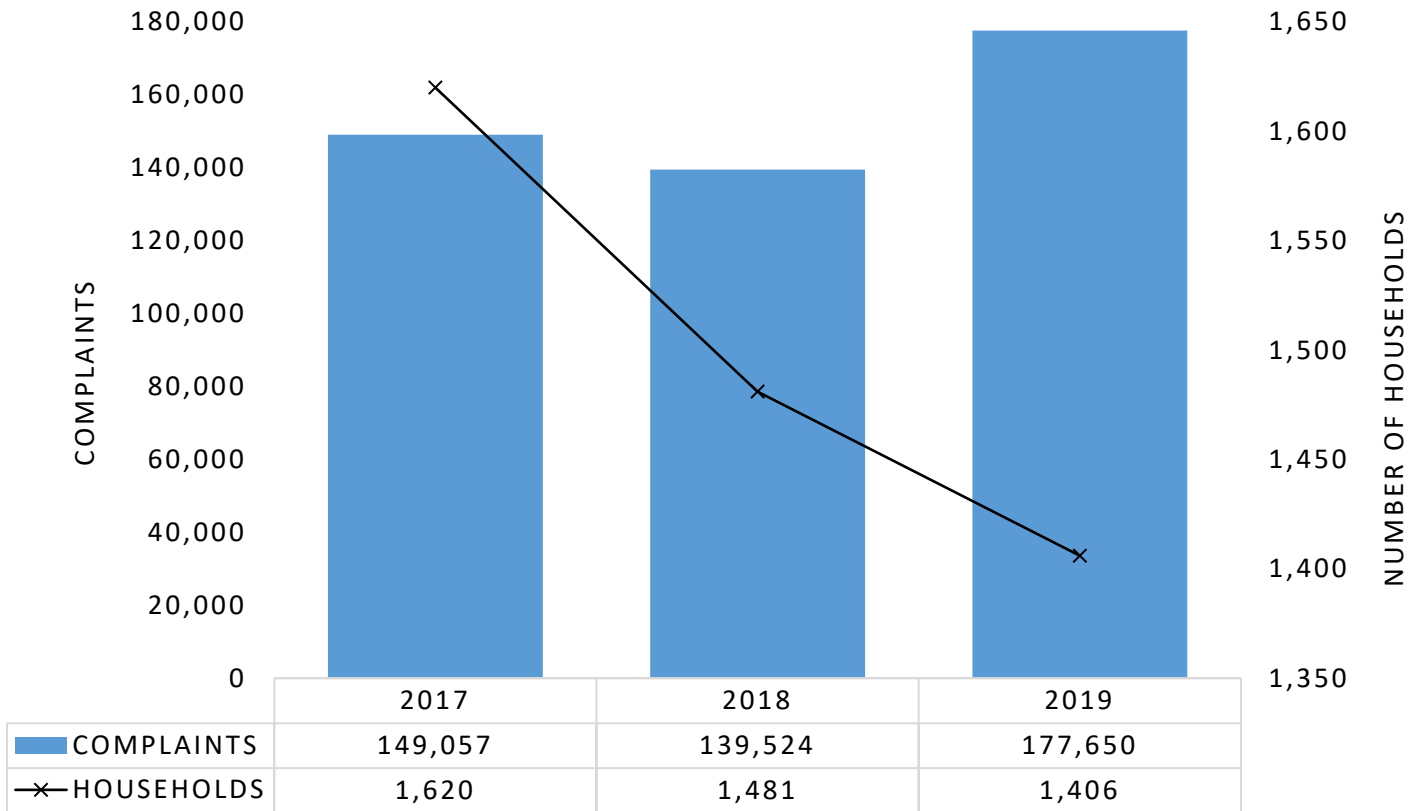
MSP COMPLAINT DATA ASESMENT

MARCH 2020

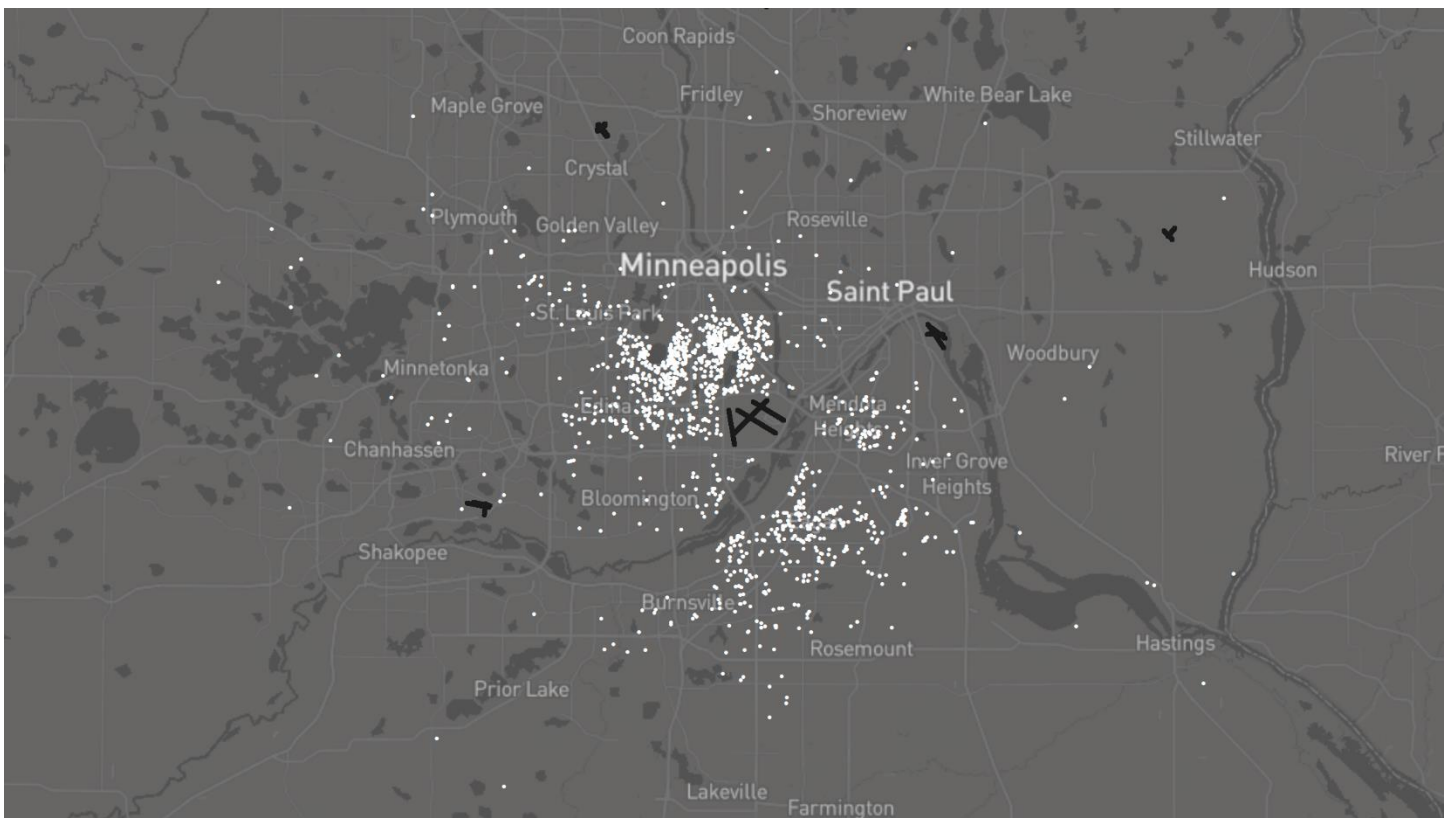
COMMUNITY RELATIONS OFFICE

METROPOLITAN AIRPORTS COMMISSION
6040 28TH AVENUE SOUTH, MINNEAPOLIS, MN 55450
WWW.MACNOISE.COM

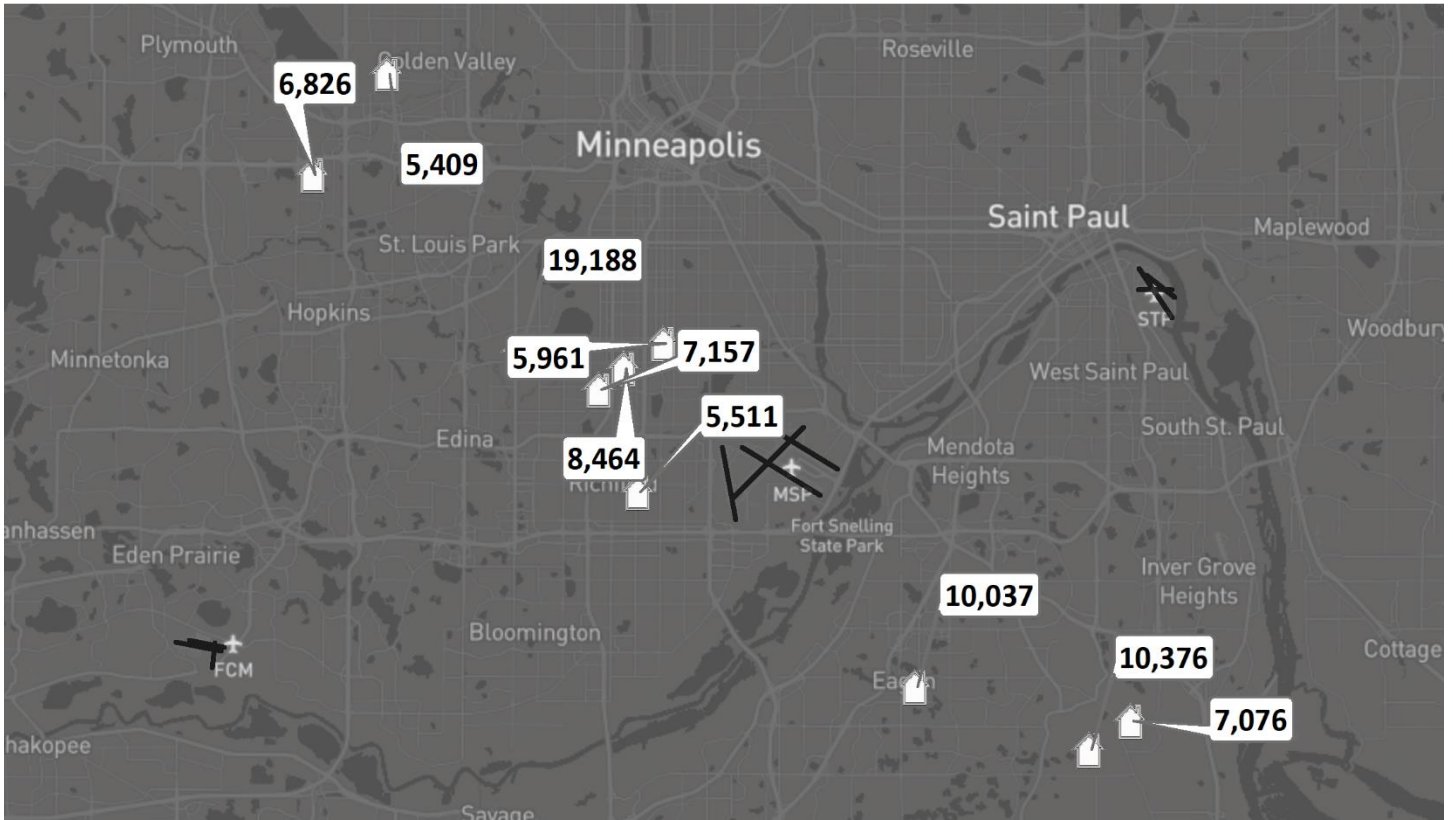
2017 – 2019 ANNUAL COMPLAINTS AND HOUSEHOLDS



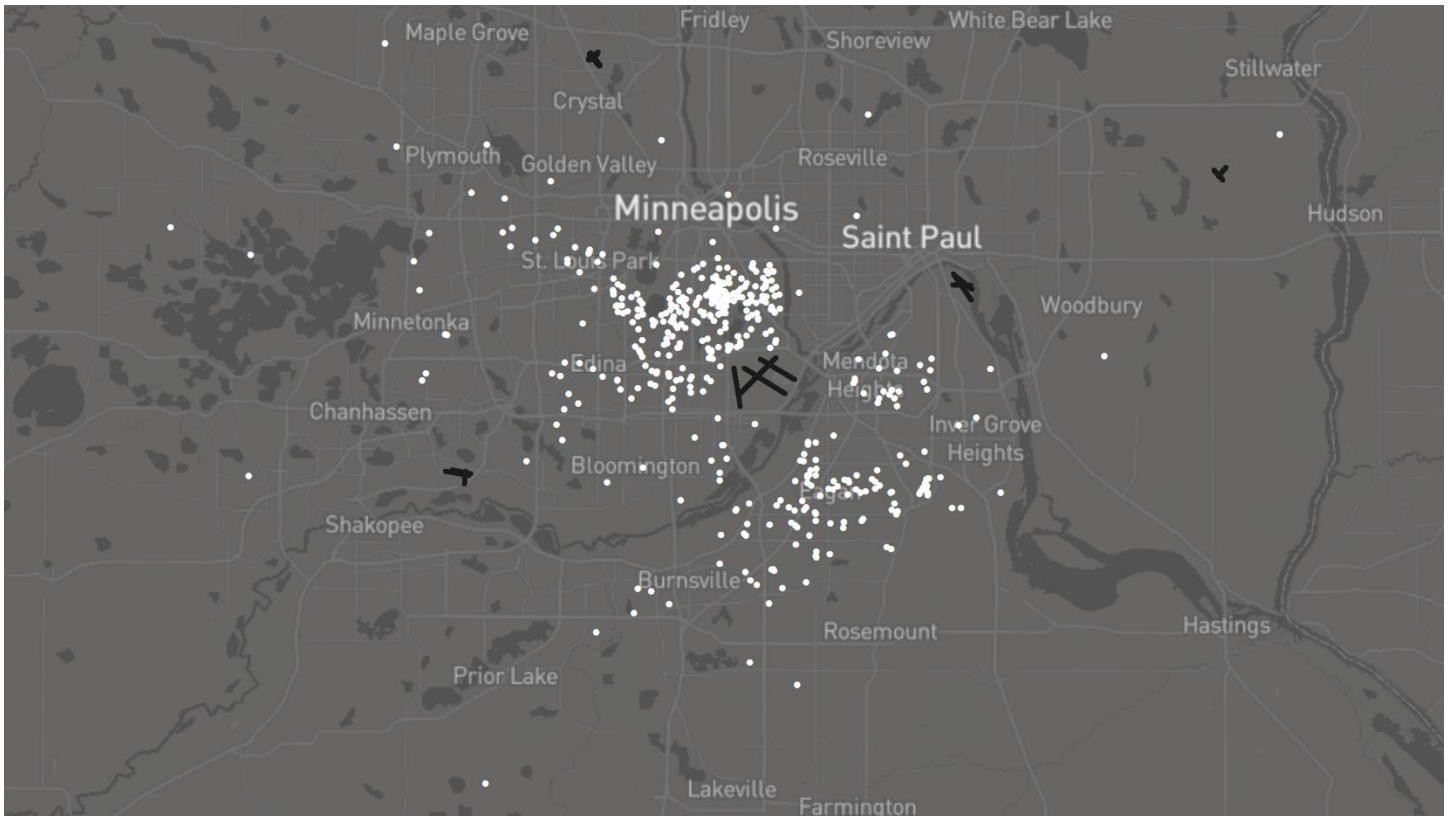
2019 HOUSEHOLDS FILING COMPLAINTS



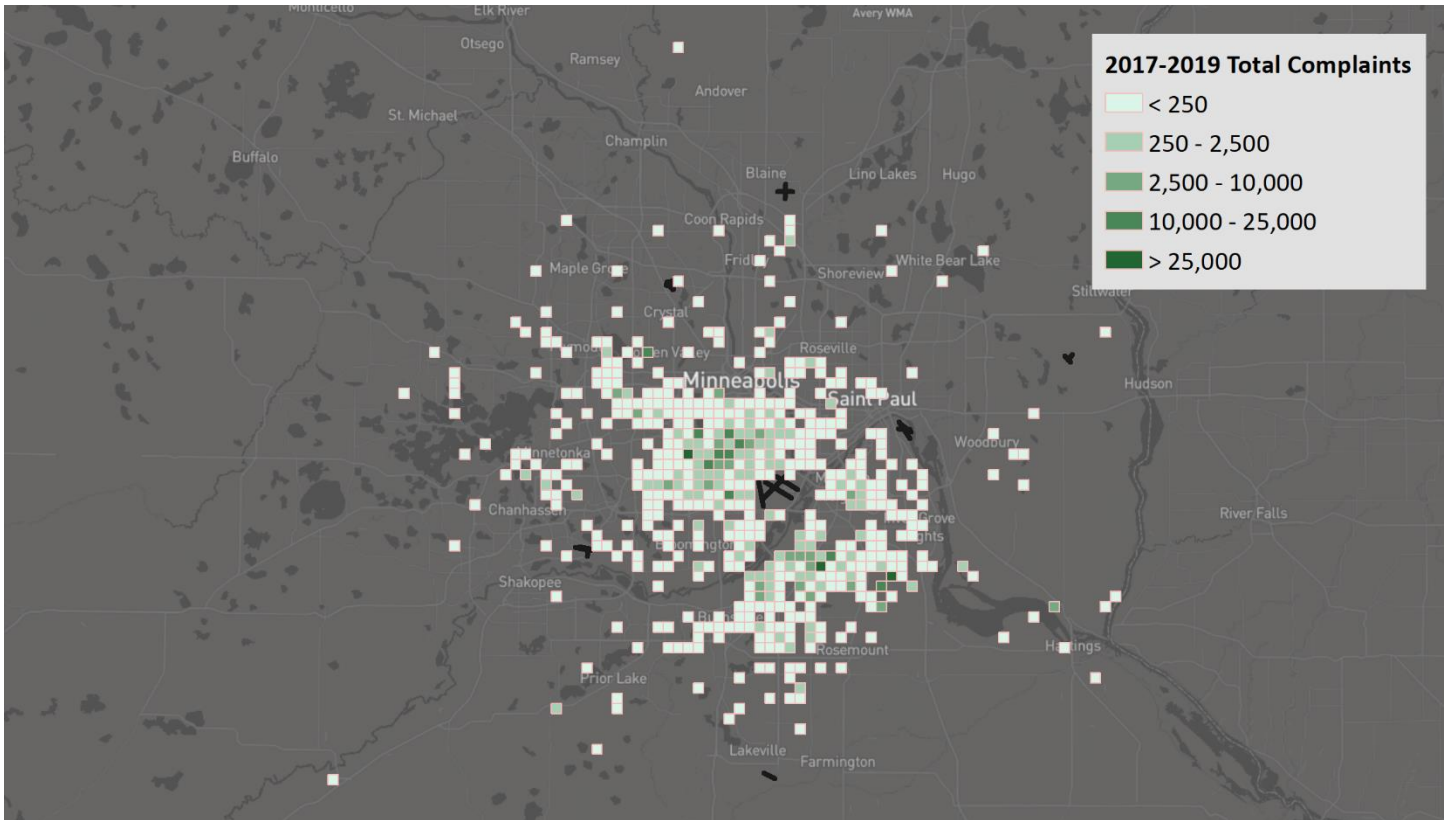
2019 TOP 10 HOUSEHOLDS FILING COMPLAINTS



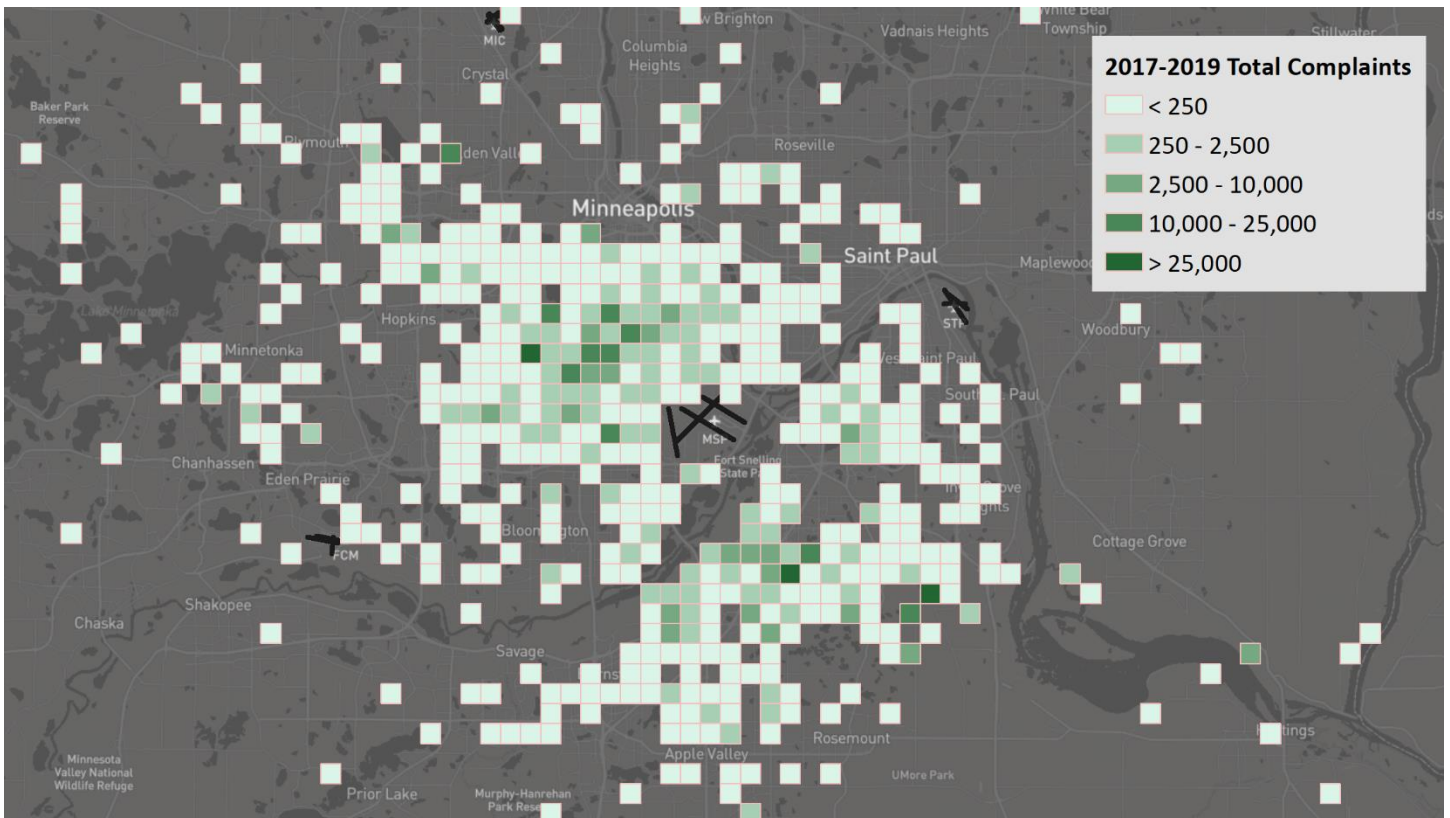
2019 NEW HOUSEHOLDS FILING COMPLAINTS



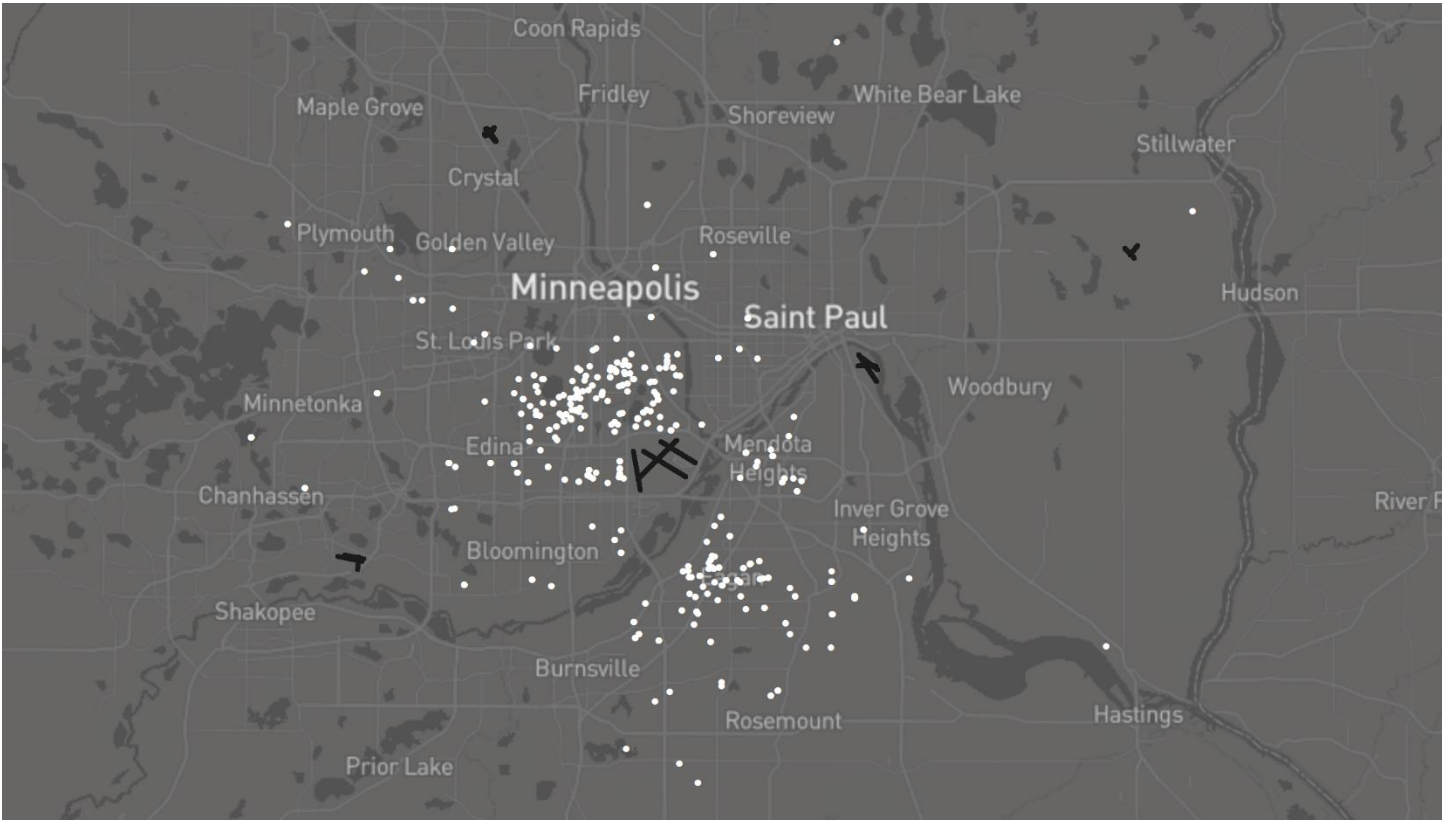
2017 – 2019 TOTAL COMPLAINTS



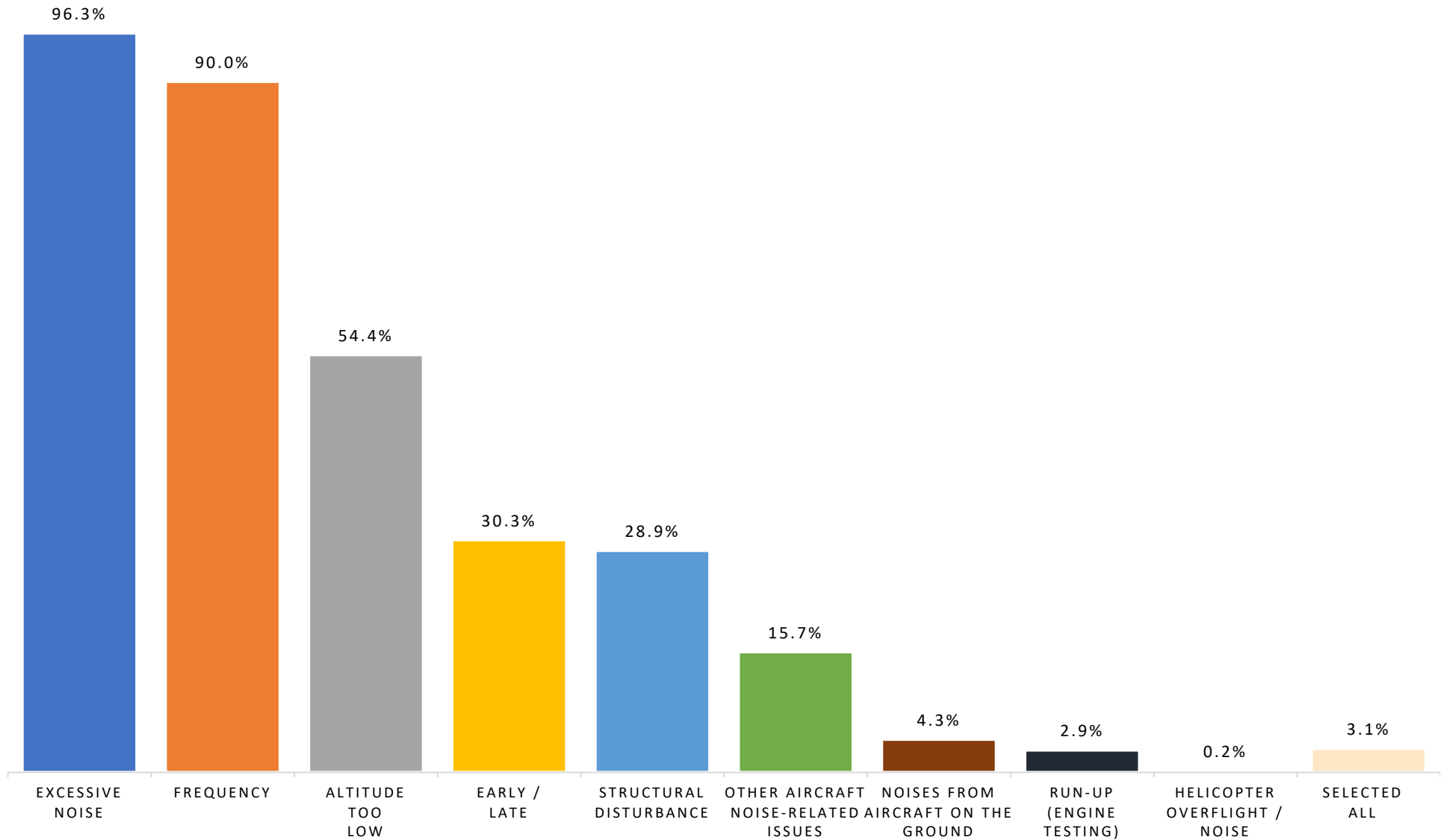
2017 – 2019 TOTAL COMPLAINTS



2019 GROUND NOISE & RUN UP COMPLAINTS

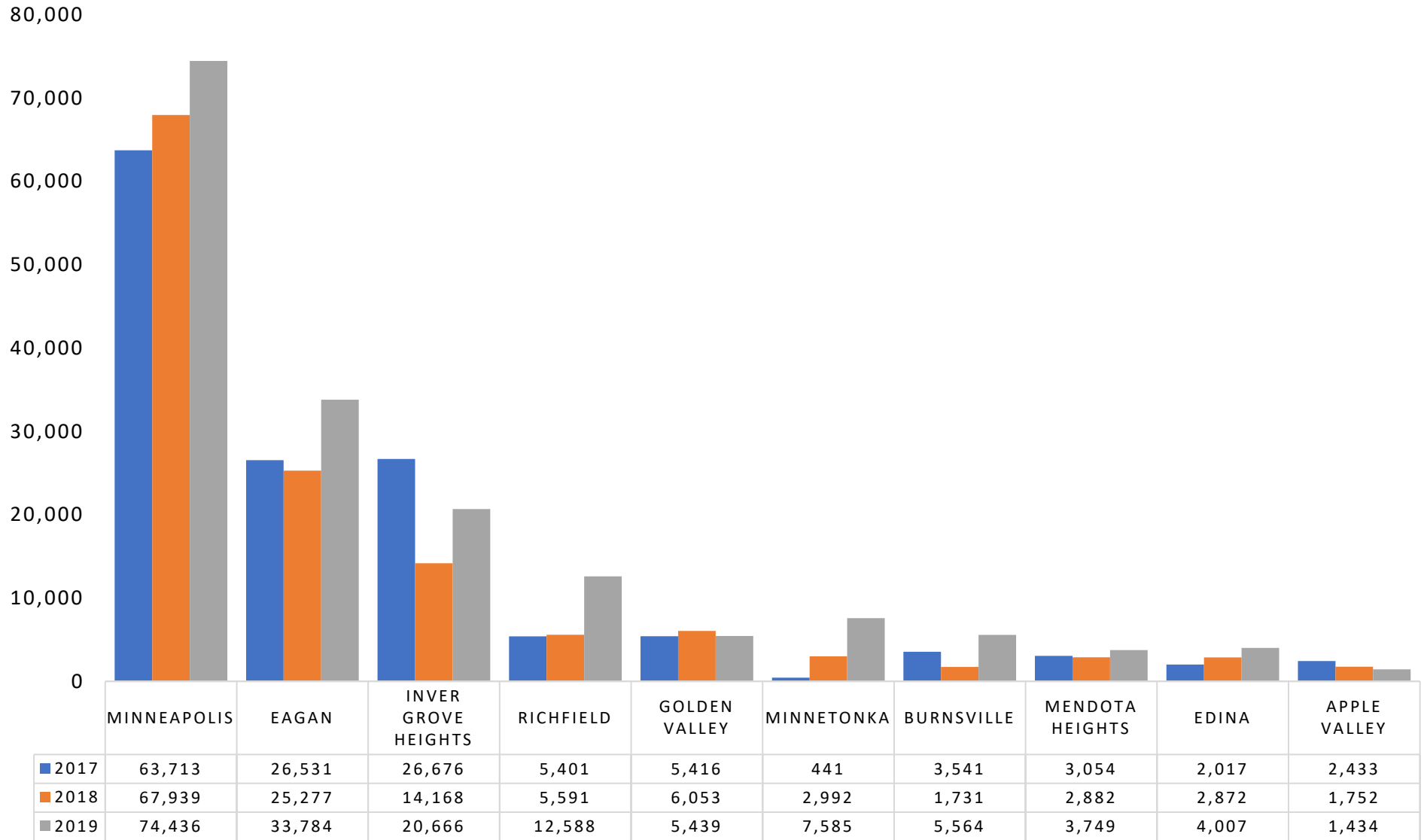


2019 COMPLAINTS FILED BY COMPLAINT REASON

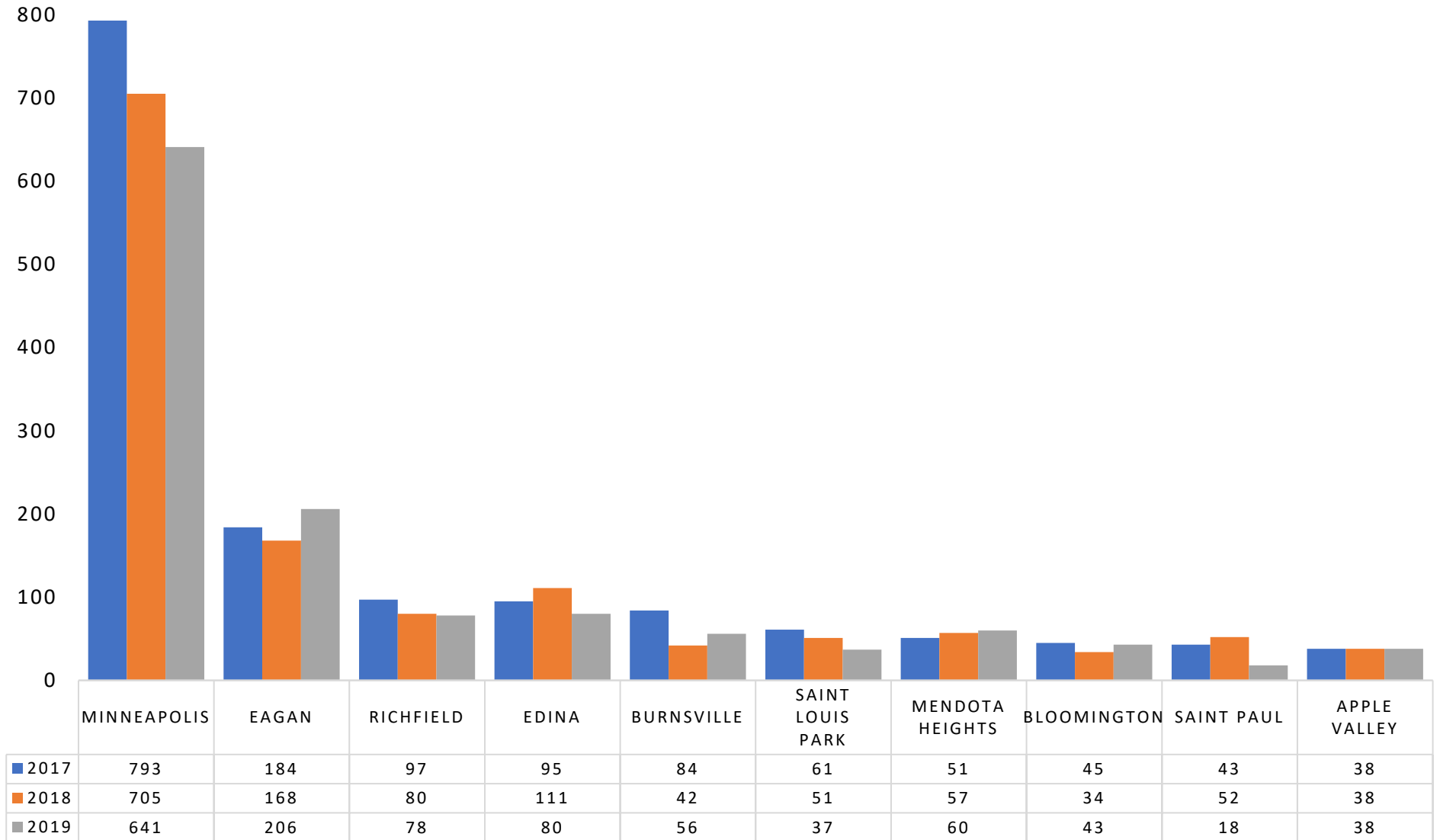


NOTE: BECAUSE MORE THAN ONE OPTION CAN BE SELECTED, THESE DO NOT ADD UP TO 100%. "SELECTED ALL" INDICATES EVERY COMPLAINT TYPE SELECTED.

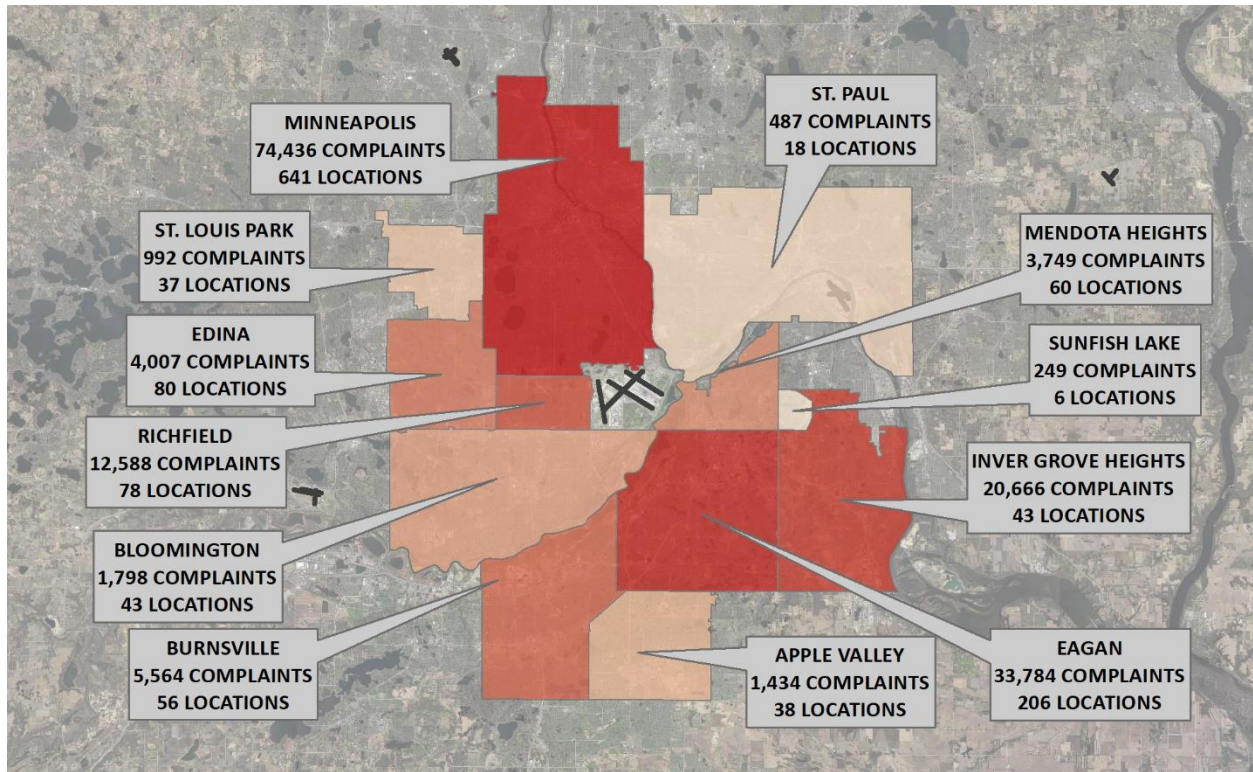
2017 – 2019 ANNUAL COMPLAINTS FILED BY TOP 10 CITIES



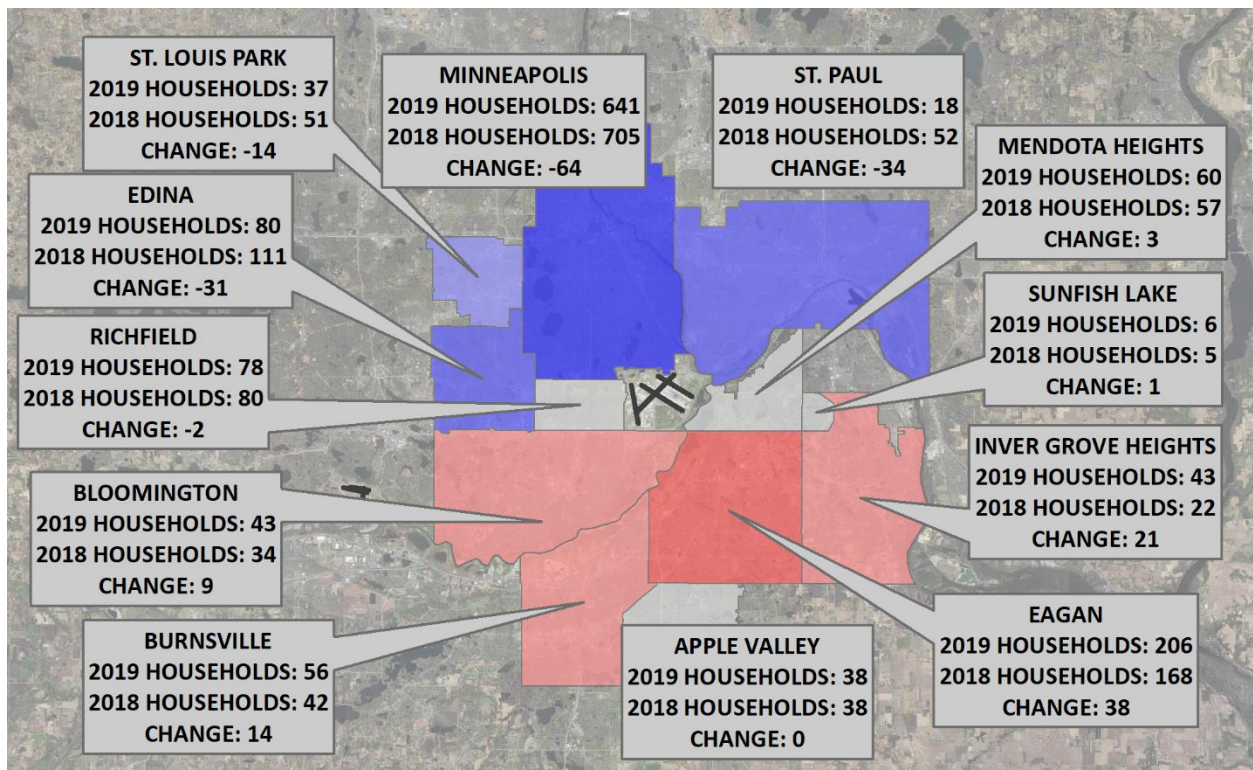
2017 – 2019 ANNUAL HOUSEHOLDS FILING COMPLAINTS BY TOP 10 CITIES



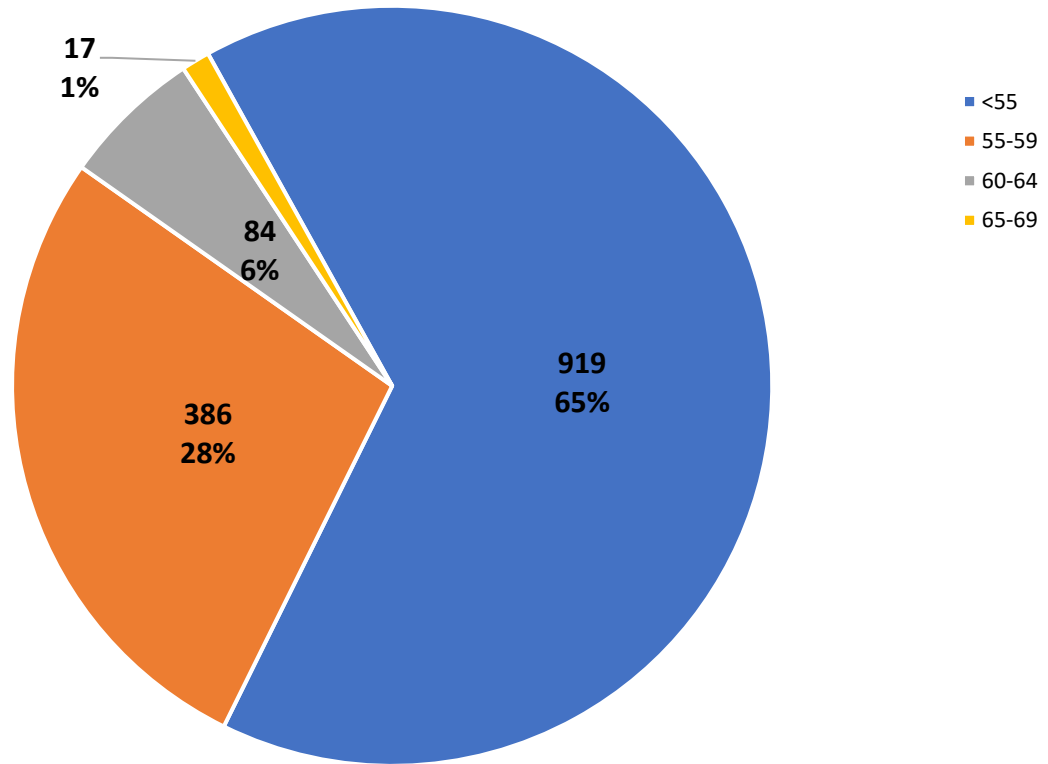
2019 COMPLAINTS FILED BY CITY



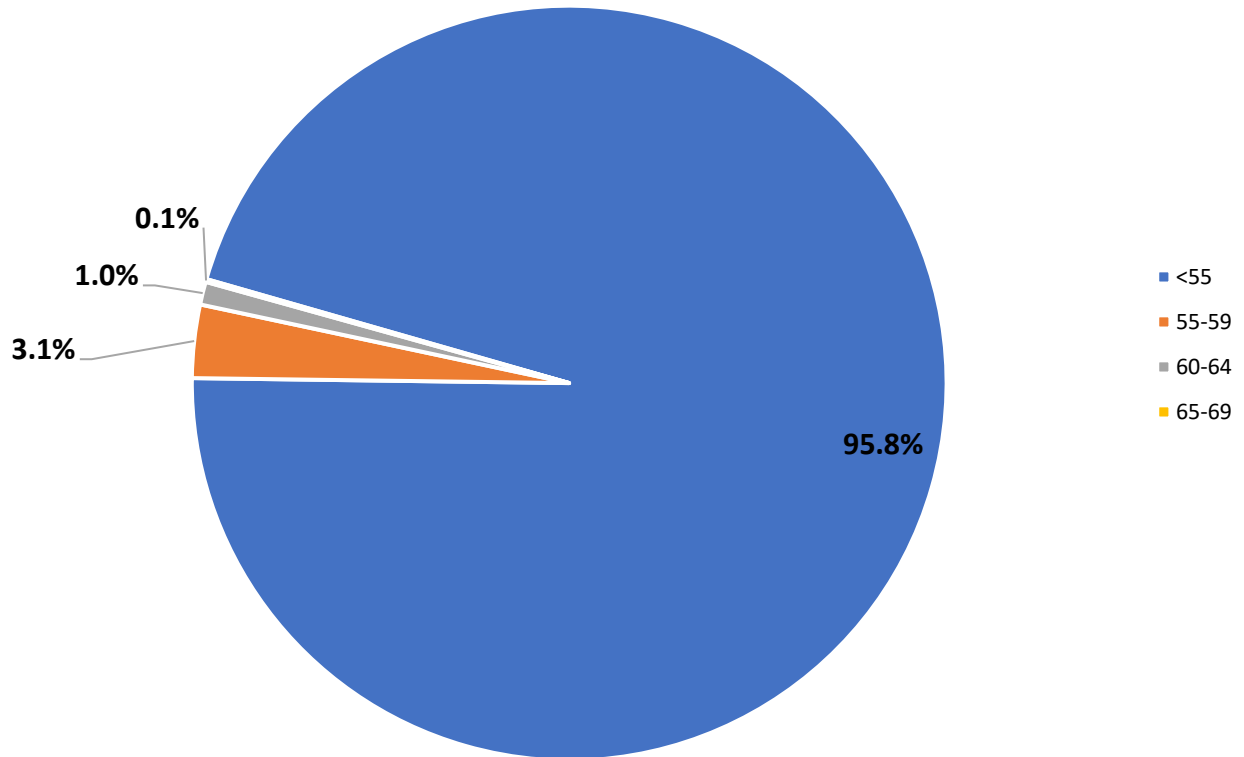
2018 TO 2019 COMPARISON - HOUSEHOLDS FILING COMPLAINTS BY CITY



2019 HOUSEHOLDS FILING COMPLAINTS BY DNL CONTOUR

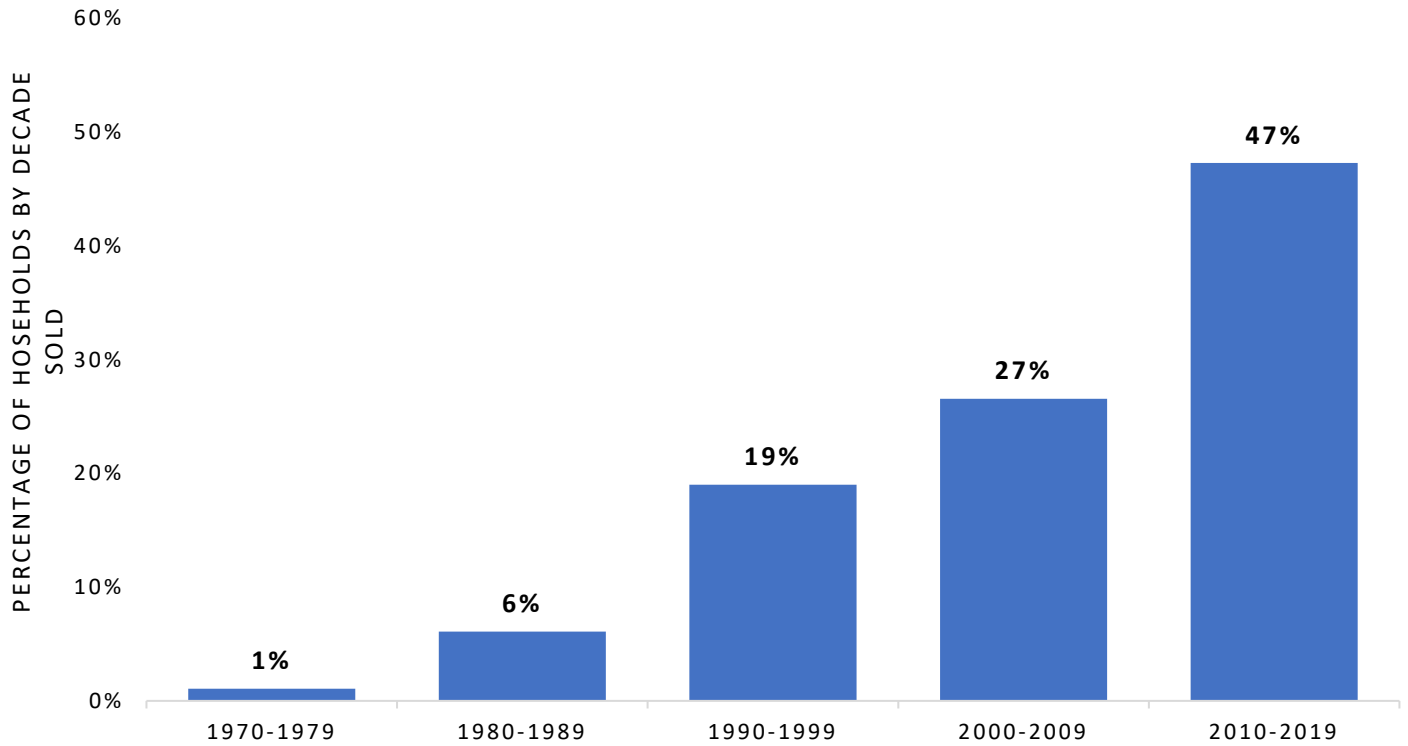


NUMBER OF RESIDENTIAL PARCELS* BY DNL CONTOUR



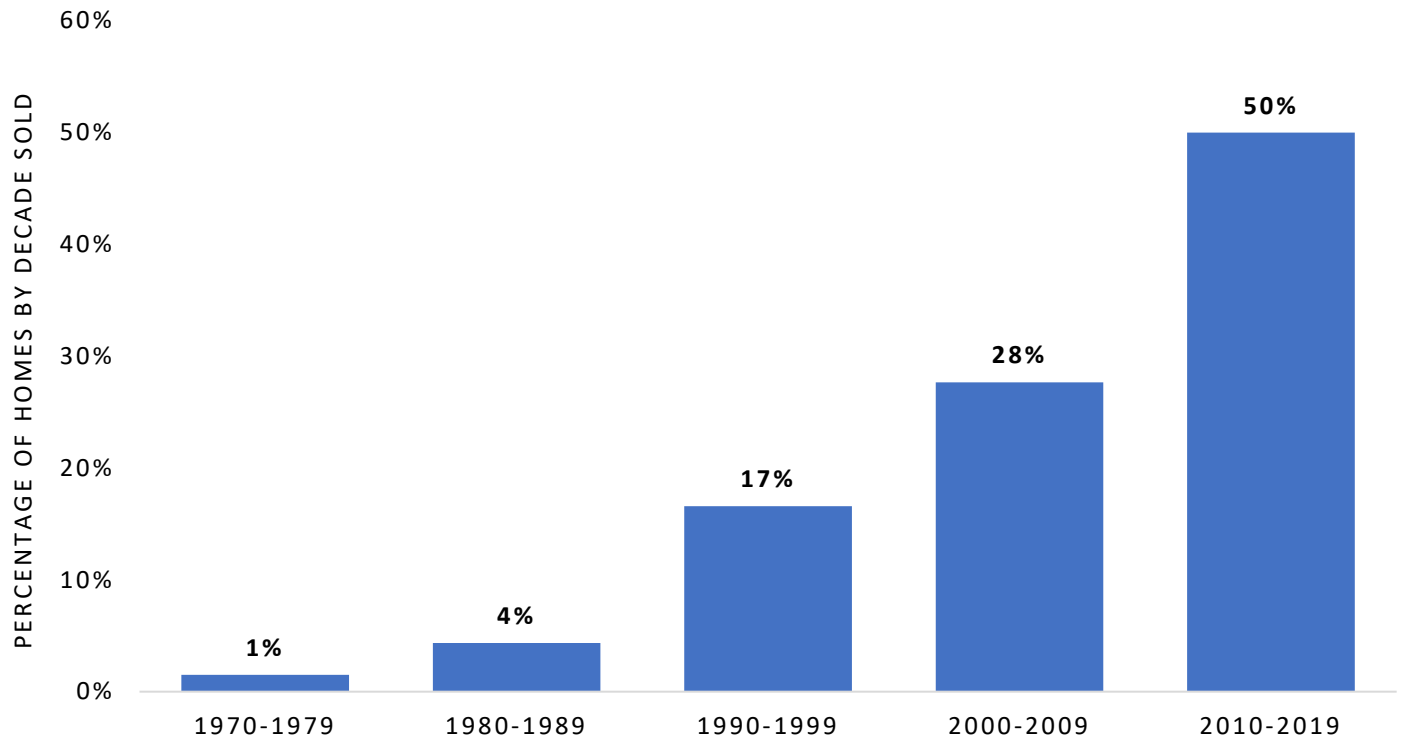
*Parcels with primary use labeled as residential within 23.65 miles of MSP were included

2019 HOUSEHOLDS FILING COMPLAINTS BY HOME PURCHASE DATE



Note: Only includes single-family owner-occupied households based on county parcel data (2020).

NUMBER OF HOUSEHOLDS BY HOME PURCHASE DATE

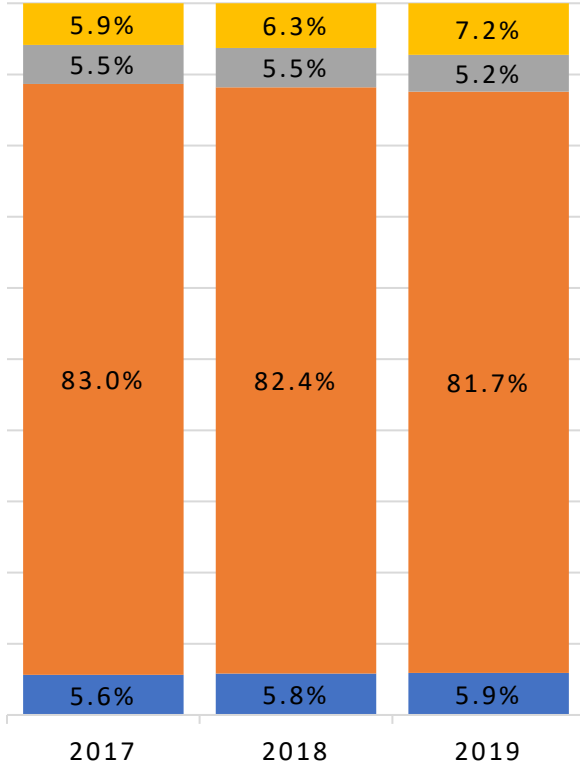


Note: single-family owner-occupied households within 23.65 miles of MSP with sale date information available only based on county parcel data (2020).

2017 – 2019 COMPLAINTS AND OPERATIONS BY TIME

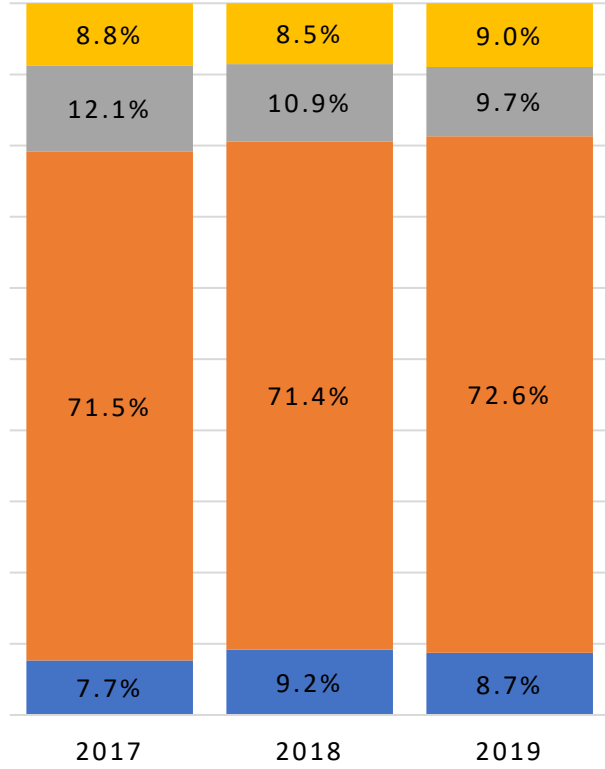
OPERATIONS BY TIME PERIOD

■ MORNING ■ DAY ■ EVENING ■ NIGHT



COMPLAINTS BY TIME PERIOD

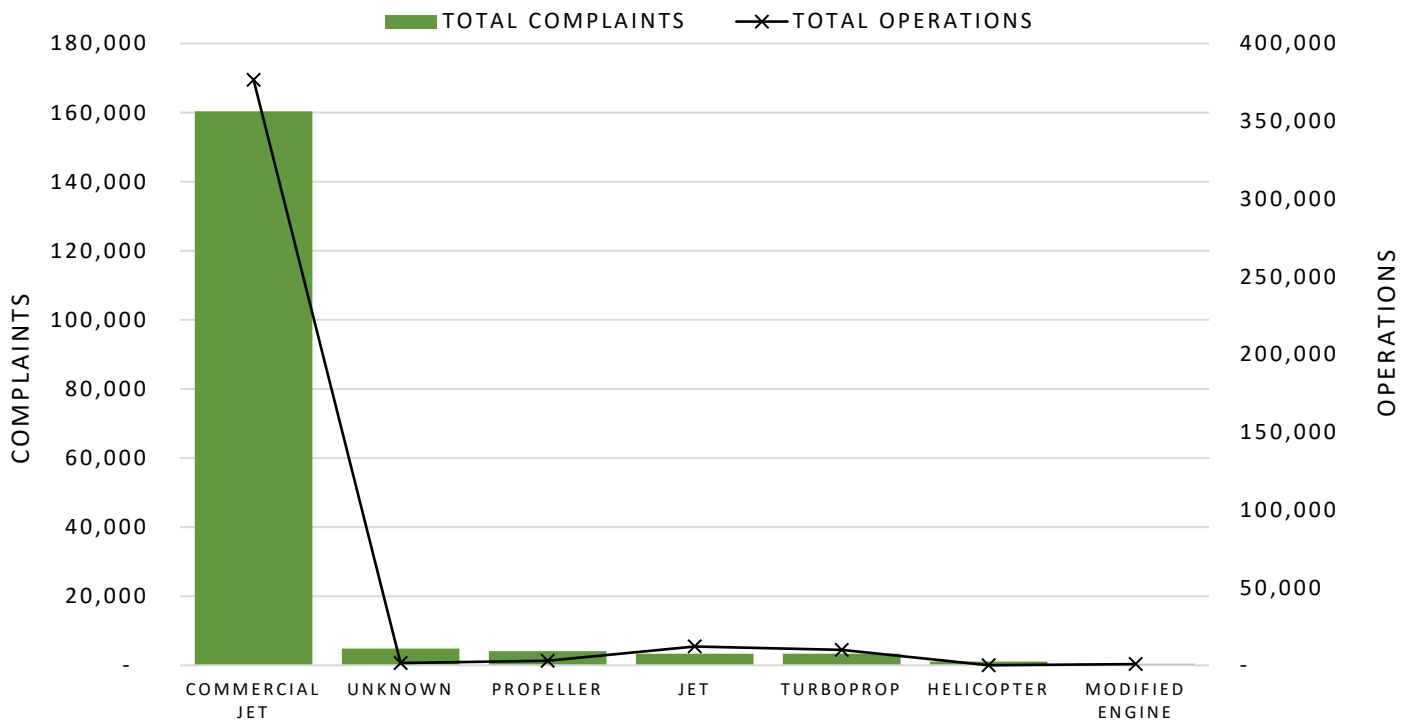
■ MORNING ■ DAY ■ EVENING ■ NIGHT



Note:

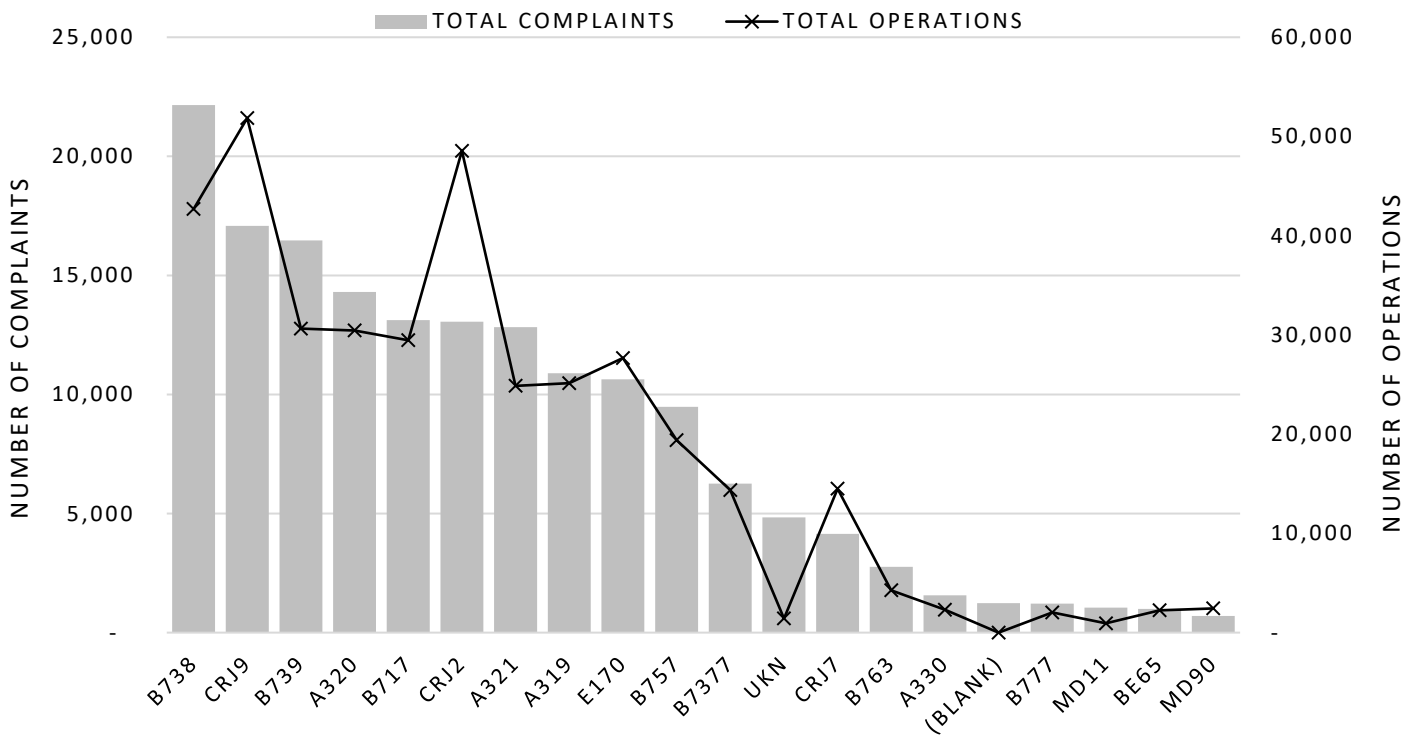
Morning: 6:00 AM – 7:30 AM
Day: 7:30 AM – 9:00 PM
Evening: 9:00 PM – 10:30 PM
Night: 10:30 PM – 6:00 AM

2019 COMPLAINTS BY AIRCRAFT CATEGORY



Operation Type	Total Complaints	Total Operations	Ratio
Commercial Jet	160,378	376,603	0.43
Unknown	4,838	1,430	3.38
Propeller	4,078	2,876	1.42
Jet	3,368	12,093	0.28
Turboprop	3,342	9,888	0.34
Helicopter	1,076	21	51.24
Modified Engine	414	754	0.55

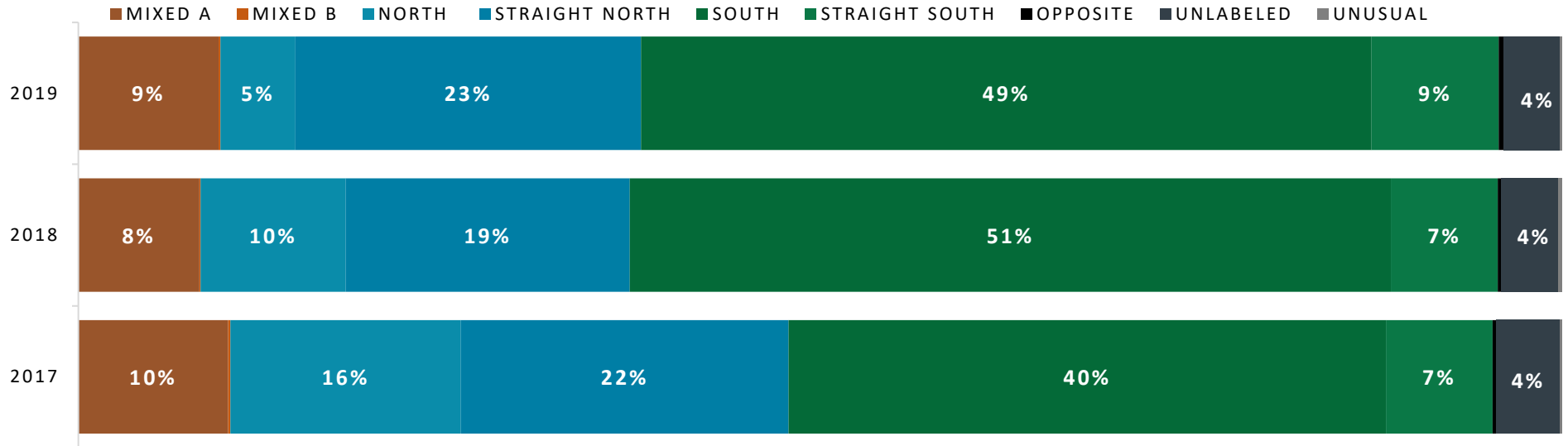
2019 COMPLAINTS BY AIRCRAFT TYPE



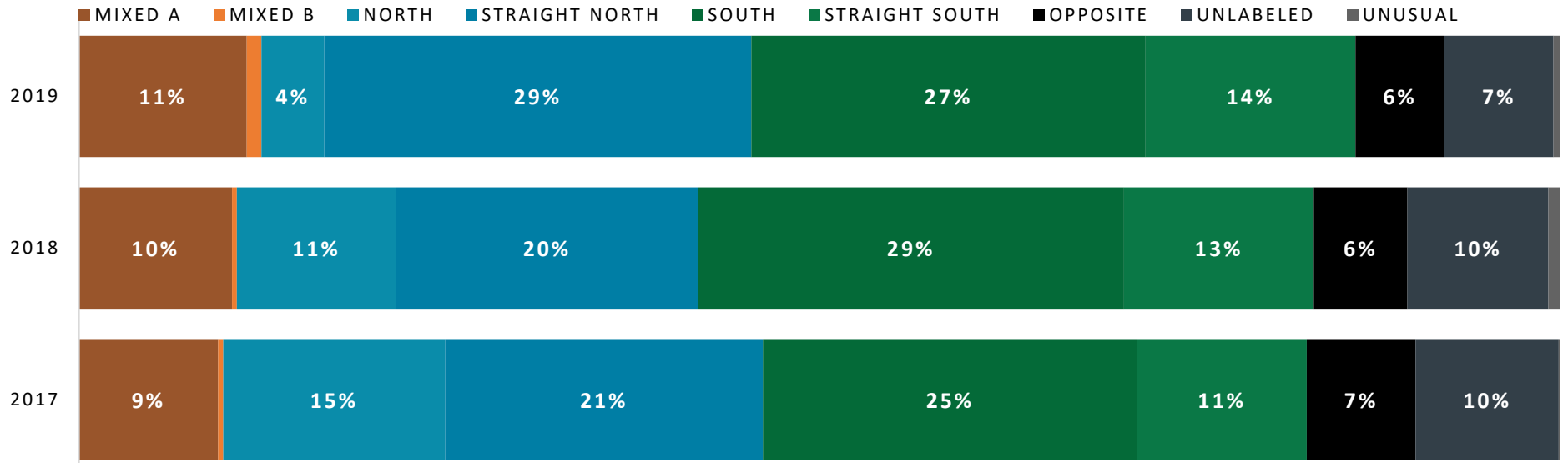
2019 TOP 10 FLIGHTS THAT GENERATED COMPLAINTS

Operation Number	Aircraft Type	Airport	Flight ID	Date and Time	Number of Complaints
24191800	B739	MSP	DAL371	1/12/2019 7:28	24
25030719	A109	--	N90NM	8/10/2019 3:32	24
24597204	UKN	FCM	--	5/7/2019 16:32	22
24429478	BE65	MSP	BMJ72	3/28/2019 7:18	21
24948135	UKN	FCM	--	7/24/2019 7:03	21
24191771	B737	MSP	SWA6936	1/12/2019 7:47	21
25111517	MD11	MSP	FDX915	9/1/2019 3:58	21
25166616	CRJ9	MSP	SKW4045	9/20/2019 6:53	20
24867877	UKN	MIC	N2240G	7/8/2019 19:40	20
24592042	B738	MSP	DAL2340	5/6/2019 20:51	19

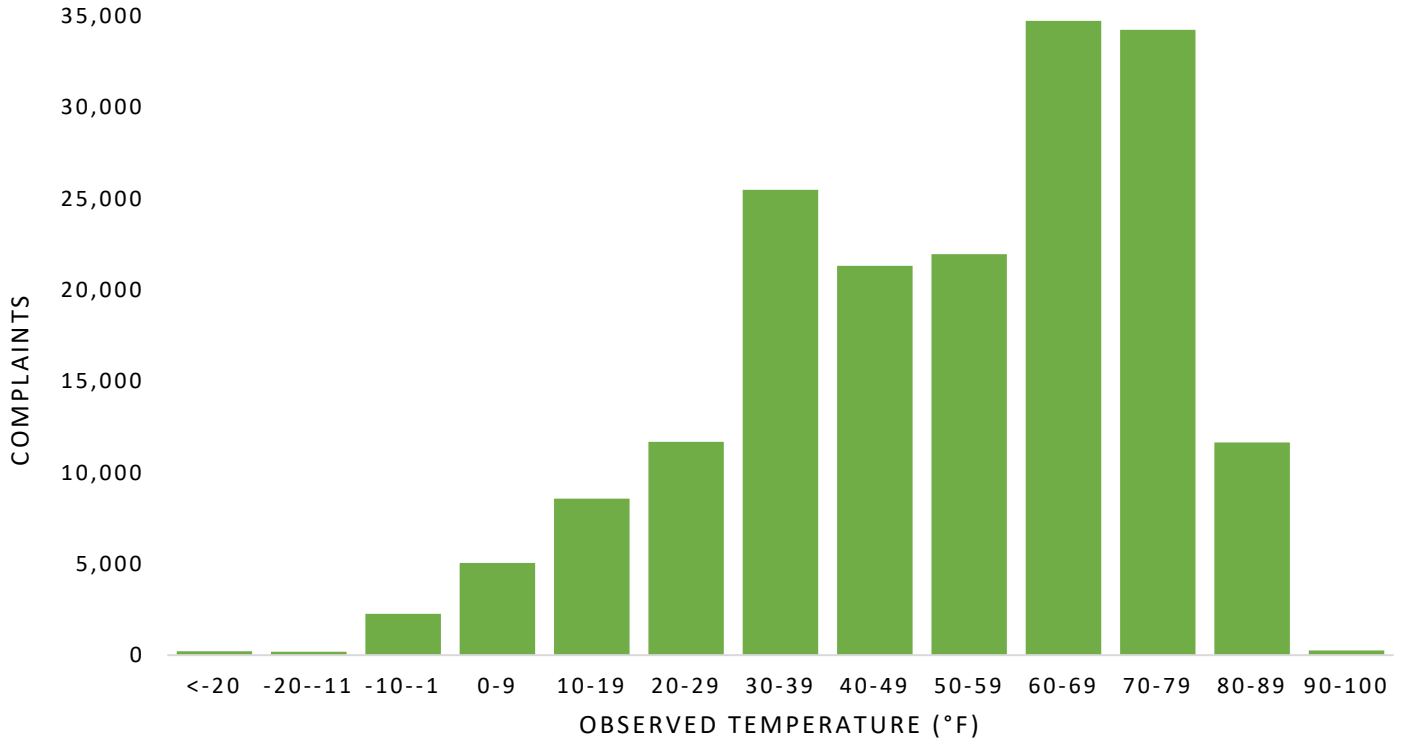
2017 – 2019 COMPLAINTS BY FLOW



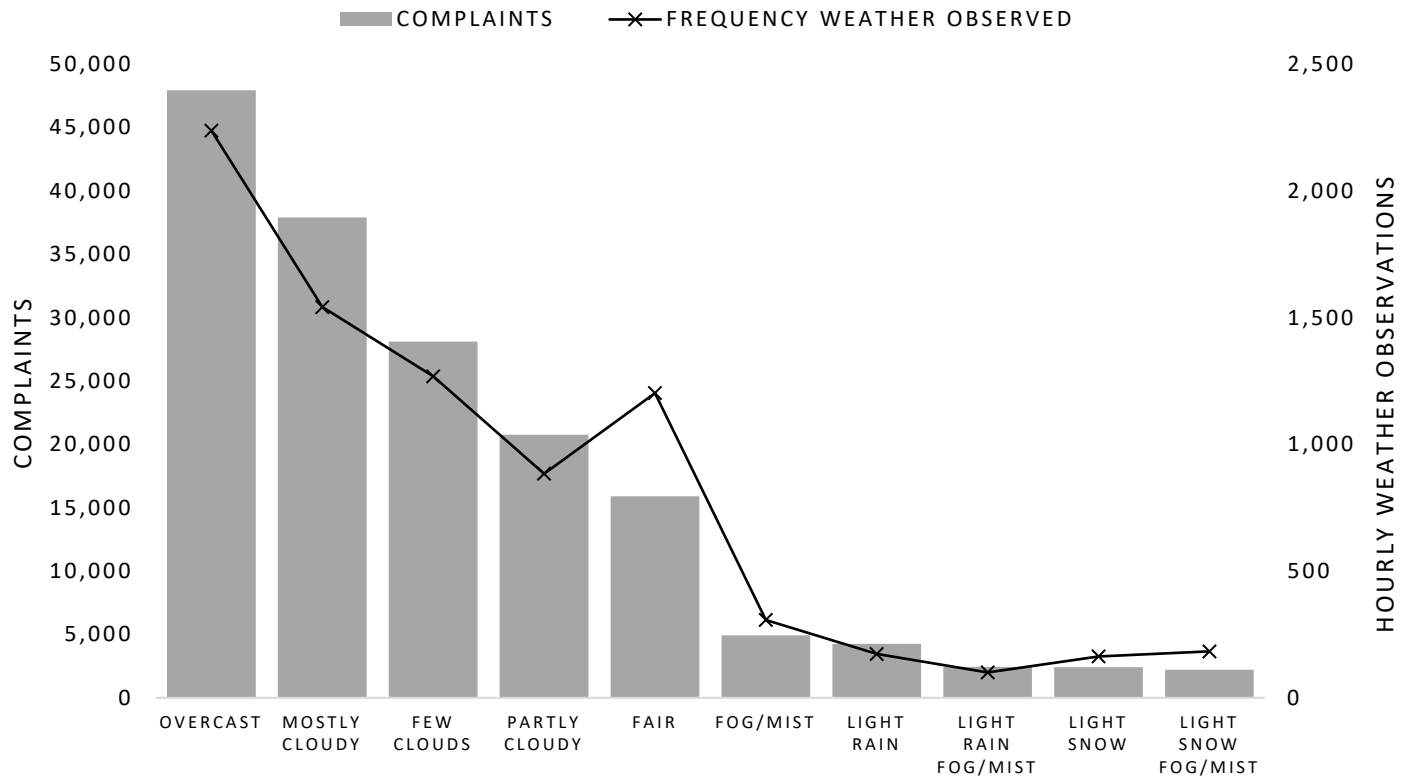
2017 – 2019 TOTAL FLOW



2019 COMPLAINTS BY TEMPERATURE



2019 COMPLAINTS BY WEATHER



MEMORANDUM

ITEM 2.1

TO: MSP Noise Oversight Committee (NOC)

FROM: Brad Juffer, Manager, Community Relations

SUBJECT: PUBLIC COMMENT PERIOD

DATE: May 6, 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

TO: MSP Noise Oversight Committee (NOC)
FROM: Brad Juffer, Manager, Community Relations
SUBJECT: EAGAN REQUEST TO FAA
DATE: May 6, 2020

In September 2019, the Eagan City Council sent a letter to the NOC requesting endorsement of the recommendations developed 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.

The NOC considered the letter and the specific requests on November 20, 2019. The Committee forwarded four proposals to the MAC Planning, Development and Environment Committee for review. On December 16, 2019, the MAC Commission unanimously approved forwarding the proposals to the Federal Aviation Administration (FAA).

The next step in the process, as outlined by the FAA in September 2019, was for the agency to conduct a high-level safety and feasibility review. The FAA completed that review and provided the attached letter detailing the results which are also summarized below.

Request #1 – 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 has determined that this request potentially has merit if limited to the COULT departure fix.

Request #2 – Vary the use of Runway 17 departure headings to limit the frequency of overflights in neighborhoods.

The FAA determined that this would raise safety and efficiency concerns and therefore would not be feasible.

Request #3 – Better fan aircraft departing Runway 17 by increasing the use of a 180 degree heading for those aircraft that would normally be assigned a 120 degree, 140 degree, or 155 degree heading.

The FAA determined that this would raise safety and efficiency concerns and therefore would not be feasible.

Request #4 – Move Runway 12R and 12L westbound departures to Runway 17 to take advantage of the 2.5 mile river departure procedure, provided the aircraft can be directed to follow the Minnesota River for no less than 5 nautical miles

The FAA has determined that this request potentially has merit if limited to night-time operations. The FAA further noted that MSP Air Traffic Control does not direct aircraft to follow landmarks or geographical features.

The FAA has recommended that the MAC collaborate with resident air carriers and other commercial entities. MAC staff briefed aviation users of MSP of potential changes and did not note any issues with these potential adjustments. Additionally, FAA recommends the NOC be involved moving forward to ensure broad community acceptance. To that end, MAC staff initiated further analysis of the two remaining proposals, herein referred to as Request 1 and Request 4, using the Aviation Environmental Design Tool (AEDT). In total, MAC staff spent approximately 350 hours collecting data, consulting with FAA Air Traffic Management, populating and running the AEDT models, analyzing results and preparing figures.



February 14, 2020

Rick King

Chairman, Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

Re: MSP Departure Procedure Adjustment Requests

Dear Mr. King,

Staff at the Minneapolis Tower (MSP Tower) of the Federal Aviation Administration (FAA) has had the opportunity to review the four requests for changes to how the MSP Tower directs aircraft departures from runway 17 at Minneapolis St. Paul Airport (MSP) submitted to the FAA by the MSP Noise Oversight Committee (NOC) through the Metropolitan Airports Commission (MAC). These requests were outlined are based on a longer list of recommendations developed by residents of the City of Eagan and are intended to reduce the amount of noise experienced by Eagan residents.

The FAA has conducted its initial review for feasibility and safety of the proposed changes in accordance with the flow chart presented to the NOC in the Fall of 2019 at one of its bi-monthly meetings. The review is a high-level review of the proposed changes and does not constitute a final commitment by the Agency. However, generally speaking, if the FAA notes that it has significant concerns, it is unlikely that there would be value in continuing to pursue that particular recommendation. Conversely, if the FAA notes that a particular change may have merit, an airport may wish to further pursue whether carriers would be willing to accept the proposed change, as well as assess whether the surrounding community would ultimately support the FAA adopting the change. Please note that changes to existing processes may simply shift the noise from one community to another. The FAA expects the MAC to work with the NOC and with the broader community to resolve these issues. The FAA's assessment of each of the four proposed changes is provided below.

Adjustment Request #1

- **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 has determined that this request potentially has merit if limited to departure fix COULT.

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. If MSP Tower were to move both the COULT and ZMBRO departure fix aircraft to Runway 12R or 12L, efficiency would be lost, causing delays for departures. During times

with high arrival demand, moving departures with the initial fix of COULT or ZMBRO to Runway 12R or 12L would impede arrival traffic to those runways causing delay to both the arrivals and the departures.

A more detailed study will need to be performed to determine the time periods when this procedure would be feasible, taking into consideration arrival and departure traffic demand for Runway 12L. As with all Runway Use System procedures, during periods of high demand, the need to maintain operational capacity does not allow Air Traffic Control flexibility in runway selection.

Adjustment Request #2

- **Vary the use of Runway 17 departure headings to limit the frequency of overflights in neighborhoods.**

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. As aircraft depart MSP, initial separation is established in a number of ways based on weather conditions. Aircraft are assigned divergent headings for safety and efficiency, and they are directed on headings in order to manage the need for increasing separation requirements as they depart the airport. Often these headings are based on the departure fix that the aircraft is flying to. For example, an aircraft bound for Atlanta may be given an initial heading of 120 degrees, while an aircraft bound for Chicago may be given an initial heading of 140 degrees which would allow the second aircraft to depart the Runway after the first aircraft is airborne and at least one nautical mile ahead of them. If these aircraft were given the same heading initially, Air Traffic Control would have to hold the second aircraft on the ground until establishing three miles in trail separation nose to tail. For this reason, Air Traffic Controllers already look for opportunities to vary the initial heading of departures. In order to maintain the safe and efficient flow of traffic, aircraft are also given headings that prevent the flow of departures to turn inside or cross the path of the next successive departure, which may occur if variance were mandated. As the destination is often the determining factor in the initial heading after departure, additional variance could lead to a loss of efficiency and possible gridlock on the airport surface as aircraft taxi to the departure runway if they are required to wait for extended periods of time prior to departure. This gridlock raises safety concerns that the FAA cannot accept, particularly since the suggested action has already been adopted to the maximum extent feasible.

Adjustment Request #3

- **Better fan aircraft departing Runway 17 by increasing the use of a 180 degree heading for those aircraft that would normally be assigned a 120 degree, 140 degree, or 155 degree heading.**

The FAA has determined that there is no value in further consideration of this request since it raises safety and efficiency concerns.

As discussed above, Runway 17 departure headings are currently varied to the maximum extent possible. Limiting the use of any heading available to Air Traffic Controllers will reduce efficiency and airport capacity. If these aircraft were given the same heading initially, Air Traffic Control would have to hold the second aircraft on the ground until establishing three miles in trail separation nose to tail. In addition to the loss of efficiency, this would also lead to a possible increase in gridlock on the airport surface, raising the same safety concerns addressed above.

Air Traffic Controllers at MSP Tower currently assign an initial heading of 170 (Runway Heading) when feasible. A heading of 180 would cause the aircraft to fly west of the already established Runway Use System guidance prior to the 2.5 mile fix.

Adjustment Request #4

- **Move Runway 12R and 12L westbound departures to Runway 17 to take advantage of the 2.5 mile river departure procedure, provided the aircraft can be directed to follow the Minnesota River for no less than 5 nautical miles**

The FAA has determined that this request potentially has merit if limited to night-time operations.

During day-time operations, westbound aircraft (departure fixes of SCHEP and ORSKY) currently depart runway 17, unless aircraft have an operational necessity to use Runway 12R. During night-time operations (2230-0630), MSP Tower tentatively finds it feasible and safe to move westbound departures (departure fixes of SCHEP and ORSKY) to Runway 17, unless aircraft have an operational necessity to use Runway 12R. These aircraft would follow the published SCHEP or ORSKY Departure Procedure after passing the 2.5 mile departure fix that is depicted on the Air Traffic Controller's display.

It should be noted that MSP Air Traffic Control does not direct aircraft to follow landmarks or geographical features. Instead, MSP Air Traffic Controllers direct aircraft via headings to be flown until they intercept their flight planned routes via established and published procedures that are flight checked and certified for safe use.

Should the MAC choose to further develop details for the proposal, the FAA will conduct a more comprehensive evaluation after that development is completed. To assure the FAA's limited resources are focused on projects with a high likelihood of success, the Agency recommends the MAC collaborate with its resident air carriers and other commercial entities with a stake in the outcome. In addition, as noted above, 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.

If the MAC decides to move forward, the MAC and the FAA will need to determine and agree on who would bear the cost of development and implementation. Additionally, the new processes will be subject to environmental review with appropriate community outreach prior to implementation. Parallel to this effort, any new processes would be subject to a Safety Risk Management assessment. Standard Operating Procedures would then be developed, incorporating any safety mitigations, and Air Traffic Control Specialists would be briefed/trained prior to any implementation.

Sincerely,



Rebecca B. MacPherson
Regional Administrator

cc: Brian Ryks, MAC Executive Director
Jeff Hart, NOC Airport User Co-Chair
Dianne Miller, NOC Community Co-Chair
Eagan Mayor Mike Maguire
U.S. Congresswoman Angie Craig
U.S. Senator Amy Klobuchar
U.S. Senator Tina Smith

AEDT Noise Modeling

The FAA released AEDT Version 3c on March 6, 2020. For this analysis, however, MAC staff chose to use AEDT Version 3b to ensure consistency with baseline results. Those baseline results use the inputs that were used for the MSP 2019 Annual Contour Report which utilized AEDT Version 3b.

The MAC produces an Annual Contour Report for MSP every year. This report uses the Day-Night Average Sound Level (DNL) metric to analyze noise exposure. The DNL metric is calculated by averaging cumulative sound levels over a 24-hour period. This average cumulative sound exposure includes a 10-decibel penalty to aircraft noise exposures occurring during the nighttime (10:00 PM to 7:00 AM) to account for relatively low nighttime ambient noise levels and because most people are asleep during these hours. For this analysis, MAC staff also used the DNL metric to evaluate the impact of the Eagan procedure adjustment requests. In a recent report to Congress regarding the DNL metric, the FAA notes,

“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.”

In addition to DNL, the AEDT model is also capable of producing alternative noise metrics. One metric option available is the Number Above Noise Level. For this analysis, MAC staff evaluated the number of operations at or above 65 dB at a specific grid point. The FAA further notes in their recent report to Congress,

“... 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.”

Using these two metrics in combination provides an evaluation of the noise exposure change that would result from implementation of these two requests. It will provide an average change in addition to a frequency change.

AEDT Model Inputs

This noise analysis depicts an annualized average day of aircraft noise impacts using model inputs, such as runway use, flight track use, aircraft fleet mix, aircraft performance and thrust settings, topography, and atmospheric conditions. Quantifying aircraft-specific noise characteristics in AEDT is accomplished using a comprehensive noise database that has been developed under 14 CFR Part 36. As part of the airworthiness certification process, aircraft manufacturers are required to subject aircraft to a battery of noise tests. Using federally adopted and endorsed algorithms, this aircraft-

specific noise information is used in the generation of DNL contours. Justification for such an approach is rooted in national standardization of noise quantification at airports.

The inputs that were chosen for the MSP 2019 Annual Contour Report constitute the baseline condition. Aircraft fleet, runway use, day/night split, and track usage were all kept identical in this analysis. The density of the receptor grid was reduced for efficiency. As a result, very minor variances to the DNL contour found in the Annual Contour Report may exist. The DNL metric was conducted for the baseline, Request 1 and Request 4 using this grid.

Flight Tracks

Modeled departure and arrival flight tracks were developed using actual flight track data. The model tracks used in the baseline modeling were identical to those used for the 2019 Actual Noise Contour. Sub-tracks are added to each of the backbone arrival and departure model tracks. The distribution of operations among the backbone and sub-tracks in AEDT use a standard “bell curve” distribution, based on the number of sub-tracks developed.

To accurately assess the impact of potential changes, it was necessary to evaluate how departures from MSP may be reallocated between runways to accurately model any potential changes. The following is the result of that analysis.

Request 1

In their response letter, the FAA stated, “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.”

MAC staff conducted an analysis of MSP operations activity for the time period of January 1, 2018 through December 31, 2019. The analysis divided activity into fifteen-minute segments of time and identified the total airport arrival demand and the number of Runway 17 departures that flew a track toward the COULT departure fix.

The data was then aggregated to show metrics based on the arrival activity level. That data is included in Table 1 below.

After consultation with MSP Air Traffic Control personnel, it became apparent that the appropriate level to model was an average daily change of 9.2 operations. At this level, the total 15-minute demand on the airport was five arrivals or less. According to ATC, this would provide the best opportunity for them to utilize Runway 12L for COULT departures without adversely impacting the arrival activity. This analysis was conducted for the sole purpose of modeling the potential impact of any procedure adjustment and should not be viewed as a target or goal for any potential implementation in the future. Additionally, fluctuations in airport demand, weather, construction, surface closures, NAVAID availability and other variables will all impact future runway use. The change in the use of the runways modeled for Request 1 are included in Table 2.

Table 1

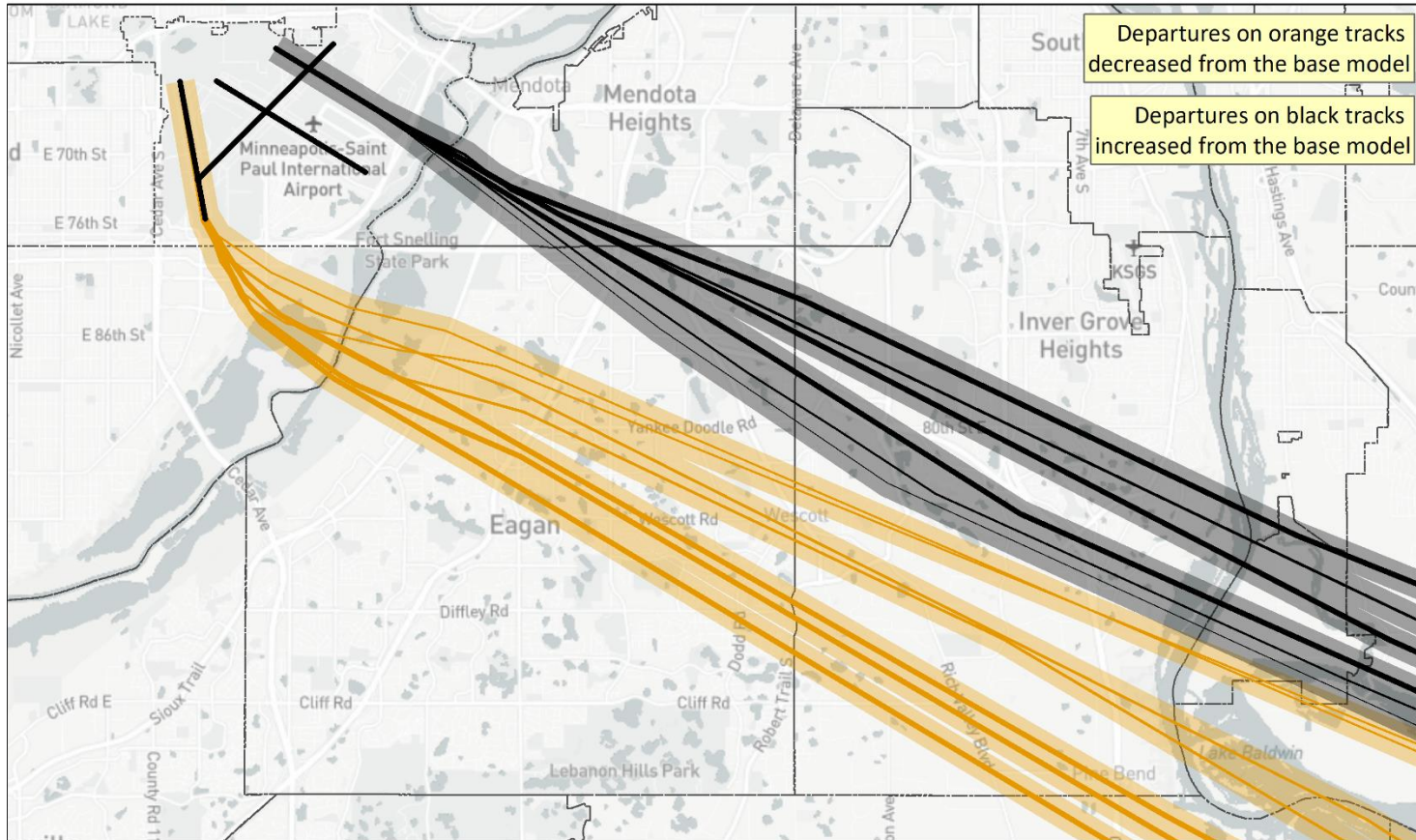
Airport Arrival Demand	Total 15-minute segments	Potential Departures Moved to Runway 12L	Running Total	% of Total 17 COULT Departures	Average Daily Change
0	9,500	192	192	0.9%	0.3
1	7,039	514	706	3.4%	1.0
2	5,595	892	1,598	7.8%	2.2
3	5,505	1,415	3,013	14.7%	4.1
4	5,318	1,740	4,753	23.2%	6.5
5	5,321	1,960	6,713	32.8%	9.2
6	4,911	1,934	8,647	42.2%	11.8
7	4,393	1,860	10,507	51.3%	14.4
8	3,984	1,903	12,410	60.6%	17.0
9	3,329	1,623	14,033	68.6%	19.2
10	2,826	1,390	15,423	75.4%	21.1
11	2,421	1,188	16,611	81.2%	22.8
12	2,108	840	17,451	85.3%	23.9
13	1,928	804	18,255	89.2%	25.0
14	1,635	636	18,891	92.3%	25.9
15	1,268	494	19,385	94.7%	26.6
> 15	2,999	1,082	20,467	100.0%	28.0

Because MSP departures are controlled in a traditional vectored departure environment, multiple tracks are built to represent the dispersed nature of departures from all runways. Figure 1 below illustrates the model tracks that were used to represent the changes proposed in Request 1. In total, the 9.2 average daily departures were reduced on the orange model tracks and moved to the black model tracks. The individual model track assignments were proportional to the use in the baseline condition.

Table 2 – Average Daily Departures

Runway	Baseline	Request 1	Request 1 Change
12L	81.80	91.00	9.2
17	180.16	170.96	-9.2

EAGAN REQUEST 1: AEDT MODEL TRACKS



Average Daily Departures Average Daily Departures

- | | |
|----------|----------|
| — < 1 | — < 1 |
| — 1 to 2 | — 1 to 2 |
| — 2 to 3 | — 2 to 3 |
| — > 3 | — > 3 |

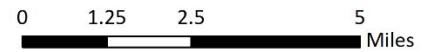


Figure 1

Request 4

In a similar fashion, MAC staff conducted an analysis for MSP departure activity of the time period of January 1, 2018 through December 31, 2019. Since the westbound aircraft departing during the day already use Runway 17, staff isolated MSP westbound aircraft departures using Runways 12L and 12R between 11:30 PM and 6:30 AM. Additionally, departures in widebody carrier jet aircraft were removed from the dataset. This step was taken due to the potential need for those aircraft to require Runway 12R due to the longer runway. For the previous two years, there were 9,985 departures that met these conditions.

MAC's Noise and Operations Monitoring System (MACNOMS) data does not record flight plan information and would not be able to identify which aircraft had flight plans to SCHEP or ORSKY. Instead, the analysis was completed using a GIS exercise to identify which aircraft flew a flight track that directed aircraft on a course to SCHEP or ORSKY. That analysis found about 2,500 departures that met those conditions in 2018 and 2019.

Additionally, MAC staff researched NOTAM information to determine the extent to which Runway 17-35 was unavailable for operations. This analysis found that the runway was unavailable for roughly 10% of the nighttime hours in the previous two years. Much of this time was due to snow and ice control occurring at the airport, but also includes runway maintenance and construction activities.

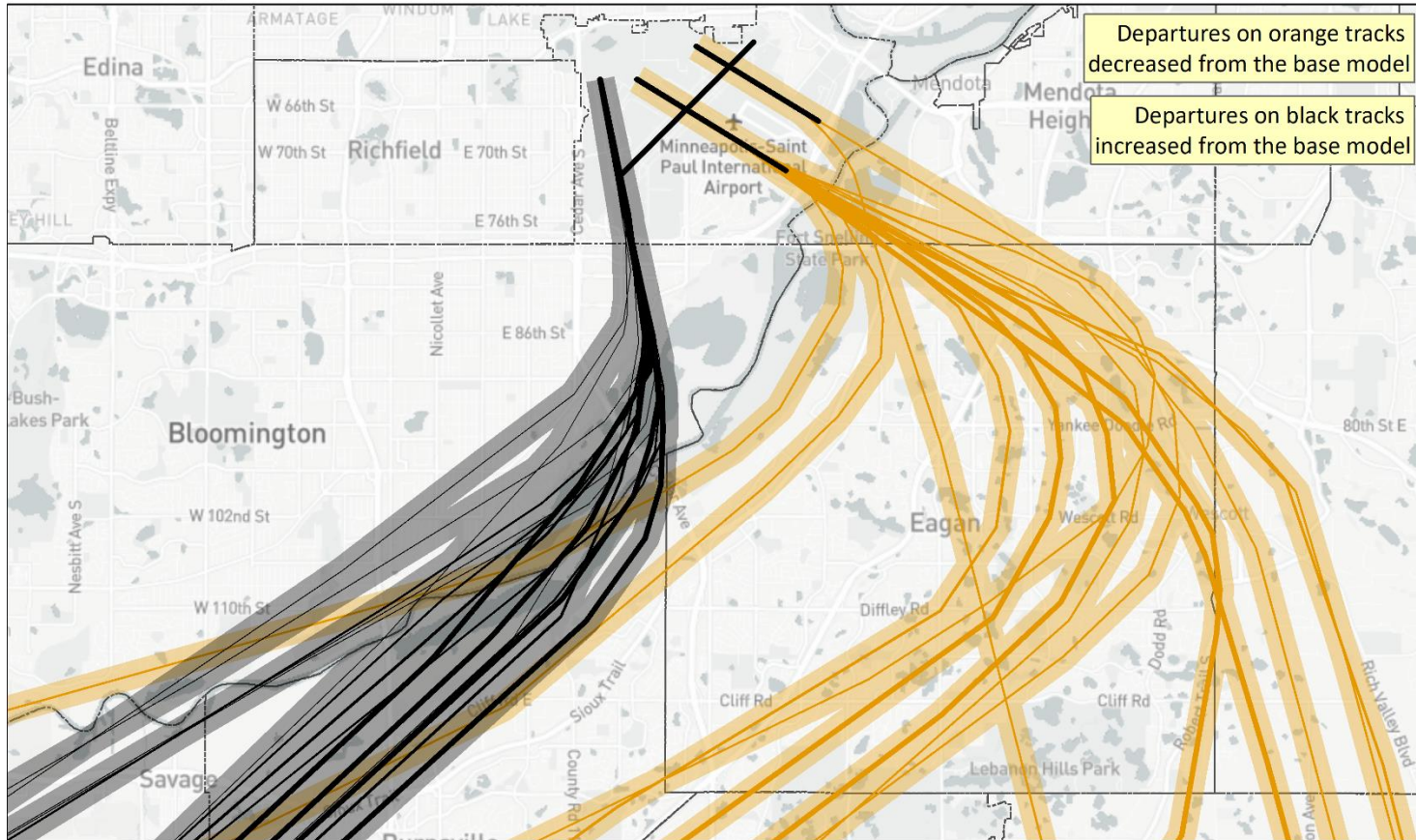
Given the data presented above, MAC staff modeled a change in operations that anticipates 1,135 annual departures moving from Runway 12L or 12R to Runway 17—a change of 3.1 average daily departures. The change in the use of the runways modeled for Request 4 are included in Table 3.

In the same manner as Request 1, Figure 2 below illustrates the tracks where departures were reduced in orange and the tracks where departures were increased in black. Again, increases and decreases were proportional to the use in the baseline condition. The sum of the decrease from the orange tracks was -3.1 departures with the sum of the increase on the black tracks being 3.1 departures.

Table 3- Average Daily Departures

Runway	Baseline	Request 4	Request 4 Change
12L	81.80	81.51	-0.29
12R	41.73	38.91	-2.82
17	180.16	183.28	3.12

EAGAN REQUEST 4: AEDT MODEL TRACKS



Departures on orange tracks decreased from the base model

Departures on black tracks increased from the base model

Figure 2

Request 1 Noise Modeling Results

As discussed, Request 1 was modeled to redirect 9.2 average daily departures with flight tracks enroute to COULT from Runway 17 to Runway 12L. All of the departures are anticipated to occur during daytime hours. The modeling effort proportionally reassigned those departures from tracks depicted in orange on Figure 1 to tracks in black on Figure 1. The modeled number of average daily departures that are approximated to change as a result of this request represent 0.8% of the total operations at MSP in the 2019 baseline. While this change may represent a small change in the total operational level at MSP, it would be consistent with the goals of the Runway Use System (RUS). The RUS prioritizes departures on Runway 12L and 12R ahead of departures on Runway 17. The FAA only has limited opportunity to use the RUS due to weather and airport demand.

The resultant impact on the DNL contour is minimal. Figure 3 displays the 60, 65 and 70 dB DNL noise exposure area from the 2019 baseline condition while Figure 4 displays the same contour levels after adjusting the departures for Request 1. To highlight the changes, areas where the 60 dB DNL contour grew as a result of these adjustments are shown in yellow. Sideline areas east of the departure end of Runway 12L in Mendota Heights as well as the end of the departure lobe should expect to see minor DNL increases if this change was implemented.

Conversely, areas where the 60 dB DNL contour contracted as a result of the adjustments are shown in blue. An area south of MSP over the Minnesota River valley along the track of Runway 17 COULT departures should expect a minimal decrease in total DNL if this change was implemented.

In addition to the DNL contour shown in Figures 3 and 4, the AEDT model can produce modeled data at individual grid points around the airport. Figures 5, 6 and 7 depict the DNL values at 132,000 individual points spaced .05 nautical miles apart around MSP. Specifically, Figure 5 shows DNL levels in 10 dB DNL increments from greater than 75 to less than 45 dB DNL for the 2019 baseline condition. Using this information, MAC staff compared the baseline DNL values to the DNL values modeled with the Request 1 adjustments. In the entirety of the study area, the change to individual grid points ranged from a 0.26 dB DNL increase to a -0.48 dB DNL decrease. Figure 6 displays areas where the increase was greater than 0.25 or less than -0.25 dB DNL.

The only area of increase of more than 0.25 dB DNL was on airport property at the start of takeoff roll. There is a wider area of decrease starting over the Minnesota River in Bloomington and continuing over central Eagan. The decreases at these points are between -0.25 and -0.48 dB DNL. All the areas that modeled a reduction of less than -0.25 dB DNL were below 60 dB DNL in the baseline condition. All residential areas that modeled a reduction of less than -0.25 were less than 55 dB DNL in the baseline condition.

Figure 7 shows the same data but overlays the DNL changes onto a land use graphic. MAC staff classified property as residential or otherwise non-compatible based on the primary use type listed in country parcel data. The areas shown in black are generally referred to as residential use parcels.

Please note that some of the parcels represent schools, hospitals, nursing homes or other similar uses in addition to single and multi-family residential use types.

In addition to DNL modeling, MAC staff also conducted Number Above Noise Level modeling using the same baseline and Request 1 adjustments. Similar to monthly report data from the MAC's system of remote monitoring locations throughout the community, the AEDT model is able to model the number of times the maximum noise level of an aircraft operation would exceed 65 dB. With actual monitoring, MACNOMS must take measures to attempt to filter out community noise and assign aircraft noise to a specific operation. The AEDT model does not have ambient noise to consider. MACNOMS records sound levels 24 hours a day, 365 days a year. The AEDT model must make assumptions about aircraft performance, flap configurations, engine settings, aircraft model types, weight and weather. The differences between actual monitoring and noise modeling will result in variances between the data but attempt to produce similar metrics.

Figure 8 shows the number of times 2019 baseline aircraft noise events exceeded 65 dB on an average annual day as produced by the AEDT model. Figure 9 shows portions of the study area where the number of events over 65 dB changed. Because the modeled change was 9.2 daily departures, the variance of the change is between -9.2 events and 9.2 events per day. Most of the area where the increase is 9 per day is over the Minnesota River northeast of the airport, contained within the Eagan-Mendota Heights Corridor, or over compatible land east of the Corridor. Other areas of increase affect areas in southeastern Minneapolis, northeastern Eagan, Mendota Heights and eastern Inver Grove Heights. Decreases are shown in western Richfield, southeast Minneapolis, eastern Bloomington and central Eagan. Similar to the DNL graphics presented, Figure 10 displays the same noise exposure data overlaid on the land use basemap.

MSP 2019 ANNUAL DNL CONTOUR

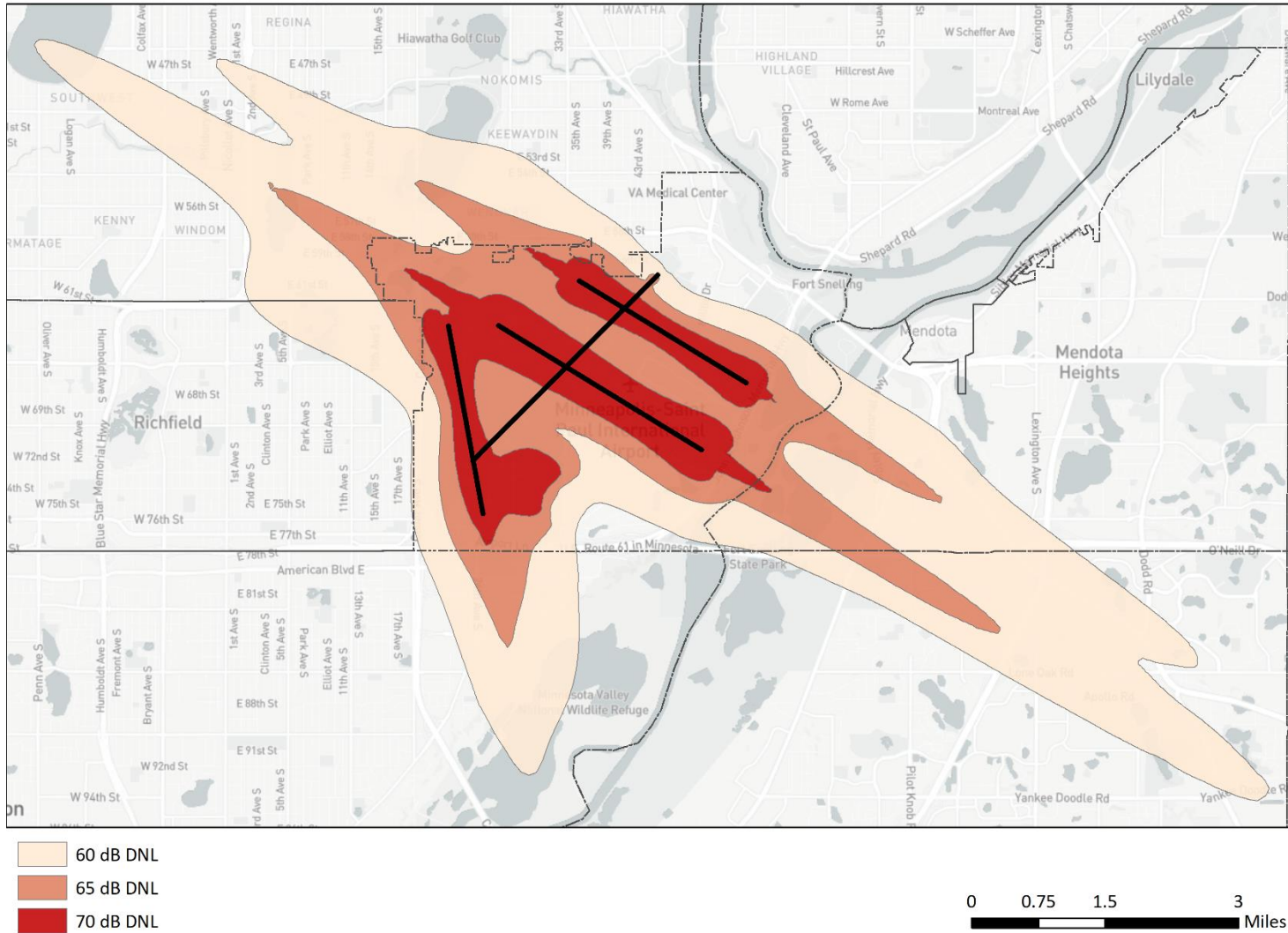
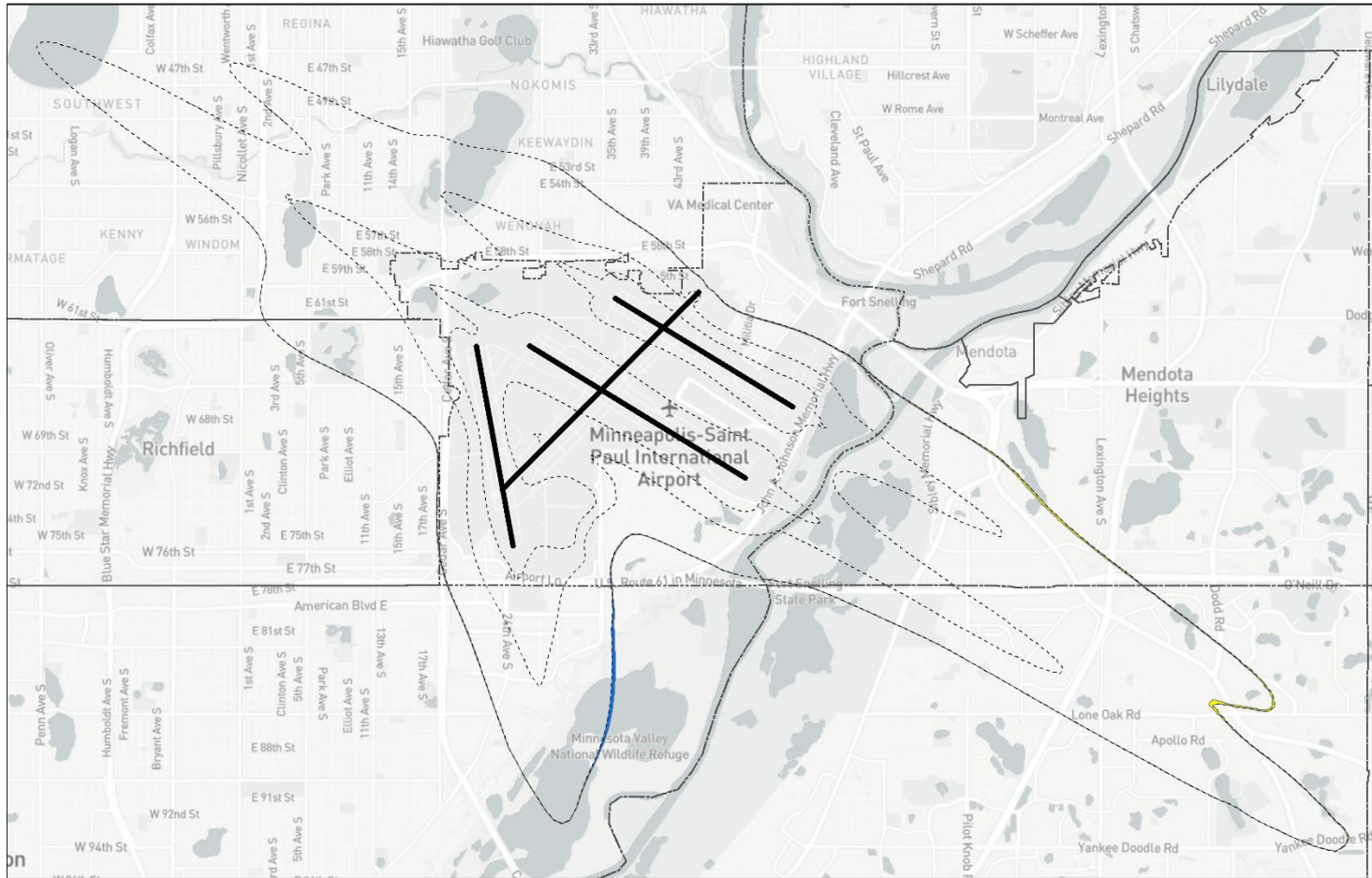


Figure 3

EAGAN REQUEST 1: CHANGE IN 60 DB DNL CONTOUR



- Request 1 - 60, 65, 70 dB DNL
- Request 1 - Areas where the 60 dB DNL contracted
- Request 1 - Areas where the 60 dB DNL expanded

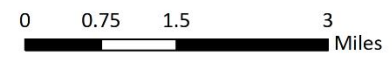
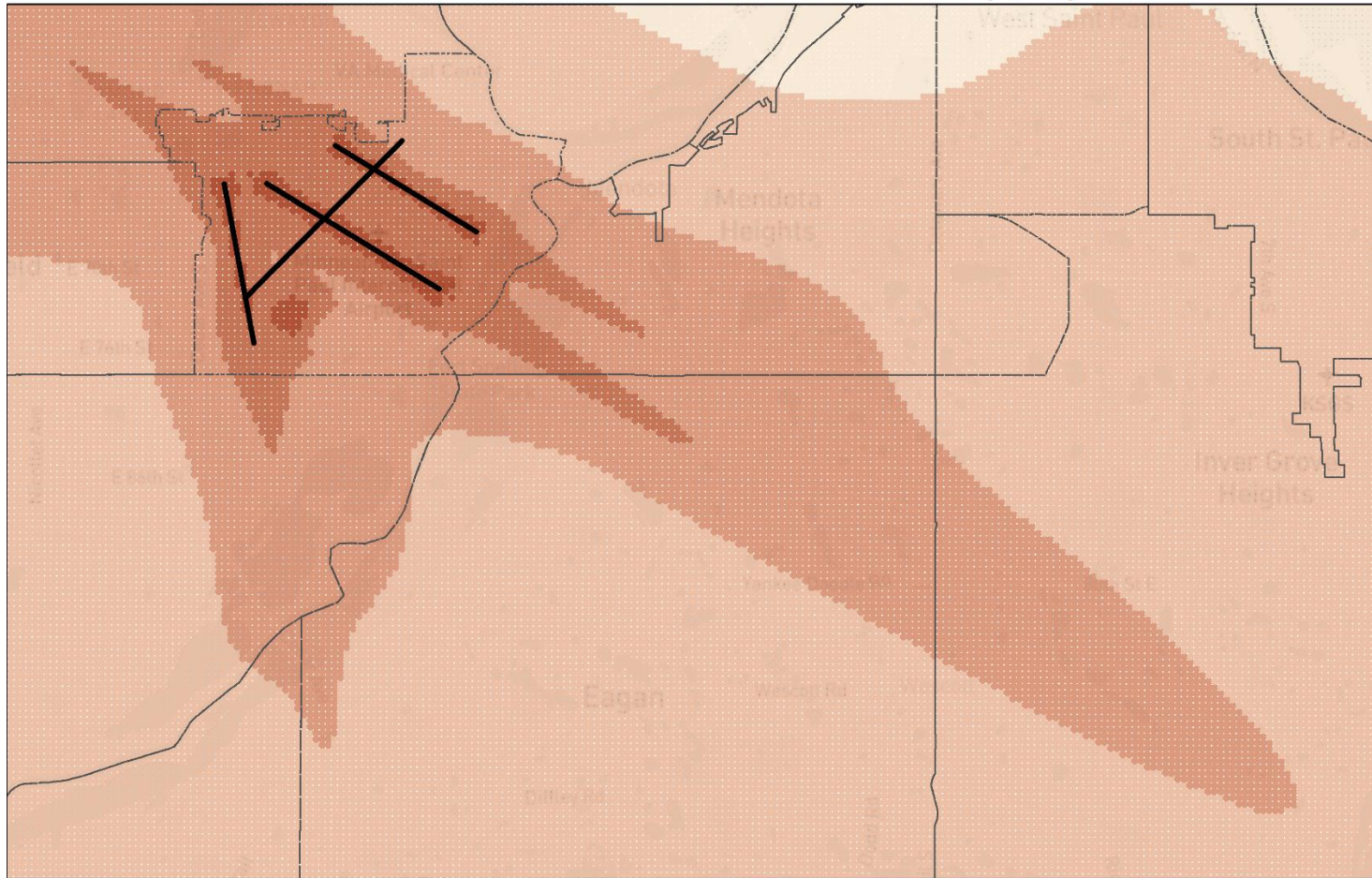


Figure 4
46

EAGAN REQUEST 1: DAY NIGHT AVERAGE SOUND LEVEL (DNL)

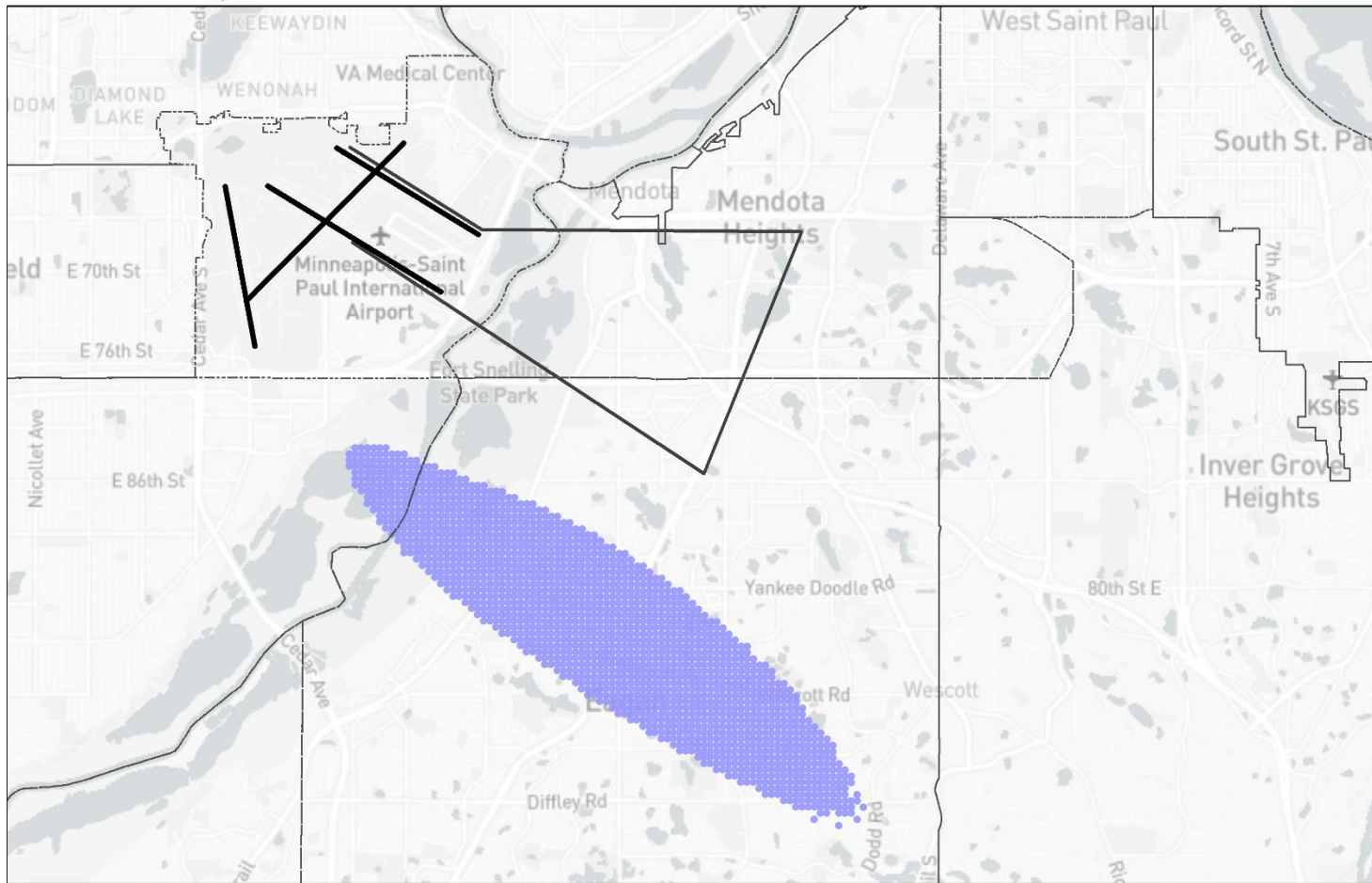


- < 45 dB DNL
- 45 to 55 dB DNL
- 55 to 65 dB DNL
- 65 to 75 dB DNL
- > 75 dB DNL

0 0.5 1 2 Miles

Figure 5

EAGAN REQUEST 1: DNL CHANGE



- Eagan-Mendota Heights Corridor
- -0.48 to -0.25 dB DNL
- -0.25 to 0.25 dB DNL
- 0.25 to 0.26 dB DNL

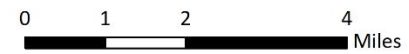
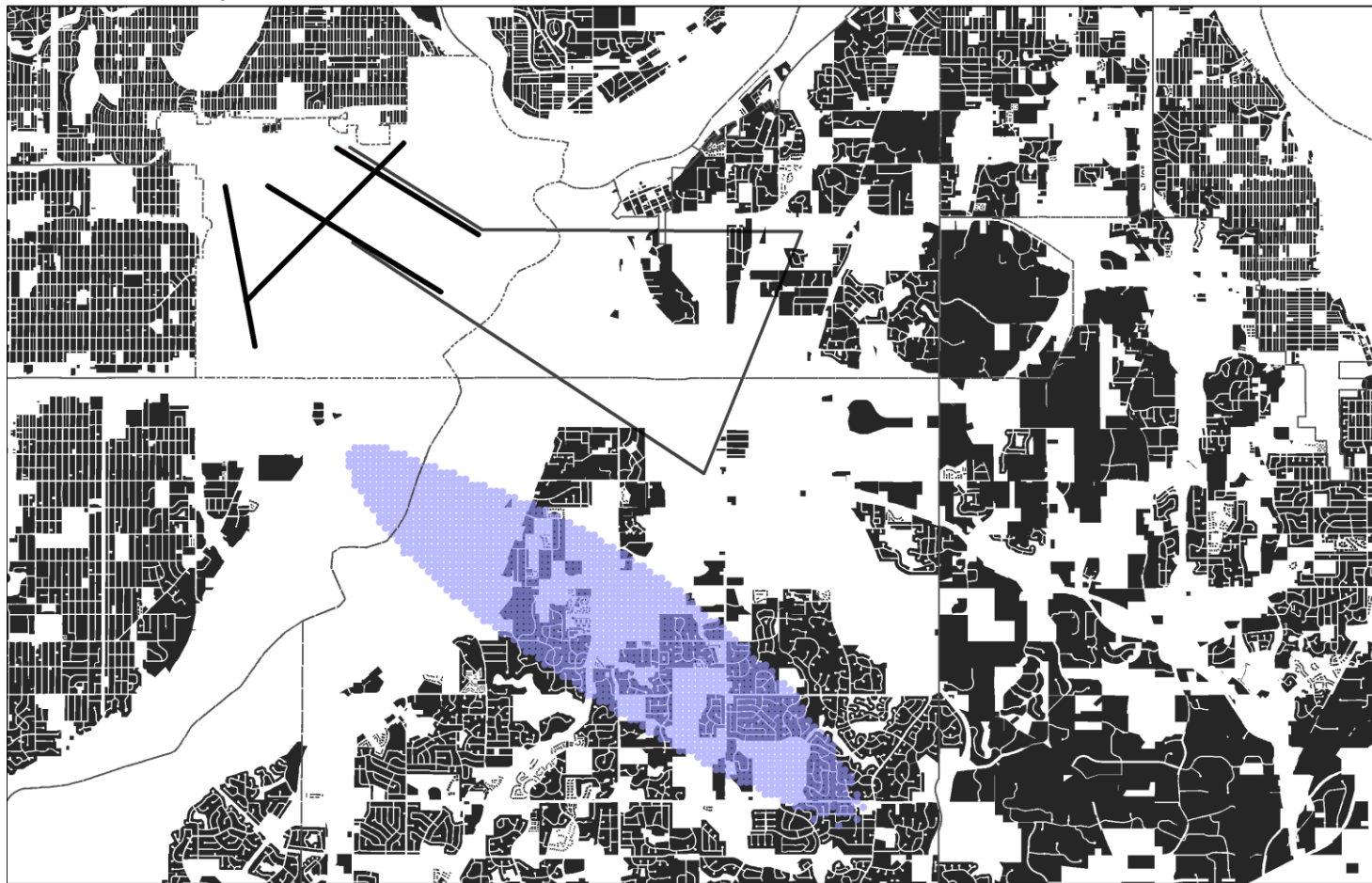


Figure 6

EAGAN REQUEST 1: DNL CHANGE



- Residential Use Parcels
- Eagan-Mendota Heights Corridor
- 0.48 to -0.25 dB DNL
- 0.25 to 0.25 dB DNL
- 0.25 to 0.26 dB DNL

0 1 2 4 Miles

Figure 7

2019 ANNUAL EVENTS ABOVE 65 DB

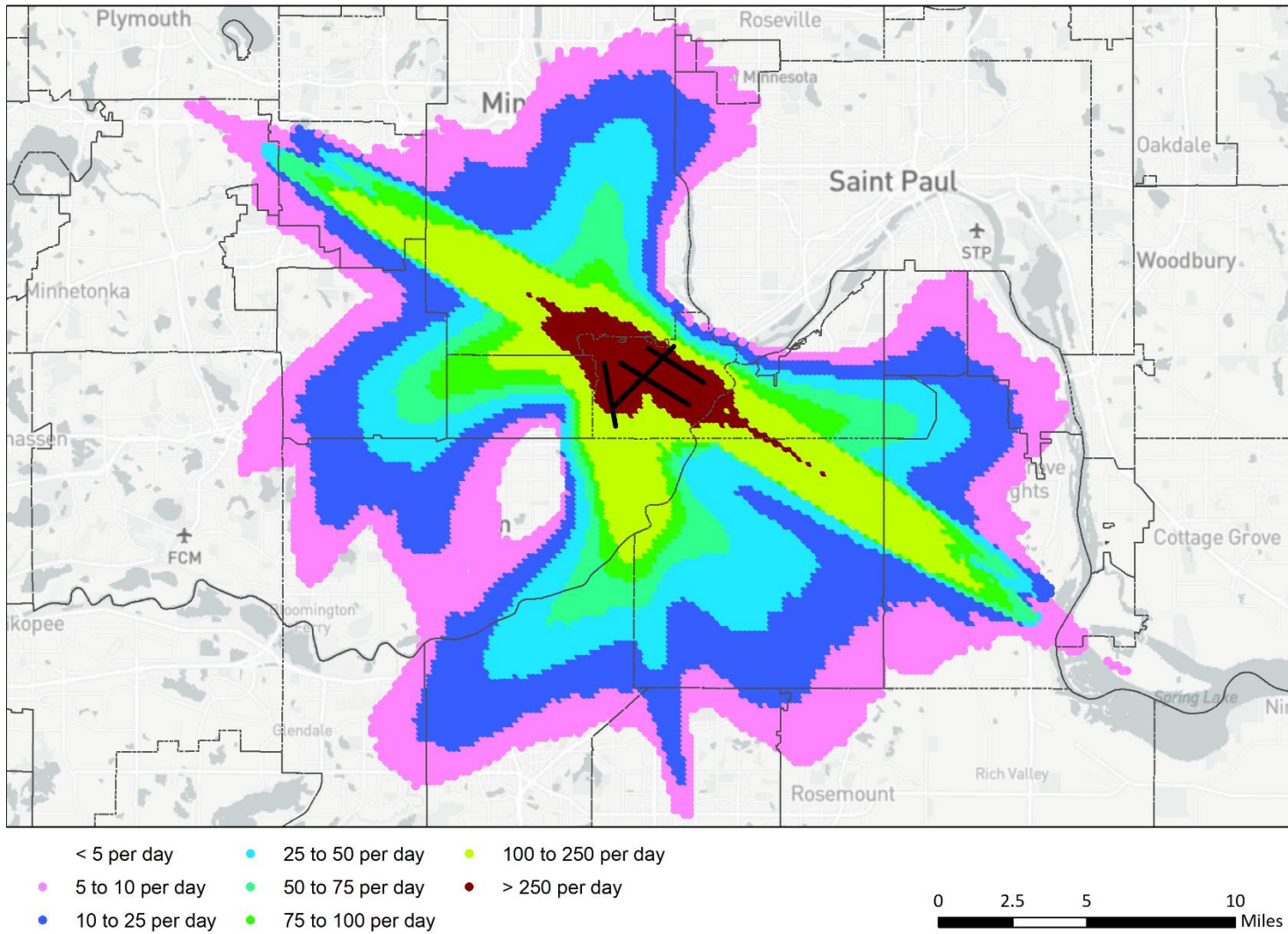


Figure 8

EAGAN REQUEST 1: CHANGE IN EVENTS ABOVE 65 DB

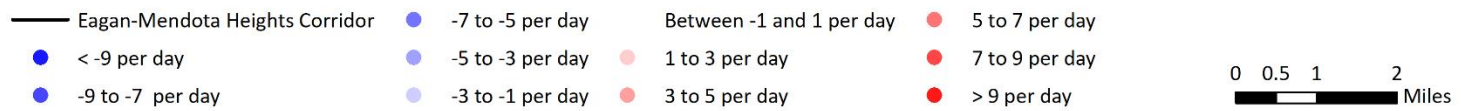
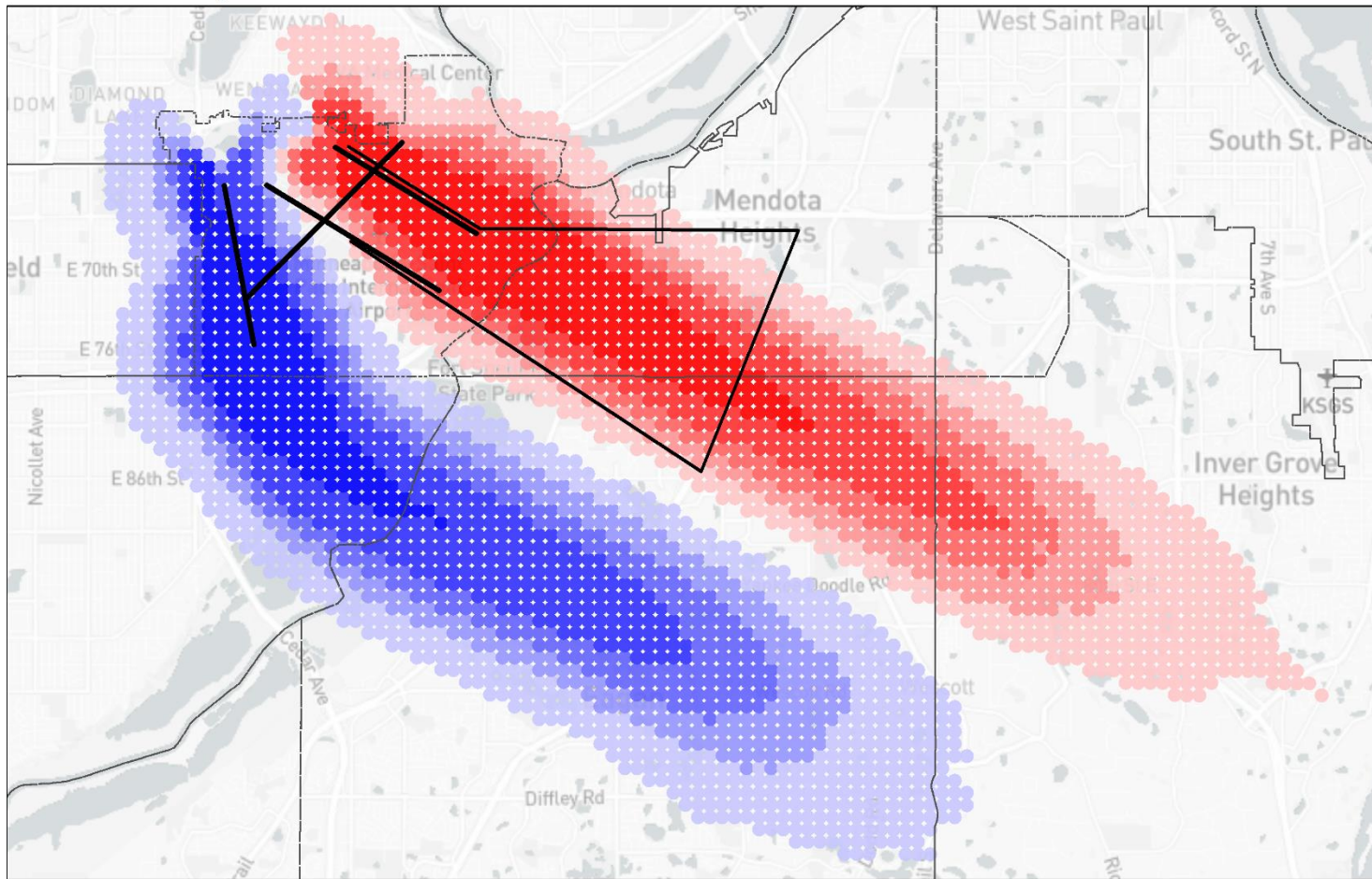


Figure 9

EAGAN REQUEST 1: CHANGE IN EVENTS ABOVE 65 DB

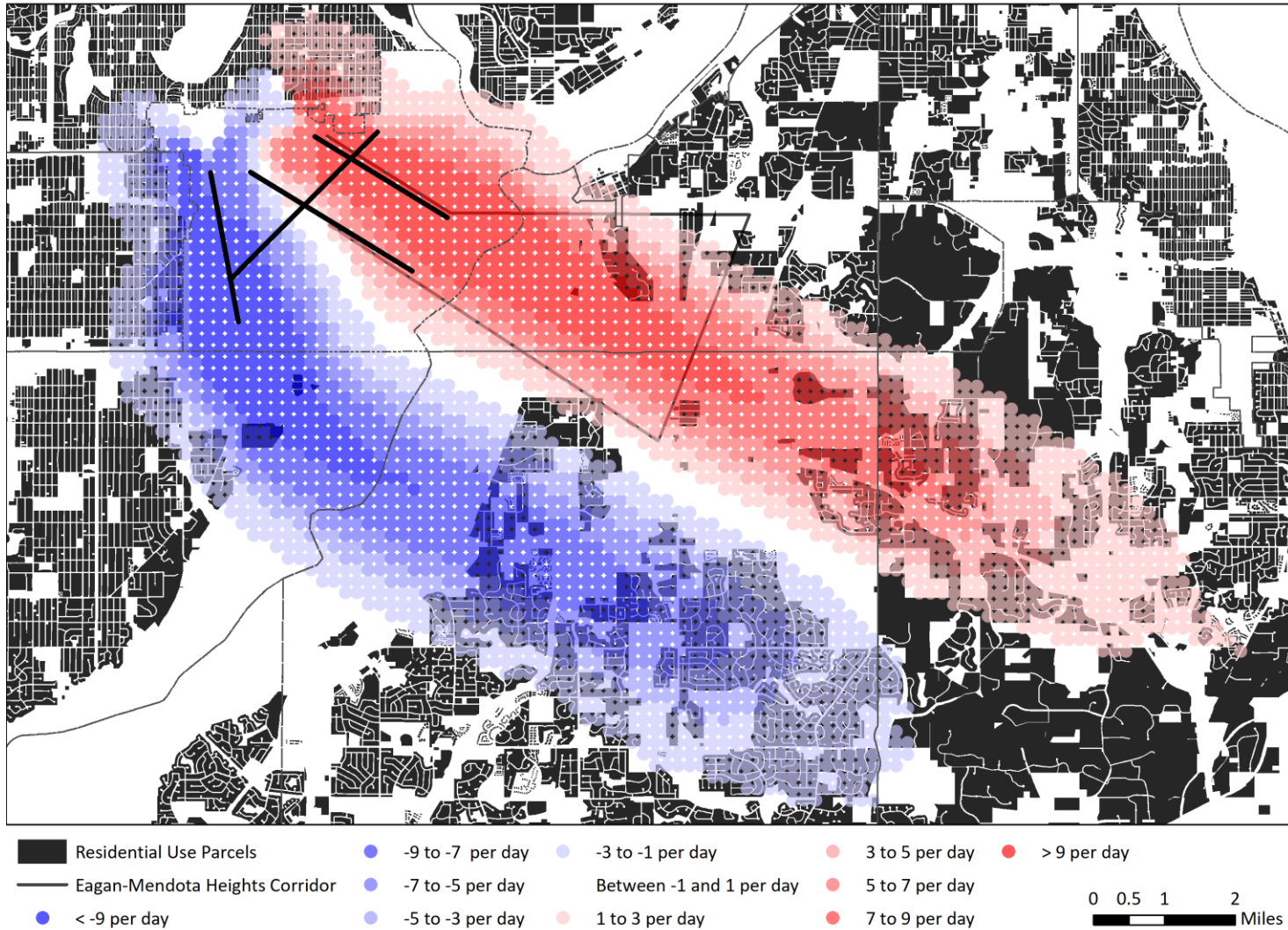


Figure 10

Request 4 Noise Modeling Results

As discussed, Request 4 was modeled to redirect 3.1 average daily departures with flight tracks enroute to SCHEP or ORSKY from Runways 12L or 12R to Runway 17. All of the departures are anticipated to occur during nighttime hours. The modeling effort proportionally reassigned those departures from tracks depicted in orange on Figure 2 to tracks in black on Figure 2. The modeled number of average daily departures that are approximated to change as a result of this request represent less than 0.3% of the total operations at MSP in the 2019 baseline.

The resultant impact on the DNL contour is greater than Request 1. This is counterintuitive after first examination because the change in departures is only $\frac{1}{3}$ of the change of Request 1. While the change in total operations is less, the change in DNL is greater because of the metric itself. The DNL metric penalizes flights that occur between 10:00 PM and 7:00 AM by assessing the flight with a 10 dB addition. This is added to account for relatively low nighttime ambient noise levels and because most people are asleep during these hours. Due to the logarithmic nature of sound, a 10 dB penalty is the same impact as 1 operation occurring 10 times. In the case of Request 4, it is the same as 31 additional operations on Runway 17 and 31 operations removed from the parallel runways. Figure 11 displays the 60, 65 and 70 dB DNL noise exposure area from the 2019 baseline condition while Figure 12 displays the modeled contour levels after adjusting the departures for Request 4. To highlight the changes, areas where the 60 dB DNL contour grew as a result of these adjustments are shown in yellow. Sideline areas in eastern Richfield and eastern Bloomington model DNL increases as a result of this change.

Conversely, areas where the 60 dB DNL contour contracted as a result of the adjustments are shown in blue. Areas in Eagan and Mendota Heights along the track of Runway 12L and 12R westbound departures model a decrease in total DNL as a result of this change.

In addition to the DNL contour shown in Figures 11 and 12, Figures 13, 14 and 15 depict the DNL values at 132,000 individual grid points spaced .05 nautical miles apart around MSP. Specifically, Figure 13 shows DNL levels in 10 dB DNL increments from greater than 75 to less than 45 dB DNL for the 2019 baseline condition. Using this information, MAC staff compared the baseline DNL values to the DNL values produced with the Request 4 adjustments. In the entirety of the study area, the change to individual grid points ranged from a 1.82 dB DNL increase to a -1.0 dB DNL decrease. Figure 14 displays areas where the change was greater than 0.5 or less than -0.5 dB DNL.

There are modeled increases in DNL within the Runway 17 environs contained on the airfield. This area is where there is a 1.82 dB DNL increase. Within the rest of the study area, the increase is 1.7 dB DNL or less. In the dark red area where the modeled DNL increases by more than 1.5 dB DNL, the baseline DNL was between 47.9 and 52.0 dB DNL. In areas where the DNL increased between 1.0 and 1.5 dB DNL, the baseline DNL level was between 35.8 and 56.5 dB DNL.

Minor modeled DNL decreases occurred over central Eagan and western Inver Grove Heights. The DNL decrease ranged from -0.5 dB DNL to -1.0 dB DNL. Figure 15 shows the same data but overlays the DNL changes onto a land use graphic.

Figure 16 displays the number of times 2019 baseline aircraft noise events exceeded 65 dB on an average annual day. Figure 17 shows portions of the study area where the number of events over 65 dB changed. Because the modeled change was 3.1 daily departures, the variance of the change is between -3.1 events and 3.1 events per day. The entirety of the area where there was a reduction of 3 or more events per day is over compatible land contained or adjacent to the Eagan-Mendota Heights. Areas with a decrease between 2 and 3 events per day exist in Mendota Heights and northern Eagan. As depicted on Figure 18, much of that area consists of compatible land uses. Increases of 3 or more events per day exist in eastern Bloomington in addition to a small area in western Richfield. Areas with increases between 2 and 3 events per day occur in southern Bloomington adjacent to the Minnesota River and eastern Richfield. Most of the land use in this space includes residential parcels and the Minnesota River valley.

MSP 2019 ANNUAL DNL CONTOUR

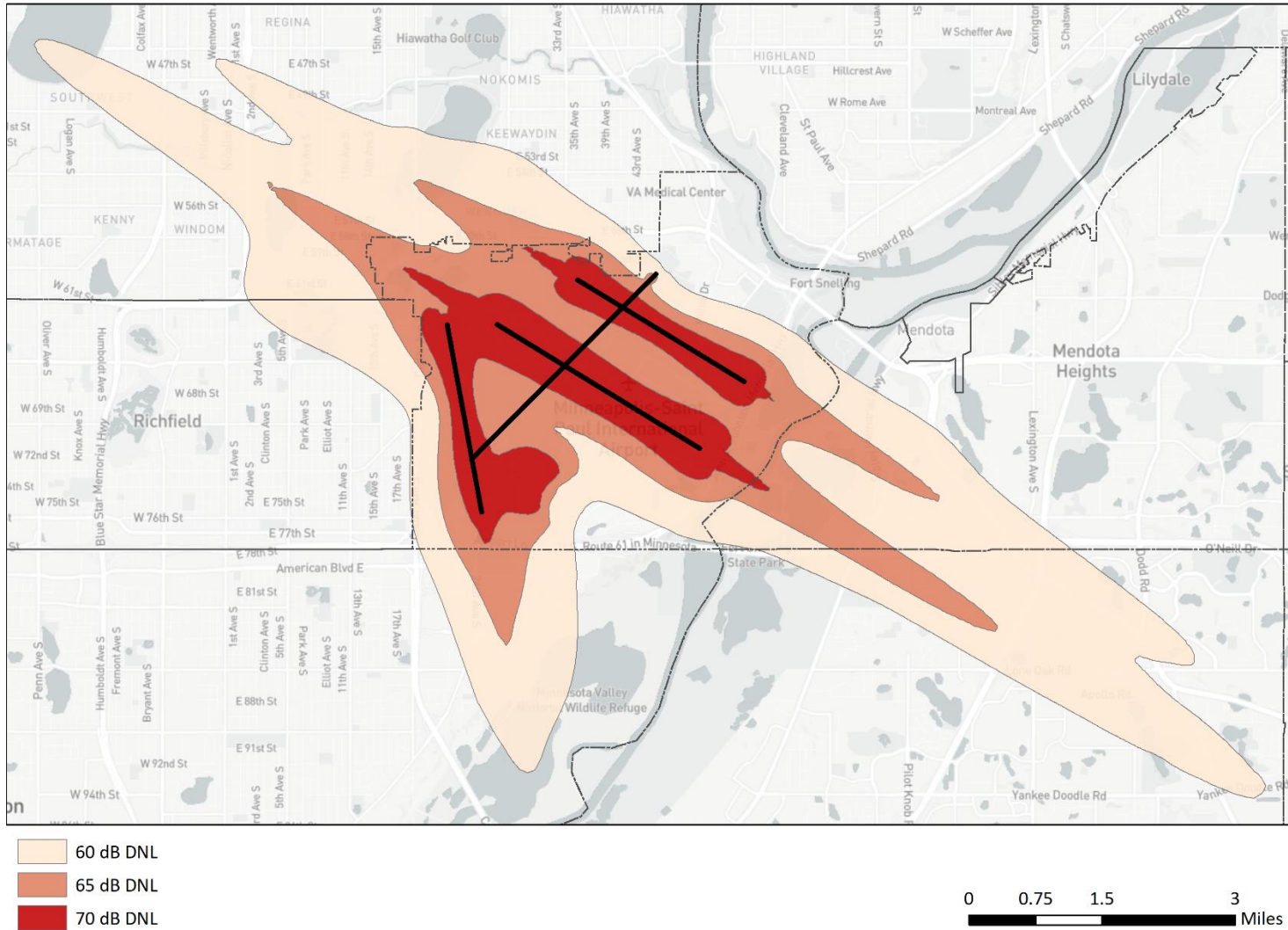
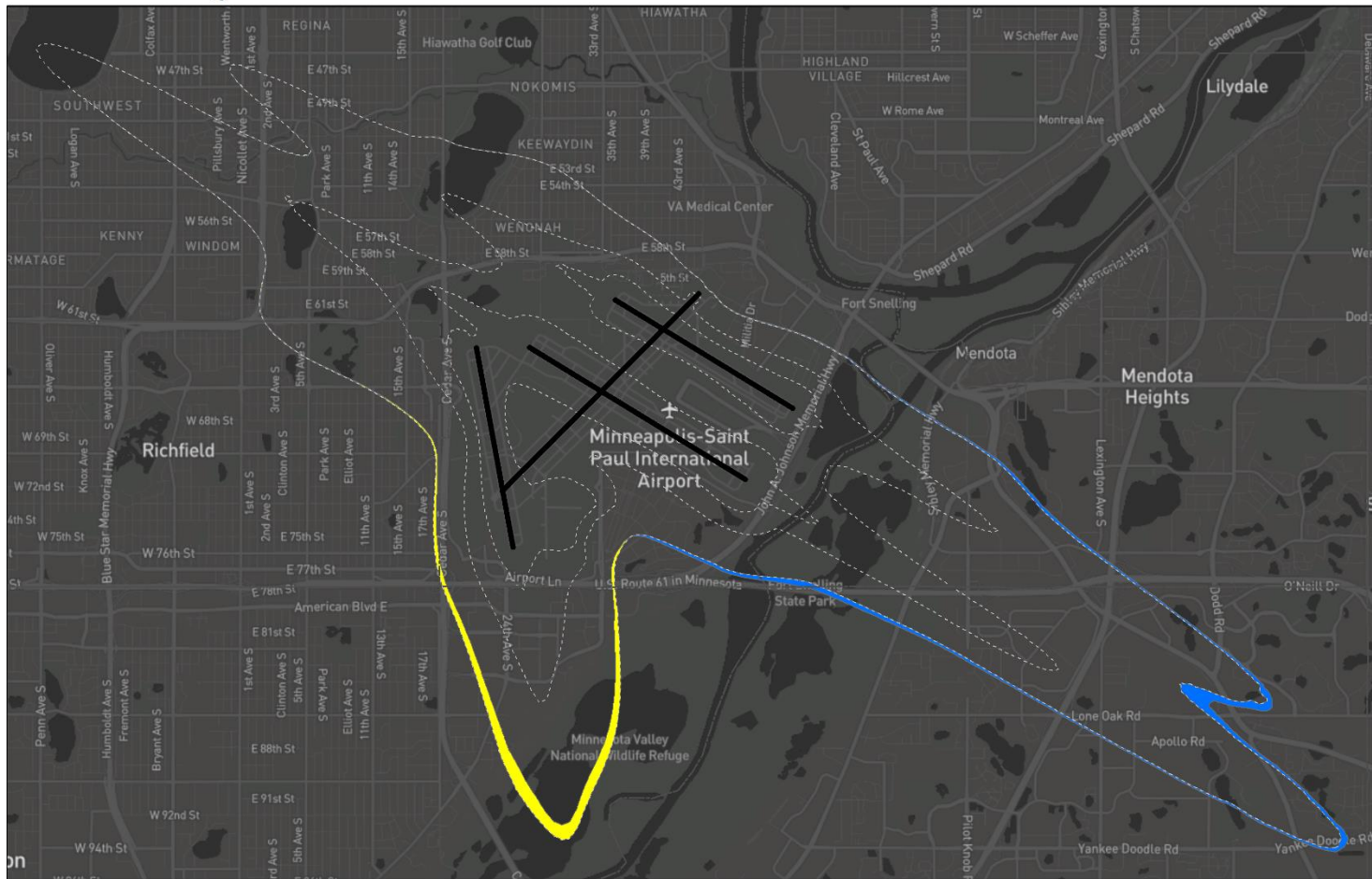


Figure 11

EAGAN REQUEST 4: CHANGE IN 60 DB DNL CONTOUR



- Request 4 - 60, 65, 70 dB DNL
- Request 4 - Areas where the 60 dB DNL contracted
- Request 4 - Areas where the 60 dB DNL expanded

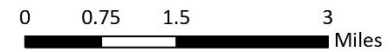


Figure 12

EAGAN REQUEST 4: DAY NIGHT AVERAGE SOUND LEVEL (DNL)

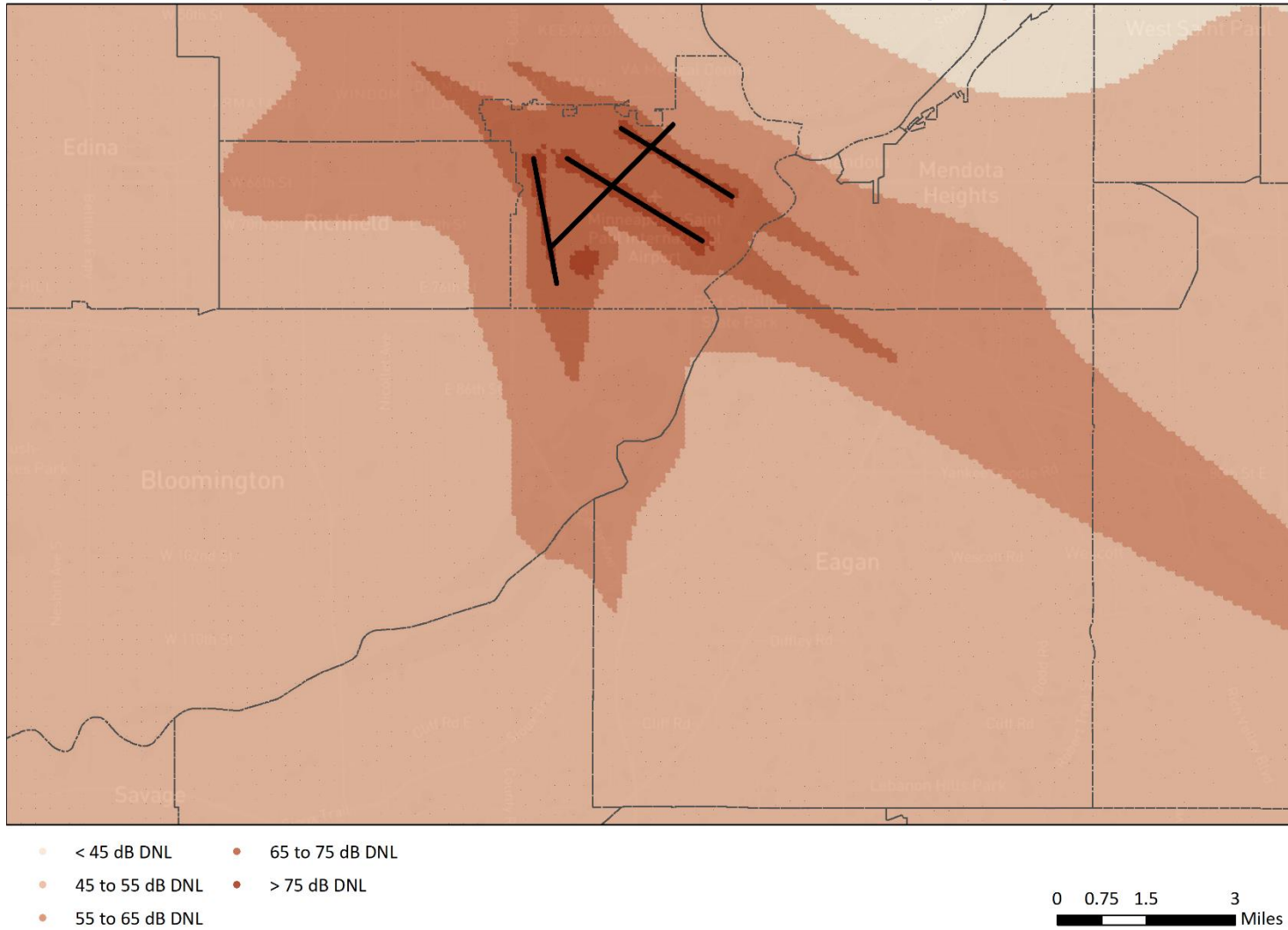
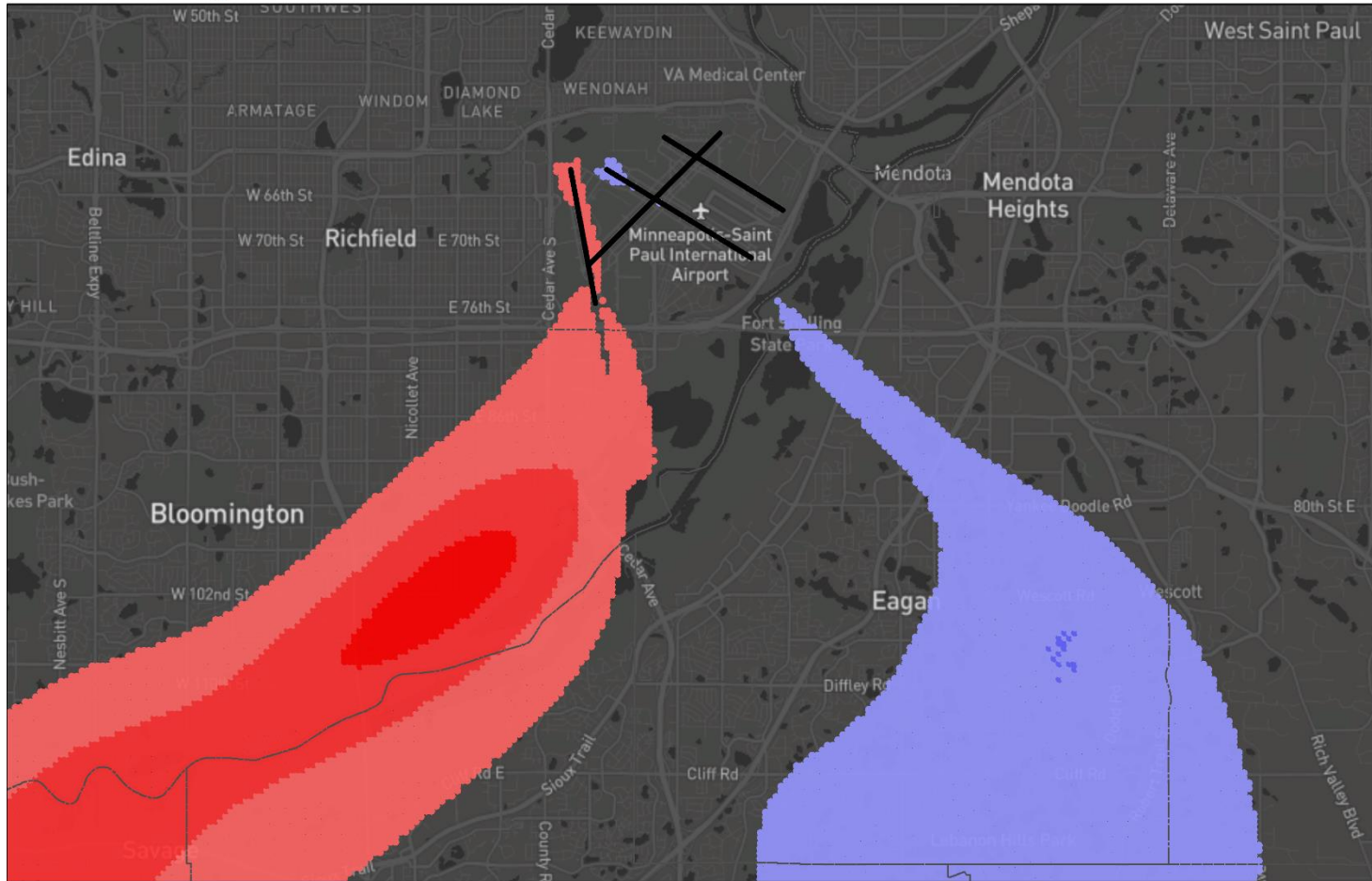


Figure 13

EAGAN REQUEST 4: DNL CHANGE



- -1.0 dB DNL
- -1.0 to -0.5 dB DNL
- -0.5 to 0.5 dB DNL
- 0.5 to 1.0 dB DNL
- 1.0 to 1.5 dB DNL
- 1.5 to 1.7 dB DNL



Figure 14

EAGAN REQUEST 4: DNL CHANGE

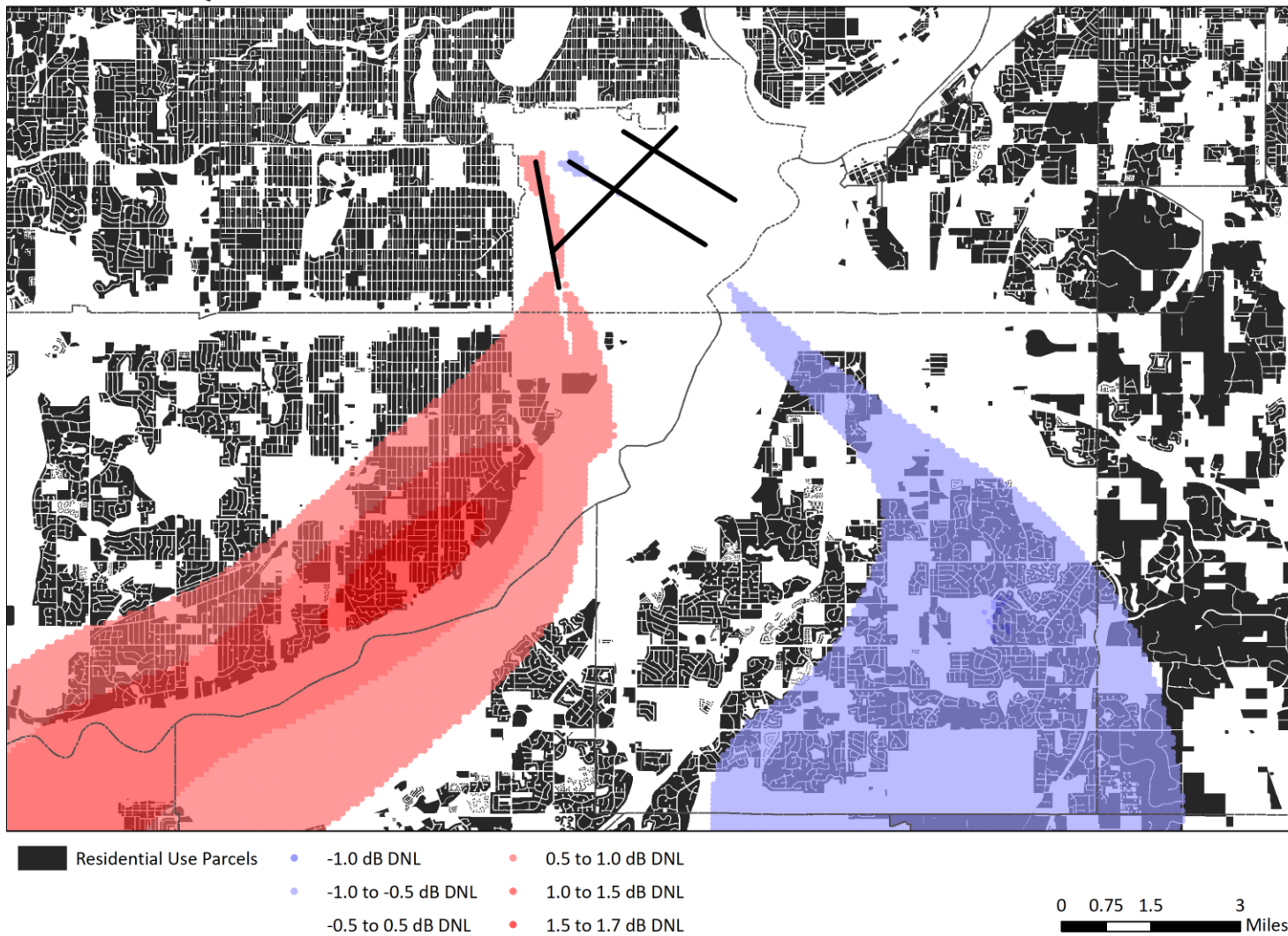


Figure 15

2019 ANNUAL EVENTS ABOVE 65 DB

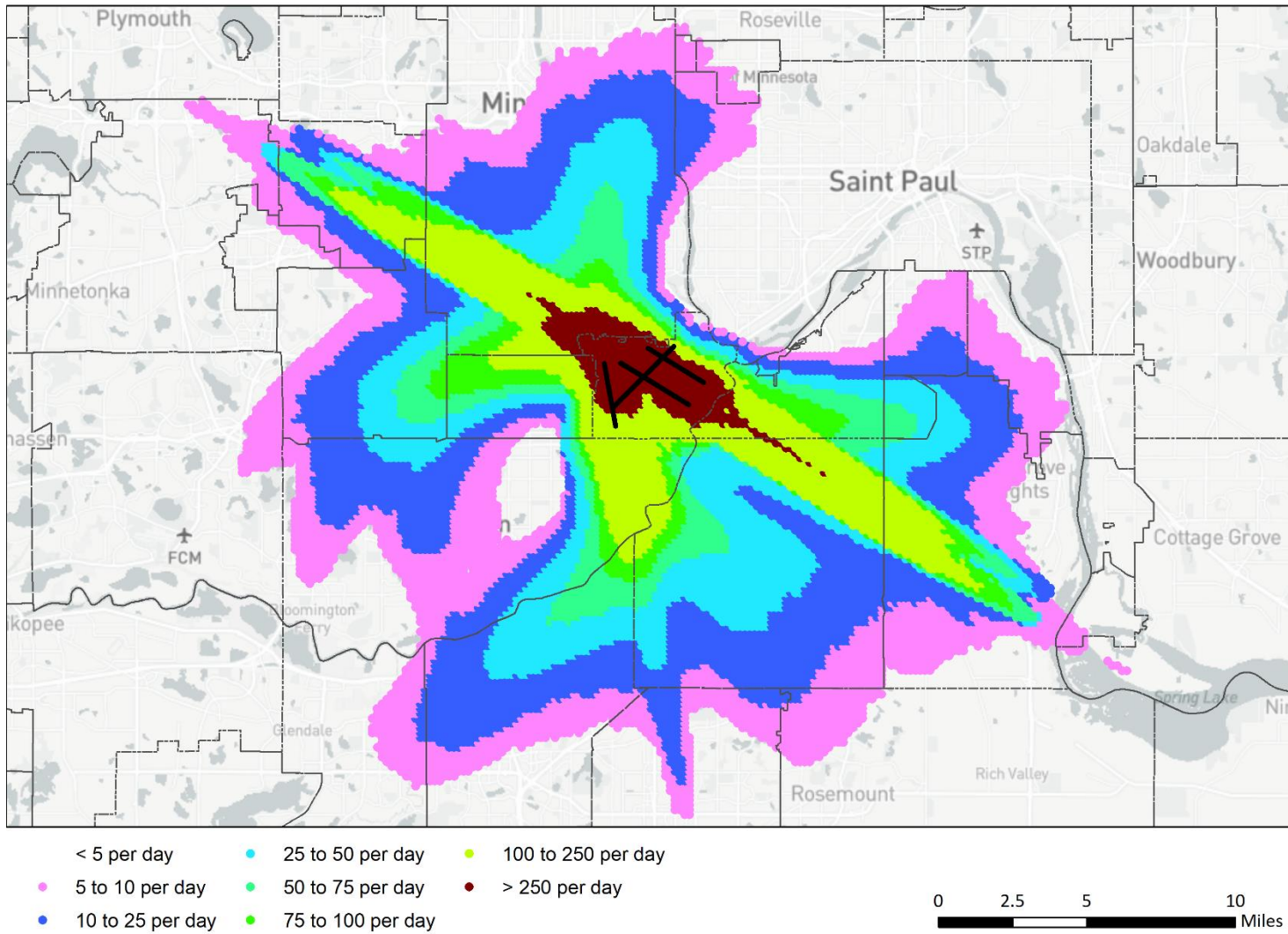


Figure 16

EAGAN REQUEST 4: CHANGE IN EVENTS ABOVE 65 DB

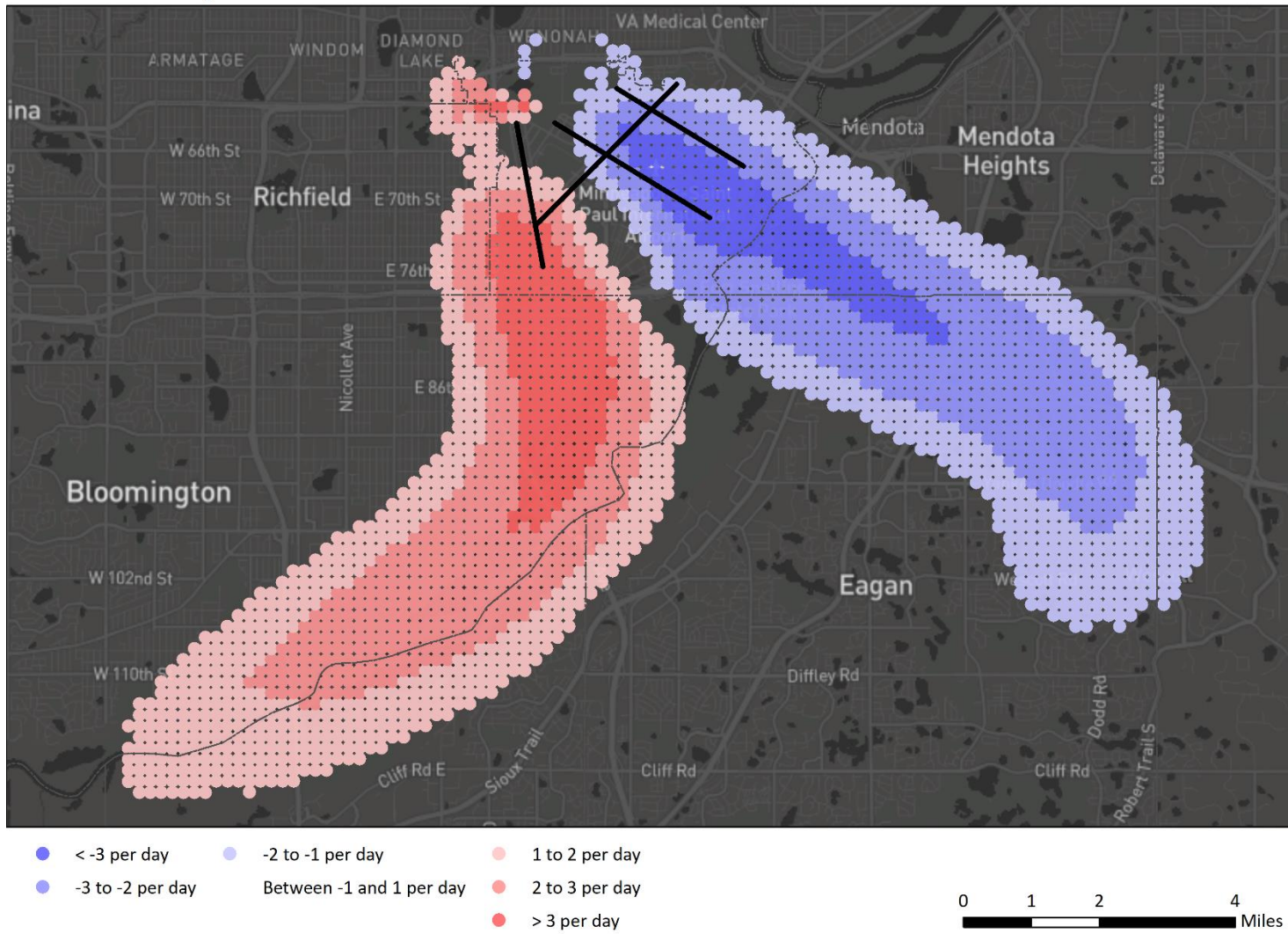
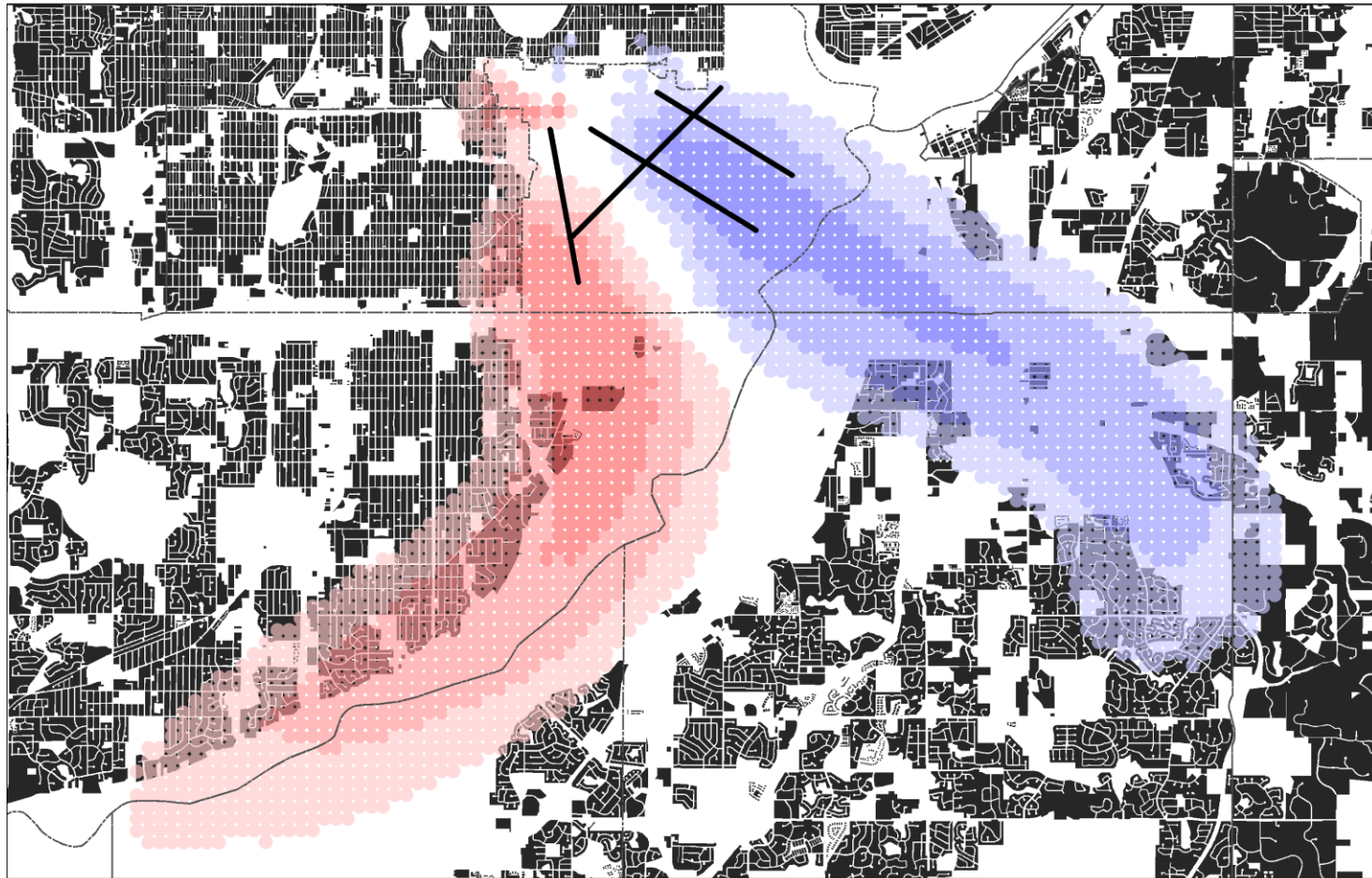


Figure 17

EAGAN REQUEST 4: CHANGE IN EVENTS ABOVE 65 DB



- Residential Use Parcels
- 2 to -1 per day
- 2 to 3 per day
- < -3 per day
- Between -1 and 1 per day
- > 3 per day
- 3 to -2 per day
- 1 to 2 per day

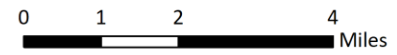


Figure 18

Summary

The procedure changes requested by the City of Eagan, reviewed and supported by the NOC and MAC Commission and found to have merit by the FAA were modeled to evaluate the potential noise exposure resulting from the requests. Analysis of past flight tracks determined that is reasonable to model a change of 9.2 average daily departures be shifted from Runway 17 to Runway 12L as a result of Request 1. The same analysis determined that for modeling, 3.1 departures would be shifted from Runway 12L and 12R to Runway 17.

The results of modeling for Request 1 determined that the increase to DNL levels off airport would be less than 0.25 dB. Decreases to DNL were also minimal. There was a portion of eastern Bloomington and central Eagan where DNL levels decreased between -0.25 and -0.48 dB DNL. Much of this area is over residential land uses. Results of Number Above Noise Level modeling found a change between -9.2 and 9.2 events over 65 dB. Most of the area where the increase is 9 per day is within the Eagan-Mendota Heights Corridor or over compatible land east of the Corridor. Decreases occur in western Richfield, southeastern Minneapolis, eastern Bloomington and central Eagan. Summary results of the Request 1 modeling metrics are available in Table 4.

The results of modeling for Request 4 determined that the increase to DNL levels off airport would be up to 1.70 dB. The maximum decrease was -1.0 dB DNL. There was a portion of southern Bloomington, primarily comprised of residential parcels where DNL levels increased between 0.5 and 1.7 dB DNL. Modeled decreases of as much as -1.0 dB DNL were shown in central Eagan. Results of Number Above Noise Level modeling found a change between -3.1 and 3.1 events over 65 dB. Most of the area where the decrease is -3 per day or less is within the Eagan-Mendota Heights Corridor. Increases are primarily seen in areas of southern Bloomington. Summary results of the Request 4 modeling metrics are available in Table 4.

Table 4 - Noise Exposure Changes

	DNL Minimum Decrease (dB DNL)	DNL Maximum Increase (dB DNL)	Number Above Noise Level Minimum Decrease	Number Above Noise Level Maximum Increase
Request 1	-0.26	0.48	-9.2	9.2
Request 4	-1.0	1.82	-3.1	3.1

REQUESTED ACTION

REQUEST THAT THE MAC PLANNING, DEVELOPMENT AND ENVIRONMENT COMMITTEE FORWARD THE PROPOSAL FOR FAA TO CONDUCT AN APPROPRIATE FEASIBILITY AND SAFETY ASSESSMENT OF THE PROCEDURE CHANGES SUPPORTED BY THE NOC. FURTHER, REQUEST THE MAC COMMUNICATE TO THE FAA THE DESIRE FOR THE FAA'S FINDINGS TO BE PROVIDED IN WRITING AND PRESENTED AT A FUTURE NOC MEETING.

MEMORANDUM

TO: MSP Noise Oversight Committee (NOC)

FROM: Brad Juffer, Manager, Community Relations

SUBJECT: **2019 ACTUAL NOISE CONTOUR REPORT AND RESIDENTIAL NOISE MITIGATION PROGRAM ELIGIBILITY**

DATE: May 6, 2020

In October 2007, the Metropolitan Airports Commission (MAC) and the cities of Minneapolis, Richfield and Eagan, received judicial approval of a Consent Decree that provided settlement of the noise mitigation lawsuits filed in 2005. Pursuant to the Consent Decree, the MAC is required, by March 1st of each calendar year, to prepare an Annual Noise Contour Report that reflects an assessment of actual noise generated by aircraft operations at Minneapolis-St. Paul International Airport (MSP).

Consent Decree Background

The first amendment to the 2007 Consent Decree was initiated in 2013 and established mitigation eligibility based on annual assessments of actual MSP aircraft activity rather than projections. To be eligible for noise mitigation, a home would need to be located for three consecutive years in a higher noise mitigation impact area when compared to the home’s status under the terms of the 2007 Consent Decree. The first of the three years must occur by 2020. The Full 5-decibel Reduction Package is offered to single-family homes meeting these criteria inside the actual 63 dB DNL noise contour while the Partial Noise Reduction Package is offered to single-family homes in the actual 60-62 dB DNL noise contours. A uniform Multi-Family Noise Reduction Package is offered to multi-family units within the actual 60 dB DNL noise contour. Homes will be mitigated in the year following their eligibility determination. The 2013 actual noise contour marked the first year in assessing this new mitigation program.

A second amendment was made to the 2007 Consent Decree in 2017. This amendment allows the use of the Aviation Environmental Design Tool (AEDT) to develop the actual noise contours each year, beginning with the 2016 actual noise contour. In 2015, AEDT replaced the Integrated Noise Model (INM) as the federally-approved computer model for determining and analyzing noise exposure and land use compatibility issues around airports in the United States. 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.

2019 MSP Annual Noise Contours

The number of aircraft operations (takeoffs and landings) are one prominent factor in noise contour calculation. Actual aircraft operations have decreased significantly at MSP over the years, despite significant increases in passenger levels at MSP. This has occurred largely because airlines now fly larger planes with more seating and have increased seat occupancy rates (load factors).

Based on the 406,073 total operations at MSP in 2019 (per FAA data) versus the 582,366 total forecasted operations at MSP in 2007, the actual 2019 60 dB DNL contour is approximately 29 percent smaller than the 2007 Forecast Contour and the 2019 65 dB DNL contour is approximately 39 percent smaller than the 2007 Forecast Contour. The predominant contraction in the contours from the 2007 forecast to the 2019 Annual Noise Contour scenario is driven largely by fleet mix changes, including a significant reduction in Hushkit Stage 3 aircraft operations, and a reduction of 483 average daily operations.

Nonetheless, there are homes in areas that qualify for mitigation as outlined by the terms of the Consent Decree. There is a small area under an arrival path in Eagan where the 2019 Actual Contour extends beyond the 2007 Forecast Contour, where some homes are attaining eligibility for mitigation. Areas of the 2019 60 dB DNL contour that extend beyond the 2007 Forecast Contour in Minneapolis have already been included in the amended Consent Decree's mitigation efforts between 2017 and 2020. Areas where the 2019 Annual Noise Contour extends beyond the 2007 Forecast Contour can largely be attributed to nighttime runway use variances between what was forecasted for 2007 and what occurred in 2019, particularly an increase in nighttime arrival operations on Runway 12R and 30L.

First-Year Candidate Eligibility

There are no single-family homes that achieved the first year of eligibility with the 2019 Annual Noise Contour. There are no multi-family units that achieved the first year of eligibility with the 2019 Annual Noise Contour.

Second-Year Candidate Eligibility

The 2019 Annual Noise Contour shrunk under the arrival lobe of Runway 12R, resulting in all homes in Minneapolis that had previously achieved one year of eligibility not reaching a second year of eligibility. Similarly, the contraction of the contour northwest of Lake Harriet resulted in all multi-family units in Minneapolis that had previously achieved one year of eligibility not reaching a second year of eligibility.

Third-Year Candidate Eligibility

Single-family: All 16 single-family homes that had two years of eligibility in 2018 were in the 60 dB DNL in the 2019 Annual Noise Contour and are now entered into the 2021 mitigation

program. All of these homes are located under an arrival path on one block in Eagan and are eligible for the Partial Noise Reduction Package. The homes on this block were previously eligible for homeowner reimbursements during the original Consent Decree Program. In cases where homes have received previous reimbursement from the MAC, the value of those improvements will be deducted from the efforts required to increase the home mitigation relative to the actual noise level, per the amended Consent Decree. Homeowners of eligible properties will be notified in writing by the MAC. There are no multi-family units that achieved the third year of eligibility with the 2019 Annual Noise Contour.

Figure 1: 2019 MSP Noise Contours with Mitigation Program Eligibility – Minneapolis

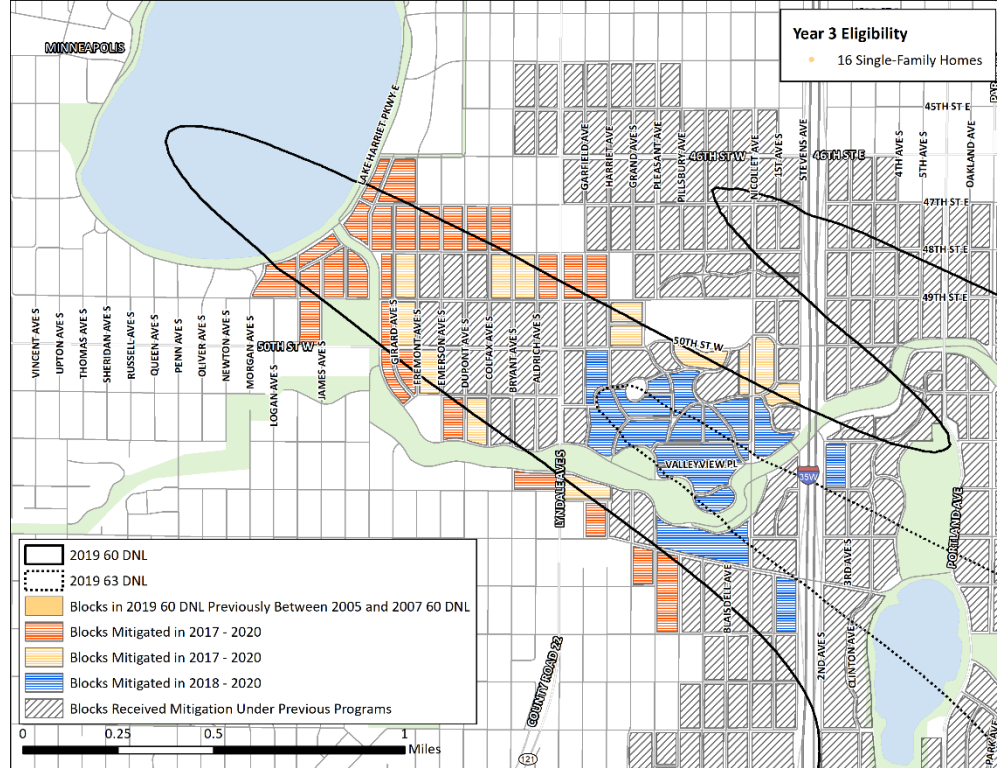
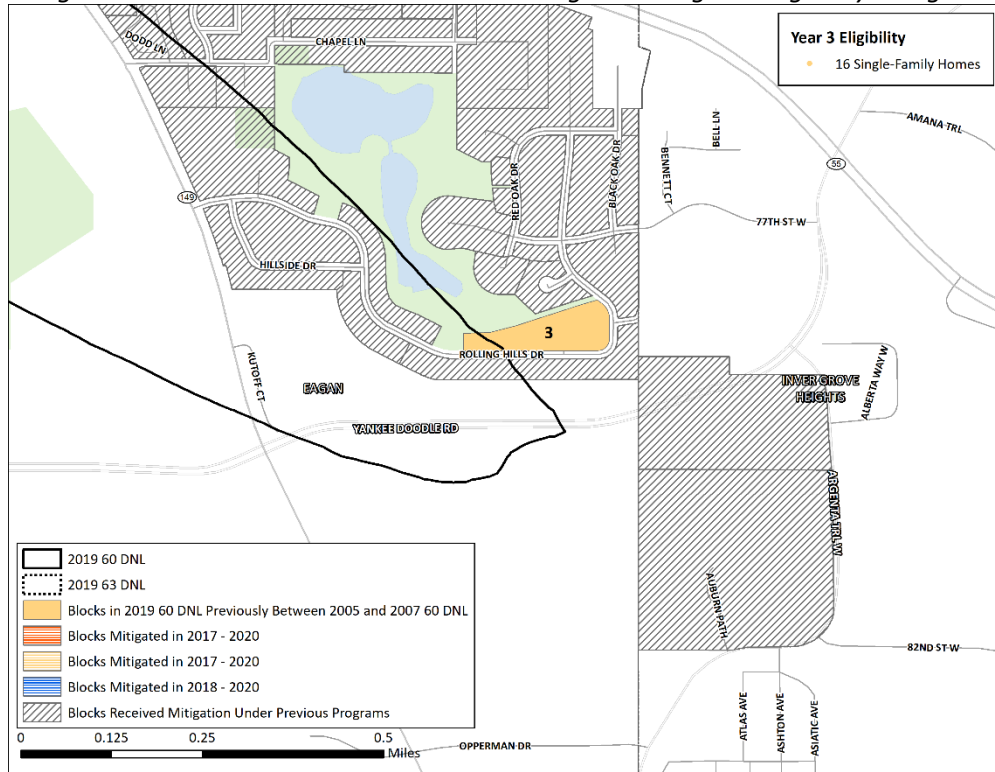


Figure 2: 2019 MSP Noise Contours with Mitigation Program Eligibility – Eagan



2017 Mitigation Program

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. As of January 13, 2020, 117 homes have been completed, 14 homes declined to participate while 7 homes were moved to the 2020 program as a result of homeowner actions. Two multi-family structures also were eligible to participate in the Multi-Family Mitigation Program in 2017. One property is completed, and one property declined to participate. The total cost for the 2017 Mitigation Program was \$2,442,685. The 2017 Mitigation Program is now complete.

2018 Mitigation Program

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. As of January 13, 2020, 230 homes have been completed, 27 homes declined to participate while 23 homes were moved to the 2020 program. The 2018 Mitigation Program does not include any multi-family properties. The total cost for the 2018 Mitigation Program through January 13, 2020 is \$7,280,869.

2019 Mitigation Program

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 January 13, 2020, including the homes

transitioned from the 2017 and 2018 programs, 214 homes have been completed, 159 homes are in the construction or pre-construction phase and 68 homes declined to participate. The 2019 Mitigation Program does not include any multi-family properties. The total cost for the 2019 Mitigation Program through January 13, 2020 is \$6,548,594.

2020 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 (164 are eligible for the partial mitigation package and 79 are eligible for the full mitigation package). As of January 13, 2020, including the homes transitioned from the 2018 and 2019 programs, zero homes have been completed, 261 homes are in the construction or pre-construction phase and 4 homes declined to participate. The 2020 Mitigation Program does not include any multi-family properties. As of January 13, 2020, there have not been any financial expenditures attributed to the 2020 Mitigation Program.

The 2019 Annual Noise Contour Report is available at: <http://www.macnoise.com/noise-mitigation-program/msp-annual-noise-contour-analysis-reports>.

MAC staff will present the 2019 Annual Noise Contour Report and associated mitigation eligibility at the May 20, 2020 NOC meeting.

MEMORANDUM

ITEM 4.2

TO: MSP Noise Oversight Committee (NOC)

FROM: Brad Juffer, Manager, Community Relations

SUBJECT: **CONVERGING RUNWAY OPERATIONS UPDATE**

DATE: May 6, 2020

At the May 20, 2020 NOC Meeting, FAA Regional Administrator, Rebecca MacPherson will provide an update on the agency's recent activities regarding Converging Runway Operations (CRO) at MSP.

MEMORANDUM

ITEM 4.3

TO: MSP Noise Oversight Committee (NOC)

FROM: Dana Nelson, Director, Stakeholder Engagement

SUBJECT: **MSP 2040 LONG TERM PLAN UPDATE**

DATE: May 6, 2020

The MAC is responsible for long-term planning for each of its airports. The MSP Airport Long-Term Plan (“the Plan”) is a forward-looking planning tool that studies facility and infrastructure needs based on projected 20-year passenger demand and aircraft operations.

A status update of the MSP Long Term Plan and associated engagement activities will be shared at the May 20, 2020 NOC meeting.