



**MSP NOISE OVERSIGHT COMMITTEE**  
**FINAL MEETING MINUTES**  
Wednesday, March 15, 2023, at 1:30 PM  
MAC General Offices  
6040 28<sup>th</sup> Avenue South  
Minneapolis, MN 55450



**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, March 15, 2023, at the Metropolitan Airports Commission (MAC), General Offices, Lindbergh conference room, a teleconference option was also provided. **Chair Jacobson** called the meeting to order at 1:30 p.m. The following participated in the meeting:

**Representatives:** S. Alig, C. Jacobson, N. Jerome (via Teams), P. Martin (via Teams), L. Olson R. Barrette (via Teams), J. Bergman, J. Klinger, C. Arnold, J. Hart, C. Potter (via Teams)

**Staff:** J. Lewis, K. Martin, D. Nelson, N. Pesky, M. Ross, J. Egan, B. Rief, E. Gilles, H. Schumacher, J. Lea, E. Valencia, B. Juffer, M. Takamiya

**Others:** K. Archer – FAA, K. Regotti – FAA, L. Reyes – FAA, S. Fortier - FAA, W. Eckenrode – FAA, D. Langer – FAA, N. Rao - FAA, H. Wulf – FAA, N. Benson – JetTip, M. Brindle – Edina, H. Rand - Inver Grove Heights, D. O’Leary - Sunfish Lake, B. Hoffman – St. Louis Park, H. McPhee – Burnsville, P. Huckelt – Minneapolis, Y. Xu – HNTB, K. Gallatin – St. Paul, K. Potter

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

**Community Representatives:** Alig, Jacobson, Jerome, Martin, Olson

**Industry Representatives:** Barrette, Bergman, Hart, Klinger, Arnold, Potter

**1. Consent**

1.1. Approval of January 18, 2023, Meeting Minutes

There were no questions or revisions to the January 2023 meeting minutes.

1.2. Reports

1.2.1. Monthly Operations Reports: January and February 2023

**Jack Egan, Assistant Manager Community Relations**, provided the following January and February operations updates. **Mr. Egan** prefaced that each month, the MAC reports information on MSP aircraft operations, aircraft noise complaints, sound levels associated with MSP aircraft operations, and compliance with established noise abatement procedures on its interactive reporting website: <https://customers.macnoms.com/reports>

January	February
• Total Operations: 24,183	• Total Operations: 22,286
• Nighttime Operations: 1,541	• Nighttime Operations: 1,381
• North/South/Mixed: 42/38/13 (%)	• North/South/Mixed: 35/42/13 (%)

- |   |   |
|---|---|
| • RUS (Priority 1/2/3/4):38/15/0/46 (%) | • RUS (Priority 1/2/3/4):35/18/2/45 (%) |
| • Narrow/RJ//Wide: 66.4/29.3/4.4 (%)    | • Narrow/RJ//Wide: 68.5/27.5/4.0 (%)    |
| • Complaints: 5,000                     | • Complaints: 6,286                     |
| • Complaint locations: 101              | • Complaint locations: 133              |
| • Top 10 Households: 71%                | • Top 10 Households: 70%                |
| • Hours of events*: 258                 | • Hours of events*: 251                 |
| • Number of events*: 55,465             | • Number of events*: 53,377             |
| • R17 procedure: 99.4%                  | • R17 procedure: 99.5%                  |
| • EMH Corridor procedure: 91.2%         | • EMH Corridor procedure: 95.7%         |
| • Crossing procedure day: 29.1%         | • Crossing procedure day: 26.4%         |
| • Crossing procedure night: 50.6%       | • Crossing procedure night: 45.7%       |
| • RUS: 53.4%                            | • RUS: 53.3%                            |

\* Aircraft sound events above 65dB.

Total operations at MSP for January were 24,183, and 22,286 operations in February, which was less than a 1% decrease in operations of the same timeframe in 2022. Operations would have been almost identical to last year if not for the cancellation of over 400 operations on Wednesday, February 22<sup>nd</sup> due to a winter storm.

There was a 2% increase in total night flights (operated between 10:30pm – 6am) for January and February of this year, compared to 2022, with 1,541 night-flights in January and 1,381 in February.

Regarding Runway Use – January saw a split of 42/38/13 percent of the time spent in North, South or Mixed Flows and February had a 35/42/13 percent split. Year to date compared to last year, the airport has spent more time in south flow and mixed flow and less time in north flow.

There were 46,469 total operations in January and February at MSP. Priority 1 runways were used 37% of the time, with 56% of the time for arrivals and 17% of the time for departures. The use of Priority 4 runways in January and February is consistent with the period during the last several years of 2019-2022, (2019 38% and 52%, 2020 38% and 54%, 2021 36% and 63%, 2022 37% and 57%.)

The percentage of aircraft operating at MSP in January and February, based on aircraft jet category. The operation of widebody aircraft remained consistent to years past, while the use of regional jets aircraft continued to decline and the use of narrowbody continued to increase. It is evident that airlines are utilizing larger, more efficient aircraft at higher rates than their older, smaller aircraft. Smaller regional jets, such as the CRJ900 with 70-76 seats and the CRJ200 with 46-50 seats, were the most flown aircraft at MSP from 2004 to 2021. In 2022, the most flown passenger aircraft at MSP became the Boeing B737-800 with 150-180 seats, closely followed by the Airbus A321 with 170-200 seats, while the CRJ900 fell to third.

There was a total of 11,286 complaints reported for MSP in January and February, down from 14,640 complaints for the same period in 2022.

Complaints were filed from 101 locations in January and 133 locations in February with 162 distinct addresses filing complaints in January and February down from 181 distinct addresses in 2022 and in 2021 complaints were filed from 202 distinct addresses.

The top ten complaint-filing locations filed 68% of all complaints in the previous two months with 7,646 complaints filed. Seven of these ten locations were in the top ten for November and December of last year and 62% of addresses filed 10 complaints or fewer.

Regarding sound monitoring, the time above 65dB was up nearly 8% in the last two months compared to the same period in 2022, with nearly 258 hours in January and 251 hours in February. Similarly, the count of events above 65dB were up about 6% compared to the same months in 2022 with 55,465 events in January and 53,377 events in February.

The Runway 17 noise abatement procedure was used more than 99% of the time in January and February. The Eagan-Mendota Heights Departure Corridor procedure was used over 90-95% of the time in January and February. Crossing in the corridor was used over 25% of the time in January and February during the day, while at night it was used about 50% of the time in January and about 46% of the time in February.

There were no questions or comments.

#### 1.2.2. Review of Winter Listening Session

The Winter Listening Session review was not presented at this meeting. Chair Jacobson offered to take questions. There were no questions.

**Chair Jacobson** asked for a motion to approve the consent agenda. **Co-chair Hart** moved to approve the Consent Agenda, **Member Klinger seconded** approval. The motion passed unanimously.

## 2. Public Comment Period

There were no public comments.

## 3. Business

There were no business items.

## 4. Information

### 4.1. Update on [MSP Long Term Plan](#) and Associated Stakeholder Engagement

**Eric Gilles, MAC Senior Airport Planner**, who oversees the MSP planning program and six Reliever Airports planning programs, spoke about the Long-Term Plan goals and timeline and gave an update regarding MSP Airport planning, and provided an overview of facility requirements, draft alternative concepts, and the preferred alternative.

The purpose of the Long-Term Plan is to evaluate existing and future facility and infrastructure requirements based on a 20-year projected demand. It is intended to help the MAC better understand and plan for future facility requirements. The key points are continued safe, efficient, orderly, cost-effective delivery of a high level of customer service.

The plan does not authorize construction or improvements to facilities, nor does it serve as a basis for determining eligibility for noise mitigation programs. It is only intended for the MAC, as an organization, to make informed decisions regarding facility needs.

LTP goals:

- Plan for future facilities to meet projected passenger activity levels in a manner that maintains and enhances customer service, while facilitating a seamless experience.
- Produce a development plan that positions the MAC to meet future demand levels, enhance financial strength, leverage environmental stewardship, and infuse sustainable thinking.
- Conduct the planning process in a manner that includes meaningful stakeholder engagement.

The LTP timeline started in 2019 with an inventory of baseline existing conditions at the airport along with an exhaustive review of the aviation activity forecast and a comprehensive airfield simulation study of airfield capacity. There was about an 18-month pause, due to the pandemic, then in late 2021, the aviation activity forecast was updated to reflect the recovery related to Covid impacts.

Most recently time has been spent on looking at MSP's existing and future facility requirements with a robust alternatives analysis process, that in turn moved through the stakeholder engagement process. The preferred alternative has moved through project development and project phasing, priorities, and objectives. Coming up on the end of this LTP, the ultimate goal beyond today is to wrap up report writing and conduct the final round of stakeholder advisory panel meetings and public open house meetings for eventual adoption of the plan with Met Council at the end of this year.

**Dana Nelson, Director Stakeholder Engagement**, spoke about LTP engagement efforts. The engagement plan includes high-level engagement with community partners airlines, passengers, agency partners, like FAA, TSA, CBP, business and travel groups, and members of the public. Methods of engagement include a Stakeholder Advisory Panel (SAP), which includes many members of the NOC, an LTP project website and newsletter, public surveys and polls, updates at the NOC and PD&E Committee meetings, along with opportunities for the public to meet.

Members of the public can participate in this planning process in a variety of ways:

- Contact us at [MSPAirportLongTermPlan@mspmac.org](mailto:MSPAirportLongTermPlan@mspmac.org)
- Visit the project website for the latest updates at [www.metroairport.org/long-term-plan](http://www.metroairport.org/long-term-plan)
- Sign up to receive the MSP Long-Term Plan [e-newsletter](#)
- Attend a [public event](#) this summer.

The LTP project team have and will continue to listen to concerns, input and aspirations shared by the public and, when possible, make changes to the plan. LTP design considerations include and maintain a high-level of service, achieve the plan's established goals, conform to design standards, safety, operational feasibility, federal and state policies, and project costs.

**Mr. Gilles** provided an airport planning update which included an overview of facility requirements, draft alternative concepts, and the preferred alternative as well as forecast noise contours.

As a high-level overview of facility requirements, there are three facets to consider: terminal to airside challenges like runways, taxiways, and aprons to landside challenges of vehicle access, parking structures and roadways. These are the items that we have prioritized, not necessarily the only things we looked at in the alternatives process.

Terminal challenges include gating requirements and passenger connectivity. Airlines are dynamic, they are constantly changing and adding aircraft to their fleet. The plan emphasizes where terminal space is required as well as improved passenger connectivity with an eye to how we can continue to improve the passenger experience as well as sterile connection between terminal one and two, and Federal Inspection Services (FIS) at T1 and T2. FIS at T2 is adequately sized; the T1 FIS footprint is not. It is undersized for today's use and will be further exacerbated with future increased traffic.

From an airside perspective of maintaining airfield efficiency, an airfield capacity study was completed. The good news coming out of the study was that the existing runway configurations, number of runways, and lengths, are all adequate through the planning period and changes are not anticipated for any of that. Maintaining airfield efficiency of aircraft ground maneuvers for runway access efficiencies continues to be a focus.

Long-term remain overnight (RON) aircraft parking requirement space comes at a premium when aircraft needs to be parked overnight, especially for maintenance. Addressing airfield design standards, the FAA periodically comes up with updates to advisory circular guidance. The FAA issued a design criteria update last year, so this plan looked at those changes to make sure the demands are met in terms of existing and future design standards. From a landside perspective, curbside and roadway congestion at T1 and T2 continues with a detailed look, more than the periphery of an LTP. Long-term parking needs are also a focus as the Green/ Gold is reaching the end of its useful life.

The MSP footprint is geographically/ constrained on all sides by a cemetery, major highways, and water features, so there isn't an option to expand the property. The terminal footprint was prioritized because the landside demand is driven by where the terminal is in terms of vehicle parking and gating capability. The footprint also drives the airside impacts and related mitigations. Based on that, three alternative packages were designed that went through airline coordination, stakeholder advisory panel coordination and public outreach to come up with a preferred alternative.

For the preferred alternative there were multiple coordination calls with airlines, fixed base operators, signature flight support, and MAC internal workshops. The team used a wholistic view but also looked from an operations perspective and implementational ability. Senior Leadership conversations were had to align with the overall goal and objectives of MAC and the external component of the Stakeholder Advisory Panel meeting and public Experience MSP events. The preferred alternative assumes the necessity for FIS function at T1 and T2. It emphasizes the need

for additional gates beyond what exists today. It is mindful of airside impacts and the landside elements that will continue to be refined beyond LTP scope.

**Mr. Gilles** went over the preferred alternative plans potential list of projects:

- T2 Gate Expansion
- T1 FIS Improvements
- Reconstruction of Concourses E, F, and A
- Reconstruction of the Green/Gold area
- Relocation of Signature FBO
- T2 Gate Expansion (Maximize)
- North Parallel TWY (Runway 30R)
- Extend Concourse G
- Expand Cargo Facilities
- Construct RWY 12R EAT
- Relocate GRE/RON Parking
- T2 Remote Improvements
- Construct Delta RON Expansion
- Connect T1 to T2 (Sterile)

T1 currently has 102 gates which would be reduced to 95 gates by 2040. T2 currently has 16 gates which would increase to 35 gates by 2040. The net total between the two terminals is 12 additional gates by 2040.

**Ms. Nelson**, provided a high-level look at the LTP Aircraft Noise Analysis of the environmental considerations to better inform the level of environmental review that will be done after the LTP is complete. An evaluation of the appropriate State and Federal levels of environmental review will be conducted prior to constructing new projects identified in the LTP. The environmental review process is the appropriate mechanism for evaluating any environmental impacts and mitigation strategies resulting from airport improvement projects.

Please note, the 2040 forecast noise contours will not determine noise mitigation eligibility as that eligibility is determined annually based on previous year actual aircraft noise exposure data.

The 2018 actual annual noise contour serves as the base year in the LTP and reflects prepandemic activity. Aviation activity forecasts were developed at the beginning of the planning process. The forecasts go out to the planning horizon of 2040. Inherent in any forecasting exercise is some uncertainty in predicting the level of air traffic demand for the next twenty years. Therefore 3 scenarios were developed in the forecast to consider that uncertainty which enables an efficient and flexible facility plan by identifying a range of potential aviation demand. These forecasts represent the best available information.

- a 2040 Baseline is the expected outcome. The presentation today and the noise impact analysis in the LTP document will compare the 2018 Base Year with the 2040 Baseline forecast contours.
- a 2040 High scenario was also developed, which reflects demand growth driven by the most optimistic socioeconomic drivers.
- a 2040 Low scenario, which is informed by more conservative forecasts used for the financial planning process.

All three forecast scenarios were used to develop a DNL contour display for a range potential of noise impact levels 20 years into the future.

For the purposes of the noise analysis the baseline scenario is the primary focus with the high and low scenarios noted as well. A 60 DNL pictorial representation was shown and broken down by total operations, nighttime operations and stage 5 operations which depicted compound operational growth along with

The 2040 forecast scenarios are larger than the 2018 base year contour in both arrival and departure lobes. Total Operations in 2018 was 406,913. Projected operations for 2040 are 509,700 operations, an increase of 25.3% or an additional 102,787 operations. This is a compound annual growth rate of approximately 1.0% each year. Passenger growth is projected as a compound annual growth rate of 1.8% (outpacing operations increase due to airlines using larger aircraft with more average seats per flight). This total operations forecast of 509,700 operations is below what was anticipated in the 2020 Environmental Assessment. The last time we did a full documented forecast exercise, 567,000 operations were predicted for 2030. It is also below the high mark of annual operations recorded at MSP in 2004, which had 540,727 operations.

Nighttime operations, (10pm – 7am) in 2018 were about 120 average daily operations or about 10.8% of all operations occurring in 2018. We anticipate 41 additional daily, nighttime, aircraft operations for 2040, which is about 11.5% of all operations. The MAC arrived at this projection by taking the Design Day Flight Schedule, what the airlines indicates they expect for future activities, and we put those operations on gates, looking at what time of day they would operate from this we derived 11.5% of all operations equating to 161 average daily operations at night. This .7% increase is equivalent to a 7% increase in daytime operations due to the nighttime penalty in the DNL calculation.

Regarding Stage 5 operations, all newly manufactured aircraft in the United States and Europe are required to meet Stage 5 noise level criteria. In 2018 we had 211 average daily operations of Stage 5 aircraft, in 2040 we anticipate that number to grow to 874 average daily operations.

The Airbus new engine option (NEO), A319, A320 and A321 have a 15 dB reduction below Stage 4 noise standards, according to Airbus. In 2018 we had 1.6 average daily operations, which are projected to grow to 273 average daily operations in 2040.

The Boeing B737 MAX, MAX 7, MAX 8, MAX9, MAX 10, according to Boeing, provide a 40% noise reduction from the B737-800, which in itself is not a noisy aircraft. In 2018 MSP had 1.5 average daily operations with a 2040 increase expected to be 30 average daily operations. Please note that the aviation environmental design tool, used to develop noise contours, does not include the Max 10. There isn't a noise profile for it yet. The model uses the MAX 8, which is the FAA approved substitution and it's a bit more conservative as the MAX 10 is quieter than the MAX 8.

The Airbus A220-100 and A220-300 provide 50% noise reduction from previous generation aircraft. MSP had zero average daily operations in 2018. 2040 is expected to show 499 average daily operations. Delta has a total of 145 aircraft on order.

The projected 2040 runway use was developed in conversations with FAA Air Traffic Control and is pretty consistent with the 2018 runway use with some minor variances: 12L departures

decrease by 1.7%, there is an increase in 30L departures by about 1.5%, and 30L arrivals increase by approximately 1.4%, every other change is less than 1%.

The 2040 baseline forecast contour compared to the 2018 actual contour shows the 65dB DNL is 5,933 acres, which is a 33.5% increase from 2018 base year and the 60dB DNL encompasses 15,775 acres, which is a 39.3% increase from 2018 level.

The 2040 forecast baseline contours of 60 DNL and 65DNL, contains a lot of area that have already been mitigated for noise. In all, about 90% of the homes within the 2040 forecast 60 DNL contour have been eligible to receive noise relief in the MAC's mitigation program, and 10% of total households, mainly off of the arrivals to 12L and 12R near Lake Harriet in Minneapolis as well as some areas off of the departure lobes of 30L and 30R have not received eligibility. Some areas down on the approach end on the South to runway 30L and 30R, in the Inver Grove Heights area, have not received eligibility. Mitigation eligibility is assessed annually, if people are within the actual contour, at a higher impact level, for three consecutive years, they will be offered noise mitigation. The 2040 contour is a best guess based on available information provided by the airlines.

Most areas are highly mitigated, which is a testament to the expansiveness of MAC's noise mitigation program. It may be reassuring to know that the MAC's mitigation program has been extended to 2032, at the direction the NOC took.

Regarding next steps from an LTP perspective, Eric and his team are working on an airfield simulation looking at a baseline and deicing scenarios and building that into the simulation referenced earlier, and also developing prioritization, phasing, and project costs, as well as LTP report writing.

Stakeholder engagement next steps include the Stakeholder Advisory Panel meeting, April 13, informational updates to MetCouncil, May 3, publish a draft report for public comment, hold a public Experience MSP event (date tbd), review public comments, and then finalize the plan and send it to MetCouncil for review.

Please reach out if there is any interest in having this information presented to your city staff or council.

#### **Questions / Comments:**

**Member Olson** asked if the nighttime operations chart was based on scheduled or projected actual night flights.

**Ms. Nelson** replied that it is related to the back-end forecasting that has taken place in this effort. There is a series of conversations Eric and his team, along with airlines, and consultants, have had to plan new routes, new aircraft and what the future schedule will be based on insights from those conversations. It's a best guess based on the available projected 20-year information.



**Member Olson** asked if there was a number for the additional 20% unanticipated operations.

**Ms. Nelson** responded that there isn't a projected number as operations can vary greatly by day, by season and by event, like the Super Bowl as an example. There are a lot of different factors that play into that.

**Member Olson** said that it would be good to look historically at year over year numbers. Forty-one additional nighttime flights are significant as it only takes one flight to wake someone up and then maybe they can't get back to sleep. The City of Minneapolis is always concerned about nighttime noise disruptions. Member Olson went on to say that she was hoping that the plan would not increase nighttime noise, or perhaps it would even reduce exposure to it. She asked if the plan addresses mitigation with tools like runway use, and least populated areas.

**Ms. Nelson** responded that the anticipated increase in nighttime activity is really a product of a volume increase in average daily operations due to a volume change in the schedule. The LTP is not anticipating that we would have any new noise mitigation or abatement plans but would certainly be up for discussion in the subsequent environmental review, which is the appropriate vehicle in which we would be evaluating all different environmental consequences on a deep level and any kind of mitigation or abatement strategies that would go along with it. Member Nelson went on to say that she thinks that the MSP noise abatement plan continues to serve well with strategies such as the runway use system which prioritizes especially the nighttime operations to use runways 12L and 12R to the South to leverage the industrial, commercial corridor, so that is something we will continue to make sure is part of the strategy going forward. We also have a robust engagement with the airlines, through this body, and through other various groups and conversations on all levels of the MAC and the airlines. Promoting daytime ops, as much as possible, is also part of those conversations.

**Member Olson** asked if there was a slide to show projected nighttime runway use.

**Ms. Nelson** replied that projected nighttime use information is not in the presentation. It will be part of the LTP document which can be sent out ahead of time if anyone would like to see it. That document is still under development but could be available this Summer. Also, the presentation is posted on the website and can be sent out following the Committee meeting if anyone is interested.

**Member Olson** replied that she would like to see projected nighttime use and will follow up with Ms. Nelson to understand what other information may be available.

**Member Olson** went on to say that Ms. Nelson's points about using the 12L and 12R runways, where noise would impact less people, is good, but that her observation is that the departures over Minneapolis, especially from 30L, is still a big part of runway use.

**Member Bergman** asked what is the Met Council's input to this operation.

**Mr. Gilles** replied that the Met Council will do a comprehensive review of the long-term 2040 plan document.

**Member Bergman** offered that 2040 comp plans are tough and long drawn out, though they are useful in appropriations.

**Chair Jacobson** thanked Member Bergman for his question and comment and said she had a similar inquiry about the role of MetCouncil in the review and approval process. She went on to say that from the City of Eagan perspective, comp plans are a lot of work.

**Ms. Nelson** offered to present this information to any groups that may be interested.

**Chair Jacobson** asked the Committee if there were any additional questions and hearing none, moved the meeting along to agenda item 4.2.

#### 4.2. FAA Overview of Current MSP Procedures

**Sean Fortier, FAA Traffic Management Officer for the Minneapolis District**, noted that one barrier to learning is a lack of a common core of experience, we can all acknowledge that there is a very diverse group of people involved in this committee and amongst various constituents, be it your industry partners who live in the National Airspace System (NAS) every day, and Committee members who are beholden to their community, and this may not be your day job. The following information was put together with that in mind. To provide enough detail for you to bring back to your group(s) and be able to explain it without getting stuck in the weeds, and kindly take into consideration that I am trying to explain, in 16 slides, what takes years to learn as an air traffic controller.

The objectives of this presentation are to provide awareness of MSP ATC environment and the airspace system. Explain constraints within the system that drive and shape our current procedures and communicate how MSP procedures integrate into the overall NAS. For today's purposes, I will be equating MSP airspace to an interstate highway system.

The purpose of the Air Traffic Control System (ATCS) is to provide safe, orderly, and expeditious flow of air traffic, support national security and homeland defense, prevent collisions, and issue safety alerts. The ATCS also supports the training that goes on for our homeland defense and national security element. There are two units that actively operate out of MSP and MSP is a standby landing facility to support the 148<sup>th</sup> Fighter Wing out of Duluth, so at times we will have 16 aircraft come in for those activities.

Runway Configuration for landing will use the runway that is most aligned with the wind, but it varies depending on aircraft type and their various limitations, as well as company policies. The system works for the bulk of the air traffic, from a Cessna 152 to an Antonov 220. We look at the most aligned runway with wind greater than 5 knots, calm winds and winds aloft are also a consideration. You may notice a day where winds are calm, and we are not aligning within the runway use system priority which may be due to a new weather system moving in. Changing the system, "turn the airport around" can take thirty to sixty minutes to accomplish.

Compression is another factor, where aircraft may have a tail wind on final, and the winds on the surface may be out of a completely different direction, for example, the forecast today we have wind shear at 2000 feet with winds out of the northeast vs. surface winds are out of the southeast.

Aircraft on takeoff will generally accept a bit more tailwind. Air transport category aircraft typically don't use full power on departure though they do have more power available and can accept increased tail wind.

As for demand, the FAA safely manages traffic but does not determine how many people want to fly, what time they want to fly, and where they want to go. These factors are all driven by consumer demand.

The traffic flow process begins on the ground. The airport is split in half, North Ground Control commands surface movement, North Local Control directs aircraft on takeoff and landings, South Ground Control does the same on the South Side of the airport and South Local Control directs south takeoff and landings. During high peak periods we can open up a west position as well to direct aircraft around 17 and 35, typically combined at the south positions during those times.

When aircraft call for service, we attempt to put them in line so that similar destinations are not following one another. There is a multitude of reasons for that, the most important one being an efficiency piece, when aircraft are following each other directly on the same route, they need to be separated by three miles in trail of each other in the terminal environment and 40 miles and once they get a little further out enroute, the "interstate" environment, they need to be five miles apart. The traffic is dispersed using divergence and with headings that move away from each other and in order to do that those aircraft have to be flying to a different location on a different route. ATC does not direct which order the aircraft will call for service. If there are 30 aircraft going to Atlanta, they will use the same runway, and the same route on the same heading and they're going off 3 miles of trail.

Minneapolis to Atlanta is a very popular route for our lead carrier, Delta. These aircraft will all fly what is called the ZMBRO departure procedure or standard instrument departure (SID). The aircraft will all fly that exact route, it is a standardized agreed upon route from takeoff to landing, and it defines the departure procedure they will utilize. The departure procedure informs the heading they are going to fly off of the end of the runway. If a person were to look online, you will see the published route is ZMBRO, the aircraft depart based on the runway configuration, the same runway, same heading day in, day out, so that can be a predictable element for constituents to look for. These are searchable routes within the FAA chart supplement for the North Central US.

There isn't a lot of extra room to maneuver with the Standard Terminal Arrival Procedures (STARs) and the Standard Instrument Departures (SIDs). The airspace is utilized to the maximum extent, to not only safely flow traffic in and out of MSP, but also to allow for any deviation that may occur, for example, during a weather event. During severe weather, if there is a "roadblock" say a thunderstorm, we will need to use the Severe Weather Wind Plan (SWWP) and move aircraft from one departure to another and that is why there is unusual runway use at times.

The actual assignment, or departure procedures are below:

South Flow:

- 12L: LEINY/ DWN/SMERF/KBREW/BRD/DLH/WLSTN headings 105/120
- 12R: by operational necessity, typically heavy aircraft or Asia/ Europe/ Honolulu destinations use headings first 120 straight out, and then a 105 if they are crossing in the corridor. These are both launching aircraft into the Eagan, Mendota Heights, corridor.
- 17: COULT\* maybe departing 17, or also 12L/R in cases where operationally feasible and consistent with the Eagan/ Mendota Heights agreement. /ZMBRO/RST/SCHEP/ORSKY – headings of 120 – 180\* If the wind track needs correcting until they get past the 2.1 nautical mile point over the river and then they will get an additional right turn on course toward the SCHEP and ORSKY.

North Flow:

- Within the north flow, we can see the aircraft that is typically using 12L for the most part with the addition of the COULT are coming off of 30R, the ZUMBRO/RST/SCHEP and ORSKY come off 30L, headings are varied, as much as feasible, especially off of 30R using the 300 heading for the LEINY/DWN/SMERF\*, then at 320 for the KBREW/BRD/DLH and 340 for WLSTN the COULT uses a 360 heading. The asterisk next to LEINY/DWN and SMERF means that if it is operationally feasible or if the airport is really backed up, the aircraft will be moved over to 30L. Typically they don't go straight out from 30L.
- 30L: ZMBRO/RST/SCHEP/ORSKY will typically use heading 260 immediately after departure using a 280 heading if, for example, two aircraft with a similar destination departing one right after the other, we will use 280 to build in some mileage between the aircraft prior to turning them back to the Southeast and southwest.

Mixed Flow:

- Assignments for 30R: LEINY/DWM/SMERF/KBREW/BRD/DLH/WLSTN/COULT with headings of 300/320/340/360. 30L is by operational necessity with heading of 260/280 and the aircraft that were departing on 30L go to runway 17.
- In this scenario, the landing traffic that is inbound from the Southeast actually conflicts with the 17 departures that come out. 17 departures need to climb and get above that traffic before turning on course and so it becomes a very intricate weave of air traffic when this configuration is employed.

Slide 55 is an overhead depiction. The red depicts arrivals and the green for departures. What you see is a lot of dispersion immediately after departure, especially with the south flow for those aircraft going out to the northwest they take the initial heading of 105 off of 12L and then they are turned around to the north and then eventually they go over the top of the arrivals coming in over the BAINY arrival.

Thru the south in this scenario, this is a straight south with Runway 17 you can see the aircraft then being dispersed via the headings from 120 to 180 until they passed that noise tick 2.1 miles out and then get turned down the river to join the SCHEP / ORSKY departures.

You may be starting to see some of the 3 dimensionality that exists within just the arrivals and departures. Member Olson had a question last meeting about the differences you will see in some of the departure altitudes. The departure runway informs how those aircraft are directed to climb. Sometimes to get either above or below some of the arrival aircraft for Minneapolis but the other thing that we need to be very cognizant of is that Crystal Airport, Saint Paul Downtown Airport, Flying Cloud Airport, Anoka County Airport, all have their own traffic patterns, their own arrivals, their own departures that are integrated into their system and we need to avoid those protected airspaces. In order to do that, we have restrictions to climb over the top by a certain distance from the airport and that is all factored into those decisions and determinations that we need to have in order to use the “on ramps and off ramps” to get into and out of MSP.

The north flow will have a lot of dispersion on the north side due to the 320, 340, and 360. If there is some straight-out traffic, it would most likely be due to a high demand timeframe and ATC had to move LEINY/DWRN/SMERF departures over to 30L. In that case, ATC would use some of the 260 and 280 headings. A lot of the 260 headings go over the SCHEP/ORSKY/ZMBRO/RST departures and get wound back around to the south, southwest and southeast, they then come over the top of those arrivals that are coming in from the southwest.

Mixed flow is where the effects off of 17 are pronounced with those aircraft going over ZMBRO and RST where they have to drive those aircraft south to get on top of the inbound traffic. The inbound traffic gets woven out to the east to get down and under that traffic. There are a lot of constraints that inform the decisions of where to put aircraft immediately after departure. The end result is that they do have to join the eventuality of the rest of the NAS, which is the enroute environment in the “interstate” system.

Airplanes are flying almost everywhere. There are definitely concentrated areas due to the configuration and the need to join the “on ramps and off ramps” in order to get into and out of the system, but even within that there is a lot of dispersal using traditional RNAV and conventional procedures in this depiction.

The enroute environment is about 140 to 150-mile radius of Minneapolis. Off to the southwest of Minneapolis there is military use airspace that is active up to 32,000 feet. To the southeast there is another airspace for a combat readiness training center at Volk Field that has airspace use up to 50,000 feet on a regular basis. Those are walls that can't be penetrated.

Our system is a system of systems which integrates with Chicago O'Hare and Midway arrival and departure sterilized airspace. The Denver arriving and departing traffic is off to the southwest. These are some of the busiest airports in the world.

#### **Questions / Comments:**

**Member Bergman** commended Mr. Fortier and his staff for using words that everyone can understand like highways and on ramps and off ramps. To the general public this is very

well done and well-presented, and this committee has all seen this. It's fairly legible until you get to the map on slide 59 and then it's "woah, this all takes place in our skies!"- the separation is impressive. This presentation is a good step forward. Thank you!

**Member Olson** thanked Mr. Fortier for taking on the task of presenting this information. She also mentioned that Mr. Fortier referred to, when possible, flights are moved to 30L. Member Olson surmised that the aircraft would be taking LEINY/SMERF before they would be moved. She remarked that as a policy, we don't like too many 300-degree departures because they affect the same people that are already getting the arrival noise.

**Mr. Fortier** replied that ATC tries to limit the aircraft that go straight out understanding that they are getting the bulk of the noise, especially for close in neighbors, so a 300/320/340 is a better experience than a 300 right off of the end.

**Member Olson** replied that at some point Mr. Fortier spoke about shifting planes onto a different parallel runway when feasible.

**Mr. Fortier** said that when 30R becomes heavily constrained and is backed up we may take LEINY/DRWN/SMERF and move them to 30L.

**Member Olson** said that the plane is departing essentially straight out and heading to those SIDS. So, in that case it does not mitigate the effect of straight-out departures at all, it just mitigates the congestion on 30L.

**Mr. Fortier** replied that is correct. In that case the traffic demand is exceeding capacity on the runway, so we are mitigating the congestion in lieu of the runway use system.

**Member Olson** said that there are a number of headings off of 30R, 300/320/340/360 and on 30L there are just a couple. Is that arrival traffic? Is it by 17 departure traffic, why is there only two?

**Mr. Fortier**— It's a combination of issues. The headings that are utilized on 30R. The 300 heading on 30R and 280 is the next heading, that is 20 degrees of divergence in order to operate simultaneously ATC needs to utilize divergence. As far as operating off to the west on a 260 heading, attention needs to be paid to the arrivals coming in so it's the mixture of arriving and departing traffic that limits the ability to turn back so as not to be turning over areas we have not turned over before. As aircraft climb out, eventually they get turned to the south. Looking at SCHEP/ ORSKY/RST/ZMBRO those are the four lines to the south. Though they are coming on a 260 heading it is only for a moment, as soon as they are talking with the departure controller, they are getting turned toward fixes to join the enroute system. When they are initially given the 260 heading that is only the initial application of that divergence to keep them apart from each other until they can get up away from the ground and get on with departure control who will direct them further down the line, so they are getting additional turns and additional vectors immediately after departure.

**Member Olson** asked if we can theoretically have a 240 heading?

**Mr. Fortier** replied that the aircraft that are arriving to MSP in north flow, landing to the north, coming in from the west are joining the traffic pattern in that region and they would be directly in conflict.

**Member Olson** said that it seems like the gates on the other side of the airport are very similar and the arrival patterns, the big loops, it is surprising that we don't see the same problem with some of the headings from 30R departures. They kind of mirror each other as far as the arrival when they come in.

**Mr. Fortier** responded that the reason there is a lot more stability in the landing portion is that aircraft have to be aligned for their landing much further away from the airport. During the departure phase a turn to the aircraft can be applied immediately after departure, whereas in order to provide a stabilized approach for landing aircraft, aircraft need to be kept them on a pretty sterilized procedure until they are lined up on the final.

**Member Olson** remarked that she thinks it would be interesting to have a follow up conversation on topic of altitudes and how some are held at a lower altitude because of all of the other considerations in the airspace, also it's not just which runway end an aircraft may be departing on it's also the heading that they have been given that might affect which altitude they need to stay under.

**Mr. Fortier** said Member Olson was correct, it may be dependent on the runway, the heading and other considerations such as the Flying Cloud or Crystal airspace, or St. Paul downtown air space those all factor in to when the turn can be applied based on the climb gradient that the aircraft can achieve. The overall flyability of the procedure is looked at as well as when a turn can be effectively applied in order to maintain separation.

**Member Olson** said that it's helpful to know and that she thinks there should be more conversation about departure procedures. There has always been a debate about if it helps for noise impacts to gain altitude. There are some types of procedures that theoretically can reduce noise impacts for some along the departure route by gaining more altitude. The question of the need to compress altitudes is important to understand.

Talking in terms of roads and freeways and infrastructure is helpful as well because RNAV is making much more permanent pathways then it was in the past and to me just like with our interstate freeway system, looking back it seems some mistakes were made or the designers weren't thoughtful about who was going to be impacted and so that is why we are all committing to working together to develop new RNAV tracks so we get really good results that are sustainable long term. It's part of a complicated airspace that isn't easy to change, that's why work is put up front to make sure of a good result. Glad to have you involved in helping with that process – thank you!

**Member Bergman** remarked that there will always be some noise around an airport; it can be significant at times but there are ways to mitigate noise, such as wrapping a house with insulating material before the siding is put on. That can make a lot of difference. The newer aircraft are a lot quieter and people need to hear that noise reduction is significant; that information should be in the presentation.

#### **4.3. 2022 annual Noise Contour Report and the Consent Decree Noise Mitigation Program Eligibility**, Michele Ross, Technical Advisor to the Noise Oversight Committee

The MSP 2022 Annual Contour Report was published by the MAC on March 1, consistent with the requirements of the amended Consent Decree. The report was developed in partnership with HNTB using the Aviation Environmental Design Tool (AEDT). We use MACNOMS data to assign runways and model tracks and then upsize numbers to be consistent with FAA numbers.

One of the report's key components is to compare the last year's 2022 actual contour to the 2007 forecast.

Total operations:

- 2007 - 582,366 annual forecast operation
- 2021 – 303,884 annual forecast operation
- 2022 – 310,235 annual actual operations

Nighttime operations:

- 2007 – 123.3 average daily operations
- 2021 – 84.1 average daily operations
- 2022 – 93.2 average daily operations

Hushkit operations:

- 2007 – 275.0 average daily operations
- 2021 – 0.5 average daily operations
- 2022 – 0.1 average daily operations
- 

The 2022 actual contour for 60dB DNL covers 9,167 acres which is a 7% increase from 2021, and the 65dB DNL covers 3,441 acres, a 3% increase from 2021. The contour continues to be well below the 2007 forecast.

The 2022 actual noise contour did not qualify any additional homes for mitigation as outlined by the terms of the 2025-2032 noise mitigation program. The MAC will continue to implement the program for homes that have been eligible in the past. The report includes the current status of homes in Minneapolis and Eagan that have been previously eligible for mitigation.

To date the noise mitigation program at MSP has spent in excess of \$513M to mitigate homes and provide respite for residents. The report includes the history of the program dating back to 1992 and continuing projections through 2032. The report is available online at [Metroairports.org](https://metroairports.org).

**Ms. Ross** offered to take questions, but there were none.

## **5. Announcements**

### **May NOC Meeting**

Wednesday, May 17, 2023 @ 1:30 pm

Location: MAC General Offices + Teams



**NOC Spring Listening Session**

Wednesday, April 26, 2023 @ 6:00 pm

Location: MAC General Offices + Teams

**7. Adjourn**

**Chair Jacobson** thanked the members of the Committee, NOC staff and residents in attendance. The meeting was adjourned at 3:32 pm.