

Minneapolis-St. Paul International Airport

IATA/ICAO CODE: MSP/KMSP
CITY: Minneapolis
STATE: MN
COUNTRY: USA

AIRPORT CONTACT

No changes reported by the airport in 2011
Verify information below with the airport

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Airport Web Site: [Minneapolis-St. Paul International Airport Web Site](#)
[Metropolitan Airports Commission Aviation Noise Program Web Site](#)

ELEVATION: 841 ft.

RUNWAY INFORMATION				
Orientation	Length (ft)	Displaced Threshold (ft)	Glide Slope(deg)	Width (ft)
04/22	11006	-	-	150
12L/30R	8200	-	-	150
12R/30L	10000	-	-	200
17/35	8000	-	-	150
Check FAA Airport Diagrams for current information.				

NOISE ABATEMENT PROCEDURES

Noise Abatement Departure Profiles (NADP)

In the early 1990s, the Federal Aviation Administration responded to numerous requests for unique noise abatement departure procedures, by studying the viability of using different procedures off different ends of runways at the same airport. The result of exhaustive testing at the John Wayne/Orange County Airport (SNA) in Santa Ana, CA, was Advisory Circular 91-53A, Noise Abatement Departure Profiles. The Advisory Circular recommended two specific departure profiles, the close-in departure profile and the distant departure profile. These two procedures are to be used by the airport operators to specify to air carriers serving their facility, which departure profile should be flown off each end of the airport.

AC 91-53A specified roles for each participant in the noise abatement departure profile (NADP) process. The Advisor Circular (AC), outlined acceptable criteria for speed, thrust settings, and airplane configurations used in connection with each NADP. These NADPs could then be combined with preferential runway use selections and flight path techniques to minimize, to the greatest extent possible, the noise impacts.

Air carriers were to develop a close-in departure procedure, and a distant departure procedure for each aircraft in their fleet, in accordance with specific criteria for developing safe departure profiles outlined in AC 91-53A. Airport operators were to specify to air carriers serving their facility, which departure profile should be flown off each end of the airport, a function of the noise sensitivities off each departure end. The Close-in NADP was designed to benefit noise sensitive areas close to the airport (3.5 miles from start of take-off roll) while the distant NADP was to be specified when noise sensitive areas were farther from the airport.

An extensive cost/benefit analysis of each departure profile was initiated for MSP through the Metropolitan Aircraft Sound Abatement Council (MASAC). As a result, contours were developed utilizing ANOMS flight path, aircraft type, and operations count information. MAC's Geographic Information System (GIS) was used to objectively determine impact, by analyzing parcel data provided by communities surrounding the Minneapolis-St. Paul International Airport (MSP).

The final NADP analysis was presented to MASAC in the spring of 1997. This analysis indicated that the Close-In Departure Procedure would be most beneficial if flown off Runways 30L and 30R, and the Distant NADP would be most beneficial if flown off all other ends. This provides the greatest overall noise benefit at MSP with respect to all of the communities as a whole. Based on this extensive analysis, MASAC forwarded a recommendation to the Full Commission, which resulted in the adoption of the following procedures:

- Close-In Departure Profile for Runways 30L and 30R
- Distant Departure Profile for Runways 12L, 12R, 04, and 22

The use of the Close-In NADP on Runways 30L and 30R was predicated on the existence of Stage 2 aircraft at the time and the associated reduction of population within the 65 dB DNL contour. As the national aircraft fleet has transitioned to an all Stage 3 fleet, the benefits of the Close-In NADP have diminished. Considering the present and future trends in the aircraft fleet mix and the associated noise impacts out to the 60 dB DNL contour, the communities and the airport users at MSP, recommended as a noise abatement measure in the Draft November 2004 MSP Part 150 Update Noise Compatibility Program (NCP) that the Distant NADP (as outlined in AC #91-53A) be flown off all runways at MSP (30L, 30R, 12L, 12R, 22, 04).

On June 26, 2003 the MSP Noise Oversight Committee (NOC) reviewed the Distant NADP option on Runways 30L and 30R. Considering previous analysis conducted by MAC, communities and airport users, and the associated noise impact reduction out to the 60 dB DNL contour, the NOC voted unanimously to endorse implementation of the Distant NADP on Runways 30L and 30R without delay. The MAC reviewed the NOC recommendation on July 21, 2003 and approved the

immediate implementation of the Distant NADP on Runways 30L and 30R.

Minneapolis Straight Out Departure Procedures

The Straight Out Departure Procedure at MSP was designed to provide a degree of noise relief to community residences that reside directly under the arrival flight paths on Runways 12L and 12R at MSP. Since the residents who reside directly off of Runways 30L/R experience all of the overflights from the arrivals for Runways 12L/R, the Straight Out Departure Procedure recommends that ATC assign an other than runway heading for departures off of Runway 30L/R when conditions and workloads permit. By allowing for a simple dispersion of aircraft departing off of Runway 30L/R, which would normally receive a runway departure heading, a reduction in frequency and overall adverse noise impact is accomplished for residences that live under the Runway 12L and 12R arrival paths at MSP.

Eagan Mendota Heights Departure Corridor and Associated Procedures

The MAC in conjunction with the communities surrounding the airport have devoted time, effort, and resources to develop, analyze, and enhance operational procedures, which help to mitigate and decrease aircraft noise effects on Minneapolis-St. Paul and the surrounding communities contingent on conditions and ATC workloads. The Eagan-Mendota Heights Departure Corridor and associated procedures are a testament to such efforts. The following provides specific information about the procedures.

- **Eagan-Mendota Heights Corridor:** Whenever possible and when conditions and ATC workloads permit, jet aircraft are directed to over fly the Eagan-Mendota Heights Corridor (the Corridor). The Corridor is an area of land immediately east of MSP. This land is zoned primarily for industrial and commercial use and, as a result, it has the lowest residential population of any community near MSP. Aircraft departing from Runway 12L or 12R, or arriving on Runway 30L or 30R, overfly the Corridor. The procedure directs jet aircraft departing from Runways 12L and 12R by assigning headings inclusive of 090° to 120°. As a result, a heading of 090° serves as the north boundary of the Corridor, while the Runway 30L localizer, which approximates a true heading of 118°, serves as the south boundary of the Corridor. Jet aircraft departing from Runway 12L or 12R are not permitted to turn prior to reaching 3 statute miles from the departure ends of the runways. Through repeated ANOMS analyses, the MAC has demonstrated that approximately 90-95% of jet departures comply with Corridor procedures. Turboprop aircraft, because of their quieter noise characteristics, are not required to use Corridor procedures.

- **• Head-to-head:** The “head-to-head” procedure at MSP is a unique noise abatement measure that directs aircraft to use opposite direction operations (as opposed to same direction operations in an east or west flow). Using this procedure, aircraft depart from Runway 12L or 12R and arrive on Runway 30L or 30R. This allows both arrivals and departures to overfly the Corridor. The procedure can only be used at night when there is very little traffic at MSP, and then only when specific conditions and ATC workloads permit. When head-to-head operations are not possible, ATC will attempt to use cross-runway operations, utilizing the Corridor and Runway 4-22. Because of the complexity of the head-to-head procedure, its use is infrequent and difficult to quantify.

- **Crossing in the Corridor:** Aircraft departing from Runways 12L and 12R use the “Crossing in the Corridor” procedure. ATC will assign a heading that approximates a 118-degree track along the ground to aircraft departing from Runway 12L and a 105-degree track to aircraft departing from Runway 12R. The tracks cross in the middle of the Eagan-Mendota Heights Corridor (where there is a higher concentration of commercial and industrial development), and route departing aircraft away from residential areas near the Corridor borders. Since this procedure affects runway capacity, it can only be used when traffic conditions allow for non-simultaneous departures. Additionally, it can only be used when there is a single air traffic controller issuing departure instructions for both runways. As a result, the procedure is used primarily at night.

Runway 17/35 Noise Abatement Procedures

Anticipating the growth in air travel, the MAC and the Minnesota Legislature reviewed many options for meeting the needs of air travelers in the future. These options included improvements at MSP or the development of an entirely new airport, in Dakota County. After much deliberation, the Governor and Legislature stopped further consideration of a new airport and directed the MAC to implement MSP 2010, a comprehensive plan to improve existing airport facilities.

MSP 2010 is a comprehensive plan consisting of an entire series of improvements involving the airfield, the terminal, airport access and parking facilities which will provide the twin cities metropolitan area with an airport that is modern, reliable, safe, environmentally conscious, and will meet the public's projected demand for air travel through the year 2010.

One of the largest, most anticipated construction improvements to the airport under the MSP 2010 plan is the addition of a new 8,000-foot north-south runway (Runway 17/35), which became operational on October 27, 2005.

A particular topic of importance to both the MAC and the airport's neighbors are the environmental impacts, specifically the noise impacts, which will be created by Runway 17/35. The MAC has made a commitment to the communities surrounding the airport to explore, develop, and implement aggressive noise mitigation policies and procedures which will help to reduce the adverse impacts of all airport operations, including future Runway 17/35 operations. The following is a list of the proposed noise abatement procedures for Runway 17/35:

- **Runway 17 – 2.5 Nautical Mile Turn Point** - After significant review, MASAC recommended that operations which have initial departure headings east of runway heading (headings ranging from 95o to 170o) should initiate their turns as soon as possible when departing Runway 17. This recommendation was made due to the fact that there is no one flight path considered "better" than another when departing to the southeast over the existing residentially developed areas. This is consistent with the EIS documentation for Runway 17.

When conducting the same evaluation for departure headings west of runway centerline (headings from 170o to 285o) two main considerations arose: (1) Heavily residential development exists west of runway heading almost immediately off the runway end and (2) the Minnesota River Valley south of the airport offers an area where departure operations could overfly at higher altitudes in an effort to reduce residential overflight impacts close-in to the airport.

As a result of the deliberations, a delayed turn point off runway heading (170o) for westbound jet departures offered a solution that not only reduced the number of residents within the 2005 60 DNL Mitigated Contour but was also feasible for implementation according to the FAA's airspace management criteria.

As a result of evaluations and comprehensive input from MASAC, the MASAC Operations Committee and the Runway 17-35 City Group, the recommended Runway 17 departure tracks include departure turns as soon as possible for departures east of 170o to 95o and a 2.5 nautical mile (from the start of takeoff) turn point, as determined by Distance Measuring Equipment (DME), at which time jet departure operations would turn from runway heading (170o) to westbound departure headings between 170o and 285o.

Since the proposed departure procedure differs from what is in the EIS for Runway 17/35, an Environmental Assessment (EA) is required. The MAC submitted the draft EA to the FAA and in August 2003 a Finding of No Significant Impact (FONSI)/Record of Decision (ROD) was issued. The Final EA and FONSI/ROD is available on the Internet at www.macnoise.com.

- **Low-Demand Flight Tracks** - In an effort to reduce noise impacts during low-demand periods the MASAC Operations Committee endorsed preferred departure tracks for Runways 30L,

12L/12R, 04, 22 and 17. The intent of this initiative was to determine flight track priorities and procedures for use by Air Traffic Control (ATC), which would minimize the impacted population, for use during low-demand periods.

In order to establish the best low-demand flight tracks for each runway, HNTB used DC9 hushkit, 90 dBA SEL contours to measure impact. The resultant MASAC Operations Committee proposal does not significantly detour aircraft from their destination and is intended to give ATC guidance on selection of appropriate flight tracks during low-demand periods producing the least amount of noise impact on residents. This does not negate deviation from these tracks for the purposes of safety, aircraft performance, pilot compliance, weather and traffic conflicts. Below are MASAC's recommendations for Runway 17.

Runway 17

- Disperse departure traffic away from the centerline flight track to avoid concentrating arrival and departure traffic.
- Eastbound departures use a 95o heading
- Southbound departures use a 160o
- Westbound departures use a 185o heading
- River departure procedure and a river heading departure for use by westbound and southbound departures

Development of some of the above DPs will require the use of precision navigation technologies such as FMS/GPS. In an effort to implement the above procedures, coordination with the FAA will be paramount in determining the feasibility and implementation options with respect to the proposed DP per runway. The evaluation of new navigation technologies was conducted as part of a GPS Needs Assessment. The Assessment considered the integration of GPS-related applications and technologies at MSP as an element of the Part 150 Update Noise Compatibility Program (NCP) recommendations.

- **Runway 17 – River Departure Procedure** - This procedure would be implemented via a published departure procedure for Runway 17. It is intended to route Runway 17 departure operations over the Minnesota River Valley, avoiding residential areas. The procedure would direct aircraft to fly a straight-out heading of 170o until reaching a turn point located three nautical miles from the start of takeoff roll. At that point, the aircraft would turn to a heading of 245o to overfly the river. This procedure is intended for aircraft departing to the south and west of the airport.

Because of the capacity impact this procedure poses during mid and high traffic demand time at the airport; this procedure would most likely only be used during low-demand time periods. This would equate to typical procedural use between the hours of 12:15 a.m. and 5:30 a.m.

- **Runway 17 – River Heading Flight Track** - This procedure designates the 230o heading as a river heading, when used in conjunction with the 2.5 nautical mile turn departure fan off Runway 17. The 230o heading (Track L) routes aircraft over the river valley. Because this procedure is not a published procedure, and not part of a flight plan, the heading can be assigned by the Air Traffic Control Tower as part of the takeoff clearance. This would allow for the procedure to be used at any time when the FAA personnel in the Air Traffic Control Tower can work it into the traffic flow. This procedure is intended for aircraft departing to the south and west of the airport.

- **Runway 35 – River Visual Approach Procedure** - This procedure considers a visual river approach to Runway 35 that routes arriving aircraft over the river valley. The purpose of this procedure is to reduce aircraft arrival overflights of residential areas.

Aircraft using this procedure would approach from the southwest, flying a 65o heading over the river. As the aircraft nears the airport, it would turn on to final approach and align with Runway 35.

Several issues need to be resolved prior to implementation of this procedure, including airspace design, Flight Standards District Office (FSDO) concurrence and flight-testing. Also, additional analysis would be required to determine if the procedure could be safely used at night.

CONTINUOUS DESCENT ARRIVAL (CDA) - [NONE](#)

AIRPORT CURFEWS

MSP has a voluntary agreement with all scheduled airlines to not conduct nighttime operations from 2230 to 0600. As part of the Noise Compatibility Plan, the MSP Signatory Airlines all agreed to use their “best efforts” to limit nighttime activity to current levels.

PREFERENTIAL RUNWAYS

RUNWAY USE SYSTEM (RUS)

MSP Runway Use System (RUS) has been a long-standing noise mitigation operational procedure. ATC has been instructed to direct as many aircraft as possible over noise compatible land use areas. Since that is not always possible, the RUS was developed as an alternate method of distributing aircraft noise. The RUS, implemented in 1990, provides direction to controllers regarding how traffic should flow at MSP, within the constraints of wind, weather, and traffic volume. The RUS formalized a public/airport/users consensus to concentrate aircraft overflights over the Minnesota River bottoms and the predominantly commercial/industrial land uses within three miles of MSP in the cities of Eagan and Mendota Heights. The RUS establishes runway selection preferences based on impacted population (i.e., the runway that impacts the fewest people receives the highest preference).

The RUS included in the November 2004 Part 150 Update NCP is as follows:

Departures (In order of priority)

1. Runways 12L and 12R
2. Runway 17
3. Balanced use of Runway 4/22
4. Runways 30L and 30R

Arrivals (In order of priority)

1. Runways 30L and 30R
2. Runway 35
3. Balanced use of Runway 4/22
4. Runways 12L and 12R

The RUS has been formulated, tested, and refined over the years by the communities, FAA, and MAC to reach the best possible mix of alternatives while meeting MSP’s operational requirements. The distribution of overflights over various communities must be balanced to the greatest extent possible. The RUS continues to be a significant determinant for runway selection and use within the ATC environment.

OPERATING QUOTA - [NONE](#)

ENGINE RUN-UP RESTRICTIONS

FIELD RULE: AIRCRAFT ENGINE RUN-UP PROCEDURES

The Metropolitan Airports Commission, in consideration of aircraft maintenance requirements and the desire to reduce aircraft noise, has revised its run-up procedures

FIELD RULE.

NOTE: The MAC Run-up Pad is the primary location for aircraft mounted engine run-ups.

The following new rules for aircraft mounted engine maintenance run-ups are effective this date, July 1, 2005 and supersede all previous Field Rules regarding this issue.

1. All run-ups must be scheduled and approved in advance with MAC Airside Operations by calling (612) 726-5111. The following information is required at the time of the request:

- Type of aircraft and aircraft tail number
- Proposed start time
- Proposed end time

2. Approved run-up hours will be from 0600 - 2230L daily. Except for the provisions of paragraph #8, runups will not be authorized during quiet hours (2230 - 0600L daily). Any engine run for any purpose other than aircraft movement during quiet hours will be restricted to idle power only.

3. Radio contact with FAA ground control is required for approval of movement to/from a run-up area. Aircraft shall monitor ground control at all times during the run-up.

4. In consideration of the noise impact on neighboring communities and to prevent damage to surrounding parked aircraft, equipment and vehicles, run-ups in the MAC run-up pad are restricted to specific headings. If wind conditions do not allow a run-up to be conducted, the run-up should be postponed. The following headings will be used in the Run-up Pad according to type/size of aircraft:

• **Jet aircraft:**

- Winds less than 8 kts use 300° heading
- Winds greater than 8 kts, headings according to manufacturer specifications that direct jetblast into the blast fence of the Run-up Pad. In cases when the heading results in a northerly jet blast, the access road through the pad will be closed and airline employees will be posted at the east and west openings of the pad to prevent through traffic during the run-up. Roadway control devices will be installed whenever the access road is closed for a run-up. In no circumstances shall jet blast be directed out the east and west openings of the pad.

• **For DC8, DC10, MD11, L1011, and B747 aircraft:**

- Headings clockwise from 270° - 040° to direct jetblast into the run-up fence

• **Prop aircraft: no restrictions**

5. If wind conditions prevent the use of the MAC run-up pad during regular run-up hours and a scheduled departure will be delayed, an alternate site may be requested from MAC Airside Operations. The approach end of runway 04, north of taxiway Sierra, may be available as an alternate run-up location during non- RUS (Runway Use System noise abatement procedures) hours. Runway 04 headings are restricted to 220° for safety requirements. Any run-up on runway 04 is subject to immediate termination for operational or safety needs. Run-ups on runway 04 will not be authorized during quiet hours. Additionally, in accordance with the previously stated stipulations, the Runway 12R de-icing pad may also be available as a secondary alternate location with headings clockwise 120° - 300°. Headings other than 120° or 300° will require the closure of the Airport Perimeter Road that is North of the 12R de-icing pad. Roadway control devices will be installed and removed by the Airline conducting the runup whenever the perimeter road is closed for a runup. Airline personnel must standby the roadway control devices to instruct vehicle operators to travel landside between AOA gates 405 and 419. The use of taxiway A as a bypass of the perimeter road is not authorized. Run-ups on the Runway 12R de-icing pad will not be authorized during quiet hours.

6. Aircraft "**powerbacks**" are prohibited during quiet hours.

1. Absolutely no run-ups will be authorized between the hours of midnight and 0500L daily. During the remaining quiet hours, run-ups will only be approved by MAC Airside Operations if a scheduled

departure time cannot be met without the run-up. Documentation of the after-hours run-up must be maintained by the supervisor making the request and such information will be made available to the Metropolitan Airports Commission immediately upon request.

- Flight number
- Scheduled gate time
- Scheduled departure time
- Reason for after hours run-up
- Name of supervisor or manager making request

All other requirements of the field rule must still be met when requesting an after-hours run-up.

This FIELD RULE contains provisions for efficient aircraft run-up scheduling and safety during run-up performance with minimum noise impact on the surrounding community. It is essential that each company emphasize to their aircraft maintenance employees, the need to comply with the FIELD RULE. Violations of this FIELD RULE may be enforced under MAC Ordinance No. 100, paragraph 5.3a.4.

APU OPERATING RESTRICTIONS - [NONE](#)

NOISE BUDGET RESTRICTIONS - [NONE](#)

NOISE SURCHARGE - [NONE](#)

NOISE COMPATIBILITY PROGRAM

MAC is dedicated to an effective air-operations management program to meet the future challenges of minimizing airport noise and environmental impacts while ensuring safe, convenient, and expedient air-travel for the Twin Cities and much of the upper Midwest. This has been accomplished via the channels of FAR Part 150. The existing program measures and new areas of development are presented below.

FAR Part 150 at MSP

On April 27, 1987, the Metropolitan Airports Commission (MAC) approved a comprehensive airport noise compatibility program for MSP in accordance with the provisions of FAR Part 150. This program was submitted to the FAA in October 1987. During October 1989 the FAA announced its determination that the noise exposure maps submitted by the MAC for MSP under the provisions of Title I of the Aviation Safety and Noise Abatement Act of 1979 (Public Law 96-193) and 14 Code of Federal Regulations (CFR) Part 150 were in compliance with applicable requirements. This established a 1987 LDN 65 noise exposure base case, and a 1992 five-year forecast LDN 65 eligibility contour for MSP's Part 150 land use compatibility program.

In April 1990, the FAA announced that its review of the submittal was complete. Of the twenty-three proposed noise abatement and land use compatibility measures of the Noise Compatibility Program (NCP), twelve were approved outright. Three additional recommendations were partially approved. Four recommendations were disapproved pending further submittal of supporting data. The remaining four proposed actions were disapproved outright. In the spring of 1991, the 1991 Part 150 Update for MSP was initiated. The focus of the update was to build on the previous study and to maximize benefits of the established noise abatement program at MSP.

Part 150 Land Use Compatibility Program Implementation

The Federal Aviation Administration (FAA) Regulation Part 150 Airport Noise and Land Use Compatibility Program consists of several different land use options designed to make

neighborhoods located near airports more compatible with airport noise. MAC worked with a consultant team and the Policy Advisory Committee (PAC) to develop final program design details and implementation priorities for the multi-year program. In February 1992, the PAC recommended to MAC the following Part 150 program corrective land use measures for implementation at MSP:

- Land Acquisition Program
- Purchase Guarantee Program
- Sound Insulation Program

Land Acquisition Program

The Land Acquisition Program is designed to alleviate aircraft noise effects in areas of non-compatible land use. Under the land acquisition program for MSP, property was acquired only under the initiative and approval of the local jurisdiction. Additionally, there had to exist a reasonable consensus among residents to vacate the area. Program eligibility was limited to homeowners residing within the approved five-year forecast 1996 DNL 65 eligibility contour in neighborhoods identified by each participating city. Neighborhood boundaries were identified by each participating city to include areas, which may be outside of the DNL 65 eligibility contour. (Areas outside of the DNL 65 contour were and are subject to FAA approval through the MSP Part 150 Update/FAA review process.) Acquisition priority was based on location within the noise contours. Homeowners must have lived in the home for two years prior to implementation of the program unless adequate funds were made available to allow the purchase of all properties within the identified area at the same time. Property was acquired by voluntary agreement with the homeowner or through standard condemnation proceedings. The fair market value of all properties identified for acquisition was determined by current federal and local guidelines. Acquired property was identified by the individual cities on a block-by-block basis. Once property was acquired, homeowners were processed through normal appraisal and closing procedures, as with any other type of property sale. No specific timeframe for completion of the transfer of property was defined. The payment or reimbursement of moving/relocation expenses was determined by federal regulations (Uniform Relocation Assistance and Real Property Acquisition Policies Act). All acquired property is held by the MAC. If the property is not to be converted for airport use, the MAC will release it for resale as a compatible land use (nonresidential), as soon as possible.

Purchase Guarantee Program

The Purchase Guarantee Program was designed to offer relief to eligible homeowners who find aircraft noise levels intolerable. As with most purchase guarantee programs, if aircraft noise levels are found to be intolerable by individual homeowners, and the owner has made a “bona fide effort” to sell the property, the property would be acquired by the MAC at a fair market value and returned to residential use with appropriate sound insulation measures, releases, and restrictions. Homeowner participation in the Purchase Guarantee Program is voluntary and based on city-specific implementation decisions. The program allows the homeowner the opportunity to sell his home at a guaranteed fair market value on a “house-by-house” basis.

Sound Insulation Program

The Residential Sound Insulation Program preserves and improves neighborhoods, while making the internal environment of a home more compatible with exterior aircraft noise.

Although homeowner participation in the program is voluntary, it is encouraged. The Residential Sound Insulation Program is the largest of the MSP Part 150 programs to be implemented by MAC, since the cities of Minneapolis, Bloomington, Richfield, Eagan, and Mendota Heights, in general, do not favor major acquisition/relocation programs. A FAA approved five year DNL 65 noise contour map determines eligibility. This noise exposure map is generated by a computer program called the Integrated Noise Model (IMN), which takes

into account aircraft fleet mixes and hourly operations of arrivals and departures by runway and several other considerations.

Since 1992, the Metropolitan Airports Commission (MAC) has implemented one of the most comprehensive airport noise home mitigation programs in the world. By installing new or reconditioned windows and doors, central air-conditioning, wall insulation and vent baffling, the program reduces interior noise levels by a minimum of five decibels.

In 1992, the MAC began mitigating homes against aircraft noise in the area defined by the 1996 65 DNL noise exposure map. Under this program, 7,690 single-family homes and 661 multi-family units have been mitigated at a total cost of more than \$232 million.

In April 2005, single-family homes within the updated 2007 65 DNL noise exposure map began being mitigated. All 156 homes are within the city of Bloomington and have been mitigated. An additional eight homes in the city of Richfield will be acquired at the request of the City.

In 2007, the MAC voted to approve a proposed settlement in a noise mitigation lawsuit brought by the cities of Minneapolis, Richfield and Eagan. Under the new noise mitigation program, the MAC would provide mitigation to homes in the 60 to 64 DNL contours.

Mitigation activities would vary based on noise contour, with homes in the most noise-impacted contours eligible for more extensive mitigation than those in less impacted areas. Multi-family dwellings (those with more than three living units) would receive less extensive mitigation than single-family homes.

The new noise mitigation program

Under the new noise mitigation program, the MAC would provide mitigation to homes in the 60 to 64 DNL contours. Mitigation activities would vary based on noise contour, with homes in the most noise-impacted contours eligible for more extensive mitigation than those in less impacted areas. Multi-family dwellings (those with more than three living units) would receive less extensive mitigation than single-family homes. The total cost to MAC is uncertain until the program is complete, but it is estimated the proposal could cost as much as \$130 million to implement.

Four separate residential noise mitigation programs are included in the agreement. Costs depicted in each of the four programs are in 2007 dollars and will be adjusted annually for inflation according to the Consumer Price Index:

Single-family Homes in the Projected 2007 Mitigated 63-64 DNL Noise Contours

The approximately 432 homes in the most noise-impacted contours would be eligible to receive the same level of noise mitigation provided in the 65 DNL contour and greater. The program is designed to achieve five decibels of noise reduction on average. Depending on the improvements needed to reduce interior noise sufficiently, modifications could include: central air conditioning; exterior and storm window repair or replacement; prime door and storm door repair or replacement; wall and attic insulation; baffling of roof vents and chimney treatment. Construction would be scheduled for completion by December 31, 2009.

Single-family Homes in the Projected 2007 Mitigated 60-62 Noise Contours

Owners of the approximately 5,344 homes in less noise-impacted areas would be eligible for one of two mitigation packages: 1.) The estimated 3,421 homes that did not have central air conditioning as of September 1, 2007 could receive it. In addition, homeowners would get up to \$4,000 (including installation costs) in other noise mitigation products and services they could choose from a menu provided by the MAC. 2.) Owners of homes that already had central air conditioning installed as of September 1, 2007 or who choose not to receive central air conditioning would be eligible for up to \$14,000 (including installation costs) of noise

mitigation products and services they could choose from a menu provided by the MAC.

Categories of products on the menu will include: exterior and storm window repair or replacement; prime door and storm door repair or replacement; wall and attic insulation; baffling of roof vents and chimney treatment. Construction is scheduled for completion by December 1, 2012.

Multi-family homes in the projected 2007 mitigated 60-64 DNL Contours

Any of the approximately 1,931 multi-family units in the projected 2007 mitigated 60-64 DNL contours that do not have air conditioning would receive through-the-wall or equivalent permanently installed air conditioners. The MAC also will install an acoustical cover for each air conditioner in the multi-family units. Installation is scheduled to be complete by December 1, 2010.

\$7 Million Total for Opt-Out and 2005 Mitigated Single-family Homes

Single-family homes whose owners opted out of the already completed MAC noise-mitigation program but that now have new owners would be eligible to “opt in” and receive noise mitigation. If the total cost to MAC of opt-in mitigation is less than \$7 million, any remaining monies would be used to reimburse owners of approximately 2,352 single-family homes in the 2005 Mitigated 60-64 DNL contours for purchase and installation of products included on a menu provided by the MAC. The amount each homeowner receives will be determined by subtracting dollars spent for the opt-in program from the total \$7 million budget and dividing the remainder among the total number of single-family homes within the 2005 60-64 DNL contours. The MAC would begin to issue reimbursements by March 1, 2010 and would complete them by July 31, 2014. The total the MAC will spend on the opt-out and 2005 program all together is capped at \$7 million.

MSP PART 150 UPDATE

As part of an update to the Part 150 program at MSP, the use of the airport from an impact perspective is being assessed relative to future operations at the airport. This considers a new runway at the airport, as well as increased operations. Additionally, the MAC is proposing mitigation further out into the community (as a result of legislative guidance), beyond what has long been considered the national standard.

The Part 150 Update process began in 1999. The intent of this effort is to provide an accurate representation of future noise impacts at MSP. Initially the Part 150 Update document was developed relative to 2005 forecasted operations and submitted to the Federal Aviation Administration (FAA) for review in November 2001. Due to the passage of time between the document development process and finalization of all of the document elements, in addition to considering the future long-term consequences of the events of September 11, 2001, on May 20, 2002, the MAC withdrew the document from the FAA. The document was withdrawn for the purpose of updating the base case contour from a 2000 scenario to 2002 and the forecast contour from a 2005 to a 2007 forecast. The updated Part 150 document was submitted to the FAA for their review in November 2004.

MSP Part 150 Update Measures

The MSP Part 150 Update document includes 17 noise abatement measures, 9 Land Use Measures. These measures and recommendations are a result of extensive analyses and review conducted by the involved parties. .

The following information summarizes the noise mitigation measures including those, which were unchanged from the previous Part 150 program, new measures and existing Part 150 measures that were modified slightly for inclusion in the update:

- NA-1. MSP Airport Noise Oversight Committee – This modified measure recommends that**

MAC establish a successor organization for the now defunct MASAC. The MSP Airport Noise Oversight Committee would provide a balanced forum for interested parties to consider noise mitigation initiatives in the context of benefit, feasibility, and fiscal considerations.

- **NA-2. Noise Management Program - This modified measure would require MAC to consider incentives and disincentives to reduce the impact of aviation noise in the surrounds of MSP.**

- **NA-3. Voluntary Nighttime Limits on Flights - This measure proved effective to reduce nighttime flights of Stage 2 aircraft. This measure is modified to reflect the revised MSP nighttime hours of 10:30 p.m. to 6:00 a.m., and to ask airlines to reduce the use of hushkit aircraft during the nighttime.**

- **NA-4. Nighttime Powerbacks - All airlines at MSP have agreed to eliminate “powerbacks” during nighttime hours. All nighttime flights will “push back” from the gate with an aircraft tug. (No change from the current program)**

- **NA-5. Engine Run-Up Field Rule - All airlines are required to conduct maintenance run-ups at a designated run-up pad, and comply with the MSP Run-Up Field Rule. (No change from the current program)**

- **NA-6. Training Restriction - The major carriers at MSP have agreed not to conduct training operations (e.g., touch-and-go operations) at MSP. (No change from the current program)**

- **NA-7. Operating Procedures - Airlines operating at MSP have agreed to comply with airport operating procedures. This measure is modified to reflect the use of the Distant Noise Abatement Departure Profile (NADP) on all runway ends.**

- **NA-8. Measures to Encourage Use of Manufactured Stage 3 Aircraft - The previous NCP established the Noise Surcharge/Differential Landing Fee to recover some of the costs of noise monitoring and mitigation measures from the airlines. This modified measure would require the MAC to develop and implement measures to encourage aircraft operators to use manufactured Stage 3 aircraft.**

- **NA-9. Runway Use System (RUS) - This measure prioritizes noise-sensitive runway selection. This measure is modified to include Runway 17-35 in the runway selection prioritization. ([Click here for the draft mitigated 2007 average annual runway use](#))**

- **NA-10. Airport Noise and Operations Monitoring System (ANOMS) - ANOMS continues to be a vital tool for collecting operational data on aircraft movements. (No change from the current program)**

- **NA-11. Noise Abatement Sensitivity Training - MAC works with the airlines and ATC to encourage awareness of noise issues and to help increase compliance with current noise abatement procedures. (No change from the current program)**

- **NA-12. Low-Demand Flight Tracks - This new measure would designate certain flight tracks, by runway end, for preferred use during low-demand time periods.**

- **NA-13. Runway 17 – 2.5 Nautical Mile Turn Point - This new measure would reduce noise exposure for homes in the immediate vicinity of the departure runway end by delaying westbound jet aircraft turns until they are over the Minnesota River area.**

- **NA-14. Runway 17 – River Departure Procedure - This new measure would establish a published procedure to route departing jet aircraft over the Minnesota River area when**

conditions allow.

- **NA-15. Runway 17 – River Heading Flight Track** - This new measure would route departing jet aircraft over the Minnesota River area when conditions allow.
- **NA-16. Runway 35 – River Visual Approach Procedure** - This new measure would recommend that MAC and the FAA investigate a visual arrival procedure to Runway 35 that routes arriving aircraft over the Minnesota River, in order to reduce noise exposure and overflights of areas north and south of the river.
- **NA-17. Future Technology and Global Positioning System (GPS) Initiatives** - This new measure would recommend that MAC and the FAA investigate the potential use of emerging GPS technologies for noise mitigation purposes, and implement beneficial procedures as necessary.

The development, modification, and or continuation of the various measures listed above are a result of a thorough review of existing and new measures as part of the update process.

As a result of the extensive analyses and review conducted by the involved parties, 9 land use measures are included in the Part 150 Update document. The following information summarizes the noise land use measures including those, which were unchanged from the previous Part 150 program, new measures and existing Part 150 measures that were modified slightly for inclusion in the update.

- **LU-1. Amend local land use plans to bring them into conformance with Metropolitan Council Noise Compatibility Guidelines:** This measure continues to inhibit non-compatible development; residential and other noise sensitive land uses (i.e., schools, churches, nursing homes, etc.) are considered non-compatible (provisional) uses to one statute mile beyond the 60 dB DNL contour as stated within the Metropolitan Development Guide 1996 Aviation Policy Plan and updates to the policy in the Transportation Policy Plan. (No change from the current program)
- **LU-2. Zone for compatible development:** This measure continues to ensure zoning consistency with the Aviation Chapter of the Metropolitan Development Guide, which considers land use compatibility to one statute mile beyond the 60 dB DNL contour as stated within the Metropolitan Development Guide 1996 Aviation Policy Plan and updates to the policy in the Transportation Policy Plan. (No change from the current program)
- **LU-3. Apply zoning performance standards:** This measure continues to allow metro municipalities to adopt and enforce ordinances and controls to regulate building construction methods and material for the purpose of attenuating aircraft noise in habitable buildings in and around the Airport Noise Zone. The 1996 Metropolitan Development Guide Aviation Policy Plan considers zoning to one statute mile beyond the 60 dB DNL contour. (No change from the current program)
- **LU-4. Establish a public information program:** The previous NCP established this program to develop and distribute informational materials concerning aircraft noise. This measure would continue the program and request the use of state-of-the-art technology and other multimedia resources.
- **LU-5. Revise building codes:** The previous NCP established this measure to modify the State Building Code to require specific interior Noise Level Reduction (NLR) for new construction in the Airport Noise Zone for MSP. (No change from the current program)

- **LU-6. Acquire developed property in non-compatible uses:** The previous measure was designed to alleviate aircraft noise effects in areas of non-compatible land use within the 65 dB DNL contour. This measure is modified to allow for acquisition of property only at the initiative, and with the approval, of local jurisdictions for non-compatible parcels located within the 65 DNL contour of the Mitigated NEM.
- **LU-7. Property purchase guarantee:** This measure was designed to assure home owners that their property would be acquired at a fair market value and returned to residential use with appropriate sound insulation measures, releases, and restrictions if the owner had made a “bona fide effort” to sell the property. (No change from the current program)
- **LU-8. Part 150 sound mitigation program (residential, school, and other public buildings):** The previous measure provided for sound attenuation out to blocks intersected by the 65 DNL contour. This measure is modified to include blocks intersected by the 60 DNL contour of the 2007 Mitigated NEM consistent with the mitigation package approved by the MAC as part of this Study process.
- **LU-9. Creation of sound buffers/barriers:** This new measure would allow for sound barrier walls and/or berms and natural landscaping to reduce aircraft noise for the communities surrounding MSP.

NOISE MITIGATION/LAND USE PLANNING PROGRAM INFORMATION

Type of Program	Date Implemented	Status
Sound Insulation (Residences and Public Buildings)	1981-2009	<ul style="list-style-type: none">• Single family sound insulation program = 7,846 homes• Multi-family sound insulation program= 71 buildings• School sound insulation program = 17 schools• 64-60 DNL mitigation program = 304 homes
Purchase Assurance for Homeowners Located Within the Airport Noise Contours	1987	Property Purchase Guarantee Program - This measure was designed to assure homeowners that their property would be acquired at a fair market value and returned to residential use with appropriate sound insulation measures, releases, and restrictions if the owner had made a "bona fide effort" to sell the property.
Avigation Easements	1993	Must sign an avigational release that applies to the property owner who is the beneficiary of the program stating that they will not file litigation against the MAC. Terms and conditions can be nullified if DNL raises 2 or more dB. Release is not attached to deed of property and is unique to MSP.
Zoning Laws	1976	Metropolitan Council's Aviation Guide Plan includes guidelines communities around the airport should use to discourage incompatible land uses and encourage compatible ones.
Real Estate/Property Disclosure Laws	2006	Licensees shall disclose to any prospective purchaser all material facts of which the licensees are aware, which could adversely and significantly or adversely affect an ordinary purchaser’s use or enjoyment of the property or any intended use of the property of which the licensees are aware.

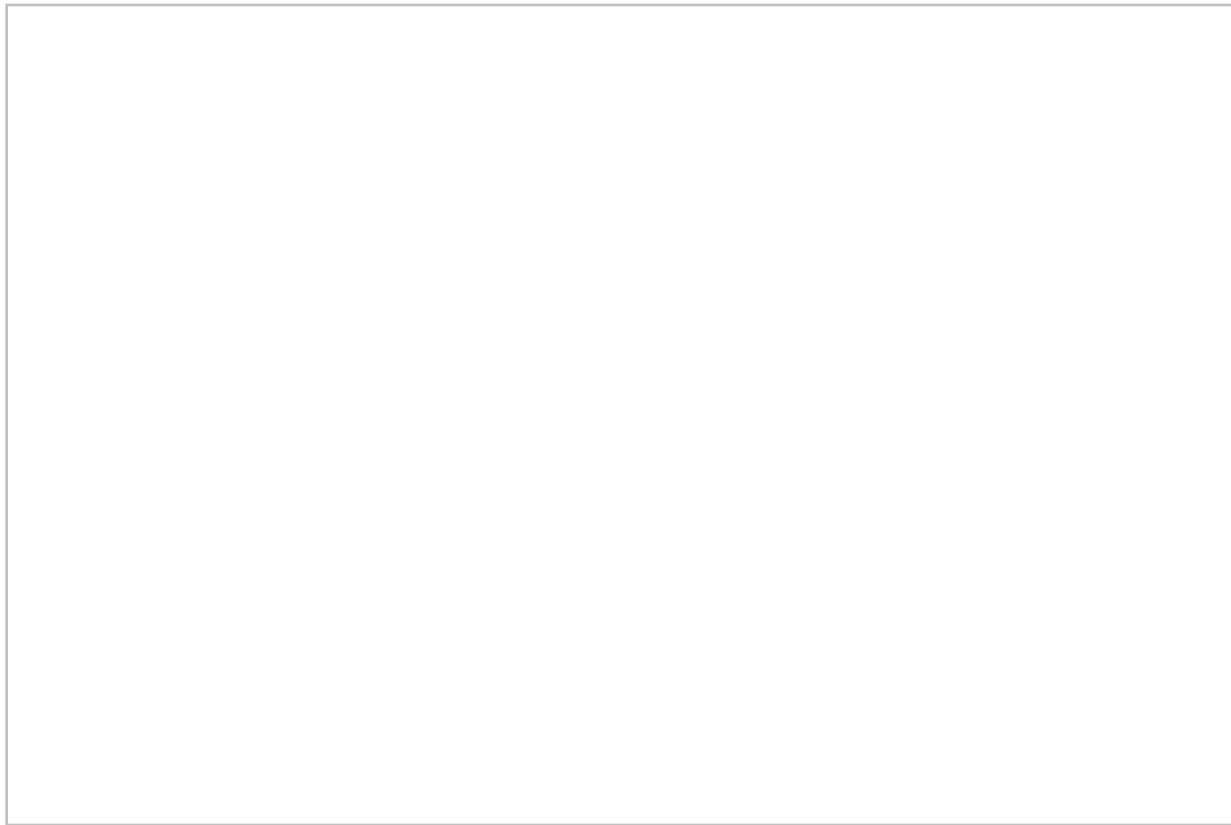
Acquire Land for Noise Compatibility to date	-	<ul style="list-style-type: none">• 410 homes have been acquired to date• Current Runway 17-35 Bloomington Noise Mitigation Land Acquisition Program consists of 29 single family homes, 4 vacant lots, and 2 multi-family units
Population within each noise contour level relative to aircraft operations	2007 Contour	<ul style="list-style-type: none">• 70-74 DNL = 927• 65-69 DNL = 8,807• 60-64 DNL = 25,108
Airport Noise Contour Overlay Maps	2007 Contour	http://www.macnoise.com/maps
Total Cost of Noise Mitigation Programs to Date	-	<ul style="list-style-type: none">• Single family sound insulation program = \$232 M• Multi-family sound insulation program = \$11 M• School sound insulation program = over \$50 M• 64-60 DNL mitigation program = \$8.9 M
Source of Noise Mitigation Program Funding for Aircraft Noise	-	Airport Improvement Program (AIP), Passenger Facility Charges (PFCs)

NOISE MONITORING SYSTEM

The largest, most complex installation of its kind in the United States, the Minneapolis/St. Paul International Airport (MSP) Airport Noise and Operations Monitoring System (ANOMS) is the central element of a sophisticated and evolving noise and airspace management program. ANOMS at MSP provides an extremely accurate and precise objective tool for assessing airport and airspace utilization for the purpose of analyzing noise impacts.

AIRPORT NOISE AND OPERATIONS MONITORING SYSTEM (ANOMS)

The system became operational in 1993, providing a level of noise and airspace management capabilities previously unavailable. Since that time, ANOMS has become the focal point for data acquisition and dissemination for airspace and noise issues.



Data Inputs

ANOMS utilizes two main data sets - noise and flight track data (ARTS data).

Noise Data

Thirty-nine Remote Monitoring Towers (RMTs), which are part of the ANOMS hardware, collect noise data 24 hours per day. Strategically placed around the airport, based on comprehensive noise and aircraft overflight impact analyses, these RMTs provide a large amount of noise data, including hourly Leq, Lmax and Lmin and, for events exceeding 65 dBA for more than eight seconds, Leq, Lmax, Lmin, duration and SEL.

ARTS Data

Automated Radar Tracking System or ARTS data is collected on a twenty-four hour basis, as well. ARTS data provides two critical pieces of information relative to aircraft flight tracks: the inter-facility data (flight information) for each flight and the associated radar points (x, y, z, t), which comprise a flight track.

The inter-facility data contains unique information for each operation, such as the aircraft type, the airline, whether it was an arrival or departure, etc. This information is attached to the appropriate flight track point set via a unique number.

ARTS flight track radar points consist of the x, y, z and t coordinates for each radar contact point along a flight track. The points are all referenced to the ASR9 radar on the airport.

Noise Data Acquisition Functions

Noise Data Downloads

ANOMS also has the capability to automate certain procedures via a "crontab," which is offered as part of the UNIX computer-operating environment. Utilizing this crontab function, each night the ANOMS computer (UNIX Sun Ultra 60) dials up each of the 39 RMTs via a dedicated phone line using modem connections. The noise data collected for that day is then downloaded from the RMT site and placed in a local directory on the ANOMS computer.

Post-processing

Once the noise data is retrieved, and prior to the populating of the summary and noise data monthly database tables, several post processes are performed. Predetermined scripts, execute automatically, calculate hourly summary noise information, as well as daily summary noise information. Once this process is completed, RMT by RMT, the information is placed in the summary and noise databases contained in the specified monthly ANOMS database.

Flight Track Data Acquisition Functions

Flight track data (ARTS) is another central element to the ANOMS system. The ARTS data is available to the Metropolitan Airports Commission (MAC) through a Memorandum of Agreement (MOA) between the MAC and the Federal Aviation Administration (FAA).

ARTS IIIE Collection and Editing System (ACES)

The FAA records all ARTS data on large computers that record each flight operation (inter-facility data and point data). The critical link between the FAA's ARTS IIIE computers/gateway and MAC's ANOMS is the ARTS IIIE Collection and Editing System (ACES). ACES is comprised of a Personal Computer (PC) located in the air traffic control tower, a PC resident in the MAC's noise programs office, and a connection between the two computers. ARTS data is collected on the ARTS IIIE computers in the air traffic control tower and is accessed via the ARTS IIIE Gateway/Hub. FAA personnel process and filter the ARTS data prior to releasing the information to the noise programs office. Once the office receives the ARTS data, the information is formatted so that it can be imported into ANOMS. This formatting yields two files. A text file containing all of the inter-facility data for each flight and a point file containing all of the radar points for each flight track. The information contained in these two files is linked symbolically (matched) via a unique operation number, which is critical for further ANOMS processing.

ANOMS Flight Track Import

The ARTS data is then checked for accuracy and integrity. When the data set is deemed to be good, the text and point files are then copied to the ANOMS computer. Once the files are resident on the ANOMS computer, they are imported into the appropriate monthly ANOMS database. Several processes are run on the data during the importing process. The main scripts run at this time are:

- **Runway Inferencing:** This process determines the runway that was used by the aircraft and whether the operation was an arrival or departure.
- **Jetprop:** This process determines the FAA Part 36 noise stage of the aircraft via a configured reference file.
- **Noise-to-Track:** This process correlates aircraft overflights to the noise events recorded at the RMT sites. Several pieces of information determine the outcome of this process, including aircraft type, distance/ location from an RMT, certificated aircraft noise levels and time.
- **Calc-Hourly:** This process calculates hourly noise summaries with the added dimension of aircraft determined noise events, which allows for aircraft specific noise calculations.
- **Calc-Daily:** This process calculates daily noise summaries with the added dimension of aircraft determined noise events, which allows for aircraft specific noise calculations.

ANOMS Functionality

Utilizing an object-oriented standard query language (SQL) database, called InterBase, as the engine, ANOMS provides several tools for conducting airspace usage and noise impact analyses. Four databases in each monthly ANOMS database contain all of the operational and noise data for a specific month. These databases are named anoms.gdb, summary.gdb, noise.gdb and tracks.gdb. ANOMS' utilities are structured around these four databases. Six main functions (modules) contribute to ANOMS' analytical capabilities. They are: the Query Generator Map Server, Event Analyzer, Radar Track Replay, Gate/Corridor Analysis, Query Generator Report, and ANOMS-to-GIS.

Query Generator Map Server

One of the most powerful tools available in the ANOMS environment is the Query Generator Map Server. Via a graphical user interface window, ANOMS users can build complex query combinations, consisting of operations data, and display them on an ANOMS base map. For example, a user may request all Northwest Airlines B757 and A320 aircraft departing Runways 30L and 30R during the first week of June. The result is a numeric value of aircraft operations and a map of all aircraft tracks satisfying the query. Each track on the map is tied to data about the aircraft that flew that track, i.e., aircraft type, flight number, arrival/departure, etc. When a user selects a track on the screen using his or her mouse an information window pops up displaying the relevant data.

Selected tracks can also be displayed in a profile view. That is, in a separate window showing track altitude versus range from the runway end. This type of altitude vs. distance information can be quantified further by constructing a so-called gate anywhere on the ANOMS base map, across a track or group of tracks. An ANOMS gate is a window in space that records all information about any aircraft penetrating this window, affording information on altitude dispersion and track distribution in space. In the Query Generator Map Server, a gate can be constructed using the mouse, by snapping a line across a group of tracks on the map. This line represents a plane perpendicular to the ground, with lateral extent as constructed on the map. The result of stretching this temporary gate across tracks is a gate penetration diagram depicting the altitude and lateral position of each aircraft as they penetrate through the constructed gate.

Event Analyzer

The Event Analyzer module provides a graphical link between two databases - noise and operations. Users specify a date/time range, and ANOMS simultaneously provides separate windows of each of the two databases -noise and operations. A noise event selected with a mouse in the noise database window results in highlighting of a correlated aircraft event(s) in the operations window. Conversely, an aircraft event selected with the mouse in the operations database window results in highlighting of one or more noise events linked to this aircraft overflight through the noise-to-track process described above. Noise and operations data can be locked together and displayed on the ANOMS base map with a depiction of an aircraft track and the RMT recorded noise level(s) correlated to that operation.

Histograms of noise events can be displayed along with aircraft profiles through the Event Analyzer module, with all output available for printing and incorporation into other reports. This module can be used to fine tune noise-to-track correlation parameters, as well as to determine specific impacts from distinct aircraft events.

Radar Track Replay

ANOMS users can replay the terminal airspace activity around MSP during a specified time-period by loading operations and noise events during that time-period into the radar track replay module. Radar track replay displays an animation of all aircraft operations exactly as they appeared on the air-traffic controllers' radar screen. That is, aircraft targets move to and from the airport's runways along tracks specified by the radar data imported from FAA's ARTS IIIE computer. Noise event levels, correlated with aircraft operations, are displayed at the respective RMTs as the aircraft passes nearby. User-specified data about each aircraft target are displayed as the targets move across the screen, including flight number, aircraft type, transponder beacon squawk code, altitude, ground speed, and others. Radar tracks can be played back in real time, or sped up. Radar Track Replay is useful as a unique public relations tool or, more importantly, as an airspace evaluation tool used for air traffic controller debriefing and airspace optimization.

Gate and Corridor Analysis

Gates and corridors constructed in the Query Generator Map Server are extremely powerful for describing three dimensional airspace aspects. More importantly, permanent gates can be constructed and stored to perform quantitative analysis on all operations as they relate to the gate. That is, a user can construct gates and corridors for regular performance monitoring. Users can then perform

statistical analyses for certain aircraft that penetrate the gates/corridors, time of day performance relative to the gates, altitudes through gates, frequency distributions on lateral extent from sides/center of gates/corridors, etc. The Aviation Noise and Satellite Program's ANOMS Specialist is actively engaged in an on-going gate analysis of corridor performance off MSP's southeast side. Jet departures off Runways 12L and 12R are analyzed with respect to an agreed-upon departure performance corridor, with the results compiled monthly.

Query Generator Report

All of the analytic tools described above are combined in a database report generator called Query Generator Report. This utility allows combinations of queries to be applied once, or stored for future application to other data. Query Generator Report output is textual and not graphic (as in Query Generator Map Server) but allows for quantification of the graphic results obtained in the Query Generator Map Server, Gate/Corridor Analysis, Path Analysis, etc. Powerful statistical tools are combined with cross-database query capability to describe even the most complicated or convoluted requests for operations, noise and weather queries. Output from Query Generator Report is sent to a desktop publisher, where unlimited formatting capabilities exist.

ANOMS to GIS

A significant benefit of ANOMS is the ability to export track data and the operational information associated with each track to ESRI's Arc Info GIS (Geographic Information Systems) platform. This capability allows ANOMS' operations output to be combined with large amounts of geographic data. ANOMS tracks can be placed on map backgrounds other than the ANOMS base map, allowing importation of different airport information into the GIS engine. Tracking and operations information can be combined with noise contours, land use, and a variety of spatial databases to provide insight into the airport noise challenge.

One important use of the ANOMS-GIS combination is determining explicit positioning of aircraft relative to a noise receptor during a noise monitoring event. For interior aircraft noise monitoring, like that accomplished for the Part 150 Sound Insulation Program, shielding by the structure itself can now be addressed using functions like Point of Closest Approach (PCA) analysis. Combining PCA with operations data transferred from ANOMS inter-facility database allows for the development of the sophisticated impact analyses necessary to move away from indicators of impact (like noise) to the impact generators themselves - aircraft overflights.

Operations Analysis

ANOMS allows for a wide variety of operational analyses at MSP. Analysis relative to airport and specific airline operations can be conducted. These include:

1. Operational Analyses
 - a. Runway use
 - b. Fleet mix
 - c. Community overflight
 - d. Aircraft noise analysis
2. Airspace Utilization Analysis
 - a. Specific air space occupancy analysis (i.e. corridor)
3. Assess Operational Feasibility
 - a. Help quantify the impacts of procedural amendments
 - b. Assess the effectiveness of new airspace navigational techniques and technologies (i.e. FMS guided operations and GPS applications)
4. Spatial Impact Analysis
 - a. Conduct specific impact analysis relative to a determined geographical location

5. Support Other Applications

- a. Integrated Noise Model (INM) input
- b. Facilitate the ANOMS-to-GIS link
- c. Internet applications

Information Dissemination

Effective communication and data dissemination is critical to a successful analysis. Communicating the findings of an analysis is just as important as the findings themselves. ANOMS information dissemination consists of three categories: reports, data files and the Internet.

Reports

Comprehensive reports and maps are used to demonstrate the findings of monthly, as well as specific, ANOMS generated analysis. Each month the noise programs office generates a Technical Advisor's Report, which is distributed to the public. This report summarizes noise complaints for the month, fleet mix, runway use, community overflights, flight tracking information and an extensive noise analysis. A Corridor Analysis is also generated each month. This analysis quantifies departure corridor compliance for the month by presenting the operations that flew outside of the corridor, as well as the altitude and location at which they deviated from the corridor. Additional special request analyses are prepared in this same manner.

Data Files

Digital formats are also available as analytical outputs. Multiple data sets and file formats are available. These formats can be very useful when used in other applications or programs.

Internet

In order to provide an even better level of information dissemination, the Aviation Noise and Satellite Programs office has developed the first interactive flight track module, in addition to interactive noise and operations reports on the Internet. These two applications allow the public at large to query flight track and noise data for a specific time period, relative to a given location, and display the data on a base map on a user's PC. Users can also replay, on their computer, aircraft operations and their associated noise events. This new capability allows ANOMS-like functionality in any home with Internet access.

Flight track and noise data availability via the Internet represents a new frontier for information dissemination and provides for a new level of public awareness and understanding.

ANOMS Data Uses

It is evident with such a vast range of analytical capabilities that ANOMS-generated data and analyses have several applications within the aviation environment. ANOMS provides analytical insight for airspace management, public relations, airport planning, the noise environment and airport operations.

The ANOMS program at MSP has proven to be a valuable utility. The production of monthly operational and airspace usage reports has allowed for new levels of community awareness relative to the airport operation. Specific airspace analyses, such as the FMS procedure validation analysis and upcoming GPS validation and utility analysis, represent a more managed transition to the implementation of new navigational technologies. The use of ANOMS to quantify the impact of operational procedure amendments was a critical part of the Minneapolis Straight-out Departure Procedure proposal and implementation process.

FLIGHT TRACK MONITORING SYSTEM

Yes - see information under Noise Monitoring System

NOISE LEVEL LIMITS - [NONE](#)

STAGE 2 RESTRICTIONS

Ordinance 90 prohibits Stage 2 operations (in excess of 75,000 lbs) as of January 1, 2000.

STAGE 2 PHASEOUT

[U.S. Stage 2 Phase out complete as of 12/31/1999 \(CFR Part 91.801\). Stage 2 airplanes >75,000 lbs are prohibited from operating at airports within the 48 contiguous states.](#)

STAGE 3 RESTRICTIONS

Measures to Encourage Use of Manufactured Stage 3 Aircraft – The 1993 Part 150 study established the Noise Surcharge/Differential Landing Fee to recover some of the costs of noise monitoring and mitigation measures from the airlines. This modified measure would require the MAC to develop and implement measures to encourage aircraft operators to use manufactured Stage 3 aircraft (as outlined in the November 2004 Part 150 Update).

COMMENTS

Community Involvement

The MAC has a long history of commitment to and involvement with the airport's neighboring communities in the arena of aviation noise.

For over 30 years, the MAC has supported and sponsored a community/industry noise abatement group, making MSP a pioneer in this arena among the nation's airports. The MAC also works closely with the local, regional and national FAA, a critical relationship for the furthering of aircraft noise reductions. Through these cooperative efforts, MAC has implemented a number of noise reduction measures and provided the airport's neighbors with a wealth of information.

The MAC was also one of the first airports in the nation to implement a sound insulation program to reduce the interior noise levels in homes surrounding the airport. The MAC's Part 150 Sound Insulation Program has been a model to other airports in its quality, extensiveness and administration.

MAC remains committed to working with and for our neighbors to reduce aircraft noise levels and their associated impacts. From its proposal to expand the sound insulation program to more homes to its commitment to technological advances and to its commitment to working with community members and users of the airport to accomplish further reductions in noise levels, the MAC continues to be a leader in airport noise reduction efforts.

Cooperative Efforts

Although there are few simple answers to the problem of aircraft noise, the MAC has always believed that ongoing communication and cooperation between interested parties is the key to increased understanding of and solutions to the airport noise issue. By combining the technical expertise and aviation experience of the airline industry personnel with the firsthand knowledge and concern of community members, the airport has been able to implement several innovations in the area of noise abatement and improvements to existing noise relief policies.

Past Cooperative Efforts at MSP

For over 30 years, MASAC, a private, nonprofit organization, comprised of an equal number of public and user representatives (meaning users of the airport or organizations with a business interest in the airport), advised the MAC on airport noise related issues, evaluated established noise policies, and

recommended and instituted new policies. Formed in 1969, MASAC was the first airport noise abatement group in the country and has served as a role model for other noise control groups around the nation.

However, in a letter dated October 31, 2000, nine member airlines and an association of airline pilots resigned from MASAC, effectively shutting down the organization. A tenth airline resigned shortly thereafter. (MASAC's bylaws do not allow business to be conducted without an equal number of user and community representatives.)

The letter cited concerns that the group had become unbalanced in favor of community concerns rather than engaging in balanced reviews of "technically complex issues with significant legal, environmental and economic implications."

Future Plans for Cooperative Efforts at MSP

At a November 2000 meeting with the remaining MASAC members, in response to the airline and pilot association resignations, Jeff Hamiel, Executive Director of the MAC, proposed that a blue ribbon panel be formed to formulate a plan on how the community members and the airlines (users) could work together in the future. He proposed that this panel be comprised of three representatives from each member group, with a neutral third party acting as facilitator.

MSP Aviation Noise Blue Ribbon Panel

The MSP Aviation Noise Blue Ribbon Panel met six times between December 2001 and June 2002 with the purpose of crafting a proposal for the organization of a new airport noise advisory group, now being referred to as the MSP Noise Oversight Committee (NOC).

The Panel concluded its deliberations in June and submitted a final recommendation to the MAC Planning and Environment Committee at its August 2002 meeting, at which the Commission established the new MSP NOC.

MSP Noise Oversight Committee (NOC)

The MSP Noise Oversight Committee or NOC held its first meeting on June 26th, 2003. The NOC is comprised of 6 community representatives from the cities of Bloomington, Eagan, Mendota Heights, Minneapolis, Richfield as well as an at large community member. The group also has 6 representatives from airport users consisting of a scheduled airline, cargo carrier, charter operator, chief pilot, The Minnesota Business Aircraft Association as well as an at large user representative. The NOC's mission is to provide a balanced forum for the discussion and evaluation of noise impacts around Minneapolis-St. Paul International Airport.

MAC Aviation Noise and Satellite Programs Website

As testimony to its forward-looking perspective, MAC supports an Internet Web site that significantly enhances the flow of noise-related information. In operation for over five years, the site provides information on operations, noise data, ANOMS, meetings and events, GIS and GPS information, information on the new runway (17/35), interactive mapping capabilities, the ability to file an online noise complaint and much more: Look for it at - www.macnoise.com

If you have questions or need additional information, please call the MAC Noise Hotline at (612) 726 9411.