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MSP NOISE NEWS

A quarterly publication of the Metropolitan Airports Commission - Aviation Noise and Satellite Programs

Precision Navigation Techniques Investigated for Noise Abatement

For several months, the MSP Noise Oversight Committee (NOC), Metropolitan Airports Commission (MAC) staff, local Federal Aviation Administration (FAA) officials, and Northwest Airlines (NWA) have been busy developing and reviewing new departure procedures that have the potential to reduce overflights of some neighborhoods close to the Minneapolis-St. Paul International Airport (MSP).

Area Navigation (RNAV) technology, while not entirely new, allows properly-equipped aircraft to fly more reproducible flight tracks, or paths, in the sky which in turn allows for more accurate concentration of aircraft over desired areas, such as a river or an industrial part of a city.

Currently at MSP, Air Traffic Control (ATC) uses standard procedures that route departing aircraft using radar vectors, or headings, that take an aircraft on established routes.

When using this standard method, departing aircraft can take a ground path that varies

considerably from one departure to another, even when the headings/vectors assigned are the same. These differences are due to variables in wind, weather, pilot technique, aircraft performance and other factors that can affect where an aircraft flies.

Green Technology

Former Federal Aviation Administration (FAA) Administrator Marion C. Blakey describes RNAV technology as *Green Technology*.

In the May 11, 2007 edition of *Airport Noise Report* Ms. Blakely stated that RNAV “flat out saves fuel. It relieves congestion, alleviates choke points, and reduces delay. It increases efficiency by providing smoother traffic flow. It’s clear that performance-based navigation is good for the environment.

“Flying straight down the middle of a flight path means that people on the ground perceive less jet noise and experience fewer jet emissions.”

RNAV at MSP

The RNAV procedures being developed for MSP were recently tested using NWA’s aircraft simulators. Once the FAA gives its approval, flight trials will begin. The flight trials will provide additional information about the procedures’ feasibility and effectiveness.

Once the trials are completed, additional FAA reviews may be required before implementation.

Ultimately, if the data shows an improvement in aircraft placement, the procedures would be adopted and used by all Northwest Airlines equipped aircraft with the ultimate goal of making the procedure available to all properly equipped aircraft.

The Procedures

One of the procedures being developed would help keep aircraft utilizing the 215-degree heading off Runway 17 on a more precise track .

(Continued on page 3)

NOC News



The MSP Noise Oversight Committee met July 16 and discussed the following items:

Inver Grove Heights Concerns

NOC members discussed the City of Inver Grove Heights' concerns regarding the number (percentage) of flights over its city, particularly during nighttime hours.

After much discussion, the NOC **re-endorsed** the long-standing Runway Use System (RUS) for the Minneapolis-St. Paul International Airport.

The RUS sets forth recommendations to the local Federal Aviation Administration

Air Traffic Control for its use as a guide for choosing departure and arrival runways, whenever conditions allow (typically at night). The RUS decision parameters are based on the number of people impacted.

NOC members rejected a suggestion to modify the RUS in order to attempt to equally distribute flights rather than basing it on population numbers. However, it did recommend the next quarterly Public Input Meeting be held in Inver Grove Heights.

Nighttime Construction

NOC members were updated on staff's communication efforts regarding nighttime construction activity and its possible affect on homeowners living in close

proximity to the north parallel runway.

Area Navigation Technology

NOC members were updated on the status of this project. See page 1 for more details.

Next Meeting

The next NOC meeting will be held **November 19 at 1:30 p.m.** at the MAC General Offices.

For more information, call **612-725-6455** or visit <http://www.macnoise.com/noc>.

NOC Meeting Materials

Meeting materials (agendas, minutes, memos and presentations) can be accessed on the MAC website at <http://www.msppairport.com/mac/meetings/noc.aspx>, or call **612-725-6455**. ♦

Ask the Expert

Q. How do thunderstorms affect air traffic around the airport?

A. If thunderstorms are occurring in the immediate vicinity of the airport, an aircraft may be turned on takeoff in such a way that it is routed away from the storm. However, the way in which an aircraft climbs and its assigned altitude is typically unaffected. Thunderstorms can produce many hazards to aircraft such as severe turbulence, low visibility, icing, large hail, heavy precipitation, wind shear, and powerful up- and downdrafts. Wind velocity just above the ground can change rapidly due to a thunderstorm and is avoided, along with the other hazards, when taking off or landing. Air Traffic Control (ATC) also utilizes radar that shows precipitation levels to help route aircraft away from potential hazards. Aircraft scheduled to land at the airport may be routed away from the storm, be delayed on the ground at the originating airport, or diverted to nearby airports until the storm passes. All of these procedures have the potential to change where and when aircraft fly in the vicinity of the airport. But they are necessary to ensure safety for those on the ground and in the air. ♦



Precision Navigation Techniques

(Continued from page 1)

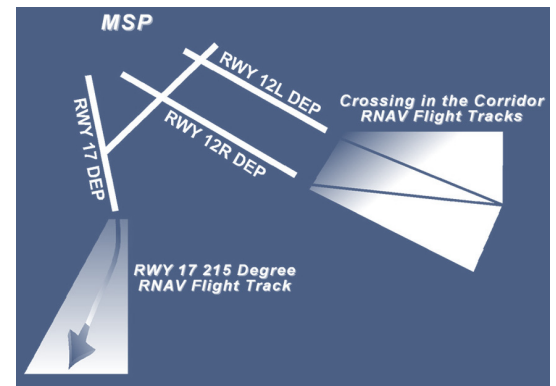
While today aircraft directed to utilize this procedure are assigned the 215-degree heading, because of radar vectoring the actual ground track sometimes varies resulting in aircraft flying over homes on either the northern or southern edge of the river in southeast Bloomington and northeast Burnsville .

The new RNAV procedure would help keep aircraft further away from those homes, in the center of the river valley.

Other procedures are being designed to replicate the “crossing in the corridor” procedure for takeoffs on Runways 12L and 12R.

This procedure is performed during periods of low demand (primarily during the nighttime hours) and concentrates aircraft over the center of the commercial and industrial areas of Eagan and Mendota Heights.

The MAC will continue to work throughout the coming months



with all of the interested parties to ensure successful implementation while keeping the NOC updated on timelines and project milestones. ♦

Aircraft Noise 101: A Primer

For years, researchers in the aviation industry have studied the causes of aircraft noise in order to develop techniques and modifications that result in a reduction in noise when an aircraft is either taking off, landing or in flight.

Several parts of a commercial jet aircraft can cause noise; but the primary culprits are the engines and the body of the aircraft - or airframe.

Airframe noise is created when air flows over and around the aircraft. A major source of airframe noise is the landing gear, which generates noise when it is exposed to the airstream on takeoff or landing.

For modern aircraft (e.g., Boeing 777, Airbus A320), when landing, the airframe and engine are nearly equal contributors to the total perceived noise generated by the aircraft.

Researchers are investigating several noise reduction modifications for landing gear. One such modification is placing a cover, or fairing, over the landing gear reducing the amount of contact with the air.

High lift devices—mechanisms intended to add lift during different phases of flight, such as slats on the front of a wing and flaps that extend from the back of the wing—also contribute greatly to an aircraft’s landing and takeoff

noise.

Design modifications are now being investigated to help reduce noise on those surfaces.

Engine noise, on the other hand, is responsible for most of an aircraft’s noise during *takeoff* and *climb* and can vary greatly depending on the type of aircraft.

The main source of noise in a jet engine is the fan. To reduce engine noise, aeronautical engineers have studied and redesigned different parts of the fan, including blade angles, the stator blades behind the fans, engine inlets, and nozzles to dramatically reduce jet noise in modern aircraft. ♦



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Public Input Meeting Scheduled for October 28

Please join Metropolitan Airports Commission (MAC) staff at the next Airport Noise Public Input Meeting on **Tuesday, October 28, 2008** at 7 p.m.

The meeting will be held at the **Inver Grove Heights City Council Chambers** located at **8150 Barbara Avenue** in Inver Grove Heights. This is an opportunity for residents to ask questions and learn more about what's new at MSP in terms of airport noise.

For more information, please contact Christene Sirois at **612-725-6455** or **Christene.Sirois@mspmac.org**. ♦

If you no longer wish to receive this publication, and other airport noise related information, please call or e-mail Christene Sirois at 612-725-6455 or csirois@mspmac.org. In your e-mail, please write the word "delete" in the subject line, followed by your street address and city.



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