Minneapolis/St. Paul International Airport (MSP)
Noise Oversight Committee (NOC)
Meeting Agenda
May 21, 2008
1:30 P.M.
Lindbergh Conference Room
MAC General Office Building
6040 28th Avenue South
Minneapolis, MN 55450
(Kathleen Nelson, Northwest Airlines & NOC Co-Chair, will be
the acting Chairperson for the meeting)

*Note: 1:00 to 1:30 – Committee Agenda Review Session
(NOC members only in the Coleman Conference Room)

1. 1:30 to 1:35 – Review and Approval of March 19, 2008 NOC Meeting
Minutes (official start of the public NOC meeting in the Lindbergh
Conference Room)

2. 1:35 to 1:55 – Update on Residential Noise Mitigation Program
Implementation

3. 1:55 to 2:20 – RNAV Departure Procedure Implementation

4. 2:20 to 2:25 – Comments From 2nd Quarter 2008 Public Input
Meeting

5. 2:25 to 2:40 – Public Comment Period

6. 2:40 – Adjournment
MEMORANDUM

TO: MSP Noise Oversight Committee (NOC)
FROM: John Nelson and Pat Mosites, Airport Development
SUBJECT: UPDATE ON RESIDENTIAL NOISE MITIGATION PROGRAM IMPLEMENTATION
DATE: May 8, 2008

In 2007 the Commission reached a settlement in the noise mitigation programs for the 60-64 DNL contours and entered into a court approved agreement under the Consent Decree in the State by City of Minneapolis, et al. v. Metropolitan Airports Commission, et al., which included and established several aggressive Noise Mitigation Program schedule deadlines. In December 2007 the Commission approved the 2008-2014 Capital Improvement Program (CIP) which included nearly $125 million for the Noise Mitigation Program. This program implements the sound insulation program based on the 2007 Noise Exposure Map contained in the Part 150 Update consistent with the terms and conditions of the court ordered Consent Decree.

Commission Actions
Construction bids for the separate trades involved in the delivery of services required by the Noise Mitigation were opened on March 18, 2008, and recommended for the approval of the full Commission by the Finance, Development and Environment Committee on April 9, 2008. Subsequently, at its regular monthly meeting on April 21, 2008 the full Commission voted unanimously in approval of the following action:

A. ADJUST THE 2008 CAPITAL IMPROVEMENT PROGRAM (CIP) FOR THE NOISE MITIGATION SETTLEMENT TO $46.7 MILLION TO ALLOW THE AWARD OF THE ABOVE REFERENCED CONTRACTS;
B. THAT THE HOULE INSULATION, INC BID BE DECLARED NON-RESPONSIVE AND REJECTED; AND
C. ACCEPTANCE OF THE LOWEST RESPONSIBLE BIDS FOR THE SOUND MITIGATION PROGRAM FROM:
   i. CENTERPOINT ENERGY IN THE AMOUNT OF $26,452,000 (MECHANICAL/ELECTRICAL [106-6-345]);
   ii. RENEWAL BY ANDERSEN IN THE AMOUNT OF $10,989,165 (DOORS AND WINDOWS [106-6-346]); AND
   iii. ENERGY SAVERS INSULATION IN THE AMOUNT OF $2,033,945 (INSULATION [106-6-348]).
FURTHER, AUTHORIZE THE EXECUTIVE DIRECTOR OR HIS DESIGNEE TO EXECUTE THE NECESSARY DOCUMENTS AND ESTABLISH A COMBINED CONSTRUCTION BUDGET OF $43,500,000.

Project Contracts and Services
MAC has commenced weekly project management meetings with representatives with each of the successful bidders for the separate construction packages, whose services are as follows:
Mechanical/Electrical: Installation of new air conditioning systems, replacement of failed air conditioning systems, replace furnaces not compatible with air conditioning, associated electrical work consisting of providing upgrade service, new panels, new circuits, installation of ventilation fans and replacing water heaters with power vented or direct vented equipment. MAC has contracted with CenterPoint Energy Service Plus for the 454 homes in Phase 1 and 2,833 homes in Phase 2A which includes an air conditioner and up to $4,000 in additional mitigation.

Windows and Doors: Providing window and door treatments for houses that will consist of weather-stripping windows and doors, installing new window sashes, installing insert windows, installing complete window replacements, installing complete door replacements and installation of storm windows and doors. MAC has contracted with Renewal by Andersen for the 454 homes in Phase 1.

Insulation: Providing insulation for houses that will consist of providing attic and sidewall insulation, sealing by-passes, and baffling vents. MAC has contracted with Energy Savers for the 454 homes in Phase 1.

Pending Contract for Asbestos Abatement
On April 15, 2008 MAC opened bids for asbestos abatement services required by the program for testing and abatement work associated with asbestos containing materials found in furnace parts, asbestos shake siding, asbestos duct wrap, pipe wrap, and flue gas stack liners. At the time of the mailing of this packet to the Noise Oversight Committee the full Commission had not taken action on the bids. MAC anticipates, however, that the Commission will likely award the contract to the apparent low bidder, Envirobate.

Program Database
Under the terms of a professions services agreement contract, MAC's prime Consultant for the program, the Center of Energy and Environment (CEE), has developed a software data program to assist in project management. The database has been loaded with all of the applicable geographical information systems attributes for those homes eligible for program as depicted on the Noise Exposure Map attached to the Consent Decree. In addition, the database has been augmented with a newly developed software program called "Design Manager." Design Manager allows for automated data entry in the field by the persons who are representing the contractors and preparing the details of the construction modifications necessary to achieve noise mitigation. The designs of each of the three separate contractors are automatically unified, construction costs are calculated, and the resultant output of the software is a complete scope of work customized for each individual home with pricing based on the unit costs contained in the bid documents.

Training of contractor staff using the database began in late April 2008, and is ongoing.

New Product Showroom and Consultant Offices
Consistent with the terms of the Consent Decree, a new Noise Mitigation Product showroom has been built at 6517 Nicollet Avenue South in Richfield. At this showroom many of the prime windows, prime doors, storm windows, storm doors, mechanical appliances and other products are on display for the public and participating homeowners to view. The adjoining CEE offices are fitted out and will be used for a variety of meetings with the homeowners during the course of the project.

Homeowner Orientations, Indoor Air Quality tests, and Design Visits
Homeowners from the cities of Minneapolis, Richfield, and Bloomington are invited into the program by MAC based upon their location on a noise impact priority map. The invitation from MAC is a
letter sent on MAC letterhead that also includes a pre-construction information survey. Homeowners may choose voluntarily whether or not they want to participate in the program as a part of the pre-construction survey responses. Program orientation meetings are held each month for those homeowners whose properties have advanced to the invitation step and who have decided to participate in the program. At the orientation meeting homeowners will be provided information regarding indoor air quality, design, the program work agreement, construction, anticipated schedule and other aspects of the program. The first homeowner orientation was held by MAC on the evening of April 24, 2008.

Following the homeowner orientation, MAC begins a series of Indoor Air Quality test procedures in order to determine if the home has pre-existing indoor air quality problems that need to be fixed by the homeowner prior to construction or if the home is ready to enter the design phase. The first indoor air quality tests were started on April 25 and will be on-going for the duration of the project.

Assuming the home passes the indoor air quality test, the next scheduled action is the Design Visit. During the Design Visit contractors go to the home and prepare the designs needed to achieve a 5 decibel reduction of exterior to interior noise within the home. The first visit was scheduled for May 6, 2008 and such visits will continue until all of the designs are completed.

**Anticipated Construction Start Schedule**
In order for MAC to meet the construction schedule in the Consent Decree, which has various benchmarks and completion dates, MAC forecasts that the latest start date is November 1, 2008. The schedule has been reviewed with the selected contractors and MAC presently is considering the possibility that the construction start date could be pulled forward to perhaps as early as September 1, 2008.

**Multifamily Noise Mitigation Program**
MAC is currently in discussions with Miller Dunwiddie Architecture regarding the professional services needed in the preliminary design phase of the Multifamily Noise Program for the approximately 368 buildings and 2,145 living units eligible for the project. Under the terms of the Consent Decree, through the wall air conditioners within the living units will be provided with an acoustical cover, and living units without air conditioners will be provided with a through the wall air conditioner and the acoustical cover. MAC anticipates that construction in the first group of multifamily buildings will begin in December 2008.
MEMORANDUM

TO: MSP Noise Oversight Committee (NOC)
FROM: Chad E. Leqve, Manager – Aviation Noise and Satellite Programs
SUBJECT: RNAV DEPARTURE PROCEDURE IMPLEMENTATION
DATE: May 7, 2008

Background
One of the items on the 2007 NOC Work Plan was to begin the process of reviewing possible air traffic procedures at Minneapolis/St. Paul International Airport (MSP) that could be pursued in the future, possibly as part of the Committee’s 2008 Work Plan, to reduce noise impacts around MSP. It was established that a critical element of this effort would be the use of RNAV (Area Navigation), a method of navigation that permits aircraft operation on any desired course within the coverage of station-referenced navigation signals or within the limits of a self-contained system capability, or a combination of these. In short, this navigation technology provides the capability for aircraft to fly a desired track in a manner that is reproducible and allows for more accurate concentration of aircraft overflights in a desired area.

This approach also allows for more seamless transition to Required Navigation Performance (RNP) operations in the future, capitalizing on Global Positioning System (GPS) capabilities that will be available at MSP with a Ground Based Augmentation System (GBAS) that is planned to be certified by the FAA for CAT 1 approaches and deployed at MSP in late 2008/early 2009.

As detailed in the May 11, 2007 edition of the Airport Noise Report former Federal Aviation Administration (FAA) Administrator Marion C. Blakey characterized RNP and RNAV as green technology, and stated:

“It 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.”

In an effort to begin the process of conceptualizing possible RNAV procedures at MSP, and to help prepare for more detailed discussions and analysis in 2008, staff developed several flight track options for the Committee’s consideration in 2007.

Based on staff’s analysis and the Committee’s related discussion, RNAV procedure implementation in the context of the Crossing-in-the-Corridor Procedure and the 215-degree departure heading off Runway 17 (down the Minnesota River Valley) represent the best initial RNAV application scenarios around MSP for consideration.

To date, MAC staff has conducted three meetings with representatives from the FAA and Northwest Airlines to discuss the use of RNAV as detailed above. I am pleased to report that the discussions have been productive. Both the FAA and Northwest Airlines have dedicated time and resources to investigating and collaborating in an effort to move this initiative forward. It is important to note that
the progress made to date in these ongoing discussions would not be possible without the sincere
and dedicated approach which has been exhibited by both the FAA (Mr. Carl Rydeen) and
Northwest Airlines (Mr. Frank Alexander).

The following provides an update on the progress that has been made to leverage RNAV
technology and enhance the noise reduction benefits of the Crossing-in-the-Corridor Procedure and
the 215-degree departure heading off Runway 17 (down the Minnesota River Valley).

Crossing-in-the-Corridor RNAV Procedures
By way of background, a long-standing noise mitigation operational procedure at the Minneapolis-
St. Paul International Airport (MSP) has been to direct as many aircraft operations as possible over
the more noise-compatible land use areas of Eagan and Mendota Heights, southeast of the airport.
Significant industrial, office, and commercial zoning and development have been purposely
concentrated in this commercial/industrial corridor. Public review of corridor utilization dates back to
1968. In 1969, the Preferential Runway System (PRS) formalized a public/airport/user consensus to
concentrate aircraft overflights over the Minnesota River bottoms and the predominantly
commercial/industrial land uses within three miles of MSP in Eagan and Mendota Heights.

Various adjustments and refinements to the Corridor occurred during the 1980s. In 1989, after
much public debate, the basic principle of continued first priority for overflights of the river bottoms
and the Eagan-Mendota Heights commercial/industrial corridor was reaffirmed in the Runway Use
System (RUS), a refinement to the original PRS. More recently, through collaborative discussions in
the context of Part 150 Update efforts and an Environmental Assessment for the Runway 17
Departure Procedure, the RUS was updated to include Runway 17/35, with use of the
Eagan/Mendota Heights Departure Corridor remaining the first priority for aircraft overflights in the
RUS.

Historically, corridor refinement was an issue at MSP. By the mid-1980s, the Corridor essentially
included a southern boundary of the extended centerline of the south parallel runway (12R), an
operational constraint of 090° from the end of the north parallel runway (12L), and a turn restriction
prior to 3 miles from the runways’ ends, designed to take advantage of the commercial/industrial
areas and river bottom southeast of MSP. An extensive joint MAC/Minnesota Pollution Control
Agency (MPCA) Corridor Definition Study was conducted in 1990, which evaluated the possibility of
shifting the north Corridor boundary south and options to use the center of the Corridor to the
greatest extent possible.

The result of this study was the implementation of the Crossing-in-the-Corridor Procedure (See Figure 1).
Specifically, whenever possible, under non-simultaneous departure conditions:

• Aircraft departing Runway 12R will be assigned a
  heading to maintain an approximate ground track
  of 105°.

• Aircraft departing Runway 12L will be assigned a
  heading to maintain a ground track along the
  extended runway centerline, approximately 118°.
Due to the Runway12L/12R interdependencies that result from the use of this procedure, the Crossing-in-the-Corridor procedure can only be used during lower demand time periods at MSP (almost exclusively during the nighttime hours).

MAC staff has reviewed the concept of developing RNAV procedures off both Runways 12L and 12R at MSP, for use during the nighttime hours (22:30 to 06:00) when available, with the FAA and Northwest Airlines. These procedures would provide a precise track off each runway, in the context of existing vectored departure routes, consistent with the provisions of the Crossing-in-the-Corridor Procedure. The result has been the development of preliminary RNAV departure procedures that provide an initial segment off both Runways 12L and 12R that replicate the Crossing-in-the-Corridor tracks off the respective runways with follow-on flight track segments located along the center of the existing flight track distribution that results from the present practice of the FAA vectoring aircraft on the existing COULT One and ZMBRO One Departures off Runways 12L and 12R at MSP.\(^1\)

Below, Figure 2 provides a graphic depiction of the initial track segment for the RNAV COULT One and RNAV ZUMBRO One departure procedures off Runways 12L and 12R.

Figures 3 and 4 below provide a graphic depiction of the flight track segments following the Crossing-in-the-Corridor point, as detailed above, for both the RNAV COULT One and RNAV ZMBRO One departures procedures off Runway 12L.

\(^1\) COULT and ZMBRO are airspace fixes that are presently used for en-route navigation.
Figures 5 and 6 below provide a graphic depiction of the flight track segments following the Crossing-in-the-Corridor point, as detailed in Figure 2, for both the RNAV COULT One and RNAV ZMBRO One Departures procedures off Runway 12R.
Through the ongoing discussions with the FAA and Northwest Airlines an implementation plan has been developed to test these procedures at MSP. Northwest Airlines will have the departure plates developed for its B757, A319, A320 and A330 flight crews to facilitate their execution of the procedures. Additional investigation is being conducted in an effort to determine if Northwest Airlines regional jet aircraft could also utilize the procedures. The logistical elements of FAA procedure assignment and flight crew acceptance are being developed. Ultimately, it is anticipated that a Letter of Agreement (LOA) between Northwest Airlines and the FAA will be executed detailing specifics relative to coordination aspects, the respective procedure details and other related considerations.

215-Degree Departure Heading RNAV Procedure off Runway 17 (Down the Minnesota River Valley)

Following the opening of Runway 17/35 at Minneapolis/St. Paul International Airport (MSP) in October 2005, departure flight track use off Runway 17 was a topic of significant analyses and discussion for the Noise Oversight Committee (NOC). Subsequent to initial analyses, feedback from Burnsville residents, and information from Federal Aviation Administration (FAA) Air Traffic Control Tower (ATCT) personnel, it was discovered that approximately six months prior to the runway opening the FAA had implemented a westbound heading restriction of 190-degrees when the airport was operating in a southeast flow (i.e. departing runways 12L, 12R and 17). This was done to separate Runway 17 departures from aircraft operating within the Class B Airspace transition area to the northwest of MSP, as well as aircraft on a downwind to land on Runway 12R. The environmental documentation leading up to the runway opening assumed that the westerly departure heading extent during southeast operational flows at the airport would be a 230-degree heading over the unpopulated Minnesota River Valley.

In an effort to address NOC concerns, the FAA aggressively investigated all options for increasing the westbound heading constraint to more closely correlate with a 230-degree departure heading extent during southeast operational flows. The FAA concluded that expansion of the Runway 17 westbound departure heading extent to 215-degrees was possible during southeast operational flows at MSP and, following NOC and MAC approval, use of the 215-degree heading was subsequently implemented by the FAA.

The FAA’s use of the 215-degree departure heading dramatically reduces the instances of aircraft overflight impacts south of the Minnesota River Valley in the City of Burnsville. Additionally, the 215-degree departure heading optimizes westbound aircraft overflight of the unpopulated Minnesota River Valley. However, additional opportunity exists in effectively concentrating operations over the unpopulated Minnesota River Valley southwest of MSP with the use of RNAV. In an effort to analyze the effect of the 215-degree departure heading that was implemented by the FAA at the request of the NOC, MAC staff imported flight track data into the Integrated Noise Model (INM). Based on the wide swath of actual 215-degree heading flight tracks (which result from present Air Traffic Control vectoring activities) staff used INM to develop a single flight track which is the precise center of the actual 215-degree heading tracks. Figure 7 below depicts a westbound river departure flight track, which is the precise center of the present 215-degree heading flight track area.

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2 The Class B Airspace transition area northwest of MSP was created to accommodate Runway 17/35 operations in the airspace around MSP.
Using the above track as the desired RNAV path, MAC staff, the FAA and Northwest Airlines are in the process of developing an RNAV departure procedure based on the 215-degree heading for use during southeast operational flows by southwest and westbound Northwest Airlines B757, A319, A320, and A330 aircraft when possible during the nighttime hours (22:30 to 06:00). The planned initial track segment is depicted in Figure 8 below.
The track segments that will follow the above depicted initial segment are in the process of being determined and will overlay existing departure routes, as in the case of the Crossing-in-the-Corridor RNAV procedures.

The implementation process for this procedure is being conducted in tandem and consistent with the Crossing-in-the-Corridor RNAV implementation process. As such, Northwest Airlines will have the departure plates developed for its B757, A320, A319 and A330 flight crews to facilitate their execution of the procedure. The logistical elements of FAA procedure assignment and flight crew acceptance are being developed. Ultimately, it is anticipated that the RNAV procedure specifics will be included in the same Letter of Agreement (LOA) between Northwest Airlines and the FAA as described in the case of the Crossing-in-the-Corridor RNAV Procedures, with the goal of these procedures being available for use in approximately 4 months.

This ongoing work, and the progress being made, is highly significant in the context of the longstanding goal at MSP of realizing the next evolution in noise reduction by leveraging existing navigation technology. Although these procedures will only be available for use by Northwest Airlines aircraft equipped to fly the procedures, during the nighttime hours (22:30 to 06:00) when possible, this initiative will provide excellent data for analysis and a legitimate starting point for the consideration of this technology for wider application in the future at MSP.

At the May 21, 2008 NOC meeting staff will provide a briefing on this topic. Committee input and/or guidance on this ongoing initiative would be appreciated as part of this discussion.
MEMORANDUM

TO: MSP Noise Oversight Committee (NOC)

FROM: Chad E. Leqve, Manager – Aviation Noise and Satellite Programs

SUBJECT: COMMENTS FROM 2nd QUARTER 2008 PUBLIC INPUT MEETING

DATE: May 7, 2008

One of the elements of the Metropolitan Airports Commission’s (MAC) approved framework for the MSP Airport Noise Oversight Committee (NOC) requires MAC staff to conduct quarterly public input meetings. The intent is to ensure residents’ concerns are considered as part of the ongoing effort by the MAC and the NOC to address noise issues around MSP. This memorandum provides a summary of the comments received at the last public input meeting. The NOC may also review these topics as possible future action items if the members so desire.

On April 22, 2008 MAC Aviation Noise and Satellite Program staff conducted the second quarter 2008 public input meeting; 8 people attended the meeting and 3 individuals made comments. MAC staff responded to questions at the meeting and is also providing a written response to the individuals who commented. The comments and associated responses can be found on the MAC Noise Program’s website, accessible on the Internet at www.macnoise.com when they are completed.

In summary, attendees expressed concerns regarding the following topics:

Nighttime Noise Impacts and Noise Contour Accuracy in the City of Mendota Heights

- Statements that residents’ health is impacted due to noise from departure operations and that nighttime overflights have increased in the City of Mendota Heights.
- Statements that aircraft noise makes it impossible to sleep between the hours of 22:00 and 07:00, and makes it impossible to engage in speech.
- Request that the percentage of Runway 12L departure operations match those outlined in the forecast 2007 mitigated noise contour.
- Request that the Monthly Technical Advisor’s report include a report of operations between the hours of 22:00 and 07:00.
- Questions regarding the DC9 fleet mix assumptions included in the forecast 2007 mitigated noise contour.
- Request to attend supposed monthly meetings between MAC and FAA.

The next quarterly public input meeting is scheduled for July 29, 2008 at Eagan City Hall.