



MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT PART 150 NOISE STUDY UPDATE

2004 Vol. 1, No. 1

1st Public Information Workshop

- Wednesday
September 22, 2004
- 2:00 to 4:30 PM
and 6:00 to 8:30 PM
- Best Western Milwaukee
Airport Hotel
5105 S. Howell Avenue
Milwaukee, WI. 53207

(See last page for details)

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To Our Airport Neighbors:

A significant and challenging issue that has faced the nation's airports for decades is the effect of aircraft noise on neighboring communities. One of Milwaukee County's goals is to preserve and improve the neighborhoods near General Mitchell International Airport (GMIA) by minimizing these impacts.

As part of this effort, the Airport has begun the process of updating its Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Study.

Much has been accomplished in reducing noise at GMIA since the original study was completed in 1993:

- Since 2000, federal law has prohibited the use of older, noisier "Stage 2" aircraft.
- Airlines have replaced some of their larger, louder jets with smaller, quieter regional jets.
- Midwest Airlines is transitioning from its older DC-9 series aircraft to the new Boeing 717, one of the quietest commercial aircraft. AirTran also uses the Boeing 717 at GMIA.
- Northwest and Frontier Airlines are operating Airbus 319s and 320s, also notable for their quiet, fuel-efficient performance.
- The Airport's Ground Run-up Enclosure (GRE) has been in operation for almost two years, significantly reducing the amount of noise from more than 3,400 engine runs following aircraft maintenance.

This Part 150 Noise Compatibility Study Update will review these and other changes to air service at GMIA and tell us if there is more that can be done.

In this issue, there is an article about the Study Advisory Committee – a group of 26 citizens, aviation experts and business professionals, who will provide input for every aspect of this Study over the next year to make sure that its recommendations represent what's best for our neighbors and our community at large.

You will continue to receive Study information from this newsletter series, and are welcome to attend the Public Information Workshops if you'd like to discuss the information with the Study team.

Barry Bateman
Airport Director

What is a Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Study Update?

A Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Study is a voluntary aircraft noise exposure and land use compatibility study prepared by an airport to identify existing noise exposure, to identify potential future noise exposure by forecasting noise levels five years out, to evaluate various alternatives for reducing aircraft noise in neighborhoods surrounding the airport, and to recommend a plan of action.

The FAA (Federal Aviation Administration) provides specific directives to airports for how noise studies are to be conducted. The studies must include: (1) provisions for development and submission to the FAA of Noise Exposure Maps and Noise Compatibility Programs by airport operators; (2) standard noise units, methods, and analytical techniques for use in airport noise studies; (3) identification of land uses which are normally considered compatible (or non-compatible) with various levels of noise around airports; and (4) procedures and criteria for FAA approval and disapproval of recommended noise compatibility programs. The study also examines whether changing the way aircraft operate would reduce noise in the neighborhoods.

What is the objective of a Part 150 Noise Compatibility Study and why is the Study Update being done now?

The objective of the Study is to find reasonable solutions to the problems associated with noise generated by aircraft. The goal of the overall program is for Milwaukee County's General Mitchell International Airport, in consultation with the surrounding municipalities, aviation groups, and airport neighbors, to develop a balanced and cost-effective pro-

gram to minimize and/or mitigate, as much as reasonable, aircraft noise effects on the local communities.

The Study Update is being done now because many changes have occurred in aviation since the last study was done in 1993. In addition, the recently passed federal Vision 100 Act requires an airport to update its noise contours if there is an indication that the contours have either shrunk or expanded. Based on a review of the changes in aircraft operations and fleet mix at Mitchell Airport since the 1993 Study, it is likely that the contours generally have become smaller. As such, the FAA requires a Part 150 Study Update to reflect existing and short-term future noise conditions that may have an impact on funding for noise abatement programs.

How is Noise Measured?

The Study uses a number of terms to measure and describe aircraft noise at General Mitchell International Airport:

- Operation — A takeoff or a landing.
- Decibel (dB) – Decibels are the basic units of noise measurement. The decibel, in aviation terms, is a ratio that compares the sound pressure of the sound source (e.g., the aircraft overflight) to a referenced pressure (the quietest sound we can hear). A decibel of one would be the weakest sound that can be heard by an average person with very good hearing in an extremely quiet room. Most people perceive a six to ten dB increase to be about a doubling of noise.
- Day-Night Average Sound Level (DNL) – DNL is a measurement of all aircraft noise events that take place in a 24-hour period, the time of day they occur, and the loudness of the events. In the Part 150 Noise Study process, DNL is the primary system for measuring aircraft noise impacts and is presented as a contour showing the average level of aircraft noise over a one-

year period. Aircraft noise events that occur between 10PM and 7AM receive a penalty (added decibels) to reflect the added annoyance of aircraft noise at night.

- Sound Exposure Level (SEL) – The SEL is a measure of single events that show the noise levels from an individual aircraft flyover. This demonstrates how loud individual types of aircraft can be, which can be helpful in identifying remedies.

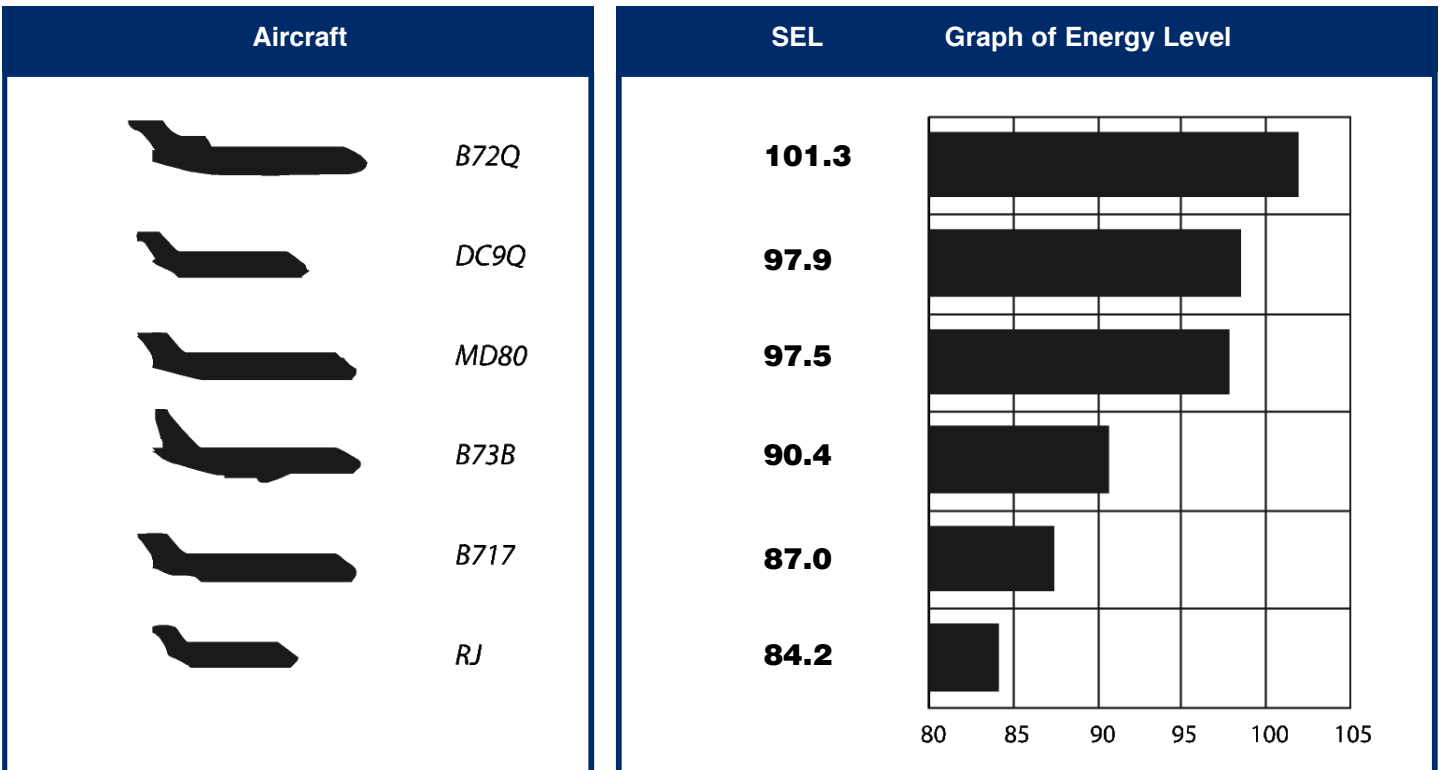
DNL differs from SEL in that it focuses on a number of noise events rather than a single noise event. In accordance with FAA directives, Part 150 noise studies use computer-generated estimates of DNL (noise contours) that are determined by the total of all aircraft noise events within a certain period of time. The DNL is the measurement used to depict the total noise “dose” at a given location on the ground.

What are Noise Contours and how are they used?

A noise contour is a computer-generated line that connects points of equal average annual noise exposure (DNL). The contours reflect current aircraft noise conditions and predict what the noise situation will be five years from now.

A variety of information is gathered during the Study to create an accurate noise contour, including average number of flights each day; type of aircraft; type of engines; time of day; weather conditions; how often each runway is used throughout the year; and where aircraft fly over the surrounding communities (flight tracks). Actual on-site measurements of noise generated by aircraft using Mitchell Airport are used to verify the predictions of the computer model.

**Single Event Noise Level by Aircraft
General Mitchell International Airport**



Period: January 2002 to December 2003 Site: NMS06 - S. 23rd St and Kimberly Av
 Operations: Departing Runway: 25L Tracks: ALL Source: BridgeNet International

How are future Noise Contours generated?

Future noise contours are generated from the number and type of aircraft operations forecast for 2009, combined with much of the same information used to generate the existing noise contours. The FAA's Terminal Area Forecast (TAF) will be used to generate future noise contours at Mitchell Airport.

What contour is used to determine Compatible and Non-compatible land use?

In the past, most airports used contours that predicted the level of noise five years in the future to define compatible and non-compatible land use boundaries because they represented the largest contours acceptable to the FAA. But more recently, because many airlines have switched to planes that are smaller or have quieter engines, noise contours have been shrinking at airports throughout the country. This is true in Milwaukee, where the predicted 2009 TAF shows a DNL noise contour that is smaller than the current 2003 noise contour.

The noise contour maps on pages 5 and 6 show the 75, 70 and 65 DNL contours. The FAA defines the 65 DNL as the threshold noise level for determining land use compatibility. This means that noise sensitive uses (such as homes, schools and nursing homes) within the contour may be eligible for federal funds for various noise abatement programs.

The contour map shows my house outside the 65 DNL contour line. Are you telling me that I don't have aircraft noise?

No, we do recognize that noise doesn't stop at a line. However, the FAA tells communities that in their Part 150 studies, they must provide a 65 DNL line as an objective measurement of the average level of aircraft noise within that contour. The DOT, HUD, EPA and most state and local planning agencies also recognize the 65 DNL contour as

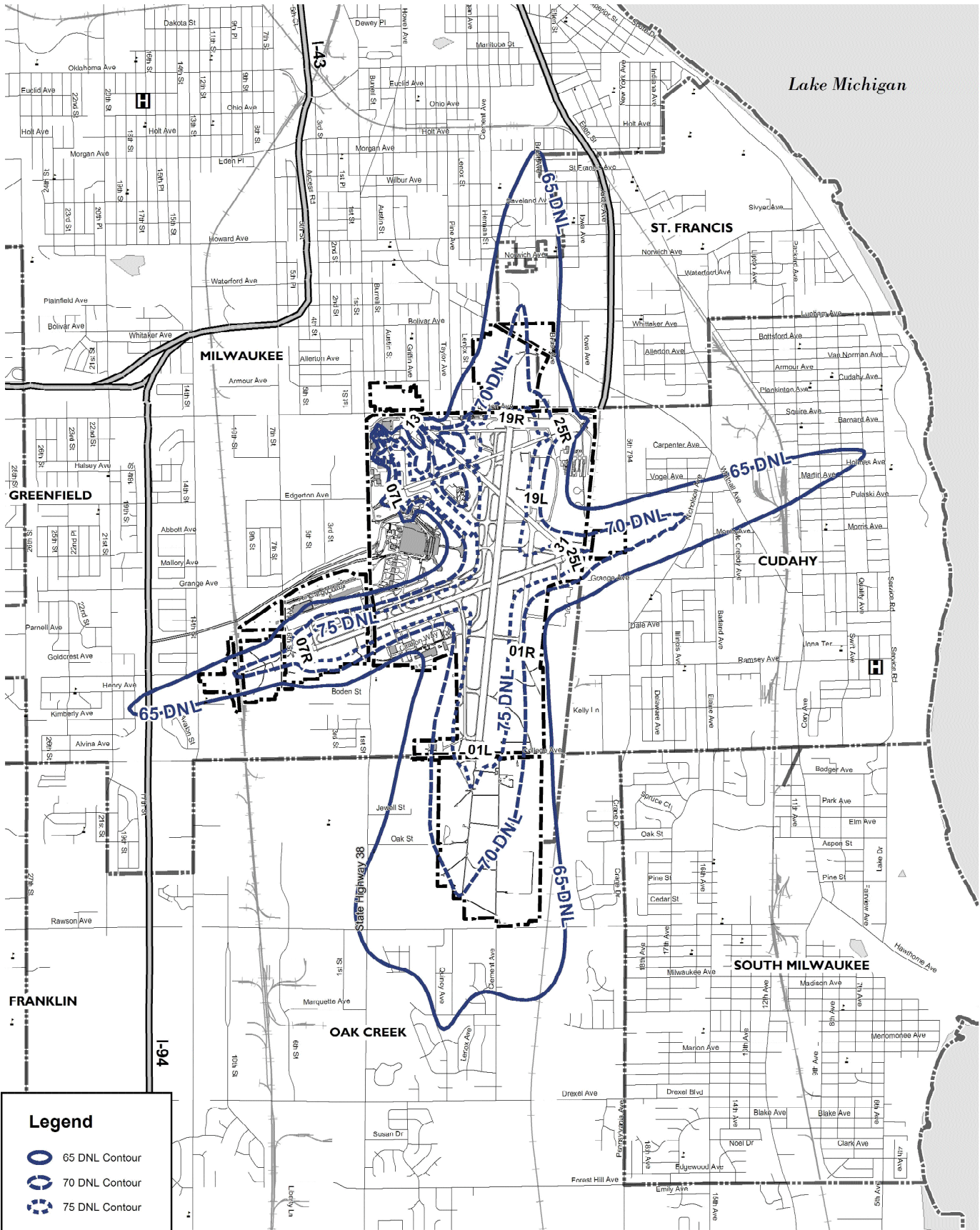
the threshold of significance for determining land uses compatible with aircraft noise exposure. Identifying the 65 DNL contour serves as the basis for the FAA to determine how best to direct limited funding to proposed noise mitigation projects submitted by communities throughout the nation. So, while a home outside the 65 DNL still experiences aircraft noise, as part of the Part 150 program, the FAA does not give funding priority to areas outside the 65 DNL.

Why do I get all the planes on one day while other times are not as bad?

Runway use is determined by a number of factors. Winds are the primary controlling factor, because taking off and landing facing into the wind provides the most "lift" under the aircraft wings, and therefore the safest and most efficient operation. Winds are so critical to flight safety because aircraft are transitioning from operation on the ground, where friction has the major influence over the plane's direction of movement, to flight, where aerodynamic forces take over that role. This sensitivity to wind direction is not equal for all aircraft. In general, the smaller, lighter and slower an aircraft is, the more sensitive to wind conditions it is. Aircraft type, weight, weather conditions, runway conditions and the amount of air traffic are also taken into account by the pilot and air traffic controllers in making safe and efficient runway use determinations.

Given our location on the continent and proximity to Lake Michigan, winds in Milwaukee are highly variable. As weather systems move through our area, the winds that accompany them change direction. This results in aircraft taking off and landing in one direction one day and in a completely different direction on another day (or even hour-to-hour). Because residential neighborhoods have grown around Mitchell International over the years, there is no direction in which aircraft can entirely avoid flying over homes. The daily and seasonal changes in weather patterns in large part determine which will be noisier days and which will be quieter days.

Continued on page 7



Lake Michigan

ST. FRANCIS

MILWAUKEE

GREENFIELD




CUDAHY

SOUTH MILWAUKEE

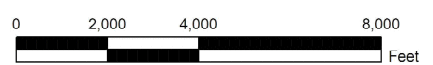
FRANKLIN

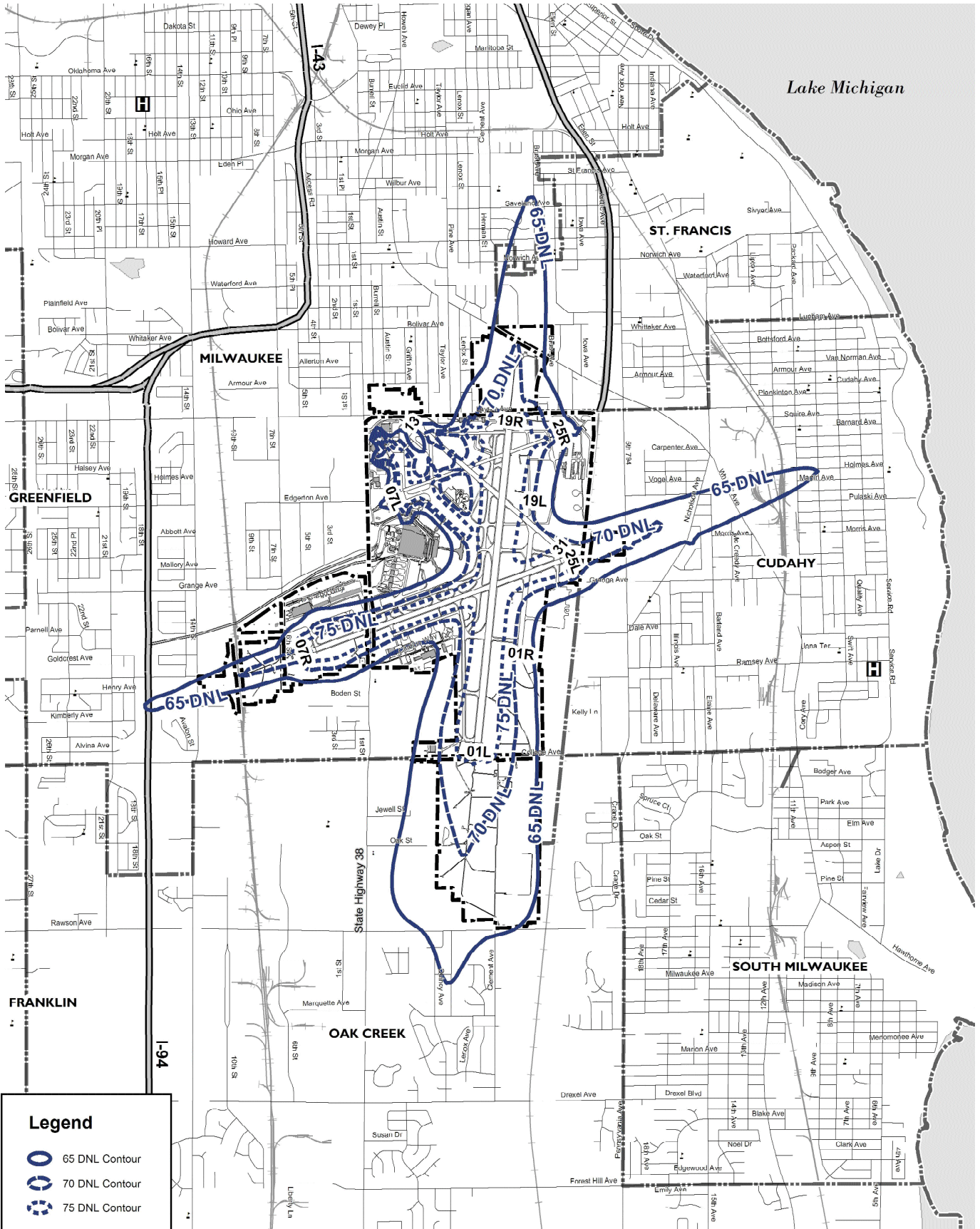
OAK CREEK

Legend

-  65 DNL Contour
-  70 DNL Contour
-  75 DNL Contour

Existing 2003 DNL Noise Contour





Future 2009 DNL Noise Contour



Many planes seem much quieter than a few years ago, but some are still loud. Why can't they make all planes quieter?

Because the noise level of an aircraft is determined by its design, once an aircraft is built, it is difficult to change its noise characteristics. Aircraft have service lives that are measured in decades, and aircraft fly over interstate, national and international distances, so regulation of aircraft noise level certification is an international issue. While individual loud aircraft remain in the worldwide fleet, only those that meet current noise certification levels are permitted to operate in the United States.

A coordinated global phase-out of noisier “Stage-2” aircraft over 75,000 lbs. was completed in the United States on December 31, 1999. This phase-out resulted in the single greatest improvement in community noise exposure in the history of aviation. Efforts to reduce community noise exposure have continued. Recently, the United States joined with the International Civil Aviation Organization (ICAO) to define noise levels for aircraft manufacturers to begin certifying new Stage-4 aircraft designs beginning in January 2006. The average 10dB noise reduction required to meet Stage-4 levels are achievable using current technology. That 10dB reduction is equivalent to moving the aircraft twice as far away from homes.

Efforts to reduce aircraft noise have not stopped with Stage-4 technology, though. Aircraft manufacturers such as Boeing and Airbus, in cooperation with engine manufacturers such as Pratt & Whitney, Rolls Royce and General Electric, are working with national researchers to further reduce aircraft noise. These firms will focus on technology, such as improvements in engine airflow and shielding, along with performance enhancements and procedural changes.

What about noise from aircraft moving around on the Airport?

Mitchell Airport has been aggressive in dealing with aircraft ground noise. Airport procedures already limit aircraft maintenance activities, especially in areas adjacent to neighborhoods and during the nighttime hours. In 2002, the Airport opened a Ground Run-up Enclosure (GRE) to reduce the noise generated when aircraft must be tested at high power following scheduled and unscheduled maintenance. At the time, it was only the fourth of its kind in the nation. The GRE has since hosted over 99% of all high-power maintenance run-ups.

Aircraft ground movements have also been added to the information used to calculate the DNL contours for this

Summary of Operations by Aircraft Category

Recent Historic and Forecast • General Mitchell International Airport Noise Study Update

Aircraft Category	2000	2001	2002	2003	2009
Large Air Carrier	87,119	80,741	46,339	46,276	50,982
Regional Jet, Commuter & Air Taxi	91,764	93,570	128,784	130,688	148,872
General Aviation	41,955	35,502	32,273	30,103	30,103
Military	4,588	4,736	4,836	4,509	4,509
Total Operations	225,426	214,549	212,232	211,576	234,466

Source: 2003 FAA Terminal Area Forecast

Part 150 Study Update. This will allow us to more fully account for all the sources of aircraft noise that affect neighborhoods near the airport.

You say your goal is to preserve and improve neighboring communities. How have you helped my neighborhood?

Through the Part 150 process, Milwaukee County has used federal noise mitigation funds to sound insulate hundreds of airport-area homes. This has preserved valuable housing stock, maintained community integrity and improved the quality of life for many families. All the while, federal regulations mandating quieter aircraft have contributed to lower aircraft noise levels throughout the area.

Property values in the area have continued to grow over the last several years. This reflects the high demand for well-kept homes in heavily owner-occupied neighborhoods, such as those near the airport. Sale prices of homes in airport-area neighborhoods are consistently near 99% of asking price and time on the market averages less than 45 days, both reflecting the desirable nature of the area.

Approximately 75 percent of airport employees live in Milwaukee County. Forty-five percent of those directly employed at the airport live in the surrounding communities of Milwaukee; South Milwaukee; Cudahy; St. Francis; Franklin and Oak Creek. The demand for housing, goods and services from these employees and their families contribute to the local economy.

Can we enact a curfew or ban noisier planes from using the airport?

Mitchell International is a federally funded public use airport and part of the national air transportation system. We are required by law to make the airport accessible to aircraft operators desiring to use the Airport, and can no longer unilaterally enact noise or access restrictions that would limit that access.

Why don't you just sound insulate more houses? The noise at my house is no different than at my neighbor's house that got sound insulation.

The FAA establishes the procedures that must be followed in a Part 150 Study, including evaluation of methods besides sound insulation for reducing aircraft noise in neighborhoods. In fact, because sound insulation costs more than other methods, FAA asks communities to recommend effective but lower cost options first.

In the next phase of the Study, we will identify, examine and evaluate ways to reduce aircraft noise in neighboring homes. At that time, you will receive another newsletter outlining the options and will be invited to participate in another public workshop focused on developing a noise mitigation program for our community.

Does the number of noise complaints determine whether a particular house or neighborhood is eligible for noise mitigation?

No. The FAA's policy is to provide funding for noise mitigation within the 65 DNL noise contour. Milwaukee County and Mitchell Airport cannot override that policy based on numbers of noise complaints.

The airport has established a noise comment phone line, 747-4677, to record reports of unusual flight activity that create an unusual amount or kind of noise. Sometimes planes deviate from normal patterns for safety or operational necessity — to avoid storm clouds, for example. Airport staff regularly communicates with aircraft operators about the importance of following the airport's voluntary noise abatement procedures. It is helpful if neighbors report an unusual noise incident as soon as possible to assist airport staff in researching the cause; however, noise complaint calls cannot be used to determine eligibility for noise mitigation. ■

Study Advisory Committee

The Study Advisory Committee for the Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Study Update includes 25 members representing aviation, business and citizen interests. Each member represents a specific constituency with different interests but a common goal.

The Study Advisory Committee is comprised of citizen representatives from the 4th, 8th, 9th, 11th, 14th, 17th, and 18th Milwaukee County Supervisory Districts. The Study Advisory Committee also includes representatives from:

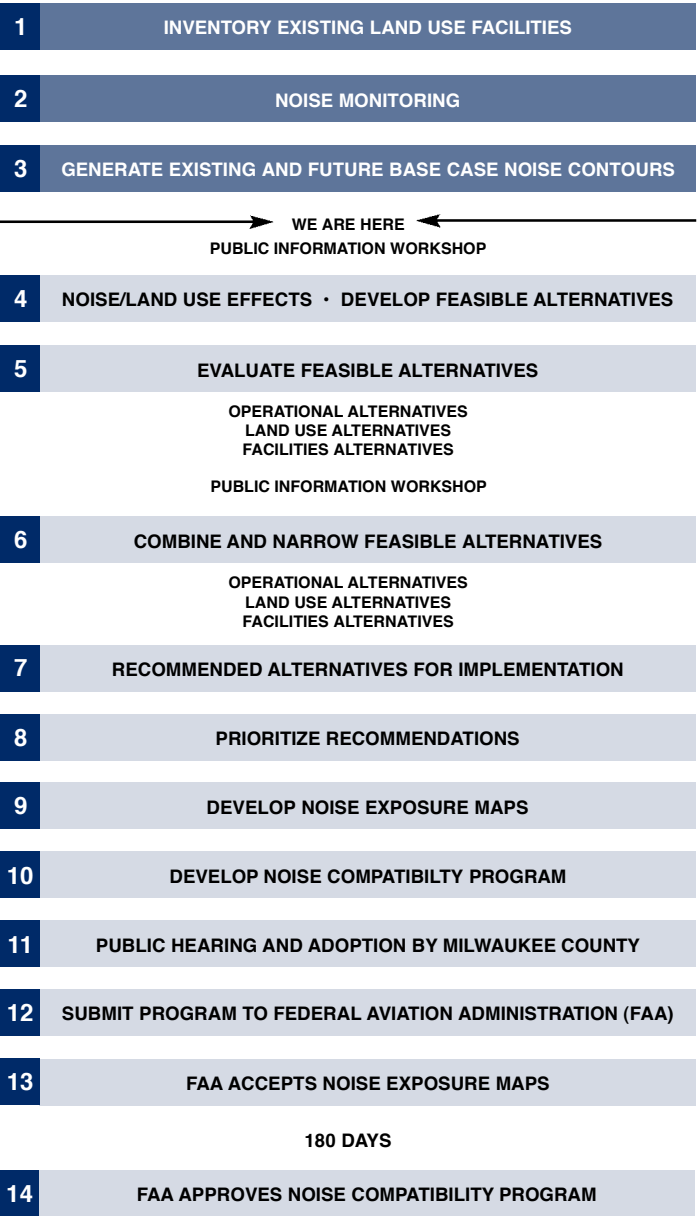
- City of Cudahy
- City of Oak Creek
- City of St. Francis
- City of South Milwaukee
- City of Milwaukee
- General Mitchell International Airport
- Northwest Airlines
- Midwest Airlines
- Signature Flight Support
- Wisconsin Department of Transportation
- Metropolitan Milwaukee Association of Commerce
- Federal Aviation Administration
- Air Force Reserve - 440th Airlift Wing
- Wisconsin Air National Guard - 128th Air Refueling Wing
- Southeast Wisconsin Regional Planning Commission

The Study Advisory Committee acts in an advisory capacity with the airport staff and the consultant team to review information, provide input and feedback, discuss noise abatement alternatives and advise GMIA in the adoption of a noise abatement program at the airport. “It’s important to understand the noise study process, come to the table with realistic expectations and work toward results,” said Ray Glowacki, committee member representing the City of Cudahy.

The Study Advisory Committee will meet throughout the Study process. Summarized data, information and maps associated with the specific study topics will be presented in the form of “working papers.” Each working paper will become a chapter in the final report submitted to Milwaukee County and, ultimately, the Federal Aviation Administration (FAA) for approval. ■

Next Steps

To date, an inventory has been conducted to identify existing land uses and facilities surrounding the airport, and noise-monitoring data has been used to validate the assumptions of the FAA computer model that generates noise contours. Following the public workshop, where the work completed thus far will be displayed, the effects of those noise levels on the community will be evaluated. Alternatives to reduce both existing and future noise effects will be developed for review. Alternatives will be combined and narrowed to arrive at the most effective operational, land use, and facility recommendations. The diagram below outlines the study process from initiation to completion. ■





Milwaukee County's
**GENERAL MITCHELL
INTERNATIONAL AIRPORT**
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Milwaukee, WI 53207

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PART 150 NOISE STUDY UPDATE

FAR Part 150 Noise Compatibility Study Update

1st Public Information Workshop

Wednesday, September 22, 2004

2:00 to 4:30 pm and 6:00 to 8:30 pm

(The same information will be presented at each session)

**Best Western Milwaukee Airport Hotel
5105 S. Howell Avenue**

Information to be presented will cover the Part 150 Study process, the results of Noise Monitoring Analysis, and the Existing and Future Base Case Noise Contour Maps

The workshop will be held in an “open-house” style, allowing those attending to move from station to station to speak one-on-one with members of the Part 150 Study consultant team. Information presented at the Workshop is summarized in this newsletter.

Visit the Airport Web Site

Reports, contour maps, summary notes, working papers, Public Information Workshop dates, and other information will be regularly posted and updated on the GMIA Web Site: www.mitchellairport.com. Use the [Airport Projects](#) link to reach the Part 150 Noise Compatibility Study Update page. Check the Web site for up-to-date information as the Study progresses. ■

Contact Information

Comments on the FAR Part 150 Study Update can be emailed to: info@mitchellairport.com or mailed to:

**General Mitchell International Airport
Attn: FAR Part 150 Study Update
5300 S. Howell Avenue
Milwaukee, WI 53207-6156**