



AT THE SPEED OF SOUND

Chicago's Sound Insulation Program Accelerates to Keep Pace with O'Hare Modernization | By Amy Malick

Chicago O'Hare International is one of the world's busiest airports with more than 875,000 total operations in 2011. With this level of flight activity comes aircraft noise, making noise mitigation an important component of an airport's operation.

The Chicago Department Aviation (CDA) administers one of the largest sound insulation programs for homes and schools in the U.S., providing sound insulation for thousands of homes near O'Hare since 1995. As the O'Hare Modernization Program (OMP) continues to transform O'Hare's airfield, the CDA is accelerating its sound insulation efforts ahead of new runways scheduled to open in the next few years.

"The CDA is committed to being a good neighbor to the communities surrounding O'Hare," said Commissioner Rosemarie Andolino. "Our sound insulation programs are an important part of our efforts to achieve a balance between the airport's busy environment and the quality of life for those who live in close proximity to the airport."

A constant stream of arrivals and departures, about 2,400 operations, goes through O'Hare every

day. O'Hare is unique among airports in that while being owned and operated by the city of Chicago, the airport is bordered on all sides by suburban communities. In fact, only a narrow strip of land that runs west from Chicago connects O'Hare to the rest of the city.

The airport was built on what was once an orchard field, which is where its designator code ORD originates. Since the mid-20th century, the airport and its surroundings have experienced tremendous development. Gradually, O'Hare has become surrounded by industrial corridors, office space, retail, hotels, convention centers, entertainment venues, and air and rail cargo handlers. O'Hare also is surrounded by densely populated residential areas.

The OMP is transforming O'Hare's airfield from an outdated system of intersecting runways into a modern parallel runway configuration to reduce flight delays and increase capacity well into the future. Upon full build-out of the OMP, O'Hare will have six parallel runways and two crosswind runways.

Prior to OMP construction, which began in 2005, O'Hare had seven runways and multiple arrival and

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departure configurations. As new east-west parallel runways come online, air traffic patterns are changing. The east-west flow created by the OMP reduces the airport’s overall noise footprint by 3.6 square miles. After the next new OMP runway — Runway 10C/28C — comes online in October 2013, air traffic will primarily flow in an east-west direction.

“The OMP is creating changes on the ground and changes in the air,” said Andolino. “We have been working very diligently to sound insulate all eligible homes before new runways come online.”

The CDA has implemented an aggressive sound insulation program that follows FAA’s projected noise contour under the full build-out of the OMP. Since 1995, more than 8,000 homes around O’Hare have received sound insulation. The Residential Sound Insulation Program for Chicago O’Hare is recognized worldwide as one of the most extensive endeavors to mitigate aircraft noise. Homes located within the noise contour are eligible for sound proofing at no cost to the resident, which includes the installation of new acoustical windows and doors, and in certain buildings, new air-conditioning systems.

This year, the CDA has an ambitious goal to sound insulate 1,600 homes around O’Hare — the most ever in one year. More than 300 workers are now in the field completing inspections/surveys and installing windows and doors. The work is being done at a rapid pace, with an average of 50 homes being sound insulated each week throughout the summer.

In addition to providing residential sound insulation, Chicago is also a founding member of the O’Hare Noise Compatibility Commission (ONCC). The ONCC, which was formed in 1996, now represents 29 communities, 16 school districts and five Chicago wards. The ONCC’s mission is to assist in developing methods to reduce aircraft noise in neighborhoods through sound insulation and to reduce aircraft noise at its source.

The ONCC is a strong advocate for residents and school districts. The members of the ONCC and its chairman, Mayor Arlene Mulder of Arlington Heights, appreciate the economic benefits and jobs the airport brings to the region, but they also understand the adverse impacts of living nearby one of the world’s busiest airports. Operating under the idea of cooperation instead of opposition, the ONCC has the ear of FAA, air traffic controllers, airlines, pilots and congressional leaders.

“Typically, when we invite everyone around the table, all stakeholders work to achieve the goal

of aircraft noise mitigation,” explained Mulder. “We respect each other’s viewpoint with give-and-take to reach common ground and achieve better results. It is somewhat unusual for a community group to be part of an airport modernization plan. Our voice heightens awareness of airport neighbors’ noise concerns while we also appreciate what a safe and efficient world-class airport brings to the region.”

O’Hare’s Fly Quiet Program is an example of the ONCC’s success. Under the program, pilots and air traffic controllers are urged to use preferential runways and flight tracks during nighttime hours to minimize effects of aircraft noise on residential areas. The ONCC, CDA and airlines developed the preferred routes that direct aircraft over less-populated areas such as forest preserves, highways and industrial areas.

The ONCC is a strong advocate for school sound insulation as well. The program for O’Hare to date has provided about \$280 million in federal and airport funds to provide sound insulation for 118 schools near the airport.

This summer, contractors are nearing completion of the most expensive sound insulation project in the program’s history at Ridgewood Community High School, located four miles east of O’Hare. At a cost of approximately \$26 million, it’s a huge project that is improving the school’s learning environment. The construction work began in July 2011 and is expected to be substantially completed in time for the start of 2012-13 school year. The project will reduce the interior noise levels at or below the 45 decibel threshold through sound mitigation measures such as window replacement, HVAC modifications and enhancements to the building’s curtain wall. The project also is adding structural reinforcement to the build-

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ing with helical piers/steel columns driven as much as 90 feet below ground.

Most importantly, the project benefits the students and faculty. The school was built in 1959 and was not outfitted to prevent outside noise from coming into the classrooms. Class work suffered from frequent interruptions caused by aircraft noise, as well as constant noise from wall-mounted heating and cooling units. The upgrades to the school's HVAC system, roofing, walls and windows will provide a quieter learning environment and an expected 25 percent reduction in energy costs.

"The sound insulation work that we are receiving is transforming the school," said Dr. Robert Lupo, superintendent, Ridgewood Community High School District 234.

"Teachers will no longer have to interrupt classes while airplanes fly over," he said. "No longer will we have to schedule testing to take

place in areas without windows so students won't be disturbed by frequent airplane noise. The new windows and roofs will add security and energy conservation, as well as sound insulation. We are extremely grateful to the city of Chicago, FAA and the ONCC for supporting this effort and providing our students with an improved learning environment."

While the CDA's residential and school sound insulation programs at O'Hare have made great strides forward, there is still much work to be done as O'Hare's airfield and air traffic patterns continue to change under the OMP. Approximately 4,000 homes and six schools around O'Hare are slated for sound insulation in the future. 

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