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Wyle Report

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Aircraft Noise Study for the Ohio State University Airport Columbus, Ohio

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1.0 Introduction

Noise is recognized as one of the principal adverse environmental effects of aviation activities. As such, a noise analysis is a key component of this Environmental Assessment (EA). The purpose for the noise analysis is to determine whether or not the adverse effects of noise from the proposed action exceed the threshold of significance established by federal agencies, including the Federal Aviation Administration (FAA) and the Environmental Protection Agency (EPA).

In support of the State of Ohio EA for proposed developments at The Ohio State University Airport (OSUA), Wyle Laboratories, as part of the consultant team headed by DLZ Michigan, Inc., performed a noise analysis for the various alternatives assessed within the EA. The EA has been prepared in accordance with the guidelines set forth by the FAA through Order 5050.4A, "The Airport Environmental Handbook" (USDOT 1985), and Order 1050.1E, 'Policies and Procedures for Considering Environmental Impacts'. The intent of the EA is to serve as a decision-making tool to be used by local, state, and federal officials in evaluating the proposed development at OSUA.

The National Environmental Policy Act (NEPA) of 1969, implemented by the EPA, requires that federal agencies identify and consider the social, economic, and environmental impacts of proposed actions as part of their decision-making processes. NEPA also requires that federal agencies provide information to the public and regulatory agencies and consider their input when reaching decisions. This EA has been prepared to satisfy these requirements, as well as all applicable state requirements.

Proposed federal actions are classified into three different categories under NEPA. Class I actions are those that would "significantly" affect the environment and require preparation of an Environmental Impact Statement (EIS). Class II actions are those that do not have a significant effect on the environment. Typically called "categorical exclusions", Class II actions do not require preparation of an EA or EIS. Class III actions are those for which the significance of impacts is not clear. These actions require preparation of an EA to determine whether an EIS or Finding of No Significant Impact (FONSI) is the appropriate type of documentation. The proposed actions that require the preparation of this EA for improvements to The Ohio State University Airport include: a runway extension, installation of a runway navigational lighting and Instrument Landing System (ILS), a taxiway extension, obstruction removal, hangar construction, building improvements, and aviation easements.

Pursuant to FAA Orders 5050.4A and 1050.1E, the Existing Conditions and potential environmental impacts from implementing the Preferred Alternative (Scenario 4 in this report) were evaluated. This Wyle Report provides detailed descriptions of the various scenarios

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modeled including the Existing Conditions and Preferred Alternative Scenario (Scenario 4) and the results in terms of the noise environment. A summary of the methodology used for the analysis and the results presented in this report are incorporated in Section 4.0 of the EA report.

1.1 Study Methodology

The EA noise analysis was conducted in accordance with FAA Order 5050.4A, and Order 1050.1E. A noise analysis is required for utility type airports that exceed 700 annual adjusted jet operations or 90,000 annual adjusted propeller operations (USDOT 1985). The intent of federal and state regulations is to ensure that decision-makers and local communities are fully apprised of the potential for adverse noise effects resulting from the proposed actions. An assessment of noise impacts requires a complete understanding of the airport environment, the noise exposure resulting from existing operating conditions at the airport, and the anticipated noise exposure resulting from a series of alternative forecast operating conditions. Then, the noise exposure from the No Action forecast operating scenario is compared with the Preferred Alternative as one means of assessing the relative merits of the alternative.

OSUA is located in northwestern Franklin County and lies within the City of Columbus, Ohio. Franklin County is located in central Ohio, and the airport is approximately ten miles northwest of downtown Columbus. OSUA is owned and operated by The Ohio State University (OSU). The airport, also known as Don Scott Field, is approximately 1,400 acres in size. Figure 1-1 provides a map of the airport vicinity. The primary entrance to the airport is from West Case Road, which bounds the airport to the south. The airport is also bounded by Sawmill Road on the west, Dublin-Granville Road (State Route 161) to the north and Godown Road to the east. As the vicinity map shows, the airport is located in an area of mixed land use including residential neighborhoods, commercial and industrial development. Some of these land uses are considered sensitive to aircraft noise while others are not. Therefore, the project defined a study area throughout which noise exposure would be assessed.



Figure 1-1. OSU Airport Vicinity Map

In compliance with Order 1050.1E, the latest version of the FAA's Integrated Noise Model (INM), at the time version 6.1c, was used to analyze noise at OSUA. The INM has been the FAA's standard tool since 1978 for determining the predicted noise impact in the vicinity of airports. INM has many analytical uses, such as evaluating changes in noise impact resulting from new or extended runways or runway configurations, assessing new traffic demand and fleet mix, evaluating revised routing and airspace structures, and assessing alternative flight profiles or modifications to other operational procedures. INM outputs include noise contours used in land use compatibility studies, noise impacts by aircraft on individual flight tracks, and user-defined point analysis of noise impacts.

When conducting aviation noise analyses, exposure to noise resulting from aviation activities must be established in terms of the Day-Night Average Sound Level, which is abbreviated "DNL" in text and " L_{dn} " in equations. DNL is a cumulative measure of the average noise exposure during an average 24-hour calendar day. A 10 dB penalty is added to noise events occurring between 10:00 p.m. and 7:00 a.m. to reflect their greater intrusiveness and potential for disturbing sleep. Appendix A provides a detailed description of how the DNL is calculated, noise in general and its effects on the environment.

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The noise analyses conducted for the OSUA EA consist of field noise monitoring at select sites, as described in Section 2.0, and noise modeling to compute noise exposure throughout the study area. For the purpose of assessing adverse noise impact, the primary tool is the modeled assessment of noise exposure conducted according to federal standards. The noise modeling generated noise exposure maps for the Existing Conditions for Calendar Year 2003 (CY03) using the FAA's Integrated Noise Model (INM) version 6.1c, as described in Section 3.0. To more accurately analyze the potential airfield and operating conditions at OSUA in the future, the airport forecast of operations developed as part of the Master Plan Update was examined and projected under five different scenarios as described in Section 4.0. Section 5.0 provides an in-depth comparison of the Preferred Alternative (Scenario 4) versus the Existing Conditions.

Appendix A provides a comprehensive overview of aviation noise. Appendix B includes data from the noise monitoring program conducted in February 2004 and described in Section 2.0. Appendix C gives comparisons between field noise measurements and noise model calculations.