



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject: **INFORMATION:** Use of Integrated Noise Model (INM) Versions 6.1
and 6.2 in EIS for Proposed St. George Replacement Airport

Date:

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From: Director of Environment and Energy, AEE-1

Reply to
Attn. of:

To: Director of Airport Planning and Programming, APP-1
Attn: Dennis E. Robert

The Office of Environment and Energy (AEE), with the assistance of the U.S. Department of Transportation's John A. Volpe National Transportation Center's Environmental Measurement and Modeling Division, has reviewed the differences between INM Version 6.1 and 6.2 that are relevant to the St. George EIS noise analysis. The result of this evaluation is that there is no technical justification to support re-running the St. George EIS noise analysis with INM Version 6.2, as described more fully in the attached technical memorandum.



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Attachment

cc: Lowell Johnson, ANM-600 ✓
Ralph Thompson, APP-600
Jake Plante, APP-600

TECHNICAL MEMORANDUM

Differences between INM versions 6.1 and 6.2 as Applied to the St. George EIS

Background and Objective:

The noise analysis for the EIS associated with the proposed replacement of the St. George Airport has been conducted using INM Version 6.1, except for the audibility analysis for Zion National Park that has been performed using the soon to be released INM Version 6.2. Version 6.2 includes enhancements to model aircraft audibility in a national park environment as well as other enhancements, including those made to the underlying database. The FAA, with the technical assistance of the U.S. DOT Volpe National Transportation Systems Center, has reviewed the differences between INM Version 6.1 and 6.2 that are relevant to the St. George EIS noise analysis. This technical memorandum discusses pertinent changes made to INM Version 6.2, and how they might affect the noise results computed with Version 6.1.

Overview:

When assessing the differences in INM Versions 6.1 and 6.2 within the context of the St. George noise analysis, there are two broad areas of enhancements that are relevant – those related to the noise and performance database and those related to the core noise computational module. These two areas are discussed separately below.

Noise and Performance Database:

Changes to the noise and performance database can be grouped into two categories: new INM aircraft and updated data for existing INM aircraft.

Two new aircraft were added in Version 6.2 that are included in the St. George analysis: the Raytheon Beech 1900D (1900D) and the Piper PA30 Twin Comanche (PA30). These aircraft were represented by substitution aircraft in INM 6.1. As it turns out, the number of operations associated with these two aircraft types is so small that they will have no bearing on the overall results of the noise analysis. Specifically, a sensitivity study was conducted. As part of that study, the new aircraft noise levels used in the INM 6.2 database were determined to be noticeably quieter than those substitution aircraft noise levels used in the INM 6.1 database. Therefore, the St. George analysis that has been performed using INM 6.1 is more conservative because it represents a noisier worse-case scenario.

Numerous updates were also made to the existing aircraft database in INM 6.2. Only three of these updated aircraft have a substantial number of operations in the associated study area. These three aircraft are the Boeing 737-300 (737300), the Boeing 737-700 (737700), and the Boeing 757-200 with PW2037 engines (757PW). Of course, none of these aircraft operate in/out of the St. George Airport, but they do overfly the larger study area and are considered in the assessment of cumulative noise exposure. The noise data for these three aircraft/engine combinations did not change from Version 6.1 to 6.2.

However, the aircraft weight-to-stage-length assumptions were updated for approach and departure. Because these aircraft only perform overflights in the study area, the modeled results will not change if the analysis was conducted with Version 6.2 as compared with 6.1.

Core Noise Computational Module:

The relevant change made to the computation module in INM 6.2 is the addition of the line-of-sight (LOS) functionality. Line-of-sight accounts for the blockage of noise by terrain features in INM. Therefore, using LOS would result in lower noise levels than would be generated in INM without using LOS. Since LOS was not available in INM 6.1, the St. George analysis that has been performed using INM 6.1 is more conservative because it represents a noisier worse-case scenario.

Calculations for Metrics in Draft EIS:

The calculations for the metrics used in the St. George Draft EIS have not changed in INM 6.2. The addition in INM 6.2 of a 100 percent cap on Percent Time Above Ambient does not affect the St. George Time Above Ambient analysis.

Conclusion:

For the reasons cited above, there is no technical justification to support rerunning the St. George EIS noise analysis with INM Version 6.2.