

The work on the noise analysis for the St. George EIS began in the summer of 2004, using the current publicly-available noise model INM 6.1. The analysis uses a variety of noise metrics. The Draft EIS did not include audibility, because INM Version 6.1 does not have the capability to calculate audibility. However, at the request of the National Park Service (NPS), a separate audibility analysis was conducted for Zion National Park using INM Version 6.2b<sup>3</sup>, which. The results of the audibility analysis are presented in **Appendix T, Audibility Evaluation for Zion National Park**, in the Final EIS. A sensitivity analysis was also conducted for Zion National Park and is presented in **Appendix U, 15-Hour Sensitivity Analysis**, in the Final EIS. FAA and NPS have reviewed the results of the multi-metric noise analysis and have agreed that it is reasonable to rely on these metrics plus an additional Time Above Ambient, A-weighted analysis to represent possible aircraft related impacts on the natural soundscape of Zion National Park. The metrics show a consistent pattern of noise impacts of the proposed replacement airport, both as an individual project and on the basis of its cumulative effects. For FAA's National Environmental Policy Act (NEPA) analyses, audibility is a supplemental metric that may be used, but is not a required or designated a key metric.

### 7.2.3.5 Aircraft Noise Exposure of Zion National Park Management Zones

This portion of the EIS cumulative noise analysis depicts aircraft-related noise at Zion National Park by percentage of day and by percentage of area in park management zones, using "Percent Time Above Natural Ambient L50 Sound Level (%TAA) A-Weighted." These zones, established in the 2001 Zion National Park General Management Plan (GMP)<sup>4</sup>, are displayed in **Exhibit 7.21** in the Draft EIS. For purposes of this analysis, the FAA and NPS have agreed to the use of the %TAA A-weighted descriptor to depict aircraft-related noise in Zion National Park.

The park had made clear their soundscape goals in terms of Percent Time Above Ambient-Unweighted, Percent Time Audible, and L<sub>Amax</sub>. These goals are specific to Zion National Park and represent the park's expression of a desired condition.<sup>5</sup> No nationwide NPS noise criteria or standards currently exist, although the FAA and NPS are engaged in a national research and management program to develop such

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<sup>3</sup> The audibility evaluation for this study was performed with the latest (beta) version of INM 6.2b, noted in this document with the suffix "b."

<sup>4</sup> Soundscape goals were communicated by the Zion National Park Superintendent to FAA in two letters, dated February 4 and April 26, 2005. (See **Appendix N, Coordination with the National Park Service**.)

<sup>5</sup> Desired Future Conditions are used to establish resource and visitory experience objectives as specified in National Park Service Management Policies, Chapter 2.2, 2001 and *Program Standards for Park Planning*. National Park Service, 2004.

criteria for National Park overflights.<sup>6</sup> Analysis of LAm<sub>ax</sub> in terms of numbers of events above various thresholds is addressed in **Section 7.2.3.3** and Percent Time Audible is discussed above in **Section 7.2.3.4**.

Percent Time Above Ambient-A-Weighted should be distinguished from Percent Time Above Ambient-Unweighted (1/3 octave bands, 20-20,000 Hz). Percent Time Above Ambient-Unweighted is a standard NPS proposes to use to manage soundscapes in Zion National Park. A-weighting reflects human hearing capabilities, while an unweighted metric is intended to monitor sound at frequencies beyond the limitation of human hearing that may affect other park resources. Neither NPS nor FAA can currently assess noise with unweighted metrics because all existing models assess noise only relative to weighted metrics.

**Exhibits 7.22 through 7.25** (revised and included in this Final EIS) present graphic depictions of the %TAA (A-weighted) attributable to aircraft-related noise over the various grid points within the park.

**Table 7.11A** (in the Draft EIS) reports the percentage of time each grid point within Zion National Park is exposed to cumulative aircraft noise, based on %TAA (A-weighted). Information is presented for 2010 and 2020 for conditions for the existing SGU and for the proposed replacement airport.

Percent area provides a spatial representation of aircraft noise within each park management zone. **Table 7.11B** (in the Draft EIS) provides the percent of area within each management zone exposed to cumulative aircraft noise, based on %TAA (A-weighted) for two alternative airport conditions (existing airport and replacement airport) in 2010 and 2020.

Cumulative aircraft noise in this analysis includes all aviation traffic input data from the various sources described previously for other noise metrics described in **Chapter 6** and **Chapter 7**. The exhibits indicate that the southeast quadrant of the park is the area most affected by cumulative aircraft noise from all aviation sources. The two tables indicate little variation in time and acres impacted in the five zones between the two alternative conditions.

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<sup>6</sup> Air Tour management Plan (ATMP) Program.