Appendix E

DISCUSSION OF NOISE-BASED USE RESTRICTIONS

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MEMORANDUM

To:	City of Scottsdale
Copy	James Harris, Coffman Associates
From:	Ted Baldwin
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Reference:	Scottsdale Airport FAR Part 150 Noise Compatibility Study Update

1. Introduction

Federal Aviation Regulation ("FAR") Part 150, "Airport Noise Compatibility Planning", requires airports to consider several specific categories of Noise Compatibility Program (NCP) alternatives. One of those categories is noise-based "use restrictions", that the regulation defines as:

> The implementation of any restriction on the use of the airport by any type or class of aircraft, based on the noise characteristics of those aircraft. Such restrictions may include, but are not limited to –
>
> (i) Denial of use of the airport to aircraft types or classes that do not meet Federal noise standards
>
> (ii) Capacity limitations based on the relative noisiness of different types of aircraft
>
> (iii) Requirement that aircraft using the airport must use noise abatement takeoff or approach procedures previously approved as safe by the FAA
>
> (iv) Landing fees based on FAA certificated or estimated noise emission levels or time of arrival
>
> (v) Partial or complete curfews

Residents have expressed interest in consideration of use restrictions to address noise concerns at Scottsdale Airport (SDL). At the workshop on March 31, 2004 at the Gray Hawk Elementary School, attendees identified the following suggestions that generally fall under the use restriction category:

- Curfew (10 p.m. – 6 a.m.)
- Restrict noisier aircraft
- Change voluntary curfew to 9 p.m. – 6 a.m.
- No future passenger commercial flights
- Penalties for not following the rules. Follow the existing rules
- Incentives for quiet aircraft
- No military aircraft

This memorandum summarizes the federally mandated processes that Scottsdale would have to follow to pursue these and other types of restrictions.

Section 2 summarizes recent precedents related to consideration of restrictions at other airports. It focuses on a particularly relevant "case study", based on experience that HMMH gained assisting the Naples Airport Authority to pursue a use restriction for Naples Municipal Airport (Florida).

Section 3 provides a more detailed description of major regulatory issues related to the consideration and adoption of use restrictions, for readers who are interested in more in-depth background.

Section 4 presents conclusions based on the insights gained from consideration of precedents and the regulatory summary, and briefly addresses the suggestions raised at the public information workshop.

2. Recent Precedents

It is probably fair to say that *mandatory* use restrictions represent the most controversial category of noise compatibility alternatives. While measures that airports apply on a strictly *voluntary* basis, such SDL's existing voluntary curfew, are less controversial, aviation industry interests closely monitor the implementation of such measures, to ensure that they are truly voluntary. Any penalty for non-compliance, or even a *positive* incentive for compliance with an otherwise voluntary measure, would face a challenge. Based on precedents at other airports, aviation industry groups most likely to challenge a use restriction include the FAA; trade associations, such as the National Business Aviation Association (NBAA) and the Aircraft Owners and Pilots Association (AOPA); and also individual airport users and businesses, such as fixed-base operators.

As discussed in Section 3, the FAA established a regulation in 1991 ("FAR Part 161, Notice and Approval of Airport Noise and Access Restrictions"), which defines procedures for airports to follow in pursuing most use restrictions. Fewer than a dozen airports have seriously initiated this process, and only Naples has pursued it to conclusion. Other airports have cut the effort short for a variety of reasons, including: intense industry opposition, unpromising intermediate results, strong negative comments from the FAA on initial study submissions, or negotiation of a compromise with affected parties that did not involve mandatory restrictions.

Naples Case Study

HMMH was the prime consultant on the Naples Part 161 study, which began in 1999 and led to the Authority adopting a ban on older, noisier Part 36 "Stage 2" jet operations at the airport, effective March 1, 2003. (Section 3.1 describes aircraft "Stage" classification under Part 36.) The Naples restriction is the only truly new mandatory noise-based restriction adopted at an U.S. airport since 1990. While every airport situation is unique, the SDL and Naples situations have many parallels, in terms of activity at the airport, noise exposure, and community interests. Naples offers the best precedent for consideration of potential restrictions at SDL.

The Naples ban focused on Stage 2 jet operations because they were the principal source of noise impact that caused community concern. The ban provided a means of accomplishing the goal of eliminating all non-compatible land use in the least restrictive manner possible. While complaints were not a basis for justification of the restriction, they did illustrate the out-of-proportion impact of Stage 2 jets. Although Stage 2 jets accounted for less than one percent of activity at the airport, they were the basis for approximately 38% of all noise complaints. (Table 3B of the draft documentation that Coffman Associates has developed for the SDL Part 150 update indicates that Stage 2 jets are responsible for approximately two percent of current operations.)

At the conclusion of the prolonged study effort, the FAA officially found that Naples had satisfied all applicable Part 161 requirements; the first and only time the FAA has made such a finding. However, despite this positive result, the Naples' subsequent adoption of the restriction triggered an FAA ruling that the restriction violated a prior "grant assurance" that the Authority made when accepting funding in the past. As a result of this ruling, the FAA has suspended Naples' eligibility to obtain further federal grants or to collect "passenger facility charges". Naples has exhausted administrative procedures for contesting this ruling and currently is preparing to file an appeal in court. The appeal process is expected to continue into 2005.

The FAA's primary basis for finding that Naples had violated the grant assurance provision was that the ban is not adequately justified by existing non-compatible land uses. Specifically, the FAA objected to the fact that Naples based the calculation of benefits on reduction in population between the 60 and 65 decibel (dB) Day-Night Average Sound Level (DNL) contours. (Through previous

noise abatement efforts developed in a series of Part 150 studies, Naples had succeeded in shifting the 65 dB DNL contour away from all residences and other potentially non-compatible land uses.)

Part 161 requires airports to follow Part 150 processes for calculating the benefits of a restriction. Part 150 mandates use of the yearly DNL to determine the extent of noise impact. Part 150 includes a land use compatibility table, which indicates that all land uses are compatible with noise exposure outside of the 65 dB DNL contour.[1] However, a footnote to the table clearly states that local authorities retain responsibility for determining acceptable and unacceptable land uses.

At Naples, prior to the Part 161 effort, the airport had worked with the two local land use control authorities (the City of Naples and Collier County) to establish compatibility criteria that extended to 60 dB DNL, essentially increasing the stringency of the Part 150 guidelines by five decibels. In 1998, the City adopted an ordinance that established 60 dB DNL as the limit for land use compatibility. In 2000, the County adopted the 60 dB DNL contour as the basis for defining the "airport noise zone", which sets notification and sound insulation requirements. The FAA accepted a "substitute" land use compatibility table presenting these more stringent criteria, which Naples submitted in a Part 150 Noise Exposure Map in 2000. Despite these actions and a well-documented record of conscientious enforcement by both jurisdictions, the FAA made its own independent assessment and determined that local conditions did not justify definition of a noise problem outside of 65 dB DNL.

At Naples and other similar situations, FAA has taken the position airports must identify "reasonable circumstances" for considering benefits outside of 65 dB DNL, but has rejected all efforts to justify such circumstances, and has resisted providing any guidance on what would constitute acceptable justification. In practice, the FAA has treated 65 dB DNL as a "bright-line" regulatory threshold, rather than a guideline, as defined in Part 150.

This aspect of the Naples case study is particularly relevant at SDL, since the 65 dB DNL contours that Coffman Associates has prepared for 2004, 2009, and 2025 do not encompass any dwelling units or other potentially non-compatible land uses. This situation represents a significant impediment to adoption of a mandatory use restriction.

The five-year Naples effort has been extremely costly. HMMH's total related consulting fees were in excess of $500,000. While we do not have firm figures on related legal fees, the total expense of the Part 161 study, associated consultation and notice, the FAA administrative review process, and defense against related third-party litigation reportedly has been in the range of $1 to $1.5 million.

Other Part 161 Precedents

While Naples is a particularly relevant precedent for SDL, and the only example of a "complete" Part 161 process to date, experiences at other airports support the fact that any use restriction effort will be extremely controversial, time-consuming, and costly, and will face strong FAA and industry opposition. As noted previously, most other airports have abandoned Part 161 efforts prior to completion. For example, in addition to Naples, HMMH has had lead responsibility on Part 161 studies at Portsmouth, NH (prevention of noise increase associated with conversion of Air Force Base to commercial use); San Francisco, CA (extension of existing nighttime restriction); and San Jose, CA (Stage 2 restriction).

All of these studies have been interrupted, either temporarily or permanently. The Portsmouth study is on hold based largely on FAA feedback related to limited justification for a restriction. San

[1] Chapter 4 of the draft documentation Coffman Associates has prepared for this study introduces Part 150 guidelines for assessing noise impacts. Exhibit 4-A.reproduces the Part 150 compatibility table.

Francisco withdrew its application to the FAA when the affected operators agreed to comply on a voluntary basis. San Jose terminated its study based on initial results, which indicated that the benefits of the restriction did not justify the costs.

One airport, Burbank-Glendale-Pasadena (California), is in the process of preparing a Part 161 study to address nighttime noise exposure. The airport, which initiated that study in 2000, recently submitted a partial draft analysis to the FAA for consideration. In May 2004, the FAA provided a "guidance letter" that presented comments from the agency's "Part 161 Review Team". While Burbank represents a very different situation from SDL in terms of airport operations and noise exposure, the FAA's response provides valuable insight into the agency's most current thinking on Part 161 issues.

The FAA found that the proposal for a full curfew "would not be consistent with statutory requirements that a restriction be reasonable, nonarbitrary, an nondiscriminatory." Major factors leading the FAA to this conclusion included:

- The voluntary curfew had a compliance rate of 97%, which, in the FAA's view, significantly reduces the justification for a mandatory rule. In effect, that perspective benefits uncooperative operators at the expense of those who respond to the request for voluntary assistance, and restricts the airport's ability to address the residual noise problem.
- Consistent with its previous feedback on similar proposals at other airports, the FAA found that a full curfew might discriminate against quieter aircraft that may not contribute measurably to noise exposure. The FAA looks for justification of the full scope of a restriction.
- The FAA objected to the use of "supplemental noise metrics to change the noise study area for analysis purposes beyond the boundaries of the 65 CNEL." CNEL is a variant of DNL used in California. The supplemental metrics included predicted sleep awakenings. Once again, the FAA is demonstrating its interpretation of the 65 dB contour as an absolute federal criterion, rather than a guideline as stated in Part 150.
- The FAA also noted that the draft analysis did not specifically address the six statutory tests for a Stage 3 restriction (as discussed in Section 3.1).

The Burbank precedent clearly adds to the evidence that FAA is reviewing Part 161 submissions in a very stringent manner, with the objective of placing very high barriers to the adoption of restrictions. The budget for this study to date has reportedly been in the range of $2 to $4 million.

3. Regulatory Framework

Federal regulations and legal precedent have split the regulation of airport noise among the federal government, airport proprietors, and local land use control jurisdictions. The federal government has retained the right to control noise at the source. Airport operators have the right to develop noise abatement operating procedures and certain restrictions on the operation of aircraft. Local land use control jurisdictions can regulate land uses to limit incompatibility. However, within this basic framework, there are many areas of overlapping responsibility. For example, airports enlist the FAA to assist in implementation of many noise abatement procedures, such as noise abatement flight tracks and preferential runway use programs, and airports and the FAA can assist local jurisdictions in funding compatible land use measures, such as sound insulation, and all three entities cooperate in the conduct of Part 150 studies.

In the context of use restrictions, the two principal areas of regulation are federal source noise control, and notice and approval of local noise and access restrictions under Part 161.

3.1 Federal Source Noise Control

In 1968, Congress amended the Federal Aviation Act to require the FAA to impose rules to control aircraft noise. This mandate was reaffirmed and strengthened in the Noise Control Act of 1972. In response, the FAA adopted FAR Part 36 ("Noise Standards: Aircraft Type and Airworthiness Certification"), which imposed noise standards for newly certified aircraft types and designs.

In 1973, the FAA amended Part 36 to require that all newly manufactured aircraft meet the new noise standard. In 1976, the FAA required that all aircraft in operation weighing more than 75,000 pounds meet the new noise standard by 1985. This requirement could be met by replacing non-complying aircraft with compliant models, or by retrofitting aircraft to meet the new noise standard. Aircraft operations at SDL are limited to aircraft weighing less than 75,000 pounds. Therefore, the phase-out of Stage 1 types over that weight has produced no benefit at SDL.

In 1977, the FAA amended Part 36 again by adopting a new, quieter noise standard and thereby creating three separate levels or "stages". Stage 1 includes all aircraft that did not meet the original noise standard (or that have not been formally tested and certificated). Stage 2 includes all aircraft that met the noise standard originally announced in Part 36 but that did not meet the quieter standard set forth in the 1977 amendments to Part 36. Stage 3 includes all aircraft that met the standard announced in 1977.

Similar to the first round of amendments to Part 36, the FAA later increased the burden to require that all newly manufactured aircraft meet Stage 3 noise levels. In 1990, Congress enacted the Airport Noise and Capacity Act ("Noise Act"), which prohibited the operation of all Stage 2 aircraft weighing more than 75,000 pounds after December 31, 1999. Once again, the SDL ban on operations over that weight means that the Stage 2 phase out has yielded no local benefit.

In December 2003, the FAA proposed another amendment to Part 36 that would establish a new noise level: Stage 4. The FAA has proposed to require that all applications for new aircraft type certifications submitted on and after January 1, 2006, demonstrate compliance with the Stage 4 noise levels. FAA has not yet issued a final rule on Stage 4.

As a result of these incremental actions by Congress and the FAA over the last 33 years:

- All civil aircraft operating in the U.S. weighing more than 75,000 pounds are Stage 3; this includes aircraft manufactured to meet Stage 3 and Stage 1 or 2 aircraft that have been modified or "hush-kitted" (physically or through operational procedures) to comply.
- There are an undetermined number of Stage 1 and 2 aircraft weighing less than 75,000 pounds still operating in the U. S. Recent estimates place the number of Stage 1 aircraft at approximately 100 and the number of Stage 2 aircraft at approximately 2,000. The remaining aircraft weighing less than 75,000 pounds comply with Stage 3 noise levels.
- If the FAA follows through on Stage 4 as proposed, newly certified aircraft types will meet prescribed noise levels starting in 2006; however, this will not affect (i) currently certified aircraft types and designs (which will continue to be manufactured after 2004) and (ii) any existing aircraft. Further, in proposing the Stage 4 rule, the FAA stated that by 2006 virtually all aircraft will meet Stage 4 noise levels by using currently available noise reduction technologies.
- The 75,000 pound cut off for the Stage 1 and 2 phase outs fails to address the older, noisier types that operate at SDL, under its 75,000 pound weight limit. This situation is directly comparable to Naples, where the airport has adopted an identical weight limit. Naples and SDL have not benefited from the federal phase out of older noisier aircraft over that weight.

3.2 Notice and Approval of Local Noise and Access Restrictions under Part 161

In addition to mandating the phase out of Stage 2 operations over 75,000 pounds, the 1990 Noise Act also defined procedures for airports to follow in imposing noise and access restrictions on Stage 2 and 3 aircraft. FAA implemented these requirements in Part 161. Part 161 imposes onerous requirements that airports must satisfy prior to implementing certain types of noise rules. The first question to ask therefore should be "Is the proposed action subject to the Part 161?" While this can be a hard question to answer, the following general rules provide some guidance.

Part 161 applies to:

- Any regulation, lease provision or other mandatory restriction or requirement limiting the operation of Stage 2 or 3 aircraft.
- Any amendment to a regulation adopted before November 1990 that further restricts the operation of Stage 2 or 3 aircraft.

Part 161 does not apply to:

- Aircraft operational procedures overseen by the FAA, such as preferential runway use, noise abatement approach and departure procedures and profiles, and flight tracks.
- Restrictions on taxiing and aircraft engine run-ups that do not affect the number of Stage 2 or 3 aircraft that can use an airport or the hours of operation.
- Voluntary restraints on operations.
- Binding agreements entered into voluntarily by the airport and one or more airport users.
- Restrictions on Stage 1 aircraft only.
- Restrictions on aircraft operations based on pavement weight-bearing capacity or similar airport-related constraints that are not designed to reduce noise.
- Any restriction on Stage 2 aircraft that was proposed before October 1, 1990, and any restriction on Stage 3 aircraft that was in effect before October 1, 1990.

These are general rules and do not address every possible restriction. The scope of the law is uncertain for two reasons. First, Part 161 applies to any "noise or access restriction," which is defined very broadly and includes, for example, "any other limit on Stage 2 or Stage 3 aircraft that has the effect of controlling airport noise." Further, the FAA considers the airport's intent and motivation for imposing a restriction in deciding whether Part 161 applies. If the FAA believes that an airport is imposing a restriction that is motivated by or intended to control noise, the FAA may conclude that the restriction is subject to Part 161.

Airports that adopt Stage 2 or 3 restrictions without following the Part 161 process may lose eligibility for AIP grants and authority to impose Passenger Facility Charges, unless they rescind the restriction upon notice from the FAA. However, as the Naples case study indicates, compliance with Part 161 dies not guarantee continued eligibility for these funding sources, as the result of FAA's interpretation that the Noise Act does not pre-empt previous grant assurances.

General Part 161 Requirements

Although Part 161 requirements differ for Stage 2 and 3 aircraft, several rules apply to both. Most important, the airport must prepare a technical study for either Stage 2 or 3 restrictions that analyzes the benefits and costs of the proposed restriction and its alternatives, and that provides opportunity for public comment. As revealed in the Naples and Burbank cases, the FAA has revealed a strong preference for limiting the quantification of benefits to areas within the 65 dB DNL contour.

The airport's application must demonstrate that the benefits of the proposed restriction exceed the costs. The application also must include any environmental documentation that may be required under the National Environmental Policy Act

These onerous conditions make it abundantly clear that the FAA will approve a Stage 3 restriction only in exceptional circumstances, consistent with Congress' intent in the Noise Act to protect that class of aircraft. FAA has considerable discretion to disapprove an application on a variety of grounds. FAA policy and practice also make approval difficult, and no Stage 3 restriction has been approved by the FAA pursuant to Part 161.

Implementing Restrictive Measures Not Subject to Part 161

Federal law and regulation lack the same type of direction for restrictions that are not subject to Part 161, such as restrictions on Stage 1 aircraft. This does not mean that other types of restrictions are unregulated. All noise rules must be reasonable, nonarbitrary and not unjustly discriminatory, to satisfy constitutional standards.

In addition, as revealed in the Naples case study, airports must comply with FAA grant assurance provisions, in particular Grant Assurance 22(a), "Economic Nondiscrimination", which states that an airport sponsor "will make its airport available as an airport for public use on fair and reasonable terms and without unjust discrimination to all types, kinds, and classes of aeronautical use." FAA judges compliance with this grant assurance provision using FAA Compliance Order 5190.6A (Chapter 4, Section 2, paragraph 4-8f), which requires that a proposed restriction addresses the same six issues that Part 161 requires for FAA consideration in the case of a Stage 3 restriction.

4. Conclusions

Based on the preceding discussions of precedent, the current status of the regulatory framework related to use restrictions, and relevant facts at SDL, we believe that it would be highly inadvisable for Scottsdale to pursue a mandatory restriction at this time. Major factors contributing to this conclusion include:

- The absence of non-compatible land uses within 65 dB DNL, and the associated likelihood that this circumstance would lead to strong FAA opposition to a restriction.
- The uncertain status of the Naples appeal process.
- The likelihood that a use restriction effort would lead to strong opposition and litigation from airport users and industry groups, potentially jeopardizing existing relationships and cooperative efforts to control noise exposure through operational noise abatement measures.
- The effort and expense that a Part 161 effort would entail.

At a minimum, Scottsdale should wait until the conclusion of the Part 150 update, to identify the benefits that may be achieved through non-restrictive means, and also wait until the conclusion of the Naples appeal process, to determine whether it reverses the FAA's ruling on consideration of benefits outside of 65 dB DNL. Even if Naples obtains such a reversal, Scottsdale should consider the extraordinary efforts that Naples undertook to justify the 60 dB DNL compatibility criteria, including the extremely high level of cooperation from the local land use control jurisdictions in adopting and enforcing land use compatibility. In the absence of this level of cooperation, any legal precedent established at Naples justifying the use of the 60 dB DNL contour would not apply at SDL.

Based on the preceding background, the following observations can be made related to the seven specific use restriction suggestions raised at the public information workshop:

- *Curfew (10 p.m. – 6 a.m.)*: Since a curfew would affect Stage 2 and 3 operations, it would require SDL to conduct a Part 161 process addressing both categories of aircraft.
- *Restrict noisier aircraft:* Since "noisier aircraft" would almost certainly affect Stage 2 operations, it would require SDL to conduct a Part 161 process addressing that category of aircraft.
- *Change voluntary curfew to 9 p.m. – 6 a.m.:* If this change were made in an absolutely voluntary manner, with no penalties or incentives of any type, it would not trigger a Part 161 process.
- *No future passenger commercial flights:* Since a ban on commercial flights would affect Stage 2 and 3 operations, it would require a Part 161 process addressing both categories.
- *Penalties for not following the rules. Follow the existing rules:* Since a curfew would affect Stage 2 and 3 operations, it would require a Part 161 process addressing both categories.
- *Incentives for quiet aircraft:* Since the incentive would almost certainly not apply to Stage 2 operations, it would require a Part 161 process addressing that category of aircraft.
- *No military aircraft:* Military operations are exempt from any form of use restriction.

Once again, as revealed in the Naples case study, pursuit of any restriction outside of the Part 161 process, regardless of the Stage classification of the affected aircraft, might trigger FAA review based on prior grant assurances, with justification requirements that are essentially the same as those for a Stage 3 restriction.