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June 13, 2008

**By Electronic Mail and Fax**

Part 161 Comment Docket  
Burbank-Glendale-Pasadena Airport Authority  
Bob Hope Airport  
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Burbank, CA 91505  
Fax (818) 848-1173  
nightnoise@bur.org

**Re: Comments of the National Business Aviation Association, Inc.**

Dear Authority Members:

On behalf of the National Business Aviation Association, Inc. (NBAA), we offer these comments on the Part 161 Study prepared for the Authority by Jacobs Consultancy (Jacobs Study). NBAA also commissioned GRA, Inc., a nationally recognized firm specializing in transportation economics, to do a review of the Jacobs Study. That review (GRA Review) is attached as Exhibit A and should be considered part of NBAA's comments.

The Authority is familiar with NBAA and its role as the principal spokesperson for companies that use general aviation aircraft in the furtherance of their businesses. NBAA has more than 8,000 member companies. Those members, including the four that have aircraft based at BUR as well as the hundreds that use the airport on a transient basis, are dedicated not only to the promotion of business aviation but also to being a good neighbor in the communities where they operate.

NBAA long has looked at BUR as a success story in that regard. Whether it is developing and encouraging the use of NBAA's Noise Abatement Procedures, which have been specifically incorporated in the Authority's Rule 3, or encouraging observance of the Authority's voluntary nighttime curfew, NBAA and its members have done everything possible to minimize aircraft noise at BUR – and with great success. The 65 CNEL contour has shrunk substantially over the years<sup>1</sup> through a combination of voluntary measures and pre-ANCA operating restrictions; and the reasonable expectation, as opposed to the unsupported hypothesis in the Jacobs Study, is that it will continue to shrink in the future.

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<sup>1</sup> See Jacobs Study, Figure 2-1.

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During the same period, the importance of BUR to the community and to the national air transportation system has increased dramatically. The just released Bob Hope Airport Economic Impact Study estimates the 2006 dollar value of the Southern California economic activity attributable to BUR at *\$3.9 billion*, more than triple the 1993 figure. The full-time equivalent employment number more than doubled to over *36,000 jobs*.<sup>2</sup> These are the earmarks of a major economic engine, an engine that is dependent, in part, on 24-hour access.

Given these successes, is it reasonable to partially close a major airport in a busy metropolitan area, an airport that has been open for public use since 1930? That really is the bottom line in this matter – reasonableness versus unrealistic, and unlawful, expectations. Being a good neighbor should apply to both sides of the fence. Unfortunately, the curfew options considered in the Jacobs Study would punish the operators at BUR for their past success; and, if implemented in any form, would work to the great detriment not only of those operators but of the broad and diverse community served by the Airport.

### **Preliminary Matters**

On April 9, 2008, GRA requested the following backup data from Jacobs that had been omitted from the public docket:

- The backup survey information for the operator interviews conducted in July 2006 by Jacobs or its subcontractor, Conklin & deDecker. This is the type of information routinely provided to anyone wishing to understand and test survey results.
- The flight schedules used to run the FAA's Integrated Noise Model (INM). These schedules were used to expand the 65 CNEL contours. Again, this is routine information needed to understand and test the model.
- Explanations of how unit costs were calculated. In most cases, the unit costs were undocumented.
- The technical report relied upon for modeling residential real estate values.

With the exception of the last item that later was placed in the docket and the results of one survey interview, counsel for the Authority took the position that this information was subject to attorney client privilege. Our exchange of correspondence with counsel on this matter is attached as Exhibit B. Needless to say, we know of no privilege that would attach and see no way in which the Authority would be prejudiced by the release of this essential information (except to the extent that this information would further undercut the study's conclusions). At numerous points in the GRA Review, the absence of this data and its effect is noted.

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<sup>2</sup> The Economic Impact Of Bob Hope Airport 2006, Executive Summary, at ES-7 (May 2008). NBAA has not seen the full report.

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The refusal to provide this information is, of and by itself, a fatal flaw in the notice and comment process.

### **Analytical Framework**

The FAA's letter to the Authority's consultants (dated May 19, 2004) addressed the analytical framework for its Part 161 review of a Stage 3 restriction such as a curfew. The restriction must be reasonable, non-arbitrary and non-discriminatory. There must be "a demonstrated noise problem and the existence of non-compatible land uses." The monetized benefits of the restriction must "have a reasonable chance to exceed the estimated potential cost of the adverse effects on interstate and foreign commerce." The restriction must truly be the measure of last resort, *i.e.*, other measures either are infeasible or less cost effective. Finally, and most importantly, the restriction must reflect a "balanced approach" to noise-related access restrictions, *i.e.*, an "approach under which the potential benefits reasonably exceed the potential burden on commerce and that fairly considers both local and Federal interests."<sup>3</sup> The "Federal interests" include "maintaining the efficiency and capacity of the national air transportation system and ensuring that Federally-funded airports maintain reasonable public access."

The FAA noted that this framework applied against a factual background that "raised the bar in terms of evidence that will be required to justify the need for, and benefits of, a mandatory curfew." This included: (i) an existing voluntary air carrier curfew that controlled nighttime noise at BUR; and (ii) operations during curfew hours by smaller and quieter aircraft. For these reasons, the FAA found that the draft study completely failed to justify a curfew.

What has changed in the last four years? The answer is *nothing* has changed that would support a curfew. To the contrary, the 65 CNEL contour has continued to shrink as operators, and particularly business jet operators, have introduced the next generation aircraft. With fuel costs soaring to astronomical levels and the economy in or near a recession, scheduled airlines are drastically pulling down schedules and cutting back their fleets, and all general aviation is facing difficult times. Nonetheless, the Jacobs Study has produced a benefit/cost analysis that purports to show that the benefits of a curfew would exceed its costs and that a nighttime curfew would be reasonable.

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<sup>3</sup> The term "balanced approach" generally refers to the International Civil Aviation Organization's guidance for aircraft noise management. It is consistent with the FAA's interpretation of its statutory authority and was formally adopted by the FAA in September 2004. "Guidance on the Balanced Approach to Noise Management," Advisory Circular No. 150/5020-2 (September 28, 2004).

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### **The Benefit/Cost Study Is Not Credible**

With all respect, the Jacobs Study has all the earmarks of a work that has been reverse engineered, starting with the desired result and working backwards. Consider the following:

1. Since the success of noise mitigation measures at BUR has greatly reduced the non-compatible uses within the 65 CNEL contour and in any rational view would continue to do so in the future, there are no cognizable benefits to be expected from a curfew. To conjure up benefits, you first have to expand the 65 CNEL contour in an “unrestricted” scenario, then shrink it because of the curfew. Jacobs managed to move 285 acres and 1,182 dwelling units within the 65 CNEL contour between 2005 (the last actual experience) and 2015 by projecting, against experience, *increases* in operations. The GRA Review, at 7-15, goes into this in detail, including the following:

- Overall jet operations are projected to grow at a rate of 3.2% per year, with the heaviest growth at night. The INM gives a 10-decibel penalty to a nighttime operation, which effectively doubles the noise attributed to that operation. This has the effect of pushing the 65 CNEL contour out in the model.
- Nighttime commercial jet operations are projected to *triple* in the period 2005-2015, primarily attributable to increased passenger service. This is the stuff of pure fantasy,
- Business jet operations also are projected to increase substantially at night, primarily because of the emergence of Very Light Jet (VLJ) aircraft. As GRA notes, the success of VLJs is hardly a foregone conclusion, and their impact on any airport is unsupported speculation.
- Jacobs fails to take account of business aviation’s increased reliance on the latest generation of Stage 4 jet aircraft, the quietest jet aircraft ever manufactured. At the same time, the Study observes that the *only* jets that could operate if the proposed 253 EPNdB curfew were imposed (other than VLJs) would be new model business jets. Jacobs Study, at 3-7.

2. The Jacobs Study further expanded the 65 CNEL contour to include street and neighborhood boundaries *outside the INM contour*. While the FAA recognizes this to a limited extent for noise attenuation funding, it must be confined to a “reasonable additional number of otherwise ineligible parcels contiguous to the project area, if necessary to achieve equity in the neighborhood. Neighborhood or street boundary lines may help determine what is reasonable, in addition to numbers of properties.” Airport Improvement Program (AIP) Handbook, FAA Order 5100.38C, § 810.b (June 28, 2005). Exhibit C hereto enlarges the 2015 noise contour map in Figure 4-1 of the Jacobs Study for the areas to the north, south and west of the airport, the areas where the Study claims noise treatment savings. It is apparent that most of the savings are claimed for properties not only outside the exaggerated 65 CNEL contour but *blocks outside that contour*.

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3. Having expanded the 65 CNEL contour without support, and then gone farther outside that contour, the Jacobs Study next proceeds to shrink the contour because of the curfew, *i.e.*, the theoretical additional nighttime operations largely are eliminated. As GRA states in its review, “the reduced 65 CNEL due to the restriction depends on eliminating nighttime flying that has never taken place.” *Id.* at 14.

4. The next step was to assign cost savings to the shrinkage of the 65 CNEL contour. Most of the savings are attributed to reductions in the cost of acoustically treating dwelling units, at an average cost of \$43,000 each. There is no explanation of how this cost was computed. As the GRA Review notes, the last noise attenuation program undertaken by the Authority averaged \$27,635 per unit and the accompanying press release estimated a cost of \$35,000 per unit. *Id.* at 6-7. That difference, alone, would eliminate the projected excess of benefits over costs.<sup>4</sup>

5. The balance of the projected benefits were based on the projected increase in the value of the homes in the expanded 65 CNEL contour once the curfew was in place. Two methods were used. One was a survey of local residents asking them what they would pay to avoid the nighttime flights. This is not a valid way to approach this issue. As the GRA Review says, “when over three-quarters of the people interviewed will not pay anything or aren’t sure what they would pay, it is inappropriate to draw **any** conclusions from the survey.” *Id.* at 17. The other method was a so-called “hedonic pricing model.” The GRA Review goes deep into this esoteric area, but suffice it to say that the model used is statistically unreliable. *Id.* at 17-20.

6. With the overstated and unsupported benefits on one side of the ledger, the Jacobs Study then undertook to define the costs that a curfew would inflict. However, in doing so the Jacobs Study:

- Assumed that most general aviation operators would not be forced to move their base of operations to other airports, although the survey conducted by Jacobs and a survey conducted by GRA indicated the opposite. This substantially reduced the costs. GRA Review at 14-15.
- Largely ignored the costs to other airports and other communities in the Los Angeles basin arising from the transfer of operations.
- Provided not a clue as to how most of the unit costs were calculated.

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<sup>4</sup> The GRA Review, at 7, also notes that there “is likely to be wide variation in the cost to acoustically treat various residences around the airport,” but this was not taken into account in the Jacobs Study. Not all dwellings require the same amount of sound insulation per unit, *e.g.*, a single-family residence requires more insulation than a multi-family dwelling, and 1,491 of the 2,069 dwellings projected for acoustical treatment are multi-family. Jacobs Study, Figure 4-1.

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- Gave little or no consideration to the real costs of changing the basic business models for general aviation and all cargo operators at BUR; assumed that all passengers diverted from scheduled service could be re-accommodated on other flights at a time when scheduled load factors are in the range once assumed only for charter flights; and limited repositioning costs to 1.5 hours of pilot time, a vast understatement.

In other words, there is no credible support for the cost estimates and every reason to believe that the costs are greatly understated. GRA Review at 20-22.

7. The final step in the process was perhaps the most incredible. Even with all of the reverse engineering described above, the benefits still would not exceed costs over the requisite 20-year period. This is because the benefits, *i.e.*, the avoided remediation costs and the increase in property values, would be one-time occurrences while the costs caused by the curfew would continue indefinitely. GRA Review, at 2-3. That is why the FAA “generally uses an economic life span of 20 years beyond the completion of construction for major airport infrastructure projects, although *longer* life spans may be used if justified.” FAA Airport Benefit-Cost Guidance § 8.1 (December 15, 1999) (emphasis added). Instead, the Jacobs Study uses an *eight-year* period and has the temerity to say that it is doing so “to be conservative and not overstate either costs or benefits.”

For all of these reasons, the Jacobs Study is not just a flawed benefit/cost analysis, it is a non-analysis. It deserves no weight in this process.<sup>5</sup>

### **A Curfew Would Violate All Of The Statutory Criteria**

Keeping the absence of a credible benefit/cost analysis in mind, it is patently clear that a curfew would be inconsistent with each of the six statutory criteria that must be satisfied before the FAA can approve an access restriction on Stage 3 aircraft.<sup>6</sup>

#### **1. A curfew would be unreasonable, arbitrary and highly discriminatory.**

Chapter 5 of the Jacobs Study attempts to defend a curfew as reasonable on the grounds that it would address a demonstrated aircraft noise “problem” at BUR. That is a restatement of

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<sup>5</sup> The GRA Review also noted that the Jacobs Study produces a *lower* benefit cost ratio for the full curfew than it does for the other two curfew alternatives. *Id.* at 3-4. While the analyses for those alternatives are as flawed as the analysis for the full curfew, the promotion of the full curfew as the preferred alternative underscores the extent to which the desired result is the driving force in this process.

<sup>6</sup> This also is discussed at pages 23-24 of the GRA Review.

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the completely baseless expansion/contraction of the 65 CNEL contour scenario discussed above.

As further evidence of a “problem,” the Jacobs Study offers (i) citizen complaints, (ii) the real estate valuation survey conducted by Jacobs and (iii) a summary of some studies on awakenings caused by noise. These are equally baseless. The FAA rejected these supplemental metrics in its 2004 letter to the Board’s consultants, and for good reason. Complaint data is obviously unreliable, but perhaps less obvious is the undemocratic nature of relying on such data, a point that always has concerned NBAA. To the extent you rely on complaints, you are, in effect, allowing a public referendum to be conducted that has limited participants and allows each participant to vote as often as he or she wants. The real estate survey was discussed above and deserves no weight. As for the “awakenings” studies, the FAA’s 2004 letter noted that “[t]here is not enough scientific study to relate awakenings to impacts on a single event basis” and even the Jacobs Study acknowledges that the such studies “cannot be taken as conclusive proof of a given number of awakenings caused by the specific noise patters in the Bob Hope Airport area.” *Id.*, Appendix C at C-1.

The Jacobs Study addresses discrimination by pointing out that the (1) the curfew would apply to all users and (2) there are seven airports in the U.S. that presently have curfews. This completely misses the point of the FAA’s concerns. The 2004 letter from the FAA noted that “[s]maller, quieter aircraft operate at the airport during curfew hours” and that restriction of those aircraft would be pointless in terms of noise reduction. It is precisely because *all* aircraft are included in the curfew that it is discriminatory. As discussed above, the newest generation of business jets meets Stage 4 standards, but for the most part the Jacobs Study pretends those aircraft do not exist.

With respect to existing curfews, six of the seven airports have pre-1990 curfews grandfathered by ANCA. Indeed, it is in large part because of those curfews and the likelihood of such local access restrictions spreading that ANCA and Part 161 were enacted. The seventh airport is Reagan Washington National, which is a unique situation. A curfew first was adopted “voluntarily” by the airlines in the 1960s, later was incorporated into FAA regulations for the airport (since it was owned by the federal government) and then extended when the airport was transferred to the Washington Metropolitan Area Airport Authority. Since the 1980s, the curfew also has permitted departures and arrivals within certain curfew hours by quieter aircraft.

## **2. A curfew would create an undue burden on interstate and foreign commerce.**

Chapter 6 of the Jacobs Study argues that the curfew would not burden commerce based on the benefit/cost analysis, because the airlines would have a reasonable opportunity to continue services and because comparable facilities are available at other airports. The failed benefit/cost analysis aside, these arguments ignore some rather basic facts.

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BUR is a centrally located airport that also serves a unique market because of its proximity to the hub of the entertainment industry.<sup>7</sup> BUR is the fourth busiest air carrier airport in the region and the sixth busiest out of all thirty-one airports in the region. Other airports in the Los Angeles basin are not eager or able to act as a reliever for BUR, nor should they be so. In the recently issued Director's Determination finding the ban on large business jets at Santa Monica Municipal Airport (SMO) to be a violation of federal law and the grant assurances, the FAA stated:

The primary role of SMO and other general aviation airports in the region is to act as relievers for the commercial airports like LAX . . . The role of commercial airports like LAX is not to accept general aviation from SMO, it is the other way around . . . Van Nuys will be petitioning FAA to consider noise restrictions on the growth of jet aircraft at Van Nuys. Therefore, SMO can't assume that LAX and Van Nuys can accept SMO's displaced Category C and D aircraft [larger business jets] anymore than Van Nuys can assume it can displace aircraft to SMO.

In the Matter of Compliance with Federal Obligations by the City of Santa Monica, California, Director's Determination, at 46-7 (May 27, 2008).

The Jacobs Study assumed that 85% of BUR-based and 90% of transient nighttime business jet operations at BUR would be diverted to Van Nuys. Jacobs Study, Table 10-2. How is that going to happen in the real world?

Two other points should be made with respect to the burden on commerce. First, although business aviation is not engaged in air transportation, it is engaged in interstate and international commerce. Indeed, at BUR business aviation plays a crucial role in the economic health of the community. To the extent the role of business aviation is diminished, and there is no question that a curfew would do so, all commerce to and from the community is heavily burdened. The GRA survey of business aircraft operators at BUR found that:

- Virtually all general aviation turbojet operators based at BUR would move their aircraft to other airports if there were a curfew.
- Approximately half of the itinerant flights at night would be diverted to other airports, with their passengers incurring over \$500,000 annually in added time costs using the FAA's standard valuation methods.

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<sup>7</sup> The Authority's just released Customer Satisfaction Assessment Report, based on a survey of BUR airline passengers, showed that nearly 70% live in California, 41% live in Los Angeles County and 74% indicated that convenience was "very important" to their decision to fly out of BUR." Bob Hope Airport Customer Satisfaction Assessment Report, Executive Summary, at ES-1 (May 2008).



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Second, and this is also addressed in the GRA Review, the airports in the Los Angeles Basin are like dominos. You cannot move one without affecting the others. To the extent that the Authority thinks it is solving a perceived problem for its community, it is transferring that perceived problem to nearby communities. That, in turn, creates pressure for restrictions at other airports, precisely the type of Balkanization of our national air transportation system that ANCA was intended to prevent.

**3. A curfew could compromise the safe and efficient use of navigable airspace.**

The Jacobs Study (Tables 10-6 through 10-17) estimates that a full curfew would divert the following number of average daily operations to other airports in 2015:

Whiteman	6.6
Van Nuys	33.2
LA Int'l	5.2
Long Beach	1.2
Camarillo	0.6
Ontario	<u>16.2</u>
<b>Total</b>	<b>62.6 operations per day</b>

This amounts to **22,864 annual operations** diverted to other airports. That number is fanciful, but even if you just used the actual number of nighttime operations in 2005, you would have **16,425 annual operations**. Either number would represent a significant change in the use of airspace in the Los Angeles basin. This issue arose in the Santa Monica Part 16 case, albeit there the number of diverted operations was only 9,000 annually, and the FAA thought it a serious problem:

As the Los Angeles region is one of the most congested air traffic control areas in the country, air traffic and airspace implications should be considered before the City bans 9,000 operations. The FAA has proposed and made modifications to jet arrival routes, air traffic control sectors, and air traffic control (ATC) coordination procedures between the Los Angeles Air Route Traffic Control Center (ARTCC) and the Southern California (SOCAL) Terminal Radar Approach Control (TRACON).

\* \* \* \*

By banning all of its C and D category aircraft operations, SMO would impact not only its facility, but also that of other airports, all of which are critically tied to air traffic control and airspace management. In the end, the same number of operations would be divided among fewer facilities. Depending on traffic volume, this may necessitate the enlargement of normal arrival and departure

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routes, or modification to procedures to handle the realignment of traffic. This could put a large number of aircraft over places they normally wouldn't fly.

*Id.* at 49. If that would be true for 9,000 annual operations diverted from SMO, it would be even more so for 16,000 to nearly 23,000 annual operations diverted from BUR.

**4. A curfew of any type would violate the grant assurances and other federal legal requirements.**

This test begs a legal brief, but suffice to say at this point that the complete absence of credible analysis in support of a curfew renders a curfew unlawful, for a number of reasons, including:

- A curfew would deny the public use of the airport on fair and reasonable terms and without unjust discrimination, in violation of 49 U.S.C. § 47107.
- A curfew would unduly burden interstate and foreign commerce in violation of the "latent" Commerce Clause of the U.S. Constitution.
- A curfew would transgress an area preempted by the Federal government under the Supremacy Clause of the U.S. Constitution and 49 U.S.C. § 40103 (for all operators) and 49 U.S.C. § 41713 (for air carriers).

Again, the real issue is whether the Authority would be acting reasonably in denying access to the airport for one-third of each day. There is nothing in this record to even hint at the requisite reasonableness.

**5. The Authority has not afforded adequate opportunity for public comment.**

As discussed above and in the GRA Review, too many pieces are missing from the Jacobs Study to permit full analysis, although enough certainly is known to see that it fails in its purpose. We are certain that if the missing pieces were provided, the already wide gap between the study and reality would further widen. The continued and completely unjustified failure to provide that information compromises the ability of interested persons to comment on the study.

**6. A curfew would create an undue burden on the national air transportation system.**

Without rehashing everything said above and in the GRA Review, it really comes down to this. The Jacobs Study sets the bar so low for a Part 161 analysis that it would invite exactly the type of poorly thought out but politically expedient local access restrictions that ANCA and Part 16 were intended to prevent.

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### **Conclusion**

There is nothing that can be done to salvage the Jacobs Study. To be fair, there was nothing that could have been done from the outset. BUR is an ongoing success story, and no amount of miscalculation can change that essential fact and justify closing the airport for a third of the time.

NBAA recognizes that there always will be some people who do not want an airport near them, albeit in most instances the airport was there first. NBAA also recognizes that the obligation to be a good neighbor is ongoing. But there is more involved than just the aircraft operators and the opponents of the airport. There are complex and diverse communities to think of, both at the local and national levels. The ANCA/Part 161 process takes that broader view as part of the balanced approach, and the appropriateness of that approach is nowhere more evident than here.

NBAA remains willing, as always, to work with the Authority to address legitimate concerns about aircraft noise.

Respectfully submitted,

/Frank J. Costello/

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Frank J. Costello  
Jol A. Silversmith  
Counsel for the National Business Aviation Association, Inc.

Attachments

## **Exhibit A**



**GRA, Incorporated**

*Economic Counsel to the Transportation Industry*

Exhibit A

## **Review of Burbank Part 161 Study**

**June 12, 2008**



**Prepared for:**

**Zuckert, Scoutt & Rasenberger, LLP**

**Prepared by:**

**GRA, Incorporated**

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## Draft Review of Burbank Part 161 Study

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GRA was asked by the National Business Aircraft Association (NBAA) to review the Part 161 study conducted by Jacobs Consultancy (Jacobs) on behalf of the Bob Hope Airport (BUR) in Burbank, California. Jacobs analyzed three restrictions:

- A full curfew on all operations at the airport from 22:00 through 06:59.
- A departure curfew in that same time window.
- A noise based curfew on all operations in the same time window by aircraft with aggregate certificated noise levels above 253 EPNdb.

The airport sponsor has expressed a preference for the full curfew.

### Executive Summary

Our primary task was to reach an opinion about whether the predominance of information would lead one to conclude that the proposed restrictions would have benefits that exceed costs. Our review suggests that it is very unlikely that benefits will exceed costs; the primary reasons are that:

- The benefits depend on the noise-affected area around the airport increasing in the future in the absence of the restriction, despite the fact that it has been declining in size since at least 1982.
- Our evaluation finds that Jacobs' projected increase in the noise-affected area is due to assumed new flights by commercial and GA operators that have never flown and which it then assumes would be diverted or canceled under the restrictions; this is obviously highly speculative not based on any detailed analysis of underlying demand for such services.
- The benefits are also based on a single point estimate of the cost to mitigate noise per dwelling; there is no documentation concerning the reasonability of the estimate; for example, we found alternative unit costs for Burbank that were considerably lower.
- The statistical model used to estimate the benefits of increased property values in the area appears to be unreliable and in any case seems to have been misinterpreted. The benefit is almost certainly overstated because it ignores the high transactions costs of moving (which may be necessary to realize the full benefit for many people.)



- The estimated costs of the rule are based on “back of the envelope” estimates of the resources required of operators to accommodate the rule; there is no evidence showing whether the costs relate to real world experience or are representative in any way.
- To evaluate reactions of general aviation (GA) operators to the proposed restrictions, Jacobs undertook a survey of based operators at the airport concerning their likely reactions to the rule and then proceeded to discount or alter the responses based on Jacobs undocumented “judgments”; this methodology is not only highly questionable, it raises concerns about the reliability of the entire benefit cost study.
- Finally, it appears that if the analysis had been conducted over a longer period of time period, the proposed full curfew would have failed the benefit cost test, even accepting everything else in the Jacobs analysis. The BCA covers only eight years whereas FAA recommends 20.

Allowing the present BUR proposal to go forward would set a dangerous precedent. There are multiple flaws in the BCA analysis, many of them large enough individually to call into question the economic advisability of the restriction. Allowing the restriction to go forward justified by such a flawed analysis would set a very low bar for others to follow and would likely result in many poorly thought-out and perhaps expensive local noise rules in the future.

Finally we note that while our analysis focuses more attention on the full curfew because the airport prefers it to the other two alternatives, the analyses of both the departure curfew and noise-based curfew suffer from all of the same issues enumerated below and so are equally unreliable.

The Jacobs study is spread over several volumes, not all of which have been made public. Through NBAA and its attorneys (Zuckert, Scoutt and Rasenberger) we asked that certain data be made available to us to complete our analysis, including:

- “BUR Part 161 Study – GA/Corp. Operator Interviews July 2006,” which apparently has information on the in-person interviews conducted by either Jacobs or its sub-consultant Conklin and deDecker regarding reactions of General Aviation operators to the proposed restrictions; because these reactions have an impact on both costs and benefits of the proposed restrictions, it is difficult to judge the efficacy of Jacobs’ results without the benefit of reviewing the survey results. We note that the Jacobs survey results widely vary from the those of a survey conducted by GRA of both

based and itinerant operators at BUR; our survey was undertaken at approximately the same time.

- The flight schedules used to run the noise modeling, which is critical because the study forecasts that the 65 CNEL area around the airport will increase in the future despite the fact that it has been shrinking for years.
- A better explanation for how the unit costs of the proposed restrictions were estimated; these are presented largely as expert opinion without indication of how they were estimated or whether they are based on actual experience.

We have organized our review as follows. First, we describe and review the methods and data used by Jacobs to under-take the benefit cost analysis at the heart of the Part 161 study. Thereafter, we compare the study to the six criteria laid out for such studies by FAA in Part 161.

## Overview of Jacobs Benefit Cost Study Findings and Questions About Conclusions

Exhibit 1 is a summary of the benefit –cost study for the full curfew. The benefits of the curfew are due to: increased property values (due to reduced noise) and avoided noise mitigation of residences (due to fewer homes in a smaller 65 CNEL area). The costs are all due to the costs incurred by users facing the curfew including those due to relocating operations, cancellations and diversions due to the curfew. The costs are about evenly split between airlines (and the passengers), all-cargo operators and general aviation (GA).

**Exhibit 1: Benefits and Costs of a Full Curfew**

Year	Benefits (in constant 2006 dollars)			Costs (in constant 2006 dollars)					Net Present Value (2006 dollars)			
	Residential Property Value Increase	Reduced Acoustical Treatment Obligation	Total Benefits	Airline Costs	Passenger Costs	All-Cargo Carrier Costs	General Aviation Costs	Total Costs	Net Present Value of Benefits	Net Present Value of Costs	Annual Net Benefit	Cumulative Net Benefit
2008	\$9,022,949	\$7,981,875	\$17,004,824	\$922,323	\$1,661,275	\$3,291,770	\$3,234,003	\$9,109,371	\$14,852,672	\$7,956,477	\$6,896,194	\$6,896,194
2009	\$0	\$11,120,875	\$11,120,875	\$1,011,167	\$1,829,165	\$3,023,976	\$3,109,011	\$8,973,319	\$9,077,947	\$7,324,901	\$1,753,045	\$8,649,240
2010	\$0	\$11,120,875	\$11,120,875	\$1,100,012	\$1,997,054	\$3,066,681	\$3,221,965	\$9,385,712	\$8,484,062	\$7,160,315	\$1,323,748	\$9,972,987
2011	\$0	\$11,120,875	\$11,120,875	\$1,188,856	\$2,164,942	\$3,109,388	\$3,305,098	\$9,768,284	\$7,929,030	\$6,964,651	\$964,379	\$10,937,366
2012	\$0	\$11,120,875	\$11,120,875	\$1,277,701	\$2,332,831	\$3,152,093	\$3,400,861	\$10,163,486	\$7,410,309	\$6,772,360	\$637,949	\$11,575,315
2013	\$0	\$11,120,875	\$11,120,875	\$1,366,545	\$2,500,720	\$3,194,799	\$3,516,102	\$10,578,166	\$6,925,522	\$6,587,550	\$337,972	\$11,913,287
2014	\$0	\$11,120,875	\$11,120,875	\$1,455,391	\$2,668,609	\$3,267,764	\$3,619,777	\$11,011,541	\$6,472,451	\$6,408,817	\$63,633	\$11,976,920
2015	\$0	\$11,120,875	\$11,120,875	\$1,544,235	\$2,836,499	\$3,340,731	\$3,761,055	\$11,482,520	\$6,049,019	\$6,245,730	-\$196,711	\$11,780,209
TOTALS	\$9,022,949	\$85,828,000	\$94,850,949	\$9,866,230	\$17,991,095	\$25,447,202	\$27,167,872	\$80,472,399	\$67,201,011	\$55,420,802	\$11,780,209	\$11,780,209
Share	10%	90%	100%	12%	22%	32%	34%	100%	Net Present Value of Benefits: \$11,780,209			
									Benefit-Cost Ratio: 1.21			

**ASSUMPTIONS**

Discount Rate: 7%  
Curfew Start Date: 2008

Source: Jacobs Consultancy, 2008.

### Questions Concerning Longer Term Benefit/Cost Ratio for Full Curfew

An interesting feature of BCA is the analysis period chosen. Under FAA Airport Benefit Cost Guidance,<sup>1</sup> one would normally expect that the analysis would extend over a 20-year period. Jacobs has instead conducted the analysis over eight years (2008-2015). It is interesting to note that the discounted annual net benefits of the rule (second to last column in Exhibit 1) decline each year beginning in 2008. In the last year (2015), the annual net benefits of the rule are negative. This leads to the logical question whether the proposed curfew would have a benefit cost ratio exceeding 1 if it were extended over the normal 20-year period. While we cannot tell with the information provided, the trend would suggest that the net benefit of the rule might be negative (B/C ratio less than 1) given that the incremental annual benefit reached negative values in only eight years and the normal analysis would be over 20.

It is also important to note that the benefits of the proposed curfew are one-time benefits but most of the costs will continue almost indefinitely. The increase in residential property values is a one time benefit from reduced noise that is capitalized into the value of the residences. The reduced acoustical treatment obligations are also one-time benefits—they are either avoided or not avoided. In the meantime, total costs increase each year; these costs will continue to be incurred beyond the 2015 time horizon. Thus, the benefit cost study fully accounts for the benefits of the curfew (given the 65 CNEL area) but truncates the costs of accommodating the curfew (given the same 65 CNEL area). We are left to wonder how costs and benefits would behave in the period beyond 2015. It is clear that if the 65 CNEL area stayed the same, that there would be no further benefits but costs would continue to be incurred beyond 2015. Seen this way, if the analysis had extended beyond 2015, it would have shown a benefit/cost ratio less than 1.

### ***Question Concerning Selection of the Full Curfew as the Preferred Restriction***

The benefit cost ratio for the Full Curfew (1.21) is lower than for the two other restrictions studied (2.54 for the departure curfew and 1.22 for the noise based curfew). Both of these alternatives are less restrictive and have lower costs than the full curfew. Thus, the airport has rejected two alternatives that their own consultant believes have higher payoffs, impose lower costs and are less restrictive than their preferred alternative. This selection is inconsistent with normal economic decision-making and with FAA guidance. A summary of the Jacobs BCA for each alternative is shown in Exhibit 2.

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<sup>1</sup> FAA, Office of Aviation Policy and Plans: “FAA Airport Benefit-Cost Analysis Guidance” (December 15, 1999).

## Exhibit 2: Benefits and Costs of Curfews

### Benefits and Costs of a Departure Curfew

Year	Benefits (in constant 2006 dollars)			Costs (in constant 2006 dollars)					Net Present Value (2006 dollars)			
	Residential Property Value Increase	Reduced Acoustical Treatment Obligation	Total Benefits	Airline Costs	Passenger Costs	All-Cargo Carrier Costs	General Aviation Costs	Total Costs	Net Present Value of Benefits	Net Present Value of Costs	Annual Net Benefit	Cumulative Net Benefit
2008	\$7,290,690	-	\$7,290,690	\$237,479	\$501,828	\$1,185,728	\$2,008,073	\$3,933,108	\$6,367,971	\$ 3,435,329	\$2,932,642	\$2,932,642
2009	-	\$7,363,750	\$7,363,750	\$267,756	\$579,899	\$844,968	\$1,875,836	\$3,568,459	\$6,011,013	\$ 2,912,926	\$3,098,088	\$6,030,730
2010	-	\$11,120,875	\$11,120,875	\$298,032	\$657,970	\$814,708	\$1,910,158	\$3,680,868	\$8,484,062	\$ 2,808,117	\$5,675,946	\$11,706,676
2011	-	\$11,120,875	\$11,120,875	\$328,309	\$736,040	\$784,448	\$1,980,499	\$3,829,296	\$7,929,030	\$ 2,730,235	\$5,198,795	\$16,905,471
2012	-	\$11,120,875	\$11,120,875	\$358,585	\$814,111	\$754,188	\$2,027,295	\$3,954,179	\$7,410,309	\$ 2,634,836	\$4,775,472	\$21,680,943
2013	-	\$11,120,875	\$11,120,875	\$388,862	\$892,182	\$723,928	\$2,067,084	\$4,072,056	\$6,925,522	\$ 2,535,872	\$4,389,650	\$26,070,593
2014	-	\$11,120,875	\$11,120,875	\$419,138	\$970,253	\$723,928	\$2,117,745	\$4,231,064	\$6,472,451	\$ 2,462,518	\$4,009,933	\$30,080,526
2015	-	\$11,120,875	\$11,120,875	\$449,416	\$1,048,324	\$723,928	\$2,204,728	\$4,426,396	\$6,049,019	\$ 2,407,666	\$3,641,353	\$33,721,879
Totals	\$7,290,690	\$74,089,000	\$81,379,690	\$2,747,577	\$6,200,607	\$6,555,824	\$16,191,418	\$31,695,426	\$55,649,377	\$21,927,498	\$33,721,879	\$33,721,879
Shares	9%	91%	100%	9%	20%	21%	51%	100%	\$33,721,879			
2.54												

### Benefits and Costs of A Noise Based Curfew

Year	Benefits (in constant 2006 dollars)			Costs (in constant 2006 dollars)					Net Present Value (2006 dollars)			
	Residential Property Value Increase	Reduced Acoustical Treatment Obligation	Total Benefits	Airline Costs	Passenger Costs	All-Cargo Carrier Costs	General Aviation Costs	Total Costs	Net Present Value of Benefits	Net Present Value of Costs	Annual Net Benefit	Cumulative Net Benefit
2008	\$6,571,374	\$2,520,875	\$9,092,249	\$922,323	\$1,661,275	\$2,106,042	\$2,986,663	\$7,676,303	\$ 7,941,522	\$ 6,704,780	\$1,236,742	\$1,236,742
2009	-	\$11,120,875	\$11,120,875	\$1,011,167	\$1,829,165	\$2,179,008	\$2,901,700	\$7,921,040	\$ 9,077,947	\$ 6,465,928	\$2,612,019	\$3,848,761
2010	-	\$11,120,875	\$11,120,875	\$1,100,012	\$1,997,054	\$2,251,973	\$2,974,285	\$8,323,324	\$ 8,484,062	\$ 6,349,824	\$2,134,238	\$5,982,999
2011	-	\$11,120,875	\$11,120,875	\$1,188,856	\$2,164,942	\$2,324,940	\$3,084,718	\$8,763,456	\$ 7,929,030	\$ 6,248,223	\$1,680,807	\$7,663,806
2012	-	\$11,120,875	\$11,120,875	\$1,277,701	\$2,332,831	\$2,397,905	\$3,173,803	\$9,182,240	\$ 7,410,309	\$ 6,118,514	\$1,291,794	\$8,955,600
2013	-	\$11,120,875	\$11,120,875	\$1,366,545	\$2,500,720	\$2,470,871	\$3,256,797	\$9,594,933	\$ 6,925,522	\$ 5,975,242	\$950,280	\$9,905,880
2014	-	\$11,120,875	\$11,120,875	\$1,455,391	\$2,668,609	\$2,543,836	\$3,387,760	\$10,055,596	\$ 6,472,451	\$ 5,852,448	\$620,002	\$10,525,882
2015	-	\$11,120,875	\$11,120,875	\$1,544,235	\$2,836,499	\$2,616,803	\$3,488,114	\$10,485,651	\$ 6,049,019	\$ 5,703,499	\$345,520	\$10,871,402
Totals	\$6,571,374	\$80,367,000	\$86,938,374	\$9,866,230	\$17,991,095	\$18,891,378	\$25,253,840	\$72,002,543	\$60,289,862	\$49,418,460	\$10,871,402	\$10,871,402
Shares	8%	92%	100%	14%	25%	26%	35%	100%	\$10,871,402			
1.22												

The other features of the BCA's for the two alternatives (the distribution of benefits and costs) are similar to the full curfew. The annual net benefit of the noise based curfew declines continuously and precipitously beginning in 2011. The pattern of annual net benefits for the departure curfew is less clear. Both analyses would benefit from a longer term view we discussed for the full curfew.

## Overview of the Jacobs BCA Methodology

In this section we review the methodology undertaken by Jacobs in the BCA. The overall methodology is summarized in Exhibit 3 on the following page.

The first column of the exhibit shows the benefit and cost categories, which are further described in the second column. The third column presents the method for calculating benefits and costs. Shown in the final column is a summary of the issues with the methodology presented in the following sections.

## Savings in Residential Acoustical Treatment

Over 90 percent of the benefits estimated for the proposed restrictions are attributable to avoided costs of acoustical treatment of residences in the 65 CNEL around BUR. The number of residences to be treated are a function of the noise levels and the size of the 65 CNEL area under both the base (unrestricted) case and the alternative proposed restrictions; Jacobs estimates that the unit cost of treating a residence is \$43,000. In this section, we comment on the development of the 65 CNEL area and on the use of the unit cost for treatment.

### Exhibit 3: Summary of Jacobs BCA Methodology

CATEGORY	DESCRIPTION	METHOD	ISSUES
<b>BENEFITS</b>			
Savings in Residential Acoustical Treatment	Reduced number of homes that need to be treated due to smaller 65 CNEL with program than without in 2015	(Number of homes residences in projected 65 CNEL without minus with curfew) x (\$43,000)	-Assumes \$43,000 per residence cost based on a bid not on actual experience -Depends importantly on forecast of rapid growth in jet activity during night and evening and expansion of the 65 CNEL area despite recent history showing the area getting smaller
Increase in Residential Property Values	Reduced noise exposure leads to a one-time increase in housing values (capitalized into the price of the home)	(Number of homes residences in projected 65 CNEL without minus with curfew) x (Hedonic Pricing Coefficient on the marginal disamenity of noise) x Average Housing Price	- Based on a data set from 1998-99 on housing characteristics; - Hedonic models can be very unstable but there is no discussion of the stability of the models selected - Hedonic model coefficient incorrectly interpreted as a measure of willingness to pay - No offsetting cost in neighborhoods around airports where BUR flights move - Depends importantly on forecast of rapid growth in jet activity during night and evening and expansion of the 65 CNEL area despite recent history showing the area getting smaller assumed to fly once restriction is put in place
<b>COSTS</b>			
Costs to GA	- Relocation of operations to another airport - Satellite operation at another airport - Repositioning aircraft and passengers at another airport after curfew	Based Aircraft and Netjets Operations: (Indication from survey respondent of intent to move) x (Consultant Independent Probability of Intent to Move) x (Aircraft Affected) x Unit Costs  Assumes Transient operators have same percentage reduction as Based operators	- Based on interviews of Based operators and Netjets - Depends on undocumented consultant conclusions concerning probability of operator relocation (access to relevant report was denied by BUR : "BUR Part 161 Study –GA/Corp. Operator Interviews July 2006") - Costs ignore transactions costs – change in taxes; fees to realtors, etc. - No details on how costs estimated - Ignores other business impacts on GA operators (assumed incorporated in time and out of pocket costs) - Repositioning costs may be very high since proximity to origin/ destination is key
Costs to All Cargo Carriers	- Ameriflight ops to Ontario; HQ and maintenance remain at BUR - Fedex and UPS move to LAX, resulting in: lost cargo revenue (time sensitive material can't be delivered); added trucking costs to/from LAX & added parking/landing fees at LAX	(Costs of moving Ameriflight to Ontario)  (Costs of moving UPS and Fedex flights to LAX)	- Cost estimates are undocumented - Ameriflight commuting costs for employees ignore the value of their time - Ignores problems if Ameriflight maintenance base is ineffective because aircraft cannot fly-in for overnight service after the curfew - Overall effects for Fedex and UPS may be higher than 0.5% if they are unable to offer their full range of services –e.g. unable to make late pickups in area around BUR
Cost to passengers and airlines	-Lodging, ground transport and lost time for passengers on cancelled or diverted flights and on flights eliminated from the schedule -Lost revenue, repositioning costs, foregone flying, crew hotel and cancellation penalties	(Penalties due to the curfew – lost ticket revenues due to cancellations; diversions to other airports; repositioning costs; crew hotel cancellation penalties) + (Slightly lower profits on flights eliminated at BUR and flown from other airports)	- Use consultant opinions regarding percent of passengers incurring each type of cost - Very detailed (flight by flight) estimate of likelihood of eliminating the flight, canceling it or diverting it – no documentation on likelihood of these events - Assume most passengers can be rebooked on other BUR flights, even though very high load factors make re-accommodation difficult

### ***Unit Costs of Acoustically Treating Residences***

Jacob uses a value of \$43,000 to acoustically treat a dwelling, including administrative expenses. Jacobs indicates that this figure was taken from a bid for a recent program module that included a mix of single family and multi-family dwellings.<sup>2</sup> It is difficult to overstate how important this single number is. Ninety percent of the benefits for the proposed restriction depend on the validity of this single figure. It is somewhat surprising that Jacobs does not provide any sensitivity analysis on the estimated costs of acoustically treating homes. It appears that they have done such an analysis because it is mentioned on page 4-34 of Chapter 4. However, the actual analysis is omitted from the final document.

We suggest, however, that more than a sensitivity analysis is required to estimate the true cost of acoustically treating dwellings. There is likely to be wide variation in the cost to acoustically treat various residences around the airport. This will depend on specific characteristics of the dwellings. For example, acoustic treatment sometimes includes providing air conditioning when a dwelling does not have it. When the dwelling is already air conditioned, the program can avoid this cost.

We have found one relatively recent estimate of the cost to acoustically treat 30 homes in the Burbank area. On July 19, 2001, the Airport Authority announced that it had awarded a contract of \$829,060 to insulate 30 single family homes in the area. The average cost therefore was \$27, 635, or 36 percent lower than was estimated by Jacobs.<sup>3</sup> We do not know if this figure is representative of the costs of acoustically treating homes or not. The same press release indicates that the average value to treat 3,100 homes would be approximately \$35,000, or 19 percent less than the Jacobs estimate.

Obviously, a good estimate would be one based upon an evaluation of the additional homes that would actually have to be acoustically treated in the absence of the restriction. Because of the importance of this single number, a prudent economic analysis would include a more detailed study of the likely true costs. Using a single point estimate from one bid is very unlikely to be representative of the diverse nature of the residential stock in the area.

To further illustrate the importance of this, we make one further note. The benefit-cost ratio for the preferred alternative (the full curfew) is 1.21. Ninety percent of the benefits of the rule are attributable to acoustical treatment costs that are avoided. If the cost of acoustically treating homes in Burbank is \$35,000 instead of \$43,000, then

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<sup>2</sup> Chapter 4, page 4-8.

<sup>3</sup> The airport's press release is attached as Appendix 2.

accepting all other features of the analysis, the rule would have a benefit-cost ratio of about 1.<sup>4</sup>

### ***Size of the 65 CNEL and the Resulting Number of Residences to be Acoustically Treated***

Another very important estimate undertaken by Jacobs is the number of dwellings that would not have to be acoustically treated if one of the proposed restrictions were put into place. Critical to this estimate is the analysis of noise, which suggests that the CNEL area will increase in size beginning in 2008 and at the end of the analysis period in 2015. This projected increase in the noise-affected area is at odds with actual recent experience. Figure 1 in the Executive Summary (page 7) shows the substantial reduction in the 65 CNEL area from 1982 through 2005.

The growth in the 65 CNEL area depends importantly upon:

- The noise analysis, details of which have not been provided
- The underlying activity forecast for users of Burbank Airport
- The projected change in operations due to a restriction

We cannot further comment on the actual noise analysis because it is not available. However, given the fact that 90 percent of the benefits of the proposed restrictions are attributable to residential acoustical treatment, it seems obvious that interested parties should have an opportunity to review all features of the analysis, including the schedules loaded into the I&M model, the underlying assumptions input into that model and the detailed model outputs. The discussion now turns to the other key features of the 65 CNEL area.

As we noted above, the 65 CNEL area has declined in size since 1982. Therefore, it is somewhat surprising that Jacobs is projecting that it will increase in the future. We investigated this and found, after assembling the data from Appendix B, that the increase in the noise affected area is due to the very rapid projected growth in jet operations throughout the day, and particularly during nighttime hours. This is shown in Exhibit 4, which was assembled from the detailed tables in Appendix B. The tables show the total daily operations by year (2005, 2008, 2015) at BUR used in the INM modeling. The operations are broken down into three time periods during the day, daytime, evening and nighttime. In the noise modeling process, operations during the evening and night are weighted more heavily than daytime operations because of the

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<sup>4</sup> Assume that benefits are 121 and costs are 100 resulting in a benefit-cost ratio of 1.21. Ninety percent of the benefits equals 109. In order to equal 1, the benefits would have to be 21 lower than estimated, or 19 percent below the amount attributable to residential acoustical treatment. The \$35,000 is approximately 19 percent below the \$43,000 cost to acoustically treat a residence estimated by Jacobs.

potential increase in noise effects on the population. Also shown in the table are the compound annual growth rates (CAGR) in the various time periods covered.

#### Exhibit 4: Jacobs Forecast Shows Rapid Increase in Jet Operations Especially in at Night

##### Total Daily Operations

Year	2005	2008	2015	CAGR		
				2005-2008	2005-2015	2008-2015
Day	251.70	240.72	264.08	-1.5%	0.5%	0.9%
Evening	74.68	75.54	82.55	0.4%	1.0%	0.9%
Night	44.99	48.27	53.56	2.4%	1.8%	1.0%
Total	371.37	364.53	400.19	-0.6%	0.8%	0.9%

##### Non Jet Operations

Year	2005	2008	2015	CAGR		
				2005-2008	2005-2015	2008-2015
Day	80.10	54.15	34.69	-12.2%	-8.0%	-4.4%
Evening	21.81	17.18	14.07	-7.6%	-4.3%	-2.0%
Night	30.72	27.74	24.34	-3.3%	-2.3%	-1.3%
Total	132.63	99.07	73.10	-9.3%	-5.8%	-3.0%

##### Jet Daily Operations

Year	2005	2008	2015	CAGR		
				2005-2008	2005-2015	2008-2015
Day	171.60	186.57	229.39	2.8%	2.9%	2.1%
Evening	52.87	58.36	68.48	3.3%	2.6%	1.6%
Night	14.27	20.53	29.22	12.9%	7.4%	3.6%
Total	238.74	265.46	327.09	3.6%	3.2%	2.1%

##### Jet Share of Totals

Year	2005	2008	2015	CAGR		
				2005-2008	2005-2015	2008-2015
Day	68%	78%	87%	4.4%	2.5%	1.1%
Evening	71%	77%	83%	3.0%	1.6%	0.7%
Night	32%	43%	55%	10.3%	5.6%	2.5%
Total	64%	73%	82%	4.2%	2.4%	1.2%

Source: Appendix B, Tables B-3, B-4 and B-8

Notice at the very top of the table that the compound annual growth rates for overall operations at the airport are relatively modest (less than one percent in the period 2005 through 2015). This modest growth rate is due to the projected rapid decline in non-jet operations at the airport; these non-jet operations are projected to decline by an annual rate of 5.8 percent over the 10-year period 2005 to 2015. During



that same period, jet operations are projected to grow by 3.2 percent per year. The most rapid growth will occur at night, when the curfew would be in effect and when the noise is weighted most heavily. The annual growth in nighttime operations from 2005 to 2008 is projected to be 12.9 percent. The annual growth over the entire period of 2005 to 2015 is 7.4 percent. This rapid growth in jet operations during the nighttime hours is a major cause for the increase in the 65 CNEL area.

We were disappointed to find that we had to dig this information out of numerous tables in Appendix B to come to the conclusion that we have drawn about the impact of the forecasts on nighttime operations at the airport. A more straightforward presentation of the data and a defense of the rapid increase projected during the nighttime would certainly have been preferred. It is obvious that the projected costs of residential acoustical treatment (90 percent of projected benefits for the restrictions) depend very importantly upon the reasonability of these forecasts. We discuss them in turn below.

### **Commercial Jet Forecasts**

Exhibit 5 shows the projected commercial jet forecasts produced by Jacobs. These include both passenger and cargo operators. The overall growth from 2005 to 2015 is 2.1 percent per year. However, notice that over that same period nighttime operations are projected to grow by 12.2 percent annually. In ten years, nighttime operations are projected to triple. Because these operations are weighted more heavily in the noise analysis, they have an outsized impact on the size of the 65 CNEL and therefore the costs for residential acoustical mitigation. The size of the 65 CNEL also affects the housing property value benefit described below. Therefore, it is central to the benefits calculation in the BCA.

### **Exhibit 5: Jacobs Growth in Commercial Jet Operations**

#### **Commerical Jet Daily Operations**

Year				CAGR		
	2005	2008	2015	2005-2008	2005-2015	2008-2015
Day	131.83	138.91	155.49	1.8%	1.7%	1.1%
Evening	43.95	47.63	51.39	2.7%	1.6%	0.8%
Night	5.04	10.67	15.94	28.4%	12.2%	4.1%
Total	180.82	197.21	222.82	2.9%	2.1%	1.2%

Totals may not add due to rounding

Source: Appendix B, Tables B-3, B-4 and B-8

Virtually all of the increase in nighttime flying for commercial operators is due to forecast increased operations by passenger carriers. Appendix BB discusses the specific flights, which we comment on below.

- Sky Bus is projected to have two flights daily to Columbus, Ohio from Burbank. One would arrive at 9:23 p.m., and therefore be subject to increased weighting in the noise modeling. Sky Bus is now out of business and therefore its projected operations will not take place.
- Hawaiian Airlines is projected to add a daily service to Burbank, which is scheduled to arrive at 6:45 a.m. and therefore be inside the restricted window, and also is weighted heavily in the CNEL modeling. Jacobs does mention that Aloha Airlines tried and failed at Burbank, but fails to mention that the service was offered with the 737 aircraft, which operated with very low load factors. It is difficult to understand how a higher cost airline with a larger airplane would be able to operate successfully from Burbank.
- JetBlue is projected to introduce two daily services, each of which would have an operation at about 9:30 at night and therefore be more heavily weighted in the noise modeling; a proposed second non-stop to Dulles would arrive and depart in the evening hours and therefore be heavily weighted in the noise analysis. The logic of this service is that it would utilize spare aircraft time for the red eye departure from Burbank. Nevertheless, an additional service may divert traffic from jetBlue services at Long Beach and therefore may not take place.
- US Airways is projected to add a daily non-stop to Philadelphia arriving in the evening and departing in the evening. Such a service would divert traffic from US Airways' significant operations at LAX and therefore may not be attractive.
- Delta is projected to reintroduce service to Atlanta, with operations in the middle of the day. Again such services would divert from its significant operations to Atlanta from LAX.
- Jacobs projects that Southwest would introduce three daily services to Dallas Love Field, under the assumption that the Wright Amendment expires by 2015. This assumption ignores the better opportunity that Southwest may have to operate to Love Field from LAX.
- Jacobs also projects Southwest three times daily service to Denver including one arrival in the evening hours, resulting in heavy weighting in the noise modeling. Such services would divert from Southwest operations to Los Angeles.
- Jacobs also shows a very large increase in ad hoc charter operations, which are placeholders for scheduled services they are unable to identify otherwise.

- ➔ Finally, Jacobs projects one additional frequency per week each for FedEx and UPS, both of which would feature operations during the nighttime hours.

It is important to note that we have summarized above virtually all the details about the projected new operations at Burbank as described by Jacobs. Obviously all such operations are speculative in nature. They are projected to occur in 2015. Perhaps most important, there is no analysis of market sizes, the costs to the carriers, the possible diversion from nearby airports including LAX, potential competitive reactions, the ability of the Burbank Airport to accommodate additional operations given the paucity of available gates at the airport, or the potential growth of the underlying markets. We have expressed our skepticism about some of those service offerings but, we note, that the speculations presented in the study are certainly no basis for forming a conclusion about likely future service, the substantial growth of such services during nighttime, and the resulting rapid increase in the 65 CNEL area. Much more detailed analysis would be required to justify the service offerings presented.

Before leaving the commercial forecast, it is also important to note that Jacobs did make projections about future fleets operating at Burbank. They substituted more modern aircraft for noisy aircraft such as MD-80s that currently operate at the airport. There was no real discussion about how these substitutions were made. Without the benefit of the actual schedules, it is impossible to understand what the tradeoffs are between the existing fleet and the projected future fleet. This is another instance where by not providing the appropriate details, Jacobs has made it difficult to form conclusions about their modeling.

### ***General Aviation Forecast***

Exhibit 6 shows the growth in general aviation jet operations in the Jacobs forecast. For the period from 2005 to 2015, jet operations are projected to grow at an annual rate of 5.9 percent. Most of this growth will take place in the daytime and during evening hours, with growth rates exceeding 6 percent. Nighttime flying is projected to grow at an annual rate of 2.9 percent.

**Exhibit 6: Jacobs Growth in GA Jet Operations**

Year	2005	2008	2015	CAGR		
				2005-2008	2005-2015	2008-2015
Day	39.76	47.65	73.85	6.2%	6.4%	4.5%
Evening	8.92	10.75	17.12	6.4%	6.7%	4.8%
Night	9.76	9.66	13.05	-0.3%	2.9%	3.1%
Total	58.44	68.06	104.02	5.2%	5.9%	4.3%

Totals may not add due to rounding

Source: Appendix B, Tables B-3, B-4 and B-8

The composition of the growth in general aviation jet operations does give us pause. This is shown in Exhibit 7. Notice that the projected growth for mainline jets used by general aviation operators is relatively modest. Multi-engine business jets also grow slower than the general aviation group as a whole. A substantial portion of the growth in operations for general aviation aircraft is attributable to the emergence of VLJ aircraft. These very light jets are projected to be operated both by individuals and by new types of air taxi operators. No one knows how successful VLJ aircraft will be. However, it is important to note that deliveries have so far been much slower than had been projected by FAA or by most other observers. One of the main manufacturers, Adam Aircraft, has ceased to operate and has sold all of its assets. Day Jet, an operator of new types of air taxi service in Florida, is not operating its full fleet and may be having difficulty with the economics of its services, especially given the high cost of fuel. A GAO study published in August 2007 reviewed eight independent forecasts of VLJs and found wide variances in them. Included in their review was the FAA forecast used by Jacobs.<sup>5</sup>

A very rapid growth of VLJ operations at Burbank in the period from 2008 to 2015 is important because VLJs are generally not thought to be substitutes for larger jet aircraft. Instead, most observers believe that a substitute for a VLJ is a turboprop aircraft, which produces significantly less noise. If the VLJ business model fails, then either some of the projected VLJ operations at Burbank would disappear or some operators might choose to fly turboprops instead. In either case, the size of the 65 CNEL would be reduced because there would be fewer jet operations at the airport.

We were surprised that Jacobs did not undertake a sensitivity study on VLJ aircraft, given the importance these aircraft may be playing in their estimates of the noise affected area. Given the uncertainty of the business models for VLJ aircraft, and the wide variance in forecasts as discussed by GAO, such a sensitivity study would appear to be in order.

<sup>5</sup> General Accountability Office: "Very Light Jets: Several Factors Could Influence Their Effect on the National Airspace System" (GAO-07-1001).

**Exhibit 7: Composition of GA Jet Operations**

Year	Table 29 Operations			CAGR		
	2005	2008	2015	2005-2008	2005-2015	2008-2015
mainline jet	413	400	490	-1.1%	1.7%	2.1%
multi-engine business jets	19,965	22,833	30,555	4.6%	4.3%	3.0%
vij	-	479	5,141	na	na	26.8%
total	20,378	23,712	36,186	5.2%	5.9%	4.3%

Technical Report 1, Table 29

Finally, we note that Jacobs may not have adequately considered the modernization of the GA jet fleet in its forecast. Very few of the older jets operating in 2005 show a decline in operations in 2015 in the forecast. For example, its 2005 shows 3.16 daily Gulfstream II operations, including 0.34 at night. Its 2015 forecast shows 4.91 Gulfstream II operations, including 0.45 at night. This means that the study projects that operations with Gulfstream II's, a relatively old model aircraft, will grow almost as fast as the GA fleet as a whole (4.5 percent vs. 5.9 percent annually) and as fast as the GA fleet at night time (2.8 percent vs. 2.9 percent annually). This is obviously something that should be subjected to sensitivity study but was not.

**Effect of Fuel Costs on Forecasts**

The forecast for this BCA was developed during a different era, when fuel costs were half of what they are today. Airlines are announcing service cutbacks almost daily, with secondary airports like Burbank being heavily hit. Fuel prices will also affect GA flying, and will spur many commercial and private operators to modernize before they otherwise would. Thus, it is likely that there will be both fewer operations than forecast at BUR and that the remaining operations will be flown with quieter aircraft. The forecast should take these fuel effects into account, or the BCA should at least account for them in a sensitivity study. Neither is found in the Jacobs study.

***Change in the CNEL Area Due to the Curfews***

Another important feature of the methodology for estimating the avoided costs of residential noise mitigation relates to how the CNEL area changes with reduced operations once a restriction is put into place. As was the case in developing the forecast for the base case, Jacobs reviews operations and makes decisions about whether the affected flights would continue at Burbank during times outside of the restriction window, be cancelled or moved to another airport. The greater the reduction in jet operations, especially during evening and nighttime hours, the larger will be the reduction in the 65 CNEL area due to the restriction. As a result, fewer dwellings will have to be mitigated and the avoided costs of mitigation (the main benefit of the proposed restrictions) will increase.

Exhibit 8 summarizes the changes in commercial and GA jet operations from Jacobs' analysis. It shows the operations during the day, evening and night in 2005, and then shows projected growth in 2008 and 2015 relative to 2005. It compares the growth from their base case forecast (discussed immediately above) versus the growth they project would occur with a full curfew. Recall that the full curfew is the preferred restriction.

### Exhibit 8: Projected Jet Operations: Base Case vs. Full Curfew

#### Change in Commercial Jet Daily Operations: Base vs. Full Curfew

Year	2005	2005-2008		2005-2015	
		Base Growth	Full Curfew Growth	Base Growth	Full Curfew Growth
Day	131.83	7.08	10.94	23.66	28.81
Evening	43.95	3.68	4.36	7.44	8.23
Night	5.04	5.63	(3.43)	10.90	(3.35)
Total	180.82	16.39	11.87	42.00	33.69

#### Change in GA Jet Daily Operations: Base vs. Full Curfew

Year	2005	2005-2008		2005-2015	
		Base Growth	Full Curfew Growth	Base Growth	Full Curfew Growth
Day	131.83	7.89	3.07	34.09	17.14
Evening	43.95	1.83	0.59	8.20	4.30
Night	5.04	(0.10)	(9.67)	3.29	(9.69)
Total	180.82	9.62	(6.01)	45.58	11.75

Turning first to commercial operations, we note that the growth during the day and evening hours is actually faster in the restriction case than in the base case analysis. This suggests that Jacobs has concluded that many commercial operators will be able to move their flights in order to miss the curfew window. Obviously there is a large drop-off in operations during the nighttime curfew. Essentially what has happened is that in the analysis Jacobs has created numerous commercial nighttime operations in the base case and then eliminated them or moved their operating times when considering the curfew case. In other words, the reduced 65 CNEL due to the restriction depends on eliminating nighttime flying that has never taken place. The effect of this is to maximize the impact of the curfew because the nighttime operations are so heavily weighted in the noise analysis.

A more real world analysis would ask: can the restriction pass muster given current operations and the current 65 CNEL? Jacobs provides insufficient information

to allow us to make this estimate, but it is likely that the preferred full curfew would fail the test.

In evaluating how commercial operators would consider whether to move their flights to other airports, cancel them or move them to different times at Burbank, Jacobs goes through a detailed discussion, almost flight by flight. From what we are able to tell, it appears that the decisions are based on opinions without the benefit of further analysis. Our caveats concerning the reliability of such estimates have already been expressed above.

The relative growth of general aviation operations between the base case and the full curfew case is shown at the bottom of Exhibit 8. In this instance, the growth of general aviation operations is stunted at all hours of the day by the curfew. General aviation operations, like commercial operations are virtually eliminated during the night curfew.

In developing this analysis, Jacobs undertook a survey of general aviation operators based at the airport. It essentially asked the operators what they would do in the event of a curfew. The operators offered their opinions indicating that many of them would move their base of operations to other airports. Almost incredibly, Jacobs then proceeded to discount the operators' responses, thereby reducing the impact on the operators of the curfew. (We discuss the costs of the curfew imposed on operators in the following sections of this analysis.) In our experience, such a process where an analyst discounts the responses from a survey based upon subjective and completely undocumented methods is unprecedented. We question whether the results of the survey conducted by Jacobs have any value in assessing the impacts of the proposed restrictions.

Because we knew when the Part 161 study was being undertaken, GRA did a survey of operators at Burbank and also of itinerant operators that had flown into or out of Burbank at about the same time that Jacobs was undertaking its analysis. The results of the survey are attached as Appendix 1. Briefly, the GRA survey indicates:

- One hundred percent of GA jet operators based at Burbank indicated they would strongly consider moving their operations to another airport. GA respondents indicated that if they were not able to operate during the curfew, it would be difficult for them to justify operating at Burbank during other times of the day and then resorting to the use of other airports at other times.
- Unlike the Jacobs analysis, GRA also surveyed a statistically sound sample of itinerant operators at Burbank. We found that relatively few itinerant operations would be affected by the curfew and therefore relatively few of them would be moved to other airports.

### ***Impacts of Burbank Restrictions on Other Airports***

One of the important features of the Jacobs analysis is the projection that some commercial and many general aviation operations would be moved to alternate airports in the Los Angeles Basin, primarily Van Nuys, Ontario and LAX. Clearly, because so many of these flights would potentially operate during the evening or nighttime, they could have an outsize effect on the 65 CNEL around these alternate airports. If they did, then there potentially would be additional noise mitigation expenses involved, which should be offset against the benefits claimed in the Jacobs study. In other words, only the net benefits (the projected positive outcome at Burbank less the negative impacts at the other airports) is relevant to the benefit-cost assessment. No such analysis is presented by Jacobs.

Finally, it is also important to note that both LAX and Van Nuys are in the process of considering Part 161 restrictions. It may be that Van Nuys and LAX are planning to divert traffic to Burbank even while Burbank is planning to divert traffic to the other two airports. Clearly the study at Burbank should at least consider cases where it would be impossible to accommodate the traffic that they send to the other airports in the region. This is not mentioned in the Jacobs study, but obviously would have substantial impact on the costs imposed on operators, as discussed in later sections of this report.

### **Increase in Residential Property Values**

This section reviews the analysis undertaken by Jacobs in which they estimate the marginal increase in property values in the 65 CNEL due to the proposed restriction. They estimate a hedonic property model, which they interpret as providing reliable estimates of the marginal amenity value that would be capitalized into each property's value in accordance with the amount of noise reduction attributable to the proposed restriction. There are several key elements to this analysis, including the size of the 65 CNEL, which we have questioned in the previous section, the hedonic model, which we describe below, and a very important omission in the estimation of the net benefits.

### **Problem with Estimating Net Property Value Benefits**

With regard to this last issue, we note that Jacobs failed to consider the marginal loss in property value in the areas around airports where they say BUR traffic would now be forced to go due to the amenity. To do this and be consistent with their own methodology, they would need to measure the marginal increase in the 65 CNEL at LAX, Van Nuys, Ontario, and other airports and then estimate a "localized" hedonic



model for each area. The **net** residential property benefit would include the improvement around BUR minus the decrement in value around the other airports. As a result, Jacobs' estimates of property benefits are overstated by an unknown amount, and we cannot be sure from the information provided whether the proposed restrictions would be economically justified or not.

Instead of estimating net benefits, Jacobs undertakes a contingent valuation survey in which they ask people around Burbank what they would be willing to pay for a night-time curfew and a survey of people around Van Nuys to determine what they would be willing to pay to avoid additional operations around their airport from flights rescheduled from BUR. Jacobs concludes that people around Burbank value the benefit more than people around Van Nuys would be willing to pay to avoid the diverted flights. This is not the same thing as netting out the effects on property values around the two airports.

There are obvious problems with these types of surveys because there is no real transaction involved. Respondents are not asked to pay for something; they are asked what they would pay if given the chance, but they know they will never actually be asked to pay. As one of the Jacobs co-authors, JP Nelson of Penn State, has said in a review article on the subject:

"Because environmental commodities are public goods (locally and globally), there also can be strategic bias in the form of free-riding, which leads a respondent to state a WTP (willingness to pay) that is different from his or her true WTP. Further, economic theory provided no prediction how people faced with 'purely hypothetical' choices will behave, and zero valuations and large WTP outliers are common outcomes in SP (stated preference) surveys."<sup>6</sup>

For example, 37.5 percent of the respondents to the Burbank survey said they would be willing to pay nothing for the noise amenity, and another 37.8 percent of people were unsure what they would pay.<sup>7</sup> When over three-quarters of the people interviewed will not pay anything or aren't sure what they would pay, it is probably inappropriate to draw **any** conclusions from the survey.

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<sup>6</sup> Nelson, J.P. "Hedonic Property Value Studies of Transportation Noise: Aircraft and Road Traffic" page 19

<sup>7</sup> Appendix E, page E-9.

## Review of the Hedonic Pricing Model

This section reviews the estimates of increased property value due the proposed restriction present in “The Impact of Aircraft Noise on Residential Property Values in the Bob Hope Airport Environs,” by Jacobs Consultancy, dated March 2008.

The authors estimate a hedonic property value model in which variations in residential housing prices are explained by vectors of housing characteristics, neighborhood characteristics, and environmental characteristics (including noise levels). The stated purpose of the model is to estimate the benefits associated with a curfew on flying hours at the local airport. We find there is a reasonable chance that the benefits estimates are not reliable from a statistical standpoint and that the authors have ignored the significant transactions costs property owners would have to pay to fully realize the benefits.

### ***Model Approach: Exploratory Analyses***

The authors describe an “exploratory” analysis on the data on page 18 of their report. They write that “Several combinations of variables were used and the best model was selected on the basis of overall fit of the model as well as the significance of the independent variables.” This type of experimentation calls into question both the robustness of the estimated coefficients (including the coefficients for the noise variables) as well as claims of statistical significance for variables included in the final models presented in the report.

Several potentially important variables were excluded for the final model as a result of the “exploratory” analysis. These include:

- Variables indicating one or two bathrooms and all variables measuring the number of bedrooms in the homes (see page 11, Table 2).
- Variables measuring distance to the nearest public school, the quality of the nearest public high school, the elementary, middle, and high school attendance areas, and the violent crime rate in the neighborhood (see page 13, Table 3).

These omitted variables could have substantial impacts on the estimated noise coefficients. Of particular concern is that some of these variables are correlated with the noise variables. If this is the case, then the noise coefficients of the final model could be overstated. It is reasonable to expect that housing and neighborhood characteristics are related to proximity to the airport, which in turn, is related to noise levels.

The practice of selecting variables based on statistical significance in “exploratory analyses” also calls into question the claimed significance on estimated coefficients in the final models. This type of decision rule induces a bias towards making Type I errors (i.e., rejecting the null hypothesis of no effect when in fact the null is true). For example, if we estimate 20 models and only one shows statistical significance, we cannot reasonably claim statistical significance at 95 percent confidence (since we would expect to make a Type I error once in 20 cases at 95 percent confidence).

It is difficult to predict the net effect of these exploratory analyses on the final estimates of the noise coefficients. The best way would be to obtain all the original data (including variables excluded from the final models) and conduct our own analyses. The airport has chosen not to make the data available.

### ***Using the Hedonic Model to Estimate Benefits***

As noted earlier, the stated purpose of estimating the hedonic model is to estimate the benefits of noise reductions associated with curfews of flights. Benefits are appropriately measured as willingness-to-pay for an amenity – in this case, reduced noise (or more quiet). These benefits can be measured approximately as the increase in consumer surplus measured under the demand curve for the amenity. The basic problem is that the estimated coefficient for a given amenity from a simple hedonic equation (like those estimated in the Jacob report) is not sufficient to identify the demand curve for that attribute. In other words, the noise coefficients in the final models do not allow one to identify a demand function for reduced noise and thus, without additional information, would not normally be used to estimate the benefit of a restriction.

This identification problem has long been recognized in the literature.<sup>8</sup> Some authors have developed more sophisticated methods to overcome this problem. For example, Bartik (1987),<sup>9</sup> Follian and Jimenez (1985),<sup>10</sup> Kahn and Lang (1988),<sup>11</sup> and Palmquist (1984)<sup>12</sup> adopt two-stage approaches to identifying demand for attributes

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<sup>8</sup> See Rosen, S. (1974), “Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition,” *Journal of Political Economy*, 82, 34-55.

<sup>9</sup> Bartik, T. J., (1987), “The Estimation of Demand Parameters in Hedonic Models”, *Journal of Political Economy*, 95(1), 81-88.

<sup>10</sup> Follian, J.R., and E. Jimenez (1985), “Estimating the Demand for Housing Characteristics Countries”, *Regional Science and Urban Economics*, 15, 77-107.

<sup>11</sup> Kahn, S. and K. Lang (1988), “Efficient Estimation of Structural Hedonic Systems,” *International Economic Review*, 29, 157-166.

<sup>12</sup> Palmquist, R.B. (1984), “Estimating Demand for the Characteristics of Housing,” *Review of Economics and Statistics*, 66, 394-404.

from hedonic equations estimated for several markets. More recently, Beron, et al. (2001)<sup>13</sup> use variation over time to identify attribute demand functions.

Nowhere in Jacobs Consultancy report do the authors discuss this problem or explain how they propose to use their estimated hedonic equations to measure the benefits associated with reduced noise levels. Curiously, Nelson (2007) [a listed consultant to Jacobs on the Burbank modeling effort] does in a draft literature review paper.<sup>14</sup> He cites two papers by Palmquist and argues that if the affected community is small relative to the total housing market (localized externality) and transactions and moving costs are small, then benefits can be measured directly from the hedonic function (without the two-stage approach).

The local externality argument may not easily apply in this case. If we step back and ask what we want to measure, it is the **net** benefit to the homeowner of the additional quiet due to the proposed restriction. Now, suppose I am an owner of a home within the CNEL 65 area around BUR. First, it is likely that I am relatively noise intolerant or I would not have moved into the area in the first place. If the hedonic model says the marginal noise improvement is worth \$100, then because I value quiet less than the average person, the improvement might be worth only \$80 to me. So in this case, the model would overstate the benefit of the restriction.<sup>15</sup>

If I want to gain the full \$100 benefit, I would have to move. Jacobs' implicit assumption is that I can sell my house and gain the \$100 benefit due to the proposed restriction because transactions costs (real estate commissions, transfer taxes, other closing costs, the monetary costs of the move and the time invested in the project) are nil. And in fact, Jacobs takes the entire benefit of the proposed restriction in the first year of the analysis meaning that the full benefit of the restriction is assumed to be realized in that one year. Ignoring these transactions costs (which in California may be very high because Proposition 13 causes local real estate taxes to remain low so long as an owner stays in a home but then marks the taxes to market upon a transaction) causes the real estate benefit of the proposed restriction to be overstated.

## Costs of the Restrictions

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<sup>13</sup> Beron, K., J. Murdoch, and M. Thayer, "The Benefits of Visibility Improvement: New Evidence from the Los Angeles Metropolitan Area," *Journal of Real Estate Finance and Economics*, 22, 319-331.

<sup>14</sup> Nelson, J.P. "Hedonic Property Value Studies of Transportation Noise: Aircraft and Road Traffic" page 4.

<sup>15</sup> Other people might value quiet more than the average person and the model would tend to underestimate the benefit (before transactions costs are considered); in either case, to monetize the benefit, the person would still have to move.

In this section, we discuss the cost estimates included in the analysis of the proposed restrictions. These cost estimates depend importantly upon:

- The projected increase in activity by general aviation, cargo operators and passenger operators at Burbank in the absence of the restriction.
- The projected change in operations with the restrictions.
- The unit costs of accommodating the restrictions that would be imposed on operators.

In earlier sections of this report, we have expressed our skepticism of the forecast of activity both with and without the restriction as developed by Jacobs. A substantial portion of the increased activity in the base case (without restriction) ends up as nighttime flying, or operations during the evening, which are more heavily weighted in the noise analysis. There is very little analysis underlying the forecast changes in operations by commercial operators or by GA. While there are flight-by-flight discussions of projected increases in operations by commercial operators, there is no analysis. Some of the projections are for airlines that either no longer exist or for services that have repeatedly failed in the past. We also discussed our concerns that a substantial proportion of the forecast increase in general aviation jet operations is attributable to very light jets (VLJs), which have an unproven business case. There are indications already in the marketplace (late deliveries, failed financings) that the rosy forecasts for the market penetration of these aircraft may not come to fruition, at least during the analysis period at issue here.

We also expressed our skepticism about the analysis or the lack thereof undertaken by Jacobs with regard to operator reactions to the proposed curfews. Of course the projected changes in operations depend upon the forecast operations in the base case, which are then reduced for each type of curfew. So, for example, the Jacobs analysis creates numerous operations at nighttime by commercial operators, and then eliminates them in the curfew case. Since the flights have never existed, this is an easy exercise but one that is relatively undocumented and probably unreliable. We also expressed our extreme skepticism about the methods undertaken by Jacobs to evaluate how general aviation operators would react to the curfew. Because this methodology depends importantly upon undocumented subjective evaluations of operator responses to Jacobs' own survey, it should be looked upon as being very unreliable. We have also expressed our concerns that Jacobs has almost completely ignored the costs that the Burbank restrictions might have on other Los Angeles area airports, either due to increased residential noise mitigation costs or reduced property values.

The main remaining issue with respect to costs in the analysis is the development of the unit costs imposed upon operators by the restriction. By unit costs we mean the

individual cost of undertaking an action in reaction to the curfew. So, for example, Jacobs projects that certain based operators would move to other airports, and provides estimates of the costs of such relocation. Jacobs also estimates the costs of repositioning aircraft, the costs of cancellations to airlines and passengers, and the impacts on cargo carriers of not being able to operate during curfew hours, which in turn would hinder their ability to offer delivery and late pickup in the Burbank area.

For the most part, the unit costs provided by Jacobs are un-documented. For example, how did Jacobs estimate what the legal and other expenses would be for a general aviation operator to move from Burbank to Ontario? There is no information to test the reasonability of the analysis or to know whether it is based on reality or something else. Or, how did Jacobs estimate the impact on Federal Express and UPS being unable to operate during the curfew? Jacobs provides an estimate of the percentage of the integrator business that depends on early delivery, but provides no information of where they got the number.

In effect, most of the unit costs in the Jacobs report appear to be “back of the envelope” calculations, unrelated to and untested in the real world. This is alarming because if the costs are even a little bit higher than those estimated by Jacobs, it is possible that the proposed restrictions would not be found to be cost beneficial, even granting all the other assumptions in the analysis. Clearly there is a need to provide more real world documentation of the potential costs of the proposed restrictions.

In addition to what we have said above, the following unit costs may be particularly problematic:

- Impacts on general aviation and all cargo business models: The curfew will force general aviation charter operators to reposition some of their flights to avoid the curfew, resulting in increased time for both the company and its clients. Similarly, the curfew may preclude all cargo operators from offering their full range of services. In both cases, the overall business of these operators may be affected in the Los Angeles area. The small incremental costs estimated by Jacobs may not fully reflect the total costs incurred if demand for their services declines because the quality of those services offered by the affected operators is adversely affected by the restriction.
- Impacts on passenger carriers: Jacobs assumes that the passenger operators are able to re-accommodate virtually all of the affected passengers; in cases where there are cancellations or diversions, passengers are assumed to be re-accommodated on the same carriers' flights. This assumption is made without the benefit of any apparent analysis. Load factors for many carriers now exceed 85 percent, with JetBlue load factors averaging over 90 percent system wide. It is very difficult for a carrier, in the best of circumstances, to

re-accommodate even a few passengers on a flight; this would almost certainly be the case at Burbank and the consequential impacts on the carriers have not been adequately evaluated in the Jacobs study.

- ✈ Repositioning Aircraft: Jacobs provides estimates of the cost of repositioning aircraft due to the restriction. They assume that this requires 1.5 hours of pilot time. But, obviously, this depends critically on crew schedules and the amount of time in a day the crew has before running into regulatory limits. It is very unlikely that the crew costs would be limited to the time to reposition the aircraft; additional crew would be needed to cover these contingencies in many instances. This is another example of “back of the envelope” calculations that are untested in the real world.

## **Review of Six Part 161 Statutory Criteria**

In this section we review the Jacobs Part 161 BCA in relation to the six criteria that FAA will use to evaluate it. This format also provides a useful format to summarize our conclusions.

### **Is the Proposed Restriction Reasonable, Non-arbitrary and Nondiscriminatory**

At present, the size of the 65 CNEL area is declining at BUR and the airport has undertaken a significant amount of noise mitigation. If this trend were to continue, the noise problem at BUR would continue to be ameliorated without restrictions. In contrast to the evidence on the ground, the Jacobs analysis projects that the 65 CNEL area will grow in the future, and then provides estimates of benefits and costs that are either incomplete or incorrectly estimated. It is difficult to conclude that the restriction is reasonable if the evidence presented suggests that it may not be cost beneficial.

### **Does the Proposed Restriction Create an Undue Burden on Interstate and Foreign Commerce**

We have questioned the accuracy of virtually every benefit and cost category, and have also suggested that appropriate sensitivity studies have not been conducted. We have also noted that the preferred restriction, the full curfew, is the lowest rated (lowest B/C ratio) and most costly of the three considered. Selecting the full curfew in preference to the others (assuming the BCA were done correctly) would not represent a good economic decision.

We have also noted that Jacobs has ignored the fact that both LAX and Van Nuys have Part 161 restrictions under study now. Obviously, these airports may not be

available to accept additional flights from BUR. Jacobs has also ignored the costs (noise mitigation; property value) that its flights would impose on other area airports.

Finally, we note here that allowing the BUR restriction to go forward would be a potentially dangerous precedent that could lead to a patchwork of additional local noise restrictions at many other airports in the country. Local noise rules are particularly difficult for operators to deal with because of their variety. It will become increasingly difficult for operators to have the right aircraft available at the right times to deal with a patchwork of different restrictions. The traveling public will ultimately pay this bill, but there are no references or estimates of the potential costs in the Jacobs study.

### **Does the Proposed Restriction Maintain Safe and Efficient Use of Navigable Airspace**

The Jacobs study shows that a significant number of aircraft may have fly within the crowded LA area airspace in order to get back into position to serve airline passengers or GA users after being diverted, cancelled or moved because of the restriction. These intra-regional flights increase the burden on air traffic control but these costs are undocumented.

### **Does the Proposed Restriction Conflict with Federal Law**

This question is a matter of law and is not addressed in this report.

### **Did the Airport Authority Afford Adequate Opportunity for Public Comment on the Proposed Restriction**

We have noted throughout our analysis that certain materials are missing from the public record. The detailed results of the GA survey and the INM model runs and associated databases are perhaps the most critical. But, there are many “back of the envelope” unit cost estimates included in the analysis that are not supported in any way. This calls into question the validity of the analysis.

### **Does the Proposed Restriction Create an Undue Burden on National Aviation System**

We have noted above the added costs to operators and the FAA of accommodating flights that are out of position due to the curfew. More important, we have warned of the dangerous precedent that would be set if the restriction were permitted, which we believe would ultimately lead to a patchwork of conflicting local noise rules that would be costly for operators to accommodate.

Allowing the present BUR proposal to go forward would also set another dangerous precedent. There are numerous flaws in the BCA analysis, many of them



large enough individually to call into question the economic advisability of the restriction. Allowing the restriction to go forward justified by such a flawed analysis would set a very low bar for others to follow and would likely result in many poorly thought out and perhaps expensive local noise rules in the future.

## Appendix 1

### GRA BURBANK SURVEY

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#### Survey Of Burbank General Aviation Jet Operators Concerning Possible Flight Restrictions

This report summarizes results of a survey conducted by GRA, Incorporated on behalf of the National Business Aviation Association (NBAA). The purpose of the survey was to ask both locally based and itinerant turbojet operators how they would react to proposed flight restrictions at Bob Hope Airport (BUR). The survey addressed two types of flight restrictions:

- A night curfew extending from 10:00 p.m. to 7:00 a.m. on all flight operations.<sup>16</sup>
- A complete ban on Stage 2 turbojet operations at the airport.

The survey was conducted over the period November 2006 through January 2007.

#### **Summary of Results**

Respondents indicated that if a night curfew were implemented at Bob Hope Airport (BUR):

- Virtually all general aviation turbojet operators based at BUR indicated that they would move their aircraft to either Van Nuys (VNY), Camarillo (CMA) or Los Angeles International Airport (LAX); as a result, approximately half of the turbojet operations currently at BUR would move to other airports in the Los Angeles region.
- Four of the eleven locally based operators at BUR would consider moving their businesses to other locations if the night curfew were imposed.
- Among itinerant operators, about half would divert primarily to Van Nuys or Los Angeles International Airport while the others would primarily retime their flights to miss the curfew at BUR.

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<sup>16</sup> The following operations would be exempt from the curfew: law enforcement, fire fighting, disaster relief, military aircraft, medical life flights, declared emergency, aircraft delayed due to weather, mechanical or air traffic control. See Landrum & Brown, "Preferred Less Restrictive and Non-Restrictive Alternatives Recommended for Detailed Evaluation During Phase 2," (June, 2002), page 5.

- Most of the flights currently operated at BUR would either continue to operate there (itinerant operations) or be moved elsewhere in the region.
- Respondents were also asked to estimate the additional travel time each of their passengers would incur if flight operations were moved to other airports; the survey results suggest that passengers would incur over \$500,000 annually in added time costs using FAA's standard valuation methods.

If Stage 2 operations were banned at the airport entirely, approximately 77 percent of the existing Stage 2 operations would be moved to other airports in the region.

The following section provides numerical details on the results of the survey; thereafter, a detailed description of the sampling procedures and confidence intervals for the results are presented. The appendices present copies of the survey forms.

### ***Detailed Results***

In this section we present detailed information on Stage 2 and Stage 3 operations at Bob Hope Airport (BUR) along with results of the surveys.

Table 1 presents information on the number of Stage 3 general aviation turbojet operations conducted at BUR for the period October 2004 through June 2006; the information is drawn from the FAA's ETMS database. Separate columns are provided for itinerant operations and for those conducted by aircraft based at BUR. In a 20-month period, the ETMS data shows approximately 11,300 Stage 3 private jet operations at the airport, about equally divided between itinerant and based operators. There were an average of 17.75 operations per day or 6,478 operations per year. On average, there would be about 1.2 nighttime operations between 10:00 p.m. and 7:00 a.m., or approximately 442 per year.

**Table 1: Private Stage 3 Jet Operations at BUR  
(October 2004-June 2006)**

	ETMS Population		
	Itinerant	Based at BUR	TOTAL
Total Operations	5643	5681	11324
Total Night Operations	296	477	773
Total Days of ETMS Data	638	638	638
Avg Operations/Day	8.84	8.90	17.75
Total Annual Operations	3228	3250	6478
Avg Night Operations/Day	0.46	0.75	1.21
Total Annual Night Operations	169	273	442

Table 2 then shows the estimated impact of a night curfew on private Stage 3 operations at BUR.<sup>17</sup>

**Table 2: Estimated Impact of Night Curfew on  
Private Stage 3 Jet Operations at BUR**

	Itinerant	Based at BUR	TOTAL
Potential Annual Operations Affected	169	3250	3419
Survey Results:			
(1) % switched to commercial service	1.7%		
(2) % retimed to miss curfew	39.2%		
(3) % cancelled	6.9%		
(4) % moved to alternate airport	44.9%	99.8%	
(5) % reporting no impact	7.3%		
Annual Operations Eliminated at BUR (1+3+4)	91	3244	3334
<i>Moved Operations Only:</i>			
Annual Operations Moved to Alternate Airport	76	3244	3320
Avg Increase in Ground Time for Moved Operations (min)	53.0	37.4	
Avg Passengers per Operation	4.35	5.79	
FAA Value of Time for Private GA Operators (per hour)*	\$45.00	\$45.00	
Annual Passenger Cost	\$13,147	\$526,792	\$539,939

\*FAA: "Economic Values for FAA Investment and Regulatory Decisions: A Guide" (2004)

The majority of flights potentially affected by a night curfew would be those flown by locally based operators. The reason is that these operators indicated they would seek to move their aircraft base elsewhere, thus depriving BUR of all their operations, not just those during the curfew. Virtually all of these operations would in turn be moved to an alternate airport in the Los Angeles region. As a result, the environmental impacts of these operations would be felt elsewhere in the region.

<sup>17</sup> Stage 2 operations are already prohibited at BUR during the curfew hours.

Also shown in Table 2 is an estimate of the annual cost to passengers affected by the curfew. If operators are forced to move their operations elsewhere, the passengers will depart or arrive at a facility that is less convenient for their trip purposes than using Burbank. The survey indicates passengers would incur an additional 37 to 53 minutes of ground travel time as a result of having to move their operations in reaction to the curfew. Using standard FAA economic values, the cost of lost time would be approximately \$500,000 annually.

Table 3 presents data from ETMS on Stage 2 operations at BUR for the period of October 2004 through June 2006. During that period, ETMS shows approximately 1,182 operations at BUR, or an average of 1.65 per day. More of these operations were flown by itinerant than locally based operators.

**Table 3: Private Stage 2 Jet Operations at BUR  
(October 2004-June 2006)**

	ETMS Population		
	Itinerant	Based at BUR	TOTAL
Total Operations	684	498	1182
Total Days of ETMS Data	638	638	638
Avg Operations/Day	1.07	0.58	1.65*
Total Annual Operations	391	212	603

\*Excludes operations by Stage 2 aircraft no longer in the fleet.

Table 4 shows results of the survey for Stage 2 operations. Of 603 annual Stage 2 operations at BUR, 77 percent would be moved to an alternate airport.

Passengers traveling on these Stage 2 aircraft would incur additional annual time travel costs of approximately \$130,000 because operations from other airports will depart or arrive at a facility that is less convenient for their purposes.

**Table 4: Estimated Impact of Ban on Private Stage 2 Jet Operations at BUR**

	Itinerant	Based at BUR	TOTAL
Potential Annual Operations Affected	391	212	603
Survey Results:			
(1) % switched to commercial service	0.0%		
(2) % switched to Stage 3 operations	18.5%		12%
(3) % cancelled	16.7%		11%
(4) % moved to alternate airport	64.8%	100%	77%
(5) % reporting no impact	0.0%		
Annual Operations Eliminated at BUR (1+3+4)	319	212	531
<i>Moved Operations Only:</i>			
Annual Operations Moved to Alternate Airport	254	212	466
Avg Increase in Ground Time for Moved Operations (min)	49.4	60.0	
Avg Passengers per Operation	6.19	8.00	
FAA Value of Time for Private GA Operators (per hour)*	\$45.00	\$45.00	
Annual Passenger Cost	\$58,154	\$76,320	\$134,474

\*FAA: "Economic Values for FAA Investment and Regulatory Decisions: A Guide" (2004)

Of the remaining Stage 2 operations, about 11 percent would be cancelled entirely with the remainder switched to Stage 3 aircraft.

Overall, the effect of the Stage 2 ban at BUR would be to move about 77 percent of the operations to other regional airports.

The survey results also suggest that there could be substantial adverse economic impact on the FBO operators at BUR if either the curfew or Stage 2 ban were implemented. In the case of a curfew, almost 50 percent of the 6,000 annual Stage 3 operations would no longer operate at BUR. Significantly, locally based turbojet operators would move to other airports, thereby depriving BUR's FBO operators of a primary revenue source.

In the event of a Stage 2 ban, a significant number of operations would also be eliminated at the airport, thereby adversely affecting FBO operators.

### ***Survey Sampling and Results***

GRA undertook a sample survey of aircraft operators whose activities might be affected by proposed restrictions on night flying and/or Stage 2 flying at Burbank Airport. It is likely that the impact of proposed flight restrictions may affect operators who are based at the airport differently from those who are not. Consequently, a conservative assumption would be to treat these two groups as different populations. To construct a useful survey sampling design for the itinerant population, it is important to recognize that different itinerant operators are likely to have different levels of operations at the airport. For example, some operators may have multiple

aircraft that fly to and from Burbank on a continual basis, while others may have only a single aircraft that rarely flies to Burbank.

In such a context, it is appropriate to employ a cluster sampling technique by treating the population of operators as the relevant “frame,” and the collection of Burbank operations flown by each operator as a cluster. Once a given operator (representing a cluster) is selected for the sample, a survey instrument sent to that operator will yield sample observations on the proportion of all of the elements (Burbank operations) in the cluster that may be affected by the proposed flight restrictions at the airport. This is known as a single-stage cluster design with unequal cluster sizes and all cluster sizes known. There are a variety of sampling techniques available; the one utilized here is to randomly select (without weights) the clusters to be sampled from the entire population, and estimate the variance using a “ratio-to-size” formula. This approach is appropriate when it is reasonable to believe that the mean response in each cluster (e.g., the probability of altering or canceling Burbank flights) is relatively independent of the size of each cluster (i.e., the initial total number of Burbank flights by each operator).

Working in concert with NBAA, GRA developed an initial database of private jet flight activity at Burbank by collecting data from the FAA’s Enhanced Traffic Management System (ETMS) for the period October 2004-June 2006. The ETMS data system is designed to track every flight that enters the U.S. en route system, which is made up of Air Route Traffic Control Centers (ARTCCs) that are responsible for controlling aircraft flying under Instrument Flight Rules (IFR) at high altitudes. The system collects and stores data for individual flights, and includes information on the date, time, user identity (operator and N-number), and location of where the flight entered and exited a given ARTCC. The ETMS data can be assembled to track the date and time of specific flights to and from a given airport. It must be noted that ETMS covers only those flights that interact with the en route system. With relatively few exceptions, local flights that fly entirely under VFR (unless flying in controlled airspaces) or that fly only under the guidance of airport towers will not be seen by the en route system and will not be accounted for in ETMS.

The ETMS data tracked a total of 1,796 aircraft flying 27,181 operations that departed or arrived at Burbank over the 22-month period from October 2004 to June 2006. This dataset was culled to identify only jet operations. NBAA then provided contact information for the operator of each flight based on N-number, and aircraft with multiple user contacts were eliminated. The data were further refined to distinguish locally based and itinerant operators. This resulted in a sample dataset with 419 unique itinerant operators flying 6,327 Burbank flights, and 11 unique locally based operators flying 6,179 Burbank flights.

Separate survey instruments were designed for local and itinerant operators, as shown in Appendix A. For the most part, the surveys were sent out and returned via email; where necessary, multiple attempts were made to reach the intended recipients, and in some cases hard copies were returned via fax or postal mail. Responses were received from all 11 locally based operators (accounting for 6,179 Burbank operations), and from 62 itinerant operators (accounting for 853 Burbank operations).

The ETMS data can be categorized to identify both Stage 2 operations as well as night operations, and estimates of these activity counts were included on the individual survey forms sent to each operator. Overall, Stage 2 operations accounted for about 11 percent of total activity by itinerant operators, while night operations made up about five percent. For locally based operators, Stage 2 operations accounted for about 8 percent of total activity, while night operations made up about 8.5 percent.

There are only a small number of operators with Stage 2 activity at Burbank. It is unlikely that operators with no Stage 2 activity in the historical data would have such activity in the future, so these operators were not asked about how they would respond to Stage 2 restrictions. On the other hand, it is reasonable to presume that all operators could potentially be impacted by a night flying ban, even those with no documented night activity over the sample period. Accordingly, the results presented below for night flying include the responses of all survey participants.

**As seen in Appendix A, the questions asked included a variety of topics. Of particular interest and importance are the questions about how operators would respond to the imposition of a ban on night flying or a ban on Stage 2 flying. The results for itinerant operators are shown below in Tables 5 and 6. As indicated in Table 5, a majority of the operations affected by a ban on night flying would either be moved to another airport (LAX and VNY most likely) or cancelled outright. For those operations moved, the average additional time incurred in ground transportation would be in excess of 50 minutes.**



**Table 5: Itinerant Survey Results – Jet Operations**

**Itinerant Survey Results**  
**If Jet Operations Were Banned at BUR from 10pm-7am**

ETMS Operations	6327	
Sample Size*	777	
<i>% affected ops that would be:</i>		
	<u>Mean</u>	<u>95% CI</u>
Switched to Commercial Service	1.5%	±1.9%
Re-timed to Miss Curfew Window	37.7%	±8.3%
Cancelled	7.6%	±2.9%
Moved to Another Airport	45.6%	±9.3%
Most Likely Airports	LAX	VNY
Avg Extra Time Incurred	51.9 minutes	
No Reported Impact	7.6%	

\*Five respondents did not accurately complete the relevant section of the survey used for these results; and so were excluded from the initial sample of 62 operators.

**Table 6: Itinerant Survey Results – Stage 2 Jet Operations**

**Itinerant Survey Results**  
**If Stage 2 Jet Operations Were Banned at BUR**

ETMS Operations (Stage 2 Only)	684	
Sample Size	54	
<i>% affected ops that would be:</i>		
	<u>Mean</u>	<u>95% CI</u>
Switched to Commercial Service	0.0%	#N/A
Re-timed to Miss Curfew Window	0.0%	#N/A
Cancelled	16.7%	±17.7%
Moved to Another Airport	64.8%	±20.0%
Most Likely Airports	LAX	
Avg Extra Time Incurred	49.4 minutes	
No Reported Impact	18.5%	

The projected results of a ban on Stage 2 flying should be treated with caution since they are based on a small sample. Nevertheless, these results (shown in Table 6) indicate that over 80 percent of the operations affected by a Stage 2 ban would either be moved to another airport or cancelled.

As mentioned earlier, all 11 locally based operators identified from ETMS responded to the questionnaire; these responses therefore represent a complete census and there is no need to assess sampling properties or compute confidence intervals. If night operations were banned at BUR, 10 of the 11 operators representing 99 percent of

the group's operations at the airport stated that they would base their Stage 3 aircraft elsewhere; LAX, Van Nuys and Camarillo were cited most often as replacement locations. The one local operator with Stage 2 aircraft based at the airport would move those aircraft as well if Stage 2 operations were banned. In addition, four of the 11 local operators indicated that they would consider relocating their business if night operations were banned; two of these four said they would definitely do so, one said there was a 75 percent chance of doing so, and one estimated the likelihood of moving at 50 percent.

## Appendices

### Itinerant Aircraft Survey

Date: \_\_\_\_\_

GRA, Inc. has been retained by NBAA to conduct an economic impact study of the benefits to the community of business jet operations at Burbank, California (BUR). The results of this survey may be important to the community as it makes decisions concerning the airport and its future. **You and your company's identity will be held in strict confidence. Thank you.**

NBAA ID: \_\_\_\_\_

Company: \_\_\_\_\_

Contact: \_\_\_\_\_

The following information displays aircraft in your fleet that, according to FAA records, flew to or from Burbank Airport (BUR) between October 2004 and June 2006. **PLEASE CORRECT ANY DATA THAT IS INACCURATE.**

Tail Number	Make & Model	Registration	Total Ops at BUR (10/2004-6/2006)	Nighttime Ops at BUR (10pm-7am)
-------------	--------------	--------------	-----------------------------------	---------------------------------

If you changed any data above, please check here: \_\_\_\_\_

**Please continue to next page...**

1) When you fly to/from Burbank:

a. About what percent of passengers are: Corporate  
 Executives \_\_\_\_\_ %  
 Key Clients \_\_\_\_\_ %  
 Other Decision-makers \_\_\_\_\_ %  
 Other \_\_\_\_\_ %

b. On average: How many passengers are on-board? \_\_\_\_\_  
 How many flight crew? \_\_\_\_\_  
 How many flight attendants? \_\_\_\_\_

c. What is the average flight time for trips to and from Burbank? \_\_\_\_\_ hours

2) When you fly to/from Burbank, about what percent of the time do you:

a. Buy fuel at Burbank? \_\_\_\_\_ %

b. Use other line services? \_\_\_\_\_ %

c. Rent a hotel room? \_\_\_\_\_ %

On average, how many rooms? \_\_\_\_\_ On  
 average, for how many nights? \_\_\_\_\_

d. Buy other services

Insert description here	Insert description here	Insert description here
----------------------------	----------------------------	----------------------------

How often? \_\_\_\_\_ %                      \_\_\_\_\_ %                      \_\_\_\_\_ %

**Please continue to next page...**

Burbank is entertaining certain flight restrictions that may affect your operations at the airport. Please tell us how you would react to these restrictions.

		<b>Only if you operate Stage 2 A/C to BUR</b>	
<i>Considering only those flights that would be affected by flight restrictions at Burbank</i>	If all jet operations were banned at BUR from 10pm-7am	If Stage 2 jets were no longer allowed to operate at BUR	If all jet operations were banned at BUR from 10pm-7am AND Stage 2 jets were no longer allowed to operate
% affected ops you would cancel and not use a substitute travel method	_____ %	_____ %	_____ %
% affected ops you would cancel and start flying passengers via commercial service instead	_____ %	_____ %	_____ %
% affected ops you would switch to Stage 3 A/C	XXXX XXXXX	_____ %	_____ %
% affected ops you would re-time to miss overnight curfew	_____ %	XXXXXX XXXX	_____ %
% affected ops you would move to another airport	_____ %	_____ %	_____ %
Which airport?			
How much <b>extra</b> time would be incurred by your passengers at start/end of trip to/from Burbank area?	_____ minutes	_____ minutes	_____ minutes

**THANK YOU FOR PARTICIPATING!**

**PLEASE RETURN THIS FORM TO: [nbaasurvey@gra-inc.com](mailto:nbaasurvey@gra-inc.com)**

**OR YOU MAY FAX IT TO: 215.884.1385**

**If you have any questions, please call: Bill Spitz at 215.884.7500**

## Local Aircraft Survey

Date: \_\_\_\_\_

GRA, Inc. has been retained by NBAA to conduct an economic impact study of the benefits to the community of business jet operations at Burbank, California (BUR). The results of this survey may be important to the community as it makes decisions concerning the airport and its future. **You and your company's identity will be held in strict confidence. Thank you.**

NBAA ID:

Company:

Contact:

The following information displays aircraft in your fleet that, according to FAA records, flew to or from Burbank Airport (BUR) between October 2004 and June 2006. **PLEASE CORRECT ANY DATA THAT IS INACCURATE.**

Tail Number	Make & Model	Stage	Total Ops at BUR (10/2004-6/2006)	Nighttime Ops at BUR (10pm-7am)

If you changed any data above, please check here: \_\_\_\_\_

Our best information indicates that all of the above aircraft are currently based at BUR. If this is incorrect, please indicate which ones are not Burbank-based below. In addition, if you currently plan to replace any of the above aircraft, please indicate which ones below, approximately when, and what the likely replacement aircraft would be. Finally, if you have additional Burbank-based aircraft, please provide information below (tail number, make and model, stage, total and night-time operations between Oct 2004 and June 2006).

Insert information here

**Please continue to next page...**

3) When you fly to/from Burbank:

a. About what percent of passengers are: Corporate  
 Executives \_\_\_\_\_ %  
 Key Clients \_\_\_\_\_ %  
 Other Decision-makers \_\_\_\_\_ %  
 Other \_\_\_\_\_ %

b. On average: How many passengers are on-board? \_\_\_\_\_  
 How many flight crew? \_\_\_\_\_  
 How many flight attendants? \_\_\_\_\_

c. What is the average flight time for trips to and from Burbank? \_\_\_\_\_ hours

4) When you fly to/from Burbank, about what percent of the time do you:

a. Buy fuel at Burbank? \_\_\_\_\_ %

b. Use other line services? \_\_\_\_\_ %

c. Buy other services

Insert description here	Insert description here	Insert description here
----------------------------	----------------------------	----------------------------

How often? \_\_\_\_\_ %                      \_\_\_\_\_ %                      \_\_\_\_\_ %

**Please continue to next page...**

Burbank is entertaining certain flight restrictions that may affect your operations at the airport. Please tell us how you would react to these restrictions.

		<b>Only if you base Stage 2 A/C at BUR</b>	
	If all jet operations were banned at BUR from 10pm-7am	If Stage 2 jets were no longer allowed to operate at BUR	If all jet operations were banned at BUR from 10pm-7am AND Stage 2 jets were no longer allowed to operate
Would you base your Stage 3 aircraft elsewhere?		XXXXXX XXXXXX	XXXXXXXXX XXXXXX

		XXXXXX XXXXXX	XXXXXXXXXX XXXXXX
How much <b>extra</b> time would be incurred by your passengers at start/end of trip to/from Burbank area?	_____ minutes	XXXXXX XXXX	XXXXXXXXXX XXXX
Would you base your Stage 2 aircraft elsewhere?			
How much <b>extra</b> time would be incurred by your passengers at start/end of trip to/from Burbank area?	_____ minutes	_____ minutes	_____ minutes
If you would choose to continue to fly to/from BUR:			
% ops you would cancel and not use a substitute travel method	_____ %	_____ %	_____ %
% ops you would cancel and start flying passengers via commercial service instead	_____ %	_____ %	_____ %
% ops you would switch to Stage 3 A/C	XXXX XXXXXX	_____ %	_____ %
% ops you would re-time to miss overnight curfew	_____ %	XXXXXX XXXX	_____ %

		<b>Only if you base Stage 2 A/C at BUR</b>	
What is the probability that you would <b>relocate your business</b> (not just your aircraft)?	_____ %	_____ %	_____ %
Where would you relocate to?			

**Please continue to next page...**



If there is a positive probability that you would relocate your business, please answer the following questions:

5) What type of product or service does your Burbank-related facility sell?

Insert description here

a. What is the approximate total annual budget for this facility?

Enter amount here

b. What percentage of the total budget is attributable to payroll (including benefits and taxes)? \_\_\_\_\_ %

c. How many full-time employee equivalents (2,080 hours/yr) work at the facility

Enter amount here

d. What percentage of employees live in the immediate Burbank area (within five miles)? \_\_\_\_\_ %

e. What percentage of employees live outside the immediate area but within LA County? \_\_\_\_\_ %

6) Local economic impacts depend in part on where you purchase goods and services for your business. Please provide information on the goods and services you purchase for the facility and where you purchase them:

Insert description here

Approximately what percentage of these goods and services are purchased:

Within five miles of Burbank	_____ %
Elsewhere in LA County	_____ %
Elsewhere in California	_____ %
Elsewhere in the USA	_____ %
From foreign locations	_____ %

**THANK YOU FOR PARTICIPATING!**

**PLEASE RETURN THIS FORM TO: [nbaasurvey@gra-inc.com](mailto:nbaasurvey@gra-inc.com)**

**If you have any questions, please call: Bill Spitz at 1.215.884.7500**

## Appendix 2

### Authority Awards Contract to Insulate 30 Homes

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*Chatsworth Firm, Wally Perfect Construction, Inc., Selected for \$829,060 Project*

BURBANK, Calif., July 19, 2001 — The Burbank-Glendale-Pasadena Airport Authority has awarded a contract for \$829,060 to insulate 30 single family homes to the Chatsworth-based firm of Wally Perfect Construction, Inc.

Work on the homes will commence within two weeks and will be completed by next January. Twenty-five of the homes are in Los Angeles, and five are located in Burbank.

There are now 349 homes near Burbank Airport that have received insulation treatment or are in construction under the airport's Residential Acoustical Treatment Program (RATP), and 420 additional homes are under design.

The program is an outgrowth of two noise studies approved by the Federal Aviation Administration that have identified 3,100 homes as eligible for federal grants to pay for the design and installation of the insulation, at an approximate cost of \$35,000 per house.

The work is done at no cost to the property owner. The Authority will also pay up to \$5,000 to correct code deficiencies to meet city building permit requirements. The owner is required to convey an easement to the Authority agreeing not to sue the airport over aircraft noise in the future.

Each house receives custom-designed acoustical treatments including double-paned windows, solid core doors and weather stripping that render aircraft noise virtually inaudible inside the residence. Where necessary, air conditioning may also be included. It takes approximately 15 days for the contractor to complete work on an individual residence.

To date, the FAA has authorized \$16.8 million for the program, enough to pay for treatment of 469 homes. The Airport Authority has funded 20% of the total from its own operating revenues, and it received FAA approval to collect a \$3 Passenger Facility Charge from each departing passenger over an 11-year period that will raise \$66 million to help pay for insulation. Total cost of the program for single family homes is estimated at \$120 million. The Authority's goal is to reach all eligible homes by 2015.

The Authority will also include multifamily residences in the insulation program if they are inside the noise impact area and were constructed prior to 1974. Multifamily dwellings built after 1974 are required by state law to meet insulation standards at the time of construction and are not eligible for federal funds.

**Exhibit B**

888 Seventeenth Street, NW, Washington, DC 20006-3309  
Telephone [202] 298-8660 Fax [202] 342-0683

FRANK J. COSTELLO

fjcostello@zsrlaw.com

April 16, 2008

**By Electronic Mail**

Thomas A. Ryan, Esq.  
McDermott Will & Emery  
2049 Century Park East, 38th Floor  
Los Angeles, CA 90067-3218

**Re: Burbank FAR Part 161 Application for a Proposed Curfew**

Dear Mr. Ryan:

We represent the National Business Aviation Association, Inc. ("NBAA") with respect to the FAR Part 161 proposal prepared for the Burbank-Glendale-Pasadena Airport Authority ("Burbank") by Jacobs Consultancy.

NBAA intends to submit comments on the Part 161 proposal, both in the current proceedings being conducted by Burbank and when/if the proposal is submitted to the FAA. In order to fully analyze that proposal, NBAA and its consultants, GRA Inc., require access to the data underlying that proposal, namely: the flight schedules relied upon for noise modeling; Technical Report #2 which was relied upon for modeling residential property values, hedonic modeling and related analyses; the report on operator interviews conducted in July 2006; and explanations and/or Excel files showing how GA costs, cargo costs and costs to passengers and airlines were computed. Absent that data, it will be difficult and perhaps impossible to analyze many of the conclusions presented in the proposal.

On April 9, 2008, Frank Berardino of GRA Inc., submitted a request for such data to Max Wolfe of Jacobs Consultancy. On April 13, Mr. Wolfe responded that he could not release the information because it was "under attorney/client privilege," and that he would forward the request to your attention. A copy of that email exchange is attached.

The data that Mr. Berardino requested on behalf of NBAA does not reflect any communications between Burbank and counsel, or which otherwise would fall within the scope of that privilege. Moreover, no other privilege, such as work product, is applicable. FAA will itself require Burbank to provide substantial evidence for the claims made in the Part 161 proposal, which will require Burbank to submit to FAA (and allow interested parties, such as NBAA, to access) the data that was utilized by Jacobs Consultancy in its preparation.

Accordingly, we look forward to receiving the requested data from Burbank on an expedited basis. Burbank has set a deadline of May 14 for comments. We would expect that this data would be provided to Mr. Berardino by no later than the end of this week, April 18.

Thomas A. Ryan, Esq.  
April 16, 2008  
Page 2

If you have any questions, please feel free to call me or Jol Silversmith at the number above.

Sincerely,

/Frank J. Costello/

---

Frank J. Costello  
Jol A. Silversmith  
Counsel for the National Business Aviation Association, Inc.

Attachment

----- Original Message -----

From: "Wolfe, Max" <max.wolfe@jacobs-consultancy.com>  
To: <frankb@gra-inc.com>  
Sent: Sunday, April 13, 2008 11:07 AM  
Subject: RE: Fw: Info Request for Burbank Part 161

Frank, I just got the feedback from the client that I needed to respond to your earlier request. The work we have done, other than the published documents, is under attorney/client privilege. Therefore, I will forward your request to the Authority's attorney on this project. For your reference, he is Tom Ryan of McDermitt, Will & Emery. Max

-----Original Message-----

From: Frank Berardino [mailto:frankb@gra-inc.com]  
Sent: Sun 4/13/2008 7:37 AM  
To: Frank Berardino; Wolfe, Max  
Cc: nightnoise@bur.org  
Subject: Re: Fw: Info Request for Burbank Part 161

Please forward to the person authorized to release this information.  
This will facilitate comments we may provide on the Part 161 study.  
Many thanks  
Frank Berardino  
GRA

-----Original Message-----

From: "Frank Berardino" <frankb@gra-inc.com>  
To: <maxw@leighfisher.com>  
Date: Wed, 9 Apr 2008 09:16:16 -0400  
Subject: Fw: Info Request for Burbank Part 161

Dear Max

We are interested in some additional details concerning your Part 161 study. Could you provide the following expeditiously (given the 45 day comment period):

- 1) schedules of flights used in the noise modeling including aircraft type and engines
- 2) Technical report #2 regarding residential property values and hedonic modeling; data on property values and home "characteristics"; source info on the data; and results of hedonic modeling (coefficients, t tests, confidence intervals, R-square etc.)
- 3) report entitled: "Burbank Part 161 Study --GA/Corporate Operator Interviews July 2006"
- 4) Methods / excel file showing how GA costs were computed
- 5) Methods/ excel file showing how all cargo costs were computed
- 6) Methods/excel file showing how cost to passengers and airlines computed

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May 1, 2008

**VIA E-MAIL AND FACSIMILE**

Frank J. Costello  
Zuckert Scoutt & Rasenberger, LLP  
888 Seventeenth Street NW  
Washington, DC 20006-3309

Re: Request for Documentation Relating to the Burbank-Glendale-Pasadena Airport  
Authority's FAR Part 161 Application for a Proposed Curfew

Dear Frank:

We are in receipt of your letter dated April 16, 2008, regarding the Burbank-Glendale-Pasadena Airport Authority's (the "Authority") FAR Part 161 Application for a Proposed Curfew, in which you requested on behalf of the National Business Aviation Association, Inc. ("NBAA") that the Authority provide you with various documents containing data underlying its current Part 161 proposal to assist NBAA in its preparation of comments during the statutory public comment period on a possible curfew.

First, I apologize for the delay in responding to your letter. As you know, the Authority's lead consultant for the Part 161 Application, Max Wolfe, tragically and unexpectedly passed away last week.

Second, under FAR Part 161, the Authority is not obligated to provide the requested information to NBAA. FAR Part 161.303(c) sets forth a specific list of information that must be provided by an airport operator – here, the Authority – in the notification process of a Part 161 study. That information includes only:

(1) The name of the airport and associated cities and states;

(2) A clear, concise description of the proposed restriction (and any alternatives, in order of preference), including a statement that it will be a mandatory Stage 3 restriction; and where the complete text of the restriction, and any sanctions for noncompliance, are available for public inspection;

(3) A brief discussion of the specific need for, and goal of, the restriction;

(4) Identification of the operators and types of aircraft expected to be affected;



(5) The proposed effective date of the restriction, the proposed method of implementation (e.g., city ordinance, airport rule, lease, or other document), and any proposed enforcement mechanism;

(6) An analysis of the proposed restriction, in accordance with Sec. 161.305 of this part, or an announcement regarding where the analysis is available for public inspection;

(7) An invitation to comment on the proposed restriction and the analysis, with a minimum 45-day comment period;

(8) Information on how to request a copy of the complete text of the restriction, including any sanctions for noncompliance, and the analysis (if not included with the notice); and

(9) The address for submitting comments to the airport operator or aircraft operator proposing the restriction, including identification of a contact person.

The information that NBAA seeks – *i.e.*, data underlying the analysis of the proposed restriction – is not amongst the items that must be provided. Indeed, if the Authority were to provide the requested information to NBAA, such disclosure raises the issue of whether the Authority would have to make such information available to everyone, whether the Authority would be obligated to make public other currently non-public information concerning the Part 161 if other stakeholders request such information, and whether the Authority would be required to extend the public comment period if it releases new information during the public comment period.

Third, the information that NBAA seeks is privileged under California law. As you may be aware, the City of Burbank and the Authority were recently involved in a variance hearing before the State of California. The City sought drafts of the Authority's Part 161 proposal as well as the underlying documents in that legal proceeding. The Authority vigorously fought to preserve the privilege of such documents and information. Ruling on the fully briefed motion to compel brought by the City, the administrative law judge denied production of the information and documents on the grounds that the material sought was subject to the "official information" privilege under California Evidence Code § 1040, and its disclosure was "against public interest." Other information was subject to the attorney-client privilege and/or the work product doctrine, as the Authority's Part 161 has been done by counsel or at the direction of counsel.<sup>1</sup> The Authority will not waive these privileges and protections at this time, particularly since the Authority has not yet acted to authorize submission of the Part 161 proposal or received all public comments.

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<sup>1</sup> Any action by the Authority on this issue will likely result in a legal challenge by some effected party – whether operators, tenants, local residents, or neighboring jurisdictions. Thus, legal counsel has been overseeing and directly participating in the process.

Fourth, concerning the observation in your letter that, upon submission of the proposal, the FAA may seek the information currently sought by NBAA, that will be a matter for the Authority and the FAA to address under the specific regulations of the Part 161 at the appropriate time.<sup>2</sup>

Fifth, notwithstanding the above, the Authority under separate cover will provide a copy of technical report two requested in your letter (that report became public at the commencement of the public comment period) and a copy of the interview notes of one of its tenant (Million Air) which consented to its release.<sup>3</sup> To date, Million Air is the only tenant to consent to the public release of its material, as others have stated they view the material as confidential. The remaining non-public information you requested will not be released at this time for the reasons stated above.

I appreciate your patience in awaiting this response.

Sincerely,



Thomas A. Ryan

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<sup>2</sup> Please note that the FAA earlier today made a formal written request to the Authority to extend the public comment period by 30 days. The Authority's governing commission will consider that request this Monday, May 5th.

<sup>3</sup> A copy of that material will also be posted on the Airport's Part 161 website. Work product in the note is redacted.

888 Seventeenth Street, NW, Washington, DC 20006-3309  
Telephone [202] 298-8660 Fax [202] 342-0683

FRANK J. COSTELLO

fjcostello@zsrlaw.com

May 8, 2008

**By Electronic Mail**

Thomas A. Ryan, Esq.  
McDermott Will & Emery  
2049 Century Park East, 38th Floor  
Los Angeles, CA 90067-3218

**Re: Burbank FAR Part 161 Application for a Proposed Curfew**

Dear Tom:

Thank you for your letter of May 1, 2008 and for making available Technical Report #2 and at least one of the operator interviews. We strongly disagree, however, that the limited amount of additional backup information we have requested is privileged or otherwise inappropriate for public disclosure.

We are not seeking discovery from the Authority. We do not want drafts, internal memoranda, preliminary analyses, communications or any other types of materials that could be considered privileged or confidential. To the contrary, we only are seeking materials that we believe should already be part of the public record, namely:

1. The flight schedules that were used to compute the noise contours. One of the core assumptions in the study is that the 65 dBN contour actually will *expand* in the future contrary to past experience. That assumption cannot be tested, let alone understood, without seeing the flight schedules that were assumed for those future years. This information should have been included in the study in the first instance, and there is nothing the least privileged or confidential about it. Indeed, these schedules are routinely provided in support of noise contour maps prepared under Part 150.
2. The hedonic pricing data base and related analyses. These data are central to the authority's claim of injury due to noise at the airport.
3. An explanation of how costs were computed. The costs assigned to various entities are set forth in the study. We need an explanation of how those costs were computed. Again, this is the type of basic information that should have been included in the study.

While your problems with the City of Burbank are interesting, they are not dispositive and barely are relevant. As we understand from your letter, a California DOT Administrative Law Judge denied a motion to compel production of the "drafts of the Authority's Part 161 proposal as well as the underlying documents" in the context of a variance proceeding prior to release of the study. We have not seen that ruling, but this much we know:

Thomas A Ryan, Esq.  
May 8, 2008  
Page 2

1. We are not seeking drafts of anything.
2. The Part 161 study has been made public.
3. Apart from the fact that § 1040 of the California Evidence Code has no applicability in federal proceedings, the public interest in protecting documents before the study was made public obviously is more compelling than after public dissemination of the study.
4. The fact that "legal counsel has been overseeing and directly participating in the process" does not extend privilege to a consultant's ultimate work product.

The failure to make these materials available remains a major deficiency in the study, and we hope that they can be made available in time to assist interested parties in responding.

Sincerely,

/Frank J. Costello/











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Frank J. Costello  
Jol A. Silversmith  
Counsel for the National Business Aviation Association, Inc.

## **Exhibit C**

**THE MAJORITY OF THE DWELLING UNITS TO BE ACOUSTICALLY TREATED ARE *OUTSIDE* THE EXAGGERATED 65 CNEL CONTOUR**

**LEGEND**

-  Current Treatment Program Boundary
-  Third Quarter 2007 CNEL 65 Contour
-  Projected 2015 Treatment Boundary
-  2015 Baseline CNEL 65 Contour
-  Untreated Single-Family Residence\*
-  Untreated Multi-Family Residence\*
-  Airport Boundary
-  Municipal Boundary
-  Freeways
-  Roads

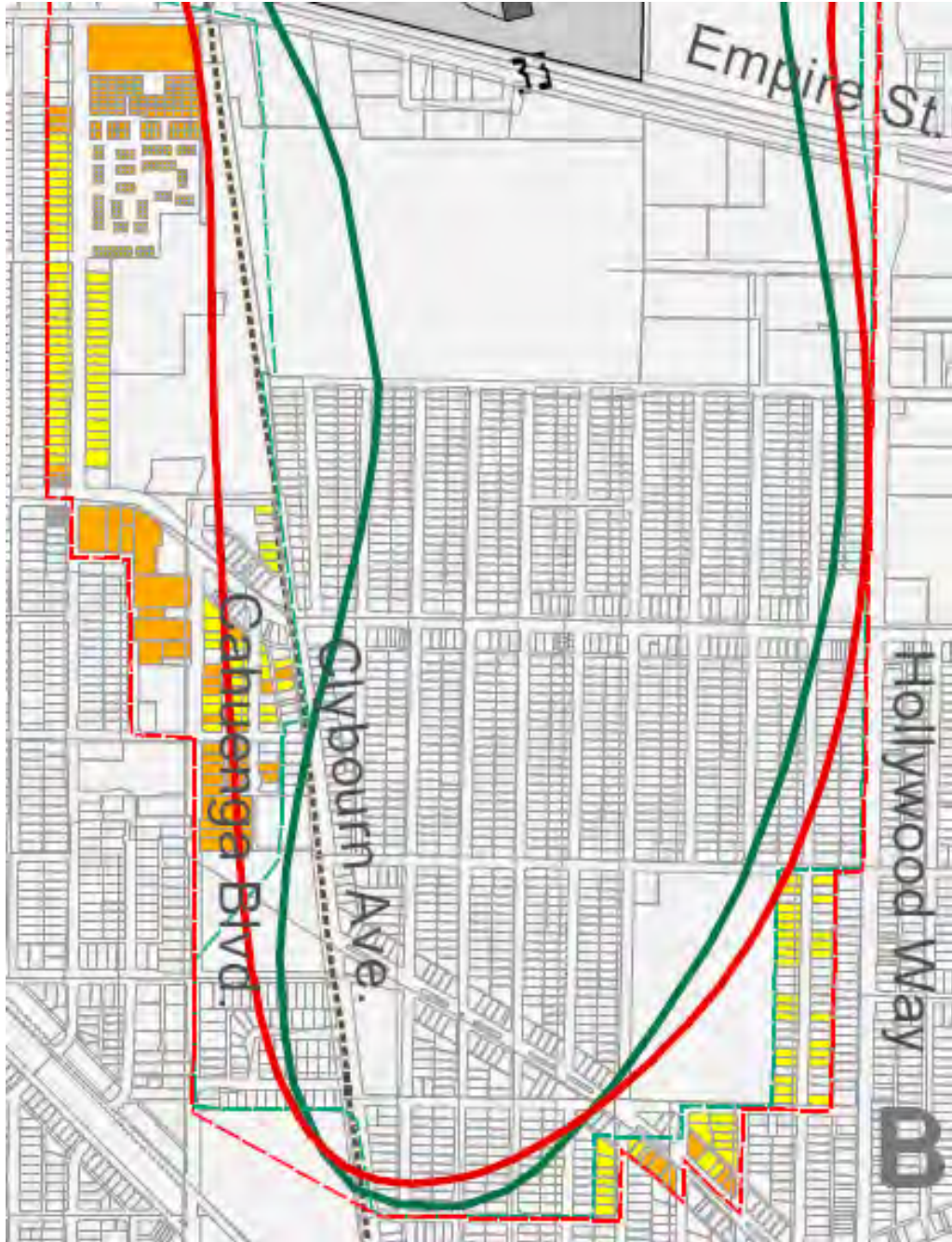
Source: Jacobs Study, Figure 4-1

To the north of the airport:





To the south of the airport:





To the west of the airport:

