# Appendix A
## Summary of Public Hearing Comments (July 2007)

Summary of Public Hearing Comments for Airport Master Plan July 2007

- 29 speakers during public hearing with 3 speaking twice
- 49 written pieces of correspondence, with some overlap with the speakers; 23 pieces of correspondence are identical form letters
- Comments submitted from neighboring municipalities, individuals and organizations including:
    - Village of East Hampton
    - Village of Sagaponack
    - Village of North Haven
    - Village of Sag Harbor
    - Town of Southampton
    - Friends of Long Pond Greenbelt
    - Committee to Stop Airport Expansion
    - East Hampton Business Alliance
    - Citizens for a Quieter Airport
    - East Hampton Aviation Association & Save Our Airport Inc.
    - Airport Noise Abatement Committee

Summary of substantive comments

1. **Support for Alternative 2 with slight adjustments**- The Town of Southampton and the Villages of North Haven, Sagaponack and Sag Harbor all supported Alternative 2, some also explicitly supported the installation of a Control Tower and an AWOS. Two of the Villages requested the description of alternative 2 (p. V. 234) be modified as follows:
   "Modifies the Airport by ~~maximizing~~ optimizing the use of the existing facilities, satisfying safety standards, fulfilling operational demands, and addressing community ~~impacts.~~ input of both the Town of East Hampton and Town of Southampton and respective Villages"

2. **Support for Alternative 2 with substantive modifications**- East Hampton Aviation Assoc. & Save Our Airport Inc., East Hampton Business Alliance and various individual speakers supported retaining all three runways keeping 16-34 as a winter runway only in combination with use/rehabilitation and maintenance of runways 4-22 and 10-28. While use of 16-34 diminishes the capacity of the Terminal Apron for aircraft tiedowns, restricting use of 16-34 to the winter season, when parking demand is greatly reduced will reduce potential conflicts.

   **Note:** *Board may wish to consider long term financial impacts of restoring and maintaining 3 runways compared to 2.*

3. **Support for Alternative 2 with substantive modifications**- East Hampton Aviation Assoc. & Save Our Airport Inc. recommended obstruction marking similar to those used at Republic Airport for Runway 10-28 instead of displacement of the threshold in order to save money; and for safety concerns.

**Note:** *The obstruction markings used at Republic Airport are for an internal airport roadway and not a public street such as Daniel's Hole Rd. Unlike Daniel's Hole Road, this internal access roadway can be and is closed when the runway is in use. For these and other reasons, the FAA would not allow the Aviation Association recommended type of obstruction markings to be used for runway 10-28. Relocating Daniel's Hole Rd. or displaced threshold are the only options.*

*Estimate costs for the displaced threshold range from $150,000 to $350,000 (based on FAA requirements).*

*While displacing the threshold of 10-28 will make the East Hampton airport less accommodating for large jets, it will not prohibit them from using the airport safely.*

4. **Support for Alternative 2 with clarification**- East Hampton Aviation Assoc. & Save Our Airport Inc. recommended permitting avionics shops in the Industrial Park.

**Note:** *Town Attorney Laura Molinari clarified during the public hearing that the vacant lots within the Industrial Park could be used for all permitted and sp uses which meet the standards in the CI zone including aviation purposes. Corrections to Table 1-3 in the draft Master Plan will be made to reflect that vacant lots in the Industrial Park are not reserved for particular uses.*

5. **Opposition to aspects of Alternative 3-** One Industrial Park leaseholder and his agent objected to Alternative 3 calling for the demolition of his 2 buildings (39 and 41 Industrial Park Rd.) which have valid leases with options to purchase property from the Town. Also recommended that the Airport Master Plan address release of Industrial Park lots from the Airport.

**Note:** *The FAA has not allowed the Town to sell or release any lots until completion of an updated ALP, which the Master Plan will help to create.*

6. **Helicopters**- Twenty speakers at the public hearing and 41 written comments including organizations and municipalities strongly objected to the noise specifically from helicopters. Objections and recommendations regarding helicopters included: helicopters are creating intolerable noise conditions to so many people yet benefit so few people; helicopters and all private aircraft should fly over the properties of people south of the highway since they are the beneficiaries of this luxurious means of travel; correct the 1.3% Master Plan projected growth rate of helicopters to more closely reflect the past increase in helicopter traffic and their future noise threat; install a control tower to help reduce noise levels; adjust helicopter routes to less populated

regions; rotate helicopter routes so as to not burden any one location; prohibit all helicopter use; redirect flight paths to fly over water; ban all helicopters except the quietest ( 5 bladed main rotors and other new developments in helicopter design); close the airport to all but emergency uses in order to protect the impacts to mating, feeding, and nesting of many species within the rare Long Pond Greenbelt ecosystem, the Greenbelt users in general, and all the residents affected; repeal the restrictions against private helipads to better "spread the misery" among those who use helicopters rather than those who don't; helicopters are not flying at recommended 2000 foot altitudes; increase helicopter routes to 3000 +feet minimum altitude as recommended by helicopter manufacturers; include a guarantee in the Master Plan that future helicopter traffic will not exceed current levels; conduct a Part 161 Noise Study to enable EH to ban helicopters from EH Airport before 2014 if they do not comply with voluntary restraints on altitude, flight paths, hours of operation and total flights; prepare a written plan to reduce total airport noise to levels pre- year 2000; prepare a plan to maximize compliance of all air traffic with local noise ordinances especially between 7Pm and 7Am; raise user fees to incorporate indirect as well as direct costs including impacts on adjoining home values, groundwater pollution risks; examine options to continue to reject future FAA funding to maximize local control over the airport after the grant assurances expire in 2014; preferred route for helicopters should be continually reviewed and analyzed by the Airport Noise Abatement Committee; impacts from helicopter routes should be borne equally by residents of both EH and Southampton Towns with no one area being impacted more heavily that another.

7. **Airport Noise**- In addition to concerns about noise generated by helicopters using the Airport, additional comments, concerns and recommendations regarding noise included the following: without a comprehensive noise abatement strategy, the Master Plan is fatally flawed; the Plan should establish voluntary black-out for take-offs and landings between 8Pm and 8Am; prepare a plan to maximize compliance of air traffic with local noise ordinances especially between hours of 7Pm and 7AM; prepare a written plan to reduce total airport noise to prevailing levels pre year 2000; jet aircraft over a certain size and/or noise limit should not be permitted at any time; shorten runway 10-28 or take other actions to reduce the size and frequency of jets using airport; limit hours of operation of jets/ all aircraft; publicize the identity of planes, pilots, individuals and leasing companies of aircraft who defy the voluntary airport noise reducing restrictions; prepare and file a Part 161 Noise Study with the FAA to enable the Town to impose restrictions on aircraft; prohibit touch and goes; establish noise abatement objectives and measurement methodology; obtain qualified legal opinion that determines which noise abatement initiatives can be implemented and under what conditions ( i.e. a Part 161 Study, federal legislation, expiration of grant assurances); prepare and EIS to evaluate all feasible noise abatement options; conduct a financial feasibility study to determine how noise abatement

initiatives and safety improvements can be funded without FAA support; request Town of Southampton help pay for control tower and Part 161 Study; implement noise abatement measures by codifying them into the Town Code; by employing an FAA friendly approach even though no FAA money funded the report, the report relied on FAA standards for noise rather than East Hampton established, local standards; report should break down the 30,000 annual operations into type of aircraft, FAA classification, weight, runway length required , noise impact and number of each of these aircraft in order to assess which aircraft produce what noise impact on how many homes so that adverse noise impacts can be assessed; the master plan did not incorporate the consideration of other interested stakeholders; get first-hand understanding of how nearby airports in resort communities (Block Island, Nantucket, MV, Newport etc.) regulate their airports.

8. **Additional comments regarding Alternatives**: The selection of a few arbitrary alternatives stacked the deck and displayed FAA bias; the reduced footprint alternative is presented in an "extreme way" because it shows a radical shortening of the main runway; there are many other alternatives that should be considered between the status quo and shortening the main runway by 40%; report avoids the core question of which aircraft operations should East Hampton seek to accommodate and which aircraft operations should East Hampton seek not to accommodate; alterative analysis was short on facts and long on opinions and prejudices; Alternative Analysis fails to offer preferred helicopter route;

9. **Role statement**- Recommended changes to the role statement include: "The East Hampton Airport is owned, maintained and operated for the benefit of the Town and its residents. The airport continues to be classified as a General Aviation Airport under federal criteria. Its primary role is the accommodation of light aircraft traffic. Aircraft operating at greater weights ~~will~~ may be accommodated on condition without unjust discrimination. …" (Reason for suggested change: heavier aircraft may be noisier). The airport is not intended to be a jetport.

"The Town is committed to observing the highest standards of safety, and efficiency and observes all appropriate federal and state standards in terms of layout, operation and maintenance. The facility shall not be allowed to deteriorate, but instead shall be ~~improved and~~ maintained and may be improved in an exemplary manner to best serve light aircraft. (Reason for suggested change: improvements in the past and may in the future attract aircraft we don't want).

"Control of noise and adverse environmental impacts at the airport is consistent with current Town goals for improved quality of life and land and water conservation. These goals recognize that protecting the environment is essential for improving the Town's seasonal and year round economy. These controls are achieved through reasonable, non arbitrary and non discriminatory management practices. These may limit hours of operation, the maximum size or noise footprint of aircraft to be

accommodated, regulate excessive peak demand during the summer season and otherwise adjust patterns ~~such as for helicopter access~~ to minimize community disturbances."

10. **Environmental Management –**By memo dated Oct. 16, 2007 (attached), the Planning Department provided revised and additional language pertaining to the maintenance of the grassland in the environmental management section of the report.

11. **Airport Financing and Control**- One comment supported continued professional and financial support from the FAA; most speakers and letters urged the Town to assert as much local control as possible over the airport, many comments reflected the understanding that maximum local control would only be possible if no more FAA money were accepted. Some comments also reflected an understanding that due to the settlement between the FAA and the Committee to Stop Airport expansion, many grant assurances with the FAA will expire in 2014 and all will expire 2021 provided the Town accepts no more FAA money.

**Note:** *4/24/07 Draft East Hampton Airport Master Plan report is primarily a physical facilities plan intended to help the Town Board decide the physical layout and composition of the airport appropriate to meet the needs of the community. It has always been intended to couple this document with a financial plan to help the board evaluate funding options for the improvements, maintenance and personnel necessary to meet the highest standards of safety and efficiency for the desired `type of airport'. Proposals from AVZ and SH & E have been submitted to help with the financial plan.*

*While it is clear that if the Town accepts FAA funds, FAA regulations govern the operation at the East Hampton Airport. Additional legal expertise may be required to determine the extent of local control East Hampton will gain if no more FAA funds are accepted.*

Attachment

# Appendix B
## Understanding Aircraft Sound and Its Measurement

# UNDERSTANDING AIRCRAFT SOUND AND ITS MEASUREMENT

**Noise**, unwanted sound, differs from virtually all other forms of environmental pollution. It is unwanted energy, not unwanted substance. It is invisible, ceases in the absence of the source, and leaves no lasting traces, except for annoyance on the part of the listener. Understanding the basic characteristics of noise is the beginning of objective consideration of the impact of aircraft noise in areas around airports. A glossary of selected aircraft acoustic terms is attached. Key terms are shown in bold. The most important concepts are discussed below.

**An Introduction to the Physics of Sound and Its Measurement -** Sound is created by changing pressure in a medium, usually air. It is a series of small changes or vibrations in air at characteristic frequencies. These differing frequencies are sensed as differences in **pitch**. Sound is also characterized by **power level**. This refers to the strength of the noise measured at its source. **Intensity** or **pressure level** refers to power spread over a given surface area. It is **sound pressure level** which is directly measured by a **sound level meter**.

Measurement and perception of sound is also affected by the duration of the sound level above the background or **ambient noise level**. Perceptions of sound are also influenced by its quality, or degree of order. This is the difference between music and noise, harmony and disharmony. Many differing systems of noise measurement have been developed over the years to better account for human annoyance and perceptions. There have been continuing requests to develop new metrics for certain specific situations such as the affects of noise on animals. A final important realization in understanding human reaction to noise is that certain sounds are inherently annoying regardless of intensity; finger nails on the blackboard are the most obvious example, but other high pitched whines are also disproportionately annoying.

Of greatest interest in assessing the noise of aircraft events is the **pressure level**. This property of sound is measured in **decibels (dB)**. This is the **logarithmic** equivalent of the ratio of the pressure level of a sound to a refer-

ence pressure set approximately at the threshold of normal hearing sensitivity. Logarithmic equivalents are used because the range of pressures sensed by the human ear is very wide, on the order of one to ten billon on a linear scale. The resulting measurements in decibels equate a 10 dB increase with an order of magnitude (10 fold) increase in sound pressure level. The human ear, by contrast, senses the same ten (10) decibel increase as a doubling of the noise level. This aspect of sound is described as **loudness**. See Figures 1 and 2 which described the full range of audible sounds.

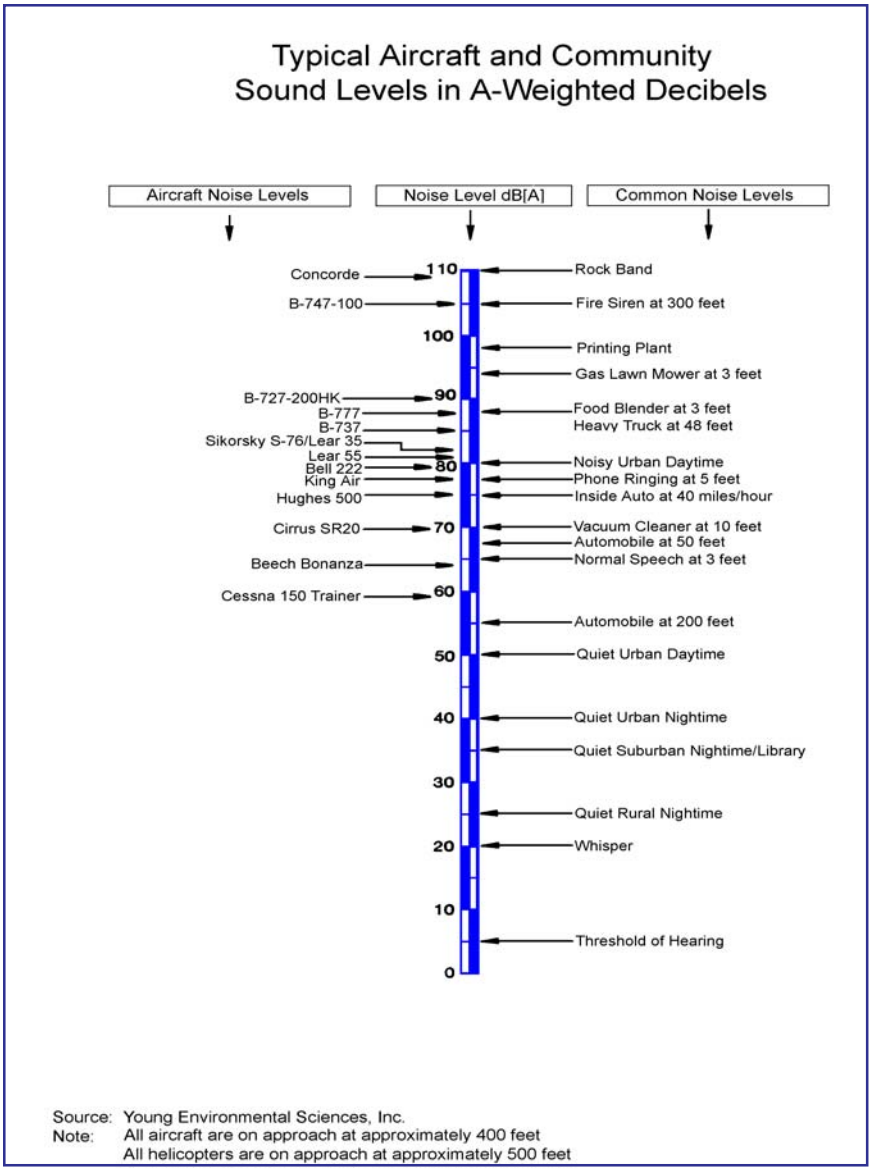


*Figure 1 - Typical Aircraft and Community Sounds Compared*

There are other differences between the responses of human hearing and a straightforward measurement of sound pressure level. The most important involves the differing sensitivity of the ear to various frequency levels in the audible spectrum. The most common weighting system is called "**A weighting.**" By using an electronic network, the lower sensitivity of the ear to sounds in the lower and higher pitch ranges is duplicated. See Figure 3. This measure is common to almost all environmental

**COMPARISON OF SOUND LEVEL (dBA) WITH RELATIVE SOUND ENERGY (LOG SCALE)**

| Sound | Sound Level dB(A) | Relative Loudness (Approximate) | Relative Sound Energy |
|---|---|---|---|
| Jet Plane, 100 feet | 130 | 128 | 10,000,000 |
| Rock Music with Amplifier | 120 | 64 | 1,000,000 |
| Thunder, Danger of Permanent Hearing Loss | 110 | 32 | 100,000 |
| Boiler Shop, Power Mower | 100 | 16 | 10,000 |
| Orchestral Crescendo at 25 feet, Noisy Kitchen | 90 | 8 | 1,000 |
| Busy Street | 80 | 4 | 100 |
| Interior of Department Store | 70 | 2 | 10 |
| Ordinary Conversation, 3 feet away | 60 | 1 | 1 |
| Quiet Automobile at Low Speed | 50 | 1/2 | .1 |
| Quiet Country Residence-Day, Whipser | 40 | 1/4 | .01 |
| Quiet C ountry Residence-Night | 30 | 1/8 | .001 |
| Unoccupied Broadcast Studio | 20 | 1/16 | .0001 |
| Rustle of Leaves | 10 | 1/32 | .00001 |
| Threshold of Hearing | 0 | 1/64 | .000001 |

* U.S. Department of Housing and Urban Development Circular 1390.2

*Figure 2 - Comparison of Sound Level with Relative Sound Energy and Loudness.*

noise measurements. It is fundamentally different, however, than the **Perceived Noise Decibel (PNdB)** and **Effective Perceived Noise Decibel (EPNdB)** which the FAA has used in measuring aircraft sound levels during certification. Note that in all these cases, an instantaneous sound level is being measured.

**Accounting for Noise Exposure Over Time** - The effects of noise are of greatest concern when they recur regularly or persist for long periods. The key concept is the **dose response** relationship. The greatest concern in noise exposure is the prevention of hearing loss. Generally, hearing damage is proportional to the total exposure level, intensity plus duration. Therefore, the technique normally employed is to sum the total energy (**energy summation**) and present the measurement in terms of a long term average. What lies behind this is the concept of **energy equivalency**, i.e., the assumption that all sound regardless of how it occurs is essentially the same. While this is realistic if the key index is

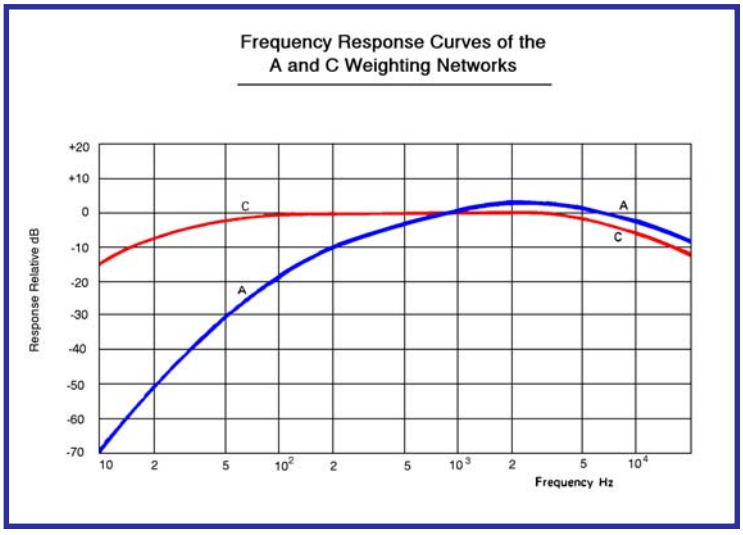


*Figure 3 - Frequency Response in A and C Weighting*

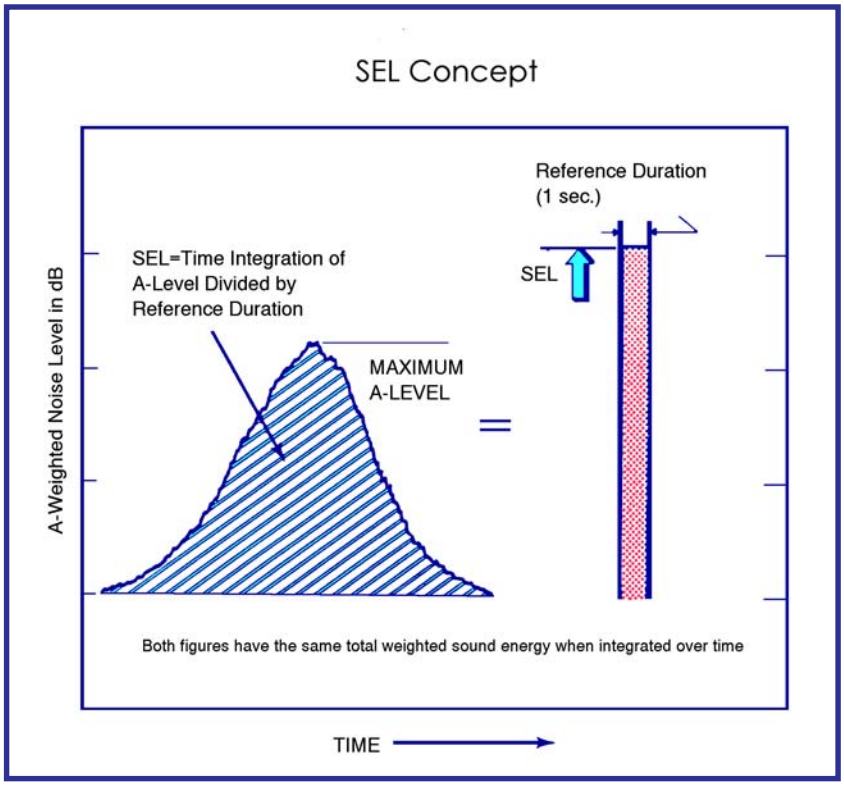


*Figure 4 - SEL Concept*

long term damage to the ear, human annoyance may or may not be proportional to the energy sum.

Aircraft noise can be intense, but is usually brief. Rarely is there sufficient long term exposure in off airport areas to produce the primary health concern. However, considerable annoyance can be created by brief loud noises from aircraft, particularly at night. Moreover, cumulative aircraft noise exposure around airports varies significantly over the course of time because of differences in traffic, runway use, weather conditions and pilot technique. For these reasons a cumulative noise measurement statistic is used to describe long term aircraft noise impact. In this case, the federally mandated noise measurement system is the **Day Night Average Sound Level (Ldn, $L_{dn}$, LDN or DNL)**. This system is basically a straightforward long term average with a 10 dB penalty attached to any sounds occurring between 10:00 PM and 7:00 AM. The normal time period for an Ldn statistic is 24 hours. Usually, this is based on a statistically representative day which reflects the annual average conditions. Long term averages such as for a month or a quarter are produced by averaging daily values. Normally, because of variations in daily usage of an airport, a monthly, seasonal or annual equivalent Ldn measurement may be used. This can be based on long term measurements or produced reasonably accurately through the use of a computer model, most commonly the FAA's Integrated Noise Model.

The Ldn measure is produced by averaging a series of differing noise events.

Each noise event is described mathematically by the creation of an equivalent value which is "**time integrated**" into a single numerical value with a standard reference duration of one second. The total noise occurring during a long event is condensed into a single value known as the **Single Event Noise Exposure Level (SENEL)** or **Sound Exposure Level (SEL)**. This eases the process of adding together noise events and dividing the level by the number of seconds during the elapsed time period to produce the long term average.

**Aircraft Classification -** Jet powered aircraft have historically been the noisiest component of the aircraft fleet. In the last 10 to 15 years, jet aircraft as a group have become significantly quieter per pound of weight lifted. This is largely due to the beneficial effects of improving jet engine technology, specifically the **high bypass ratio turbofan engine.** The bypass ratio refers to the proportion of air which is accelerated by the front fan of the engine, but not mixed with fuel and ignited. The air which bypasses the combustion section of the engine forms a boundary layer between the hot engine exhaust and cooler slower moving air around the aircraft reducing the shear forces which produce the characteristic rumble in jet exhaust. It substantially reduces noise emissions and improves operating economies.

The FAA has differing classifications for jet aircraft based on their propulsion technology and relative noise emissions. High bypass ratio engined aircraft are generally all classed as **Stage 3** or **Stage 4** under current FAA source noise control regulations. Older lower bypass ratio engine powered aircraft are classed as **Stage 2**. All Stage 2 airliners have been grounded or converted to Stage 3 as of the end of the Year 2000. Some Stage 2 business jet aircraft are still in use. The earliest jet aircraft, those powered by pure turbojet engines, are classed as **Stage 1** and virtually all of these aircraft were grounded or converted to Stage 2 by the end of 1985.

The FAA classification scheme, codified in **Federal Aviation Regulations Part 36**, is based on allowable maximum noise levels versus total aircraft takeoff weight. Noise emission levels for aircraft under 75,000 pounds, however, are uniform. Thus, care must be taken in interpreting the classification of aircraft. Large Stage 3 aircraft may actually be noisier than small Stage 2

aircraft.

Distinguishing between differing business jet aircraft noise levels based on airborne visual observation is inherently difficult. This is especially difficult when the aircraft is viewed from below and there are no other objects in the field of view for comparison. Most business jet types have similar airframe layouts (planforms) despite the fact that they vary substantially in size and gross weight. Noise levels themselves often cannot be reliably used to distinguish between Stage 2 and Stage 3 types. Even in the case of relatively noisy Stage 2 aircraft, noise emissions are also greatly effected by pilot technique, i.e., minimizing thrust levels immediately after takeoff. Further, on approach, source noise emission levels are similar regardless of stage class.

**Helicopter Noise** – Helicopters differ significantly from fixed wing aircraft in terms of noise emissions. Helicopters may be piston powered or turbine powered. Piston powered helicopters are typically small and light and therefore unobtrusive. They are most commonly used for training, observation, personal transportation, and agricultural purposes. Most helicopters that are used in urban transport are larger, turbine powered and usually professionally flown. All turbine powered helicopters are classed as Stage 2 under FAA criteria.

Helicopter noise emissions have several distinguishing characteristics. Noise emissions are not uniform in all directions due to the changing angle of the rotating blades advancing versus retreating. The sound is pulsating with each pulse corresponding to the passage of a rotor blade in its circular path. These variations are averaged out in the measurement process. Unlike fixed wing aircraft, helicopters have greater emissions on landing than on takeoff and the highest noise emissions occur during cruise mode. Helicopters can also be responsible for a phenomenon called blade slap that occurs when an advancing blade overtakes the turbulent wake of a preceding blade. Helicopters, as is the case with all transportation noise sources, emit significant low frequency noise and vibrations which are more felt than heard.

These characteristics may create the impression that helicopters are relatively noisy whereas they compare favorably to fixed wing aircraft in service. Because they approach and depart at much steeper angles than fixed wing aircraft, noise impacts around heliports cover a very limited area. They also offer considerable flexibility in placement of flight tracks easing the matter of avoiding noise sensitive areas.

**Airport Noise Compatibility -** One of the advantages of the **Day Night Average Sound Level** system is the fact that it is associated with an accepted schedule of land use compatibility guidelines which are based on public health, safety, and welfare criteria. These determinations were originally developed through surveys of residents around airports. While there are weaknesses in the foundation of these determinations and the guidelines themselves are insufficiently protective for certain sensitive land uses, these land use guidelines themselves have proven durable. Now in their fourth decade, and codified in federal law under **Federal Aviation Regulations Part 150**, these guidelines are likely to soldier on, essentially unchanged, for at least the next several years.

Briefly summarized, cumulative aircraft noise levels below **Ldn 65** are considered to be compatible with all land uses. Residential uses become technically incompatible when Ldn 65 is exceeded unless the homes are fitted with acoustical insulation. Commercial land uses become incompatible above the **Ldn 70** and industrial uses incompatible above **Ldn 75**. However, substantial annoyance, as evidenced by noise complaints, can and does occur in areas below Ldn 65. This is because certain types of events can be disproportionately annoying, because differing individuals have differing thresholds of sensitivity, because differing ambient noise levels may mask certain events in some areas and because differing activities, such as sleep, may have extremely low tolerance thresholds. Additionally, in the metropolitan New York area, aircraft noise impacts from several differing airports may affect the same geographical areas.

**Noise Mitigation -** There are only three ways to reduce instantaneous noise impact. First is the reduction of source noise levels, i.e., fly quiet modern aircraft or employ noise abatement techniques in thrust management. Sec-

ond, increase the distance between the source and the receiver. Relocation of flight tracks, and preferential runway use are used to accomplish this. Third, protect the receiver. Noise barriers and acoustical noise insulation installed in homes are the principle means to accomplish this.

**Current Noise Regulations -** In October of 1990, the Congress passed the Airport Noise and Capacity Act of 1990 which became codified in Federal Aviation Regulation Part 161. In this legislation, airlines were required to largely phase out all Stage 2 aircraft by the Year 2000. In establishing this requirement, airports and local governments were strongly discouraged from promulgating restrictions more severe than those imposed by the Federal government.

## Simple Mathematical Rules in Environmental Acoustics

1. The human ear perceives a 10 decibel increase in noise level as a doubling of loudness.

2. A 10 decibel increase in sound level means the source must emit 10 times as much energy at the same distance or the source must move 3 times closer to the receiver.

3. Doubling the source noise level, i.e. , 2 sources at the same level, causes a 3 dB increase in the sound level.

4. Doubling the source to receiver distance decreases the sound level by 6 dB.

5. The human ear has difficulty in distinguishing differences in noise levels of less than 3 dB.

6. Within the Ldn system, a 1.5 dB change is considered significant in residential areas exposed to Ldn 65 or above; within Ldn 60, a change of 3 dB is considered significant.

# GLOSSARY OF SELECTED TERMS IN AIRCRAFT AND ENVIRONMENTAL ACOUSTICS

**Ambient Noise**: The totality of noise in a given place and time - usually a composite of sounds from varying sources at varying distances. Also referred to as Residual Noise.

**A Weighted Sound Level (dBA)**: A number in decibels, which is read from a sound-level meter, when the meter is switched to its weighting scale labeled "A." The number approximately measures the relative noisiness or annoyance level of many common sounds. The human ear is less efficient at low and high sound frequencies than at medium or speech-range frequencies. In order to obtain a single number for the level of a noise containing a wide range , in a manner which represents the ear's response, it is necessary to reduce or weight the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted.

**Background Noise**: (1) The total noise in a situation or system except for the sound that is desired or needed. (In a living room the desired sound might be speech from the television set, while background noise might emanate from an air conditioner, street traffic, and so on). (2) In acoustical measurement, the electrical noise in the measuring system.

**Community Noise Equivalent Level (CNEL):** A scale which takes account of all the A-weighted sound received at a point, from all noise events causing noise levels above some prescribed value. Weighting factors are included which place greater importance upon noise events occurring during the evening hours (7:00 pm to 10 am) and even greater importance upon noise events at night (10:00 pm to 7:00 am).

**Composite Noise Rating (CNR)**: A scale which takes account of the totality of all aircraft operations at an airport in quantifying the total aircraft noise environment. It was the earliest method for evaluating compatible land use around airports. Basically, to calculate a CNR value one begins with a measure of the maximum noise magnitude from each aircraft flyby and adds weighting factors which sum the cumulative effect of all flights. The scale used to describe individual noise events is perceived noise level (in PNdB), the term accounting for number of flights is $10 \log_{10} N$ (where N is the number of flight operations), and each night operation counts as much as 20 daytime operations. Very approximately, the noise exposure level at a point expressed in the CNR scale will be numerically 35-37 dB higher than if expressed in the CNEL scale.

**Day/Night Average Sound Level (LDN)**: A statistical descriptor of the sound over a 24-hour period taking account of the fact that sounds are more annoying at night than during the day. Calculated by determining the equivalent sound level over a 24-hour period after adding 10 dB(A) to the sound levels occurring in the period 10 pm to 7 am.

**Day/Night Average Sound Level-Community (LDNC):** The LDN levels for all

noise sources in the community other than those identified by the noise monitoring system as aircraft events.

**Day/Night Average Sound Level-Aircraft (LDNA)**: The LDN levels for aircraft noise events.

**Day/Night Average Sound Level-Total (LDNT)**: The summation of community and aircraft LDN Levels.

**Decibels (dB)**: One tenth of a Bel. Sound pressure is measured in decibels. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Decibels are not linear units, but representative points on a sharply rising (expotential) curve. Thus, 100 decibels represent 10 billion times as much acoustic energy as one decibel.

**Doppler Effect**: A change in the frequency with which sound or other waves from a given source reach an observer. The frequency decreases with the speed at which source and observer move away from each other, and increases with the speed at which they move toward each other. Thus, the pitch of a sound is apparently raised or lowered as the source and observer move toward or away from each other.

**Dose-Response**: The phenomenon of relating a dose of sound exposure to a correlated response of physiological hearing damage. The theory says that at specified lower threshold small doses of sound will produce no physiological damage.

**Duration (DUR)**: The change in sound pressure level can be charted as a hill-shaped curve that clearly illustrates the duration of sound. Often, when examining airport noise, we are concerned with durations defined as the amount of time the sound pressure level remains within the 10dB of the maximum sound pressure level during the flyby.

**Effective Perceived Noise Level (EPNL)**: A physical measure designed to estimate the effective "noisiness" of a single noise event, usually an aircraft fly-over; it is derived from instantaneous Perceived Noise Level (PNL) values by applying corrections for pure tones and for the duration of the noise.

**Equivalent Sound Level (Leq)**: The level of a constant sound having the same sound energy as an actual time-varying sound over a given period. An energy-averaged sound level, usually but not always of the A-weighted energy.

**Equivalent Sound Level-Community (LEQC)**: The equivalent level of all noise sources in the community other than those identified by the noise monitoring system as aircraft events.

**Equivalent Sound Level-Aircraft (LEQA)**: The equivalent level of all aircraft noise events.

**Equivalent Sound Level-Total (LEQT)**: The total equivalent level resulting from the combination of community noise levels.

**Footprint**: The shape and size of the geographical pattern of noise impact an aircraft makes upon the areas near an airport while landing or taking off.

**Frequency**: The number of oscillations per second (a) of a sine-wave of sound,

and (b) of a vibrating solid object; now expressed in hertz (abbreviations $H_z$), formerly in cycles per second (abbreviation cps).

**Hearing Disability**: An inability, due to hearing impairment, to remain employed at full wages.

**Hearing Handicap**: The disadvantage imposed by a hearing impairment sufficient to affect one's efficiency in the situation of everyday living.

**Hearing Impairment**: A deviation of change for the worse in either hearing structure or function, usually outside of the normal range; see hearing loss.

**Hearing Loss**: At a specified frequency, and an amount, in decibels, by which a person's hearing is worse than some selected norm. The norm may be the threshold established at some earlier period for him or the average threshold for population, or the threshold selected by a standards body for audiometric measurements.

**$L_{10}$ Level**: The sound level exceeded ten percent of the time. It corresponds to peaks of noise in the time history of environmental noise in a particular setting.

**$L_{50}$ Level**: The sound level exceeded 50 percent of the time, corresponding to the average level of noise in a particular setting over time.

**$L_{90}$ Level**: The sound level exceeded 90 percent of the time, corresponding to the residual or ambient noise level.

**Level**: The value of a quantity in decibels. The level of an acoustical quantity (sound pressure or sound power) in decibels is ten times the logarithm (base ten) of the ratio of the quantity to a reference quantity of the same physical kind.

**Loudness or Intensity**: A characteristic of an auditory sensation, which may be scaled in increments representing degrees of loudness. Loudness also is a function of the amplitude of the sound wave, but also depends upon the frequency, waveform, and the area of the sound generator.

**Noise Exposure Forecast (NEF)**: A scale (analogous to CNEL and CNR) which has been used by the federal government in land use planning guides applied in connection with airports. In the NEF scale, the basic measure of magnitude for individual noise events is the effective perceived noise level (EPNL), in units of EPNdB. This magnitude measure includes the effect of duration per event. The terms accounting for number of flights and for weighting by time period are the same as in the CNR scale. Very approximately, the noise exposure level at a point expressed in the NEF scale will be numerically about 33 dB lower than if expressed in the CNEL scale.

**Octave band**: All of the components, in a sound spectrum, the frequencies of which are between two sine-wave components separated by an octave.

**Octave-Band Sound Pressure Level**: The integrated sound pressure level of only those sine-wave components in a specified octave band, for a noise or sound having a wide spectrum.

**Oscillation**: The variation with time, alternately increasing and decreasing, (a)

of some feature of an audible sound, such as the sound pressure, or (b) of some feature of a vibrating solid objects, such as the displacement of its surface.

**Peak Sound Pressure**: The maximum instantaneous sound pressure (a) for a transient or impulsive sound of short duration, or (b) in a specified time interval for a sound of long duration.

**Perceived Noise Level (PNL)**: A quantity in decibels that provides a subjective assessment of the perceived "noisiness" of aircraft noise. The units of Perceived Noise Level are Perceived Noise Decibels, PNdB.

**Period:** How long it takes for a periodic wave form (such as a sine wave) to repeat itself.

**Pitch:** The sensation of sound from a tone which is dependent on the number of vibrations per second of the sound source, e.g., vocal cords, musical instruments, etc. The higher the frequency of vibration the higher the pitch. Sound produced by a source having a specific number of vibrations per second is used as a standard for tuning musical instruments.

**Plane Wave:** A wave in which the wave fronts are parallel and perpendicular to the direction in which it is traveling.

**Presbycusis:** The decline in hearing acuity that normally occurs as a person grows older.

**Pure Tone:** A sound wave whose wave form is that of a sine-wave.

**Quality or Timbre:** A characteristic of sound that depends chiefly on the waveforms and intensity of the sound waves. This characteristic distinguishes harsh sounds from harmonic or musical tones.

**Retrofit:** The retroactive modification of an existing building or machine. In current usage, the most common application of the word "retrofit" is to the modification of existing jet aircraft engines for noise abatement purposes.

**Reverberation:** The persistence of sound in an enclosed space as a result of multiple reflections, after the sound source has stopped.

**Single Event Noise Exposure Level (SENEL):** Measure of sound used principally in California, which integrates the maximum sound level of an event with the duration that the event exceeds a predetermined dB(A) threshold level. The SENEL represents all the acoustical energy of a noise event.

**Sound Exposure:** The cumulative acoustic stimulation at the ear of a person or persons over a period of time. Also known as noise dose when the exposure of one individual is described.

**Sound Exposure Level (SEL):** A scale used to describe the energy content of flyover noise. The total energy content is measured and then nomalized to a one second time period.

**Sound Level Meter:** An instrument, comprising a microphone, an amplifier, an output meter, and frequency-weighting networks, used for the measurement of noise and sound level in specified ways.

**Sound/Noise Level:** The weighted sound pressure level obtained by use of a

sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

**Sound Power Level:** The level of sound power, averaged over a period of time, the reference being $10^{12}$ watts.

**Sound Pressure Level:** (1) the minute fluctuations in atmospheric pressure which accompany the passage of a sound wave. The pressure fluctuations on the typanic membrane are transmitted to the inner ear and give rise to the sensation of audible sound. Human ears are sensitive to a wide range of sound pressures. The loudest sounds that humans hear without pain have about one million times more energy than the quietest sounds we hear. Also, our ears are not equally sensitive to all sound pressures - it takes more energy to produce a noticeable change in a loud sound than it does to produce a noticeable change in a quiet sound. (2) For a steady sound, the value of the sound pressure averaged over a period of time. (3) Sound pressure is usually measured (a) in dynes per square centimeter ($dyn/cm^2$), or (b) in $N/m^2 = 10$ dyn/cm $=10^5$ times the atmospheric pressure.

**Speech Interference Level (SIL):** A calculated quantity providing a guide to the interfering effect of a noise on reception of speech communication. The speech-interference level is the arithmetic average of the octave-band sound-pressure levels of the interfering noise in the most important part of the speech frequency range. The levels in the three octave-frequency bands centered at 500, 1000, and 2000 $H_z$ are commonly averaged to determine the speech-interference level. Numerically, the magnitudes of aircraft sounds in the Speech-Interference Level scale are approximately 18 to 22 dB less than the same sounds in the Perceived Noise Level scale in PNdB, depending on the spectrum of the sound.

**Temporary Threshold Shift (TTS):** A temporary impairment of hearing ability as indicated by an increase in the threshold of audibility. Sufficient exposures to noise of sufficient intensity will lead to a permanent threshold shift (PTS) which constitutes hearing loss. Also Hearing Loss, Threshold Shift, Threshold of Audibility.

**Threshold Shift:** An increase in hearing threshold level that results from exposure to noise.

**One Third-Octave Band:** A frequency band whose cutoff frequencies have a ratio of $2^{1/3}$, which is approximately 1.26. The cut-off frequencies of 891 $H_z$ and 1123 $H_z$ define a third-octave band in common use.

**Transient Sounds:** Sounds whose average properties do not remain constant in time. Examples are an aircraft flyover, a passing truck, a sonic boom.

# Appendix C
## Helicopter Operating Instructions and Routes

# *Town of East Hampton Airport*
## *200 Daniel's Hole Road*
## *Wainscott, NY 11975*
## *631.537.1130*


April, 2009

To: Eastern Region Helicopter Council
679 B Rose Hollow Drive
Yardley, PA 19067

Subject: Helicopter Operating Instructions

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**Noise Abatement**

The following Noise Abatement Routes are strongly recommended for helicopter operations at KHTO. The attached map shows the Arrival Routes in RED and the Departure Routes in GREEN.

ARRIVALS

Arrivals from the west proceed to PECONIC (N41.01.10.0 W072.22.28.8). Proceed over water to FERRY (N41.02.45.7 W072.18.19.5) and then to NORTHWEST CREEK (N41.00.55.0 W072.15.25.0). Cross FERRY at or above 2500ft. AGL. Descend after FERRY to cross NORTHWEST CREEK at or above 2000 ft. AGL.

Arrivals from the Southwest fly along the south shore to GEORGICA (N40.55.46.1 W072.13.25.5) at or above 2000 feet AGL. Proceed over Georgica Pond to the airport above the traffic pattern, descending north of the airport for landing. HTO fixed wing traffic pattern attitudes are 1000 ft. AGL for light single and twin aircraft, and 1500 ft. AGL for Jets.

DEPARTURES

Gain as much altitude as possible within the airport boundary. Depart westbound over the power lines to LONG POND (N40.58.14.6 W072.17.54.7). Continue to base of JESSUP'S NECK (N40.59.44.6 W072.22.09.2), climbing to above 2500 feet AGL as soon as possible. Departures north and east bound, proceed to NORTHWEST CREEK. Depart South by climbing above the traffic pattern north of the airport and then proceed over Georgica Pond to the south shore.

**PLEASE NOTE:**

- Pathways depicted on the map are for illustration only and may not conform precisely to coordinates.

- Please call or come in to the Airport Office if you have any questions or suggestions for improving these procedures.

## Ramp Operations

All arrivals and departures to HTO should be to and from active runways or parallel taxiways so as not to interfere with fixed wing traffic. Approaches and departures to and from the **Terminal Ramp** area are **prohibited.**

No part of a helicopter, **including rotor tips**, is to come closer than **100 feet** to the Terminal building. Parking spot 1 in front of the Terminal Building is reserved for fixed wing aircraft only.

Boarding and deplaning a helicopter with the rotors turning is considered unsafe and should be avoided. Use of a rotor brake, if installed is encouraged.

Operating rotors for an extended period of time on the ramp is discouraged. **More than five (5) minutes is considered excessive.** Your cooperation with this limit is for noise and environmental considerations. Passengers who demand rotors turning when they arrive should be informed of this limit. If it is necessary to operate engines and/or rotors for extended periods of time, please move to one of the transient helicopter pads or as far from the Terminal Building as possible.

## Other Considerations

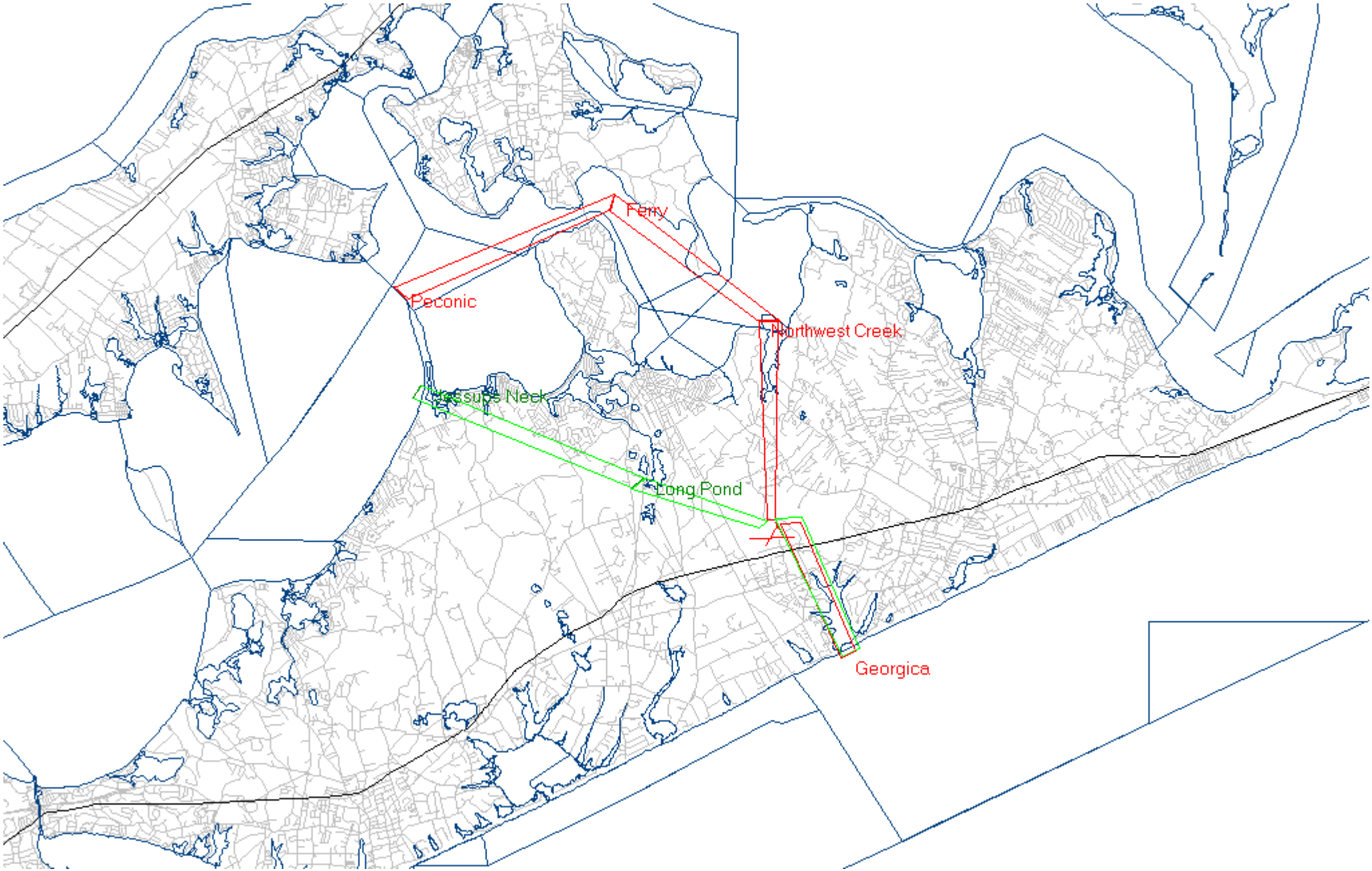
Helicopter operations are the most serious environmental challenges we have at HTO. Anything you can do to mitigate the environmental impact of your operations will be greatly appreciated by this office and the surrounding communities.

Noise complaints increase dramatically during periods of inclement weather because of aircraft flying below a broken or overcast layer. While such operations are strongly discouraged (and may violate FAR 91.13), adherence to suggested routes is even more important.

The area surrounding HTO has substantial air traffic during the summer months some of which may have neither a radio nor transponder. Adherence to the suggested routes reduces the potential for conflicts but does not eliminate it. Frequent announcements of position, altitude and intended route are strongly encouraged. See and avoid is paramount, all available aircraft lights should be illuminated day or night. Coordination with or monitoring of New York approach frequency is recommended to help avoid IFR traffic that may otherwise appear suddenly from IMC conditions. Operators are reminded that merely because an operation may be legal does not necessarily make it safe.

Sincerely,

James L. Brundige
Airport Manager


Ferry
Peconic
Northwest Creek
Hessups Neck
Long Pond
Georgica

# Appendix D
## Sample Noise Report (July 4, 2008)

# *Town of East Hampton Airport*

***200 Daniel's Hole Road***
***Wainscott, NY 11975***
***631.537.1130***

## *July Weekly Helicopter Operations*

**Date** 7/2/2008 12pm-1159pm
7/3/2008 24hrs
7/4/2008 24hrs
7/5/2008 24hrs

**Track Compliance-** **116 OF 138** **Altitude Compliance-** **83 OF 132**
84% 63%

**Helicopter Operations for East Hampton Airport**

| Date | Operation | Tail # | Track | Alt. | Route | Notes |
|---|---|---|---|---|---|---|
| 2-Jul | ARR | N646PT | N | N | NA | NONSTANDARD FROM NORTH OVER NORTH HAVEN |
| | ARR | N7642S | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N48MT | Y | Y | GEORGICA | 1600FT OVER POND |
| | ARR | N85PS | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N179MT | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N696NH | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N7641S | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N119EH | Y | N | NWC | 1850FT AT FERRY |
| | ARR | N7642S | Y | Y | GEORGICA | 2170FT OVER POND |
| | ARR | N638MF | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N661AT | Y | Y | NWC | 2745FT AT FERRY |
| | ARR | N7601S | Y | Y | NWC | 2770FT AT FERRY |
| | ARR | N7641S | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N179MT | Y | Y | NWC | 2945FT AT FERRY |
| | ARR | N178MT | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N7643S | Y | Y | GEORGICA | 2345FT AT POND |
| | ARR | N30NY | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N7601S | Y | Y | NWC | 2970FT AT FERRY |

| Date | Operation | Tail # | Track | Alt. | Route | Notes |
|---|---|---|---|---|---|---|
| 2-Jul | ARR | N91AE | Y | N | NWC | 1945FT AT FERRY |
| | DEP | N7642S | Y | Y | JN | 2500FT AT JN |
| | DEP | N119EH | Y | N | JN | 2245FT AT JN |
| | DEP | N48MT | Y | N | JN | 1845FT AT JN |
| | DEP | N85PS | Y | Y | JN | 2945FT AT JN |
| | DEP | N179MT | Y | Y | JN | 2500FT AT JN |
| | DEP | N696BH | Y | N | JN | 1345FT AT JN |
| | DEP | N7641S | Y | Y | JN | 3945FT AT JN |
| | DEP | N7642S | Y | Y | JN | 2500FT AT JN |
| | DEP | N646PT | Y | N | JN | 1945FT AT JN |
| | DEP | N661AT | Y | Y | JN | 4345FT AT JN |
| | DEP | N7641S | Y | Y | JN | 4350FT AT JN |
| | DEP | N179MT | Y | Y | JN | 2545FT AT JN |
| | DEP | N7601S | Y | Y | JN | 2500FT AT JN |
| | DEP | N178MT | Y | N | JN | 1845FT AT JN |
| | DEP | N638MF | Y | Y | JN | 2500FT AT JN |
| | DEP | N7643S | Y | Y | JN | 2945FT AT JN |
| | DEP | N30NY | Y | Y | JN | 2500FT AT JN |
| | DEP | N7601S | Y | Y | JN | 3145FT AT JN |
| | DEP | N91AE | N | N | NA | NONSTANDARD DEP TO NORTH ON NWC ARRIVAL ROUTE AT 6 MILES 1945FT |
| | | | | | | |
| 3-Jul | ARR | N179MT | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N119EH | N | N | NA | NONSTANDARD OVER SAG HARBOR FROM WEST AT 6 MILES 2200FT |
| | ARR | N638MF | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N85PS | Y | Y | NWC | 2745FT AT FERRY |
| | ARR | N30NY | Y | Y | NWC | 2545FT AT FERRY |
| | ARR | N432HF | Y | Y | NWC | 2545FT AT FERRY |
| | ARR | N307PS | Y | Y | NWC | 2611FT AT FERRY |
| | ARR | N646PT | Y | Y | GEORGICA | 11950FT OVER POND |
| | ARR | N99ZA | N | N | NA | NONSTANDARD OVER SAG HARBOR FROM WEST AT 6 MILES 1050FT |
| | ARR | N408TD | Y | Y | NWC | 3245FT AT FERRY |
| | ARR | N696BH | Y | Y | NWC | 2645FT AT FERRY |
| | ARR | N7667S | N | N | NA | NONSTANDARD FROM EAST AT 6 MILES 1850FT |
| | ARR | N85PS | Y | Y | NWC | 3445FT AT FERRY |
| | ARR | N30NY | Y | Y | NWC | 2500FT AT FERRY |

| Date | Operation | Tail # | Track | Alt. | Route | Notes |
|---|---|---|---|---|---|---|
| 3-Jul | ARR | N886TW | Y | Y | NWC | 2845FT AT FERRY |
| | ARR | N48MT | Y | Y | NWC | 3245FT AT FERRY |
| | ARR | N431HF | Y | Y | NWC | 2945FT AT FERRY |
| | ARR | N7601S | Y | Y | GEORGICA | 1500FT AT POND |
| | ARR | N401LH | Y | N | NWC | 1645FT AT FERRY |
| | ARR | N638MF | Y | Y | NWC | 2545FT AT FERRY |
| | ARR | N461SA | N | N | NA | NONSTANDARAD FROM WEST AT 6 MILES 1445FT |
| | ARR | N179MT | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N30NY | Y | Y | NWC | 2550FT AT FERRY |
| | ARR | N407TD | N | N | NA | NONSTANDARD FROM WEST OVER SAG HARBOR AT 6 MILES 1945FT |
| | ARR | N7643S | Y | Y | NWC | 3445FT AT FERRY |
| | ARR | N7601S | Y | Y | NWC | 3120 AT FERRY |
| | ARR | N431HF | Y | Y | NWC | 2550FT AT FERRY |
| | ARR | N7667S | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N646PT | NA | Y | NWC | NONSTANDARD OVER NORTH HAVEN AT 6 MILES 2745FT |
| | ARR | N6MV | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N130RU | Y | N | NWC | 2245FT AT FERRY |
| | ARR | N401LH | Y | N | NWC | 1945FT AT FERRY |
| | ARR | N430TX | Y | N | GEORGICA | 945FT OVER POND |
| | ARR | N638MF | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N355MH | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N430TX | N | N | NA | NONSTANDARD ARR FROM NORTHEAST AT 6 MILES 2045FT |
| | ARR | N119EH | Y | N | NWC | 2270FT AT FERRY |
| | ARR | N406LH | Y | Y | NWC | 2611FT AT FERRY |
| | DEP | N119EH | N | N | NA | NONSTANDARD TO THE WEST AT 6 MILES 1345FT |
| | DEP | N179MT | Y | N | JN | 1850FT AT JN |
| | DEP | N638MF | Y | Y | JN | 2500FT AT JN |
| | DEP | N30NY | Y | Y | JN | 2500FT AT JN |
| | DEP | N85PS | Y | Y | JN | 2545FT AT JN |
| | DEP | N432HF | Y | N | JN | 1920FT AT JN |
| | DEP | N307PS | Y | Y | JN | 2645FT AT JN |
| | DEP | N179MT | Y | N | JN | 1845FT AT JN |
| | DEP | N646PT | N | N | JN | TURNED WEST AT LONG POND AT 6 MILES 1845 FT |
| | DEP | N408TD | Y | N | JN | 1945 FT AT JN |

| Date | Operation | Tail # | Track | Alt. | Route | Notes |
|---|---|---|---|---|---|---|
| 3-Jul | DEP | N696BH | Y | N | JN | 1845FT AT JN |
| | DEP | N85PS | Y | Y | JN | 3145FT AT JN |
| | DEP | N30NY | Y | Y | JN | 2528FT AT JN |
| | DEP | N886TW | Y | Y | JN | 2500FT AT JN |
| | DEP | N401LH | N | N | JN | TURNED WEST AT LONG POND AT 6 MILES 1245FT |
| | DEP | N48MT | Y | N | JN | 1645FT AT JN |
| | DEP | N7667S | Y | Y | JN | 2500FT AT JN |
| | DEP | N7601S | Y | Y | JN | 2500FT AT JN |
| | DEP | N461SA | N | N | JN | TURNED WEST AT LONG POND AT 6 MILES 1145FT |
| | DEP | N431HF | Y | Y | JN | 2645FT AT JN |
| | DEP | N179MT | Y | N | JN | 1800FT AT JN |
| | DEP | N30NY | Y | Y | JN | 2545FT AT JN |
| | DEP | N119EH | Y | N | JN | 1845FT AT JN |
| | DEP | N7601S | Y | Y | JN | 2500FT AT JN |
| | DEP | N638MF | Y | Y | JN | 2500FT AT JN |
| | DEP | N7643S | Y | Y | JN | 2500FT AT JN |
| | DEP | N7667S | Y | Y | JN | 2500FT AT JN |
| | DEP | N646PT | N | N | JN | TURNED WEST AT LONG POND AT 6 MILES 1845FT |
| | DEP | N797AZ | N | N | NA | NONSTANDARD TO THE NORTHEAST AT 6 MILES 1145FT |
| | DEP | N7641S | Y | Y | GEORGICA | 1745FT AT POND |
| | DEP | N130RU | N | N | NA | NONSTANDARD DEP TO SOUTHWEST AT 6 MILES 1061 FT |
| | DEP | N969YC | Y | N | JN | 2145FT AT JN CIRCLED BACK AROUND TO LAND USING NWC ROUTE |
| | DEP | N969YC | Y | N | JN | 1645FT AT JN |
| | DEP | N355MH | Y | Y | JN | 2545FT AT JN |
| | DEP | N430TX | N | N | NA | NONSTANDARD TO THE NORTHEAST AT 6 MILES 1945FT |
| | DEP | N6MV | Y | N | JN | 1445FT AT JN |
| | DEP | N406LH | Y | N | JN | 1695FT AT JN |
| | DEP | N430TX | NA | Y | NA | NONSTANDARD TO THE WEST AT 6 MILES 3645FT |
| | | | | | | |
| 4-Jul | ARR | N696BH | Y | Y | NWC | 2945FT AT FERRY |
| | ARR | N99ZA | Y | N | NWC | 1945FT AT FERRY |

| Date | Operation | Tail # | Track | Alt. | Route | Notes |
|---|---|---|---|---|---|---|
| 4-Jul | ARR | N7601S | Y | Y | NWC | 2545FT AT FERRY |
| | ARR | NH406LH | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N179MT | Y | Y | NWC | 2500FT AT FERRY |
| | ARR | N797AZ | Y | N | NWC | 1145FT AT FERRY |
| | ARR | N30NY | N | N | NA | NONSTANDARD TO THE SOUTHWEST AT 6 MILES 1345FT |
| | DEP | N696BH | Y | Y | JN | 2500FT AT JN |
| | DEP | N119EH | N | N | NA | NONSTANDARD TO THE SOUTHWEST AT 6 MILES 545FT |
| | DEP | N646PT | Y | Y | JN | 2645FT AT JN |
| | DEP | N178MT | Y | N | JN | 1845FT AT JN |
| | DEP | N7601S | Y | Y | JN | 2511FT AT JN |
| | DEP | N99ZA | N | N | JN | TURNED WEST AT LONG POND 2245 FT AT 6 MILES |
| | DEP | N406LH | N | N | NA | NONSTANDARD TO THE WEST AT 6 MILES 2045FT |
| | DEP | N179MT | Y | N | JN | 1545FT AT JN |
| | DEP | N797AZ | Y | N | JN | 745FT AT JN |
| | DEP | N30NY | Y | N | JN | 1745FT AT JN |
| | | | | | | |
| 5-Jul | BAD WEATHER | | | | | |
| | ARR | N646PT | Y | NA | GEORGICA | 445FT AT POND |
| | ARR | N7601S | Y | NA | NWC | 961FT AT FERRY |
| | ARR | N85PS | NA | NA | GPS 28 | 2045FT AT 6 MILES OUT |
| | ARR | 22ZA | Y | NA | GEORGICA | 1245FT AT POND |
| | DEP | N7601S | Y | NA | INSTRUMENT DEP | AT 6 MILES TO THE NORTH 4761FT |
| | DEP | N85PS | Y | NA | INSTRUMENT DEP | AT 6 MILES TO THE WEST 4170FT |
| | DEP | N646PT | N | NA | NA | NONSTANDARD OVER SAG HARBOR AT 6 MILES 745FT |
| | DEP | N99ZA | N | NA | NA | NONSTANDARD TO THE SOUTHWEST AT 6 MILES 545FT |
| | DEP | N22ZA | N | NA | NA | NONSTANDARD TO THE SOUTHWEST AT 6 MILES 1145FT |

# Appendix E
## East Hampton Master Plan Decision Making Model (07/08/08)

Draft East Hampton Master Plan Decision Making Model 7/8/08
**Pp. Refers to pages of 4/24/07 Draft Airport Master Plan Report;**
**SPH refers to Summary of Public Hearing document**

**I. Design Aircraft (Pp. III 99 - 103) – Design aircraft is used as a planning tool to determine the necessary development of the airport needed to meet the aeronautical demands while minimizing local impacts.**
**Bd. consensus**: Cessna Citation V for Runway 10-28; Beech Baron for 4-22: These aircraft meet the FAA definition for design aircraft i.e. the most demanding aircraft that has 500 or more itinerant operations annually. VLJ (Very Light Jets), while expected to access EH airport more in the future are too new to the industry to designate as the Design Aircraft for 10-28 at this time, but will likely be accommodated by the Cessna Citation V Design Aircraft criteria.

**II. Facilities**

1. **Runways (and Daniel's Hole Rd.):**

**A. Runway 10-28: ( Pp. III 140 - 155; III 176 - 180))**

**Bd. Consensus:** Neither reducing nor extending the length of Runway 10-28 are consistent with the goals for the Town Airport. However, in order to maintain the existing runway length either Daniel's Hole Rd. must be relocated or Runway 28 must be displaced by 150 feet. According to Noise Consultant Henry Young, displacing the threshold of runway 10-28 is not likely to discourage large or noisy aircraft from landing at EH Airport. Retaining the current length maximizes safety. Displacing the threshold will require replacing all the runway lights to maintain proper spacing, the runway end identifier lights (REILS), the Precision Path Indicator Path Lights (PAPIs) and restriping the runway. According to the estimates comparing the projected costs for relocating Daniel's Hole Road verses displacing the threshold prepared by the Town Highway Department and Savik and Murray respectively, the displaced threshold would cost over $350,000 compared to $131,500 for the relocation of Daniel's Hole Rd. (Note: Greenman-Pedersen, Inc. on behalf of The Save East Hampton Airport, Inc. submitted an $815,000 estimate to displace the threshold). Considering all of these factors together, the Board recommends retaining the length of Runway 10-28 and relocating Daniel's Hole Rd. to meet the FAR Part 77 approach restrictions.

**B. Comparing Runways 16-34 with 4-22**

**Discussion:** Two runways provide 95% wind coverage at the East Hampton Airport, thus the Airport Improvement Program does not financially support a third runway. Runway 10-28 should continue to exist as the main runway. To help evaluate whether Runway 16-34 or 4-22 should be maintained as the secondary runway for the East Hampton Airport, the Board evaluated comparative noise impacts, airport configuration, wind coverage and safety. A comparison of the noise contours for the two runways, on the basis of single events indicates that at the 65 dBA, the lowest level of exposure, runways 16-34 and 4-22 affect 1,727 and 1,794 people respectively. At the 80 dBA or the highest level of exposure, runways 4-22 shows 172 people affected compared to 26 for runways 16-34. Runway 4-22 offers the most wind coverage during the summer

months, the dominant usage time for the airport and corresponds to the predominant runway layout direction of LI airports. Runway 16-34 provides comparatively better wind overage during the winter months than runway 4-22. The separation distance between Runway 16-34 and the terminal parking area and taxilane is non-standard and therefore, a portion of the existing aircraft parking would be lost if Runway 16-34 is selected as the secondary runway. From an overall airport layout and optimal function perspective, maintaining Runway 4-22 is more efficient than 16-34. Eliminating 16-34 also retains the use of Industrial Park Lot 39 and eliminates height restrictions for buildings on the north side of Industrial Rd.

**B. Bd. Consensus Runway 4-22(Pp. III 156 – 162; 176-180)- 4/23/08**

**Rehabilitate Runway 4-22,** remove trees in the approach to runway 22 and rehabilitate to a length of 2,375 ft. or 126 ft. shorter on runway 22 end and to a width of 60 ft.; include a 60 ft. displacement on 22 end for vehicles on Daniel's Hole Rd. (Pp**. III-161 Figure III-47 and V-251 Alternative 2 also Alternative 2A)** and evaluate in DEIS other procedures and layout alterations to reduce noise impacts to residences to the southwest including extending Runway 4-22 approximately 500 feet to the north to allow departing planes to gain more altitude, maneuverability and banking to avoid flying over residences and displaced thresholds to avoid the power lines, other obstructions and the southwestern portion of the runway.

**C. Runway 16-34 ( Pp. III 163 – 170; 176- 180) 4/23/08**

**Bd. Consensus**: Close runway, remove pavement and restore area to a natural condition. This will retain use of Industrial Park Lot 39, eliminates height restrictions for lots on the north side of Industrial Road and retains use of tiedown space apron without violating runway separation distances.)

**2. Taxiways (Pp. III 172 – 176)**

**Bd. Consensus:**

- **a.** Construct a new approximately 300 ft. long taxiway connecting existing Taxiways D and A in order to provide a full length parallel taxiway to Runway 10-28 **(Pp. V-250 Alternative 2**, **2A)**
- **b.** Extend taxiway G to connect to runway 28 and extend taxiway E south of runway 10-28 to connect with extended taxiway G (**Alternative 2A**)**.**

**2. Aircraft Aprons (Pp. III 181 – 183)**

**Bd. Consensus: Develop policy language for the Master Plan setting forth and reflecting the goals of the Town Bd. with regard to the airport- i.e. safety first, noise control and no expansion. Set forth policy reflecting consensus of no new apron tie down space or hangars which could lead to growth of airport but evaluate proposals if they have the potential to increase safety and reduce noise.**

**3. Aircraft Hangars (Pp. III 186 – 189)**

**Bd. Consensus- refer to aprons**

**6. Attendants Office (Pp. III 184)**

**Bd. Consensus:**

a. Renovate the main building to accommodate a 2nd floor office

**7. Airport Maintenance Facility (Pp. III 184)**

**Bd. Consensus**: Provide a maintenance building to shelter airport equipment and materials, near existing fuel farm- consider a pre-fab building.

**8. Fuel Farm (Pp. III 185 – 186)**

To reduce the Town's liability and improve efficiency at the airport, the Town will consider leasing the fuel farm to two FBO's, with pass through flow fees As part of this proposal, the Town will allow the installation of one additional 12,000 gallon Jet A fuel storage tank enabling each of the two FBO's to lease a Jet A fuel storage tank.

Note: Existing Jet a fuel tank and pump are in good condition; security cameras, fencing, lighting and state of the art spill prevention and containment technology are in place)

**9. AWOS (Automated Weather Station) (Pp. III-105 -107)**

**Bd. Consensus**: An AWOS has been designed and will be installed as soon as possible. This is expected to help improve safety immediately and will change the airspace classification from uncontrolled G to controlled class E.

**10. Airport Traffic Control Tower ( ATCT) (Pp. III 109 – 112)**

**Bd. consensus**: Contract with a private company to provide a seasonal ATCT using mobile and/or existing airport facilities. This will allow further control of the airspace to a D classification and will bring all aircraft within 5 miles of the airport, including beach banner towing, under the jurisdiction of the ATCT.

**11. Navigational Enhancements – No physical navigation systems are necessary or proposed at the East Hampton Airport. Existing navigational aids will be supplemented with GPS approaches. (Pp. III 123 –128)**

12. **Auto Parking, Circulation and Access Improvements (Pp. III 189 – 190; supplemental description and drawing)**

**Board Consensus**: Pave 30 new parking stalls for rental car parking, 12 new parking stalls for airport employees; restrict free parking to **X** hour limit and parking for a fee up to **X** days.

**III. Industrial Park**

**Board consensus**: Dedicate a portion of the vacant lots north of Industrial Road for future aviation use and allow all the remaining vacant lots to be developed for any commercial industrial uses permitted or specially permitted by the Zoning Code and WRO regulations. (Note: vacant lot 31 is required for Runway Protection Zones for Runway 4; Lots 27 and 34 are too restricted for commercial industrial development).

## IV. Operations, Management and Regulations

### A. Fixed Wing Airport Traffic Pattern

**Board Consensus**: Utilize the authorities obtained by operating an ATCT to the fullest extent to reduce and redistribute noise disturbance.

### B. Helicopter routes and regulations

**Board Consensus:**

a. Continue to track and monitor compliance with existing voluntary helicopter routes and at altitude of 2,500 ft. or above (inbound over Northwest Creek; outbound between Jessup's Neck and Noyac; and inbound and outbound over Georgica).
b. Require mandatory compliance helicopter routes in connection with installing and operating an ATCT and vary routes in order to reduce noise.
c. Continue to lobby for Congressional action to address the unique situation at East Hampton Airport.
d. Continue to pursue actions which are prudent, reduce noise impacts and address noise complaints

### C. Noise

Review of existing noise abatement program:

a. **Voluntary noise abatement measures**:
    i. Established 2 recommended flight paths routes for helicopters after evaluating noise contours and impact analysis prepared by HMMH: inbound over NW Creek and outbound between Jessup's Neck and Noyac; inbound and outbound over Georgica Pond.
    ii. Raised helicopter flight paths to a minimum 2,500 ft. (note: this is higher than the HMMH 2003 recommendation of at least 1,500 ft AGL and 1,800 to 2,000 ft. as desirable).
    iii. Instituted a voluntary 11Pm to 7 Am. aircraft curfew.
    iv. Recommend limiting touch and go landings to a maximum of 3 per flight.

b. **Monitoring by Airport Manager and Assistant**
    i. Continuous monitoring and evaluation of airport traffic.
    ii. Instituted state-of –the-art Flight Tracking System using AirScene.
    iii. Compile AirScene Flight Tracking Data (weekly during peak season, monthly during off-season).
    iv. Utilize Flight Tracking System data to notify pilots and Eastern Helicopter Council about aircraft violating voluntary noise abatement measures.
    v. Maintain and monitor 24 hour noise hotline; match complaints to AirScene data when possible.
    vi. Deploy portable noise monitors to provide an objective measure of noise complaints.

**c. Communication and Coordination**

i. Improved communication and coordination between Airport Manager and Airport Noise Abatement Committee

ii. Improved lines of communication between the Airport Manager and Eastern Region Helicopter Council, other Helicopter Companies and the aviation community at large on all matters including voluntary noise abatement measures

iii. Coordinate and lobby federal legislators to address the unique situation at East Hampton Airport

iv. Publication of a noise abatement advisory insert page for fixed wing pilots detailing the National Business Aircraft Association (NBAA) recommended noise abatement departure procedures and other voluntary restrictions.

**d. Facilities, operations or management regulations adopted or proposed which help abate airport noise**

i. Increased and adjusted landing fees which have:
   1. reduced touch and go landings
   2. discourage violating voluntary nighttime curfews

ii. Agreed to install an Automated Weather Observation System (AWOS) which is projected to reduce noise during low visibility conditions and allows airspace to change classification from uncontrolled G to controlled, class E.

iii. Agreed to consider installing a seasonal Air Traffic Control Tower which would allow further control over the airspace to a Class D??

2**. Memorialize existing program; continue to evaluate existing program and characterize the nature and extent of the existing noise problem.** i.e. time of day, frequency, noise levels etc.

**3. Use the more detailed information about the noise problem to help focus and enhance the existing noise abatement program. Recognize that noise abatement planning is sequential beginning with the least restrictive solutions and eventually considering more aggressive strategies only when lesser measures have failed**.

**D**. **Environmental Management**

**a.** Retain the 107 acres north and east of Daniel's Hole Rd. for parks and conservation use with the explicit provision that clearing and other safety measures required for the airport, including the relocation of Daniel's Hole Rd. can occur in this area; rezone to Parks and Conservation zoning; contain the airport and CI uses to the main airport property and the Industrial Park.

b. Management of Grasslands (as per 10/16/07 memo from Planning Director) – coordinate with NYSDOT on mowing.

c. Groundwater Protection

**V. Airport Financing and Control**

**Board consensus:** Use financial model to evaluate alternative scenarios

VI**. Role statement**-

**a.** Role statement as provided on PP II-73 and 74

**b.** Changes to the role statement as indicated :

"The East Hampton Airport is owned, maintained and operated for the benefit of the Town and its residents. The airport continues to be classified as a General Aviation Airport under federal criteria. Its primary role is the accommodation of light aircraft traffic. Aircraft operating at greater weights may be accommodated on condition without unjust discrimination. …"

"The Town is committed to observing the highest standards of safety, and efficiency and observes all appropriate federal and state standards in terms of layout, operation and maintenance. The facility shall not be allowed to deteriorate, but instead shall be maintained and may be improved in an exemplary manner.

"Control of noise and adverse environmental impacts at the airport is consistent with current Town goals for improved quality of life and land and water conservation. These goals recognize that protecting the environment is essential for improving the Town's seasonal and year round economy. These controls are achieved through reasonable, non arbitrary and non discriminatory management practices. These may limit hours of operation, the maximum size or noise footprint of aircraft to be accommodated, regulate excessive peak demand during the summer season and otherwise adjust patterns to minimize community disturbances."