III. Airport Facilities and Planning

Typically, airport planning studies identify a design aircraft and utilize the standards that pertain to this family of aircraft. In the past, at least two Master Plan studies were undertaken using this format and were ultimately not approved by the Town Board.

This document takes a unique approach toward developing a plan for East Hampton Airport. This study develops specific objectives for the airport first and then secondly proposes a design aircraft that would meet that objective. A major consideration in developing these specific objectives was the effect upon the community.

Four (4) objectives were used in developing alternatives for potential projects at the East Hampton Airport:

No Action. This alternative assumes that no changes are made at the airport. The airport would continue operating in its present condition and the impacts upon the airport would remain the same. The design aircraft would remain the same as identified in the approved Master Plan (Twin Otter). All non-compliance issues will be identified while reviewing projects under this scenario.

Alternative #1. This alternative looks at potential alterations to the airport that would considerably minimize environmental impacts, even if it would not meet the demands of the present air traffic at East Hampton Airport. This alternative considered providing the airport with design standards associated with small airplanes. The design aircraft assumed in this case is the Beech Baron, which currently operates at East Hampton airport. This aircraft is not representative of the current mix of traffic, since many larger aircraft currently operate at the airport.

Alternative #2. This alternative utilizes the existing airside and landside facilities as much as possible while increasing safety and controlling the impact upon the surrounding community. Alterations to the existing airfield are kept to a minimum, while complying with the appropriate FAA standards. The airfield is configured in such a manner as to meet the

design standards typically associated with a Citation 560. The Citation 560 is a current user of the airport and meets the requirements for a design aircraft at the present moment.

Alternative #3. This alternative assumes the most demanding aircraft presently using the field will remain the most demanding aircraft in the future. The plans, that would accommodate this scenario, would include expansion projects to meet the standards for the most demanding airplane. The most demanding airplane using East Hampton Airport presently is the Bombardier Challenger 604. This alternative may include runway extensions and road relocations, which would have the greatest effect upon the environment.

Alternative #3 assumed a portion of the field would continue to be used by small airplanes. Specifically, sections discussing Runway 4-22, Runway 16-34 and Taxiways assume that current small airplanes would continue using these facilities.

While establishing design aircraft, special consideration was given to the Twin Otter and Very Light Jets (VLJs). The Twin Otter no longer is applicable to East Hampton, but its design standards were used in analyzing the No Action Alternative. The performance of a VLJ would allow this aircraft to utilize minimal facilities and would have the capability of using the airport under any of the alternatives. As a result, it was not used as a design aircraft. See next section entitled **"**Twin Otter – Current Design Aircraft" for a more in-depth discussion of these aircraft.

The following figure shows the three aircraft under considered:

FIGURE III-26
POTENTIAL DESIGN AIRCRAFT

B-I – "Beech Baron"

B-II -"Cessna Citation 560"

C-II – "Challenger 604"

Source: www.aircraftbuyer.com

Twin Otter – Current Design Aircraft

The Twin Otter will be used as the design aircraft for the No Action Alternative since it was the design aircraft for the 1989 Master Plan, which is the current and valid version of the document. When the 1989 Master Plan was conducted, this aircraft had an established passenger transport operation at the airport and was considered to be the most demanding aircraft with or expected to have 500 or more operations.

The Twin Otter should be excluded from design aircraft consideration since its presence is either infrequent or non-existent today for many reasons including:

- The charter company previously providing service to the Airport is no longer operating.
- The presence of the Twin Otter is not prevalent in Airport Operations Logbooks and AirScene records.
- The Twin Otter appears to be obsolete according to recent developments and current industry preferences. Due to fuel economics, desired passenger comfort level, and technological advancements leading to increased operating efficiency and safety; more modern jet aircraft are preferred by many private aircraft owners and charter companies.
- Based on trends, small turbo-prop powered aircraft likely will not provide the same level of satisfaction and efficiency and may not cater to the upscale clientele of East Hampton Airport.

Very Light Jet (VLJ)

The VLJ is new to the industry, and therefore difficult to forecast its impact or interpret any trends. Currently, these aircraft are in the final stages of production. They are not presently operational in the industry and the only way to gauge their future presence would be based upon orders placed through the various manufacturers.

The VLJ may or may not cater to the clientele specific to East Hampton Airport. VLJs appear to be more popular in the private ownership arena because these aircraft are authorized for single pilot operation and are capable of using shorter runways. It appears that larger, more luxurious private jets are the predominant customer of East Hampton Airport.

Regardless, of the VLJs potential future trends, this aircraft would have little impact upon the design of East Hampton Airport.

Specific Projects

The majority of this chapter analyses specific projects or alterations to the airport. Each project or alteration is presented as follows;

- Effect upon Aircraft Activity
- Description of the Improvement
- Compliance with Applicable Standards
- Conclusion and Impacts
- Applicability to Alternatives and their Objectives

There are some proposed projects that are not affected by the selection of a critical aircraft at East Hampton Airport. The following sections consist of a mixture of projects and concepts for the airport, some are contingent upon the design aircraft selection and some are not.

This chapter is used as a basis for developing comprehensive airport plans for the four (4) objectives established for this study. A table is provided at the end of this chapter, summarizing the actions that would be taken to meet these objectives. Chapter 5 will present each of these alternatives, utilizing this summary table.

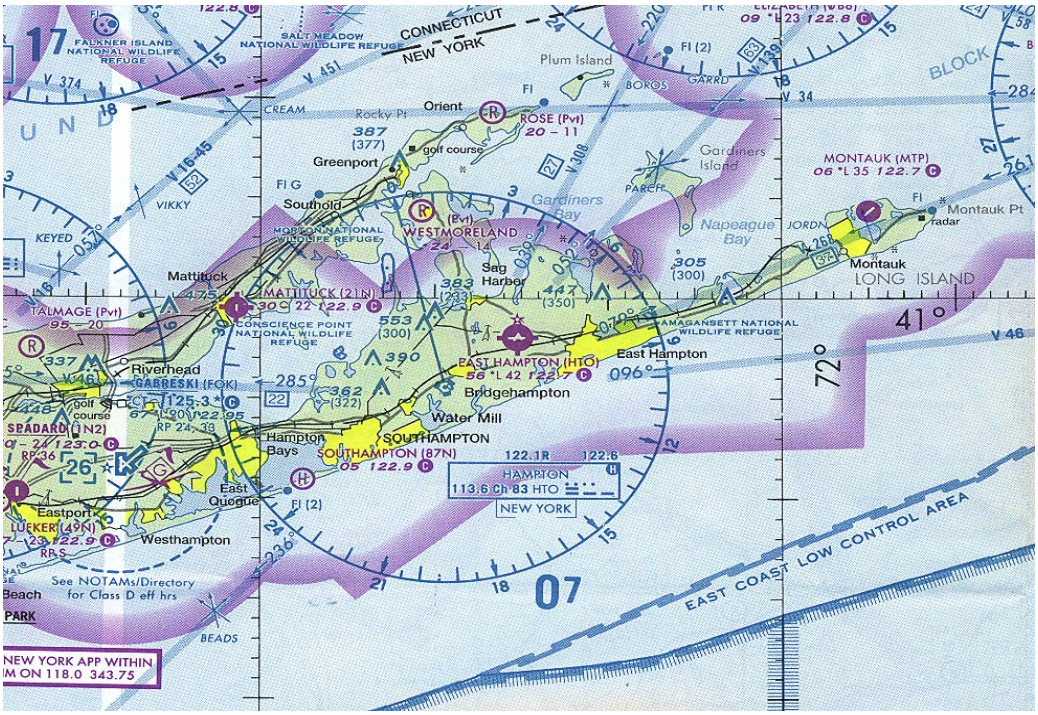
A. Airspace Vicinity and Use

Airspace classes have different and very specific requirements. Class A, B, C, D and E Airspace are Controlled Airspace. Class G Airspace is Uncontrolled Airspace. East Hampton Airport physically exists within Class G or uncontrolled airspace. Specifically, this means that there is no Airport Traffic Control Tower (ATCT) located at the Airport and there is no Terminal Radar Approach Control (TRACON) or Air Route Traffic Control Center (ARTCC) coordination required within this airspace. Class G airspace is the only class that is considered uncontrolled, and is prescribed to areas where Air Traffic Control is not deemed necessary or can not be provided due to lack of radar or other limitations. Typically, it can be assumed that all airspace in the United States that is not classified as Class A, B, C, D, or E is classified as Class G airspace.

Normally Class E airspace begins at ground level or at an altitude of greater than 700 feet above the surface. It extends up to 18,000 ft. MSL, where it abuts Class A airspace. At uncontrolled airports with official weather reporting equipment (such as an AWOS), Class E airspace will extend down to the surface.

The following graphic provides a depiction of the airspace surrounding East Hampton Airport. The areas inside the soft edge of the shaded purple border are delineated as Class E (controlled airspace). This particular airspace begins at an altitude of greater than 700 feet above the surface and extends upward to 18,000 ft. where it abuts Class A airspace. All the airspace beneath 700 feet within the soft edge of the shaded purple border and the areas on the outside of the hard edge of the border is considered Class G, uncontrolled airspace. East Hampton Airport is in Class G Airspace and is located in the center of this image.

FIGURE III-27
EAST HAMPTON AIRPORT LOCAL AIRSPACE



Source: DOT-New York Sectional Aeronautical Chart (May 2006)

Operating criteria for aircraft in Class G Airspace is less restrictive than for aircraft operating in Class E Airspace. Required visibility and required cloud separation distances are slightly less demanding than Class E airspace criteria.

Airspace classifications are used for delineating operating rules for pilots and for providing ATC service. The installation of an AWOS, described in the next section, will change the Airport's airspace from Class G to Class E. As such, required visibility and cloud separation distances will become slightly more restrictive, and Air Traffic service will extend to the surface. The type and frequency of traffic at the Airport will not be impacted. As a result, Airspace will not be considered as a component of the alternatives presented later in the report. However, it is helpful to have an understanding of airspace as we proceed into the rest of the Chapter.

1. Automated Weather Station

An Automated Weather Observation Station (AWOS) provides current and accurate weather conditions specifically for the Airport. AWOS systems automatically measure meteorological conditions including cloud height, visibility, wind speed and direction, temperature, barometric pressure, and the dew point. The AWOS electronically analyzes the data, which is then broadcasted via weather reports that can be received on aircraft radios or from a regular telephone. The AWOS does not predict weather but sends current information to weather offices where forecasts are produced using this information. The information is transmitted to a computer station which can be displayed in the Airport Terminal Building. The weather information is beneficial to pilots in developing their flight plans. AWOSs vary in size, dimensions, and capabilities depending on the manufacturer.

Currently, an AWOS is being designed for installation at East Hampton Airport. The proposed AWOS would be located in the triangle between the three runways. Typical system components consist of:

1. Airfield Equipment:
    a. 30 ft. tower
    b. Wind Speed Sensor
    c. Wind Direction Sensor
    d. Ambient Temperature Sensor
    e. Pressure Sensor
    f. Cloud Height Censor (Ceilometer)
    g. Visibility Sensor
    h. Data Collection Processor

i. AWOS Data Link (UHF Transmitter with antenna)

2. Indoor/Attendants Office Equipment
   a. AWOS Data Processor
   b. AWOS Data Link Receiver and Antenna
   c. Operator Terminal
   d. VHF Voice Subsystem
   e. VHF Transmitter and Antenna

FIGURE: 28
AUTOMATED WEATHER OBSERVATION STATION

http://www.nashuaairport.com

Installation of an Automated Weather Observation Station (AWOS) at East Hampton could potentially have a positive impact on its users and the surrounding community. East Hampton Airport currently does not have an all inclusive official weather system. There are benefits to the airport and its users associated with installing an AWOS including:

Increased safety- An AWOS is advantageous to the safe and economic operation of any airport. Few things change quicker than the weather. An AWOS would provide a more reliable source of weather information. Currently, the closest source of official weather information is Westhampton Gabreski Airport. By definition, installing an AWOS at an airport allows the airspace to change from uncontrolled to controlled. Specifically, the airspace at East Hampton Airport would change from Class G to Class E. Subsequently, pilots on IFR flight plans would be required to maintain communication with Air Traffic Control all the way down to ground level. For aircraft that are operating under Visual Flight Rules (VFR), the Airspace operational clearance requirements and criteria becomes more restrictive (see preceding section on Airspace).

With an AWOS, pilots intending to land would be better informed of the weather conditions at East Hampton Airport and would be able to decide further away from the airport whether it is appropriate for them to continue or divert to another location. In the absence of an AWOS pilots will descent and will be much closer to the airport before deciding to continue or to divert to another airport.

Potentially Reduced Diversions- Presently, pilot requests for barometric pressure values for East Hampton Airport are supplied via radio from ground-based personnel at Sound Aviation. The barometric pressure value is required, as it is used to set the altimeter of an aircraft correctly. This method, for obtaining barometric pressure, is not always available. If the setting can not be obtained from the FBO (Sound Aviation), the values for Gabreski must be used and instrument approach minimums are increased. An AWOS at East Hampton Airport would automatically provide barometric pressure and visibility to pilots. It would enable pilots to make their decision to land or not land much further from the airport.

Make the Airport more user friendly- The pilots will have advanced notice of the weather conditions at the airport and will be able to make informed decisions on whether to continue the approach or travel to another airport. This added service to the flying community provides a friendlier atmosphere to its users.

The effect upon the community of East Hampton and adjacent communities to East Hampton Airport are minimal:

- ***Official weather reporting-*** An AWOS would provide an official National Weather Service weather reporting system and source as well as a means for maintaining official weather records in the Town of East Hampton.

- ***Change in Traffic-*** It is highly unlikely that installation of an AWOS would noticeably impact the community. Based upon installations at other airports an AWOS does not attract new traffic. The AWOS does serve the existing traffic better.

  However, a slight risk of some change in operations/traffic at the Airport may exist. An AWOS may slightly decrease the amount of traffic at the Airport, since pilots will be able to determine if the current local weather conditions are not favorable enough to land at East Hampton Airport. This condition would result in aircraft possibly diverting their travel to another airport or canceling their flight altogether.

  Make the Airport more community friendly- When aircraft are diverted to other airports, convenience is compromised. Passengers are forced to find alternative means of getting to their destination which could include renting a car or taking a car service to drive to East Hampton, or even taking the railroad. Both methods could potentially be time consuming and annoying to the local community who rely on the Airports for transportation.

A design for an AWOS is currently being prepared for public bidding for East Hampton Airport. The FAA is currently reviewing FAA Form 7460 – Notice of Proposed Construction or Alteration.

The installation of an AWOS will be considered as a component of each of the alternatives presented later in the report, except for the No Action Alternative

2. Control Tower

The purpose of an Airport Traffic Control Tower (ATCT) is to provide for safe, orderly, and expeditious flow of traffic on and in the vicinity of an airport. Towers equipped with the appropriate radar also provide for the separation of IFR aircraft in the terminal areas. The tower size, and to a certain extent, the method of operation generally depends on the number of aircraft operations conducted at the airport. ATCTs normally exist at busier airports and have different characteristics depending on the classification of the surrounding airspace. Once an ATCT is established, the airspace above it will be classified as Class B, C, or D as per FAA Airspace Regulations. A definition of airspace classes is provided earlier in this Chapter. The construction, operation, and maintenance of ATCTs can be Governmental or privatized.

A control tower would not alter airplane traffic at the Airport. The type of traffic would not change at East Hampton Airport due to the installation of a tower.

The construction of ATCTs was initially a financial responsibility of the Federal Aviation Administration (FAA). Criteria for establishing a control tower was developed and published in 1951. FAA ATCTs are established by the FAA through the F&E Program and Airport Improvement Program or the Federal Contract Tower (FCT) Program.

Criteria outlined by the FAA for qualifying for a Federal ATCT are published in the Federal Aviation Regulations (FAR) Part 170. According to Part 170.13 of the regulation, the following requirements along with general facility design standards must be met before an airport can qualify for a Federal ATCT:

(1) The airport must be open to and available for use by the public;
(2) The airport must be included in the National Plan of Integrated Airport Systems;
(3) The airport owners/authorities must allow the airport to operate for a long enough period to permit the amortization of the ATCT investment;
(4) The FAA must be furnished appropriate land without cost; and
(5) The airport must meet specified benefit-cost ratio criteria.

It is unlikely that East Hampton Airport will qualify for an FAA ATCT based on its current seasonal usage as it relates to the benefit-cost ratio. In all likelihood, a private company would need to operate a tower at East Hampton Airport.

There are several different private companies offering ATCT Services to airports that would not otherwise qualify for an FAA sponsorship. Examples of firms that provide this service are:

- Robinson-Van Vuren Associates, Inc.
- Midwest Air Traffic Control Services Inc.
- EuroControl Jobs Section: Europe
- Serco ATC
- Walker Air Traffic Services Incorporated

The cost of installation and operation of an ATCT without federal funding would normally be absorbed by the airport through user fees/other revenue sources, or through the local municipality. Financial considerations include operating costs such as staffing, maintenance, equipment, supplies, and leased services; and investment costs such as facilities, equipment, and operational start-up funds as this money will come from local resources.

For East Hampton Airport, the facility requires a clear line of site between controllers and the Airport and surrounding airspace. The best location for the proposed facility would be on the South side of the Airport, about midfield of Runway 10-28.

Construction of the ATCT would be consistent with the Alternatives #2 and #3. As a result, the ATCT will be considered as a component of both alternatives presented later in the report.

The tower can also be provided by modifying the existing terminal building with an elevated cab. The infrastructure is generally in place, and some structural enhancements will need to be made to support this addition to the building. At the proper height, this location will have the needed line of sight to all portions of the field, as well as the approaches to the runways.

The tower will require FAA approval for the selected site and an airspace analysis will be implemented to ensure compliance to FAA standards. The construction of the tower will

also require local approval from the Town's Building Department. In addition, the nature of this project would warrant an environmental review.

East Hampton Airport appears to have a largely seasonal demand. A control tower could potential be a useful commodity during this peak period. Construction of an ATCT at East Hampton Airport could potentially have a large operational impact on its users and the surrounding community. Operational impacts on the airport could include:

a. ***Increases air and ground safety-*** ATCTs oversee air/ground operations of aircraft.
b. ***Allow positive control of aircraft in the airspace/airport environment-*** An ATCT could provide air and ground traffic procedural instructions, ensure aircraft separation, and facilitate aircraft requests.
c. ***Provide a method to reinforce Airport Traffic Patterns-*** ATC instructions, except in the event of an emergency, are mandatory. Therefore, an ATCT at the Airport could reinforce Traffic Patterns and Approach Procedures.
d. ***Help implement recommended noise abatement procedures-*** An ATC could provide instructions that could protect noise sensitive areas.

Potential impacts on the community of East Hampton and those adjacent to East Hampton Airport might include:

- ***Potentially help limit areas negatively impacted by noise-*** Aircraft compliance with Airport Noise Abatement Procedures would be promoted via ATCT instruction.
- ***Change in Traffic-*** It is highly unlikely that installation of an ATCT would noticeably impact the community. An ATCT would not likely attract new or additional traffic to the Airport; it would simply better serve the existing traffic. However, a slight risk of some change in operations/traffic at the Airport may exist.

An ATCT is not required at East Hampton, but could provide some of the above listed benefits. It is important to note that these impacts would provide the greatest benefit during the peak season months between May and October. Refer to the Forecasting Section in Chapter Two. The mix of small and large aircraft and helicopters is more diverse and operations are increased during the peak season. Operating a seasonal ATCT to provide services to these aircraft would be more practical approach to providing this service.

Many private companies offering air traffic control can supply their services on a temporary basis. This means that the Airport and its surrounding airspace would be staffed during the busy summer season and then become uncontrolled during the off season. The operation can be set up in an existing facility on the airfield.

3. Potential Flight Track Adjustments

Airport Traffic Pattern

As already described in Chapter 1, standard Airport Traffic Patterns, executed with left-hand turns and flown 1000 ft. above ground level (1500 ft. for jet aircraft), exist for all runways at East Hampton Airport. *The traffic patterns for Runways 10-28, 16-34, and 4-22 appear in the following figure.*

For legitimate reasons such as noise abatement, terrain avoidance, or other significant safety concerns the airport traffic pattern may be reversed (with approval from the FAA). Typically this means only the direction (left hand turns vs. right hand turns) would be changed. Altering the height of traffic pattern is unusual as it is a potential compromise to the safe operation of aircraft while supplying little or no noise benefit. Changing the direction of the pattern from left to right, or vice versa, flips the traffic pattern from one side of the runway to the other.

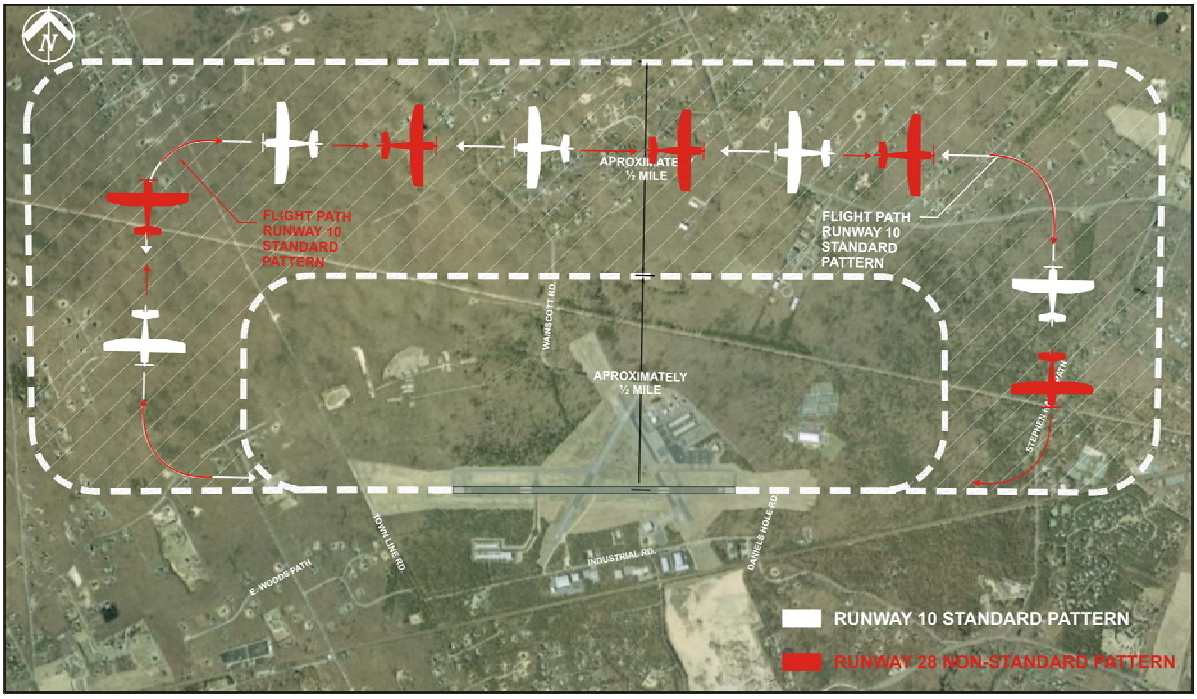
The following figure depicts a birds eye view of a non-standard pattern (right handed turns) flown for Runway 28. With a right hand pattern a pilot would remain on the North side of Runway 28. This is the opposite of the current procedures where left turns are made resulting in traffic flow over the South side of Runway 28.

FIGURE III-29
3-D RUNWAY 28 RIGHT HAND TRAFFIC PATTERN

Source: DY Consultants

The figure below depicts the flow of traffic if a left-handed, standard traffic pattern for Runway 10 and a right-handed, non-standard traffic pattern for Runway 28 were utilized. Note that all operations for both ends of Runway 10-28 remain on the North side of the runway.

FIGURE III-30
STANDARD/NON-STANDARD TRAFFIC PATTERN COMBO

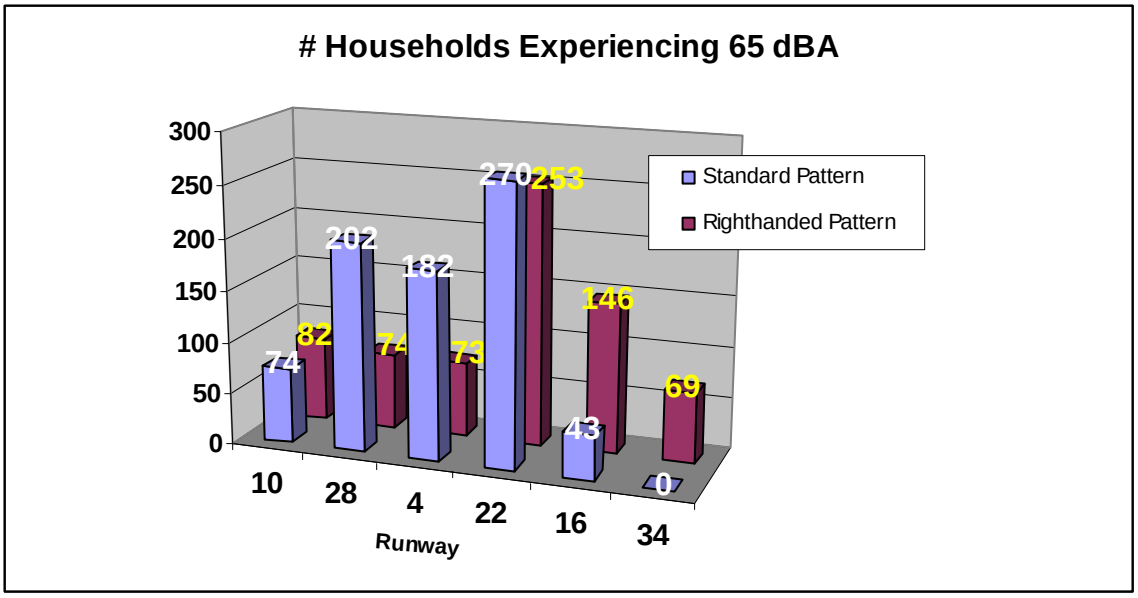


Source: DY Consultants

The designation of traffic pattern direction depends on circumstances specific to each airport. At East Hampton Airport, there are no terrain, obstruction, or safety concerns that would favor one particular direction to another. However, noise disturbances may be affected by a change in Traffic Pattern direction.

The next figure depicts the results of a general noise analysis done for each runway traffic pattern at the Airport. The number of occurrences where a household experienced a noise event at the 65 dBA level based on a Beechcraft Baron flying a standard and non-standard traffic pattern for each runway is displayed.

FUIGURE III-31
AIRPORT TRAFFIC PATTERN NOISE ANALYSIS



Source: Young Environmental Sciences

It appears that the combination of traffic patterns which produces the least noise disturbance would be as follows:

Runway 10-28:

Rwy 10: Standard

Rwy 28: Non-Standard

This would result in the traffic flow remaining to the North of the runway.

Runway 4-22:

Rwy 4: Non-Standard

Rwy 22: Non-Standard

Traffic would remain on both sides of the runway.

Runway 16-34:

Rwy 16: Standard

Rwy 34: Standard

Traffic would remain on both sides of the runway.

It is possible that impacts to the community might exist if the traffic pattern where changed according to the above configuration. However it is important to note that the 65 dB noise

contour is not an authorized federal or industry standard or limitation. The 65 dB contour was evaluated since it is the instantaneous noise level used by the Town of East Hampton for ground noise control purposes. Currently, it appears that some potentially noise sensitive areas adjacent to the Airport exist. Changing the traffic pattern according to the Town's ground noise standards may be beneficial in terms of airport noise mitigation. Further noise analysis should be done at the completion of the study.

In terms of aircraft operations, changing the direction of traffic flow may be an inconvenience to the users of the Airport who are accustomed to a set method of operation. However, the type and frequency of the traffic would not change. In terms of safety, the FAA recommends implementation of a standard traffic pattern at non-towered airports. Standardization is important at such airports to ensure that safe and orderly aircraft operations into and out of the airport. Moreover, left-handed patterns serve as the standard since they promote the greatest visibility during turns for the Captain or Pilot in Command who sits on the left side of the cockpit.

A change in Traffic Patterns at the Airport does not necessarily impact the intent of Alternatives #1, #2 and #3. As a result, the Traffic Pattern will not be considered as a component of each of the alternatives presented later in the report.

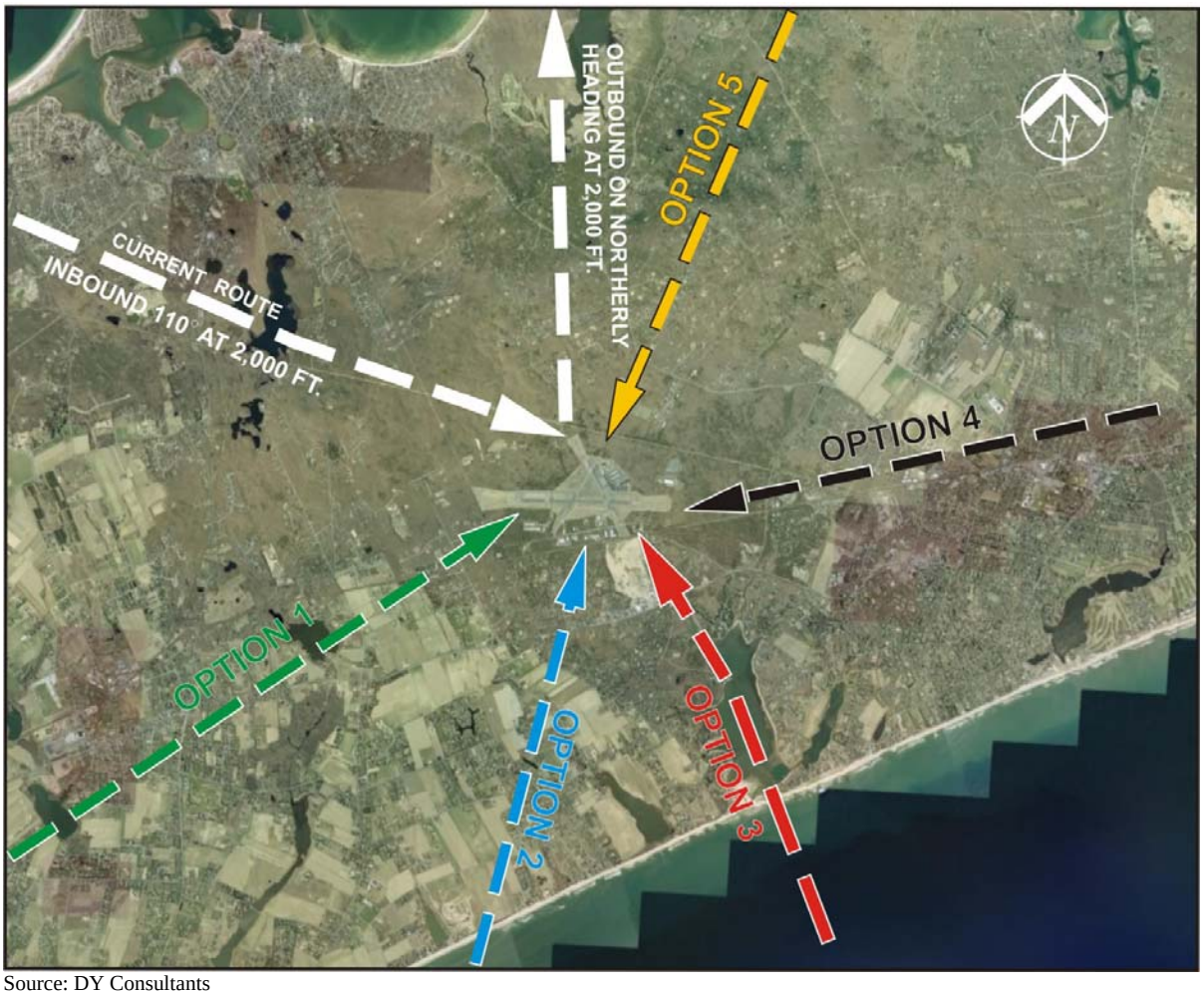
Preferred Helicopter Routes

As previously described in Chapter 1, preferred helicopter routes exist for entering and departing the East Hampton Airport operating environment. Again, these routes are advisory in nature. This means that they can only be recommended not enforced.

Helicopters are most prevalent during the peak, summer months. The majority of noise complaints received by the Airport are caused by helicopter operations during this time. The established preferred routes are a result of deliberation recommendations made by HMMH, a consulting firm hired to conduct of noise study at the Airport. The routes were refined by Airport Management to determine the best possible method of helicopter entry and exit. These routes have seemed to generate the least amount of noise complaints.

The following figure depicts the preferred routes (shown in white). Additionally, some other options for the preferred routes are included.

FIGURE III-32
OPTIONS FOR PREFERRED HELICOPTER ROUTES



Source: DY Consultants

The Airport is in compliance with all FAA helicopter arrival and departure procedures. The following is an analysis of how the current and other pursuable options may impact the community and the users of the Airport.

Current Route:

The current preferred route for arrivals is from the Northwest. It is flown over the Town of Southampton. This course is considered to be the route that has the least impact on local residents in terms of noise. This is based on the noise complaint history.

Departures are currently advised to navigate due north until reaching the shoreline at Northwest Landing, where they should proceed on course to their destination. The route exists above the area to the north of the Airport, which is both zoned and occupied by Parks and Conservation Land within the Town of East Hampton. Noise complaint data appears that it favors this route as well.

The preferred routes are flown at an altitude of 2000 ft. or above, which is the altitude recommended by HMMH and the Airport Manager. This altitude is thought to minimize the annoyance to the community below.

Additionally, the preferred helicopter entry and exit route is conducive with the most popular course flow outside of the airport environment. The majority of the helicopter traffic that uses East Hampton Airport originates from and returns to Manhattan. Flights proceed on course along Long Island's northern shore when operating to or from East Hampton Airport. Aircraft easily adjoining the preferred approach and departure route for the Airport, as described above. The illustration below depicts the flight path a helicopter might take during a typical flight.

FIGURE III-33

TYPICAL MANHATTAN-EAST HAMPTON HELICOPTER ROUTE

Source: DY Consultants

It should be noted that, due to the requests of pilots, the current routes will likely be reversed in the near future. This means that the arrival route will request plots to remain north of the Airport until reaching Northwest Landing and then turn to approach the Airport on a southerly heading at 2,000 ft. above ground level. The departure route will request pilots to fly on a northwesterly heading at 2,000 ft. above ground level until reaching the shoreline and proceeding on course.

Option 1:

Changing the Helicopter Approach/Departure routes for the Airport to a westerly direction would likely impact the community of Southampton. The property line separating the Town of East Hampton and the Town of Southampton is collocated with the western edge of the Airport. It appears that the land underneath this potential flight path currently exists as residential property. There are currently many noise complaints from this area from helicopters that stray from the recommended route. Rerouting all helicopter traffic over these areas may increase noise disturbances and complaints in these areas.

There are no significant Airport or user related impacts with this approach. It is similar to the current preferred arrival route into the Airport, but is slightly less direct and or convenient to users of the Airport.

Option 2:

Option 2 requires helicopters to approach and depart the airport to/from a southwesterly heading. The property underneath this route exists within Southampton and is currently occupied for mostly agricultural purposes.

Airport users may be inconvenienced operating via this Option, as it would decrease the distance they must divert from their course along the north shore of Long Island. Helicopters traveling inbound to East Hampton Airport would break off from their easterly heading and head southbound to approach the Airport at the proper angle. Similar impacts would exist for departing helicopters. This option may also increase noise disturbances to residents of the Town of Southampton based on current complaint data. However, impacts may be potentially less than Option 1.

Option 3:

This option requires helicopters to approach and depart the airport to/from the south. Ideally, the route could be flown over Georgica Pond, remaining over the water as much as possible, and then directly to the Airport to minimize time over residential areas. Helicopters traversing such a route might create noise impacts to the community surrounding Georgica Pond below. Based on the current land use map, the area is primarily zoned for low and medium density housing immediately to the South of the Airport extending to the ocean.

Airport users may be inconvenienced in terms of operating time and costs from this preferred route, as it would increase operating time to maneuver Southbound from their

typical flight path and adjoining the route. Delays and increase costs may result. Similar impacts would exist to departing aircraft.

Option 4:

This option would require helicopter traffic to enter the airport from the east. The property underneath this route belongs to East Hampton and is primarily zoned for recreational open space in addition to smaller areas zoned for agriculture and medium density residential property. Noise impacts would likely exist to the community below.

Additionally, this preferred route may be an inconvenience to the users of the Airport. An approach from the east would require pilots to pass the airport, turnaround, and then back-track to the Airport to land. This may result in increased flight time and operating costs. Similar impacts would exist to departing aircraft.

Option 5:

This option would require helicopter traffic to enter/depart the airport to/from the northeast. The land use underneath this route consists of a mixture of agriculture, vacant and low-medium density residential use within the Town of East Hampton. Noise impacts would likely exist to the community below.

This route may also be an inconvenience to the users of the Airport. An approach from the northeast would require pilots from their typical route and fly past the airport, turnaround, and then backtrack to land. This again results in increased operating flight time and operating costs. Similar impacts would occur for departing aircraft.

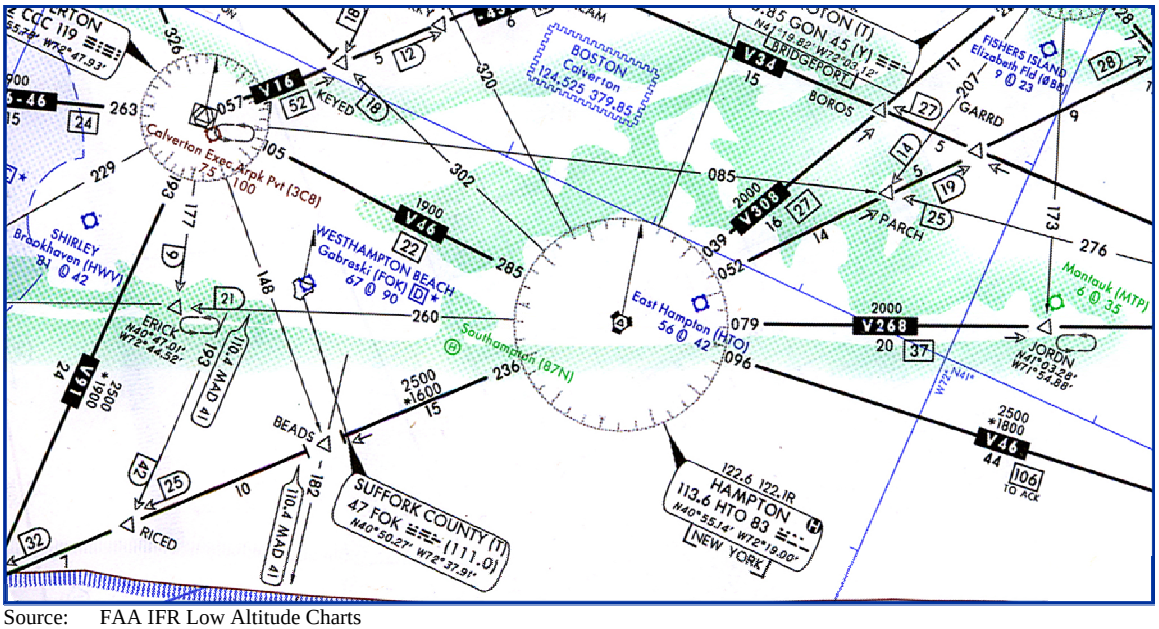
These options can be considered independent of the Alternative Options for the Airport, and thus will not be categorized into any one Alternative. The preferred route will be

incorporated into the final Alternative in Chapter 5. Additionally, changing the direction of preferred route may be an inconvenience to the users of the Airport who are used to a set method of operation. However, the type and frequency of the traffic would not change.

IFR Enroute Low Altitude Airways

There are other flight tracks that have the potential to impact the Airport and the surrounding community. IFR Enroute Low Altitude Airways are known in the US as "Victor Airways" (below 18,000 feet MSL) and "Jet Routes" (at and above 18,000 ft). These routes are shown below. Essentially, they are published navigation routes used by aircraft operating on instrument flight plans. These airways are established by the Federal Aviation Administration and provide a nationwide network of "air highways." The set up consists of a framework of airways linking VOR's (described in Section 4) and airports. Airways are set up based on specific angles to or from a particular VOR station providing a means for aircraft to navigate from the departure location, transition from point to point enroute, and to arrive in the vicinity of the destination airport or adjoin an instrument approach for landing.

FIGURE III-34
FLIGHT TRACKS



Source: FAA IFR Low Altitude Charts

Shown in the Figure are the Victor Airways that are in the immediate area of East Hampton Airport. The thin and thick lines define the airways or routes navigated by aircraft. The Hampton VOR exists approximately 3.5 nautical miles (nm) and is located in the middle of the figure. It is likely that these airways do not impact the Town of East Hampton or its residents due to the altitudes required on each airway, between 2,000 and 2,500 feet MSL.

The FAA Air Traffic Division is the governing body and as such determines improvements and alterations in the National Airspace System including airways. In the event that a flight track adjustment were requested or potentially considered necessary, further analysis and study of the impacts of potential changes would be necessary to evaluate the overall impact on safety and efficiency of the framework. The FAA would manage such an evaluation.

4. GPS and Alternative Navigational Enhancements

There are various forms of Navigational Aids (NAVAIDs) and navigational systems available to pilots today. These systems are owned and operated by various entities including the FAA, the military, private enterprise, or individual states and airports. The FAA has the statutory authority to establish, operate, and maintain air navigation facilities. Additionally, the FAA prescribes the operational standards for any of these aids which are utilized for instrument flight in controlled airspace. Technology advances must be smoothly incorporated into the National Aerospace System and are done so with close supervision. Therefore, it is not normally the responsibility of an airport operator to coordinate the type of navigation used for the approaches to its runways.

The basic methods used for Instrument Approaches today include Area Navigation (RNAV), VOR Navigation, Instrument Landing System (ILS), and GPS Navigation. These concepts are described below with the associated potential impacts to East Hampton Airport.

Area Navigation (RNAV)

Area Navigation (RNAV) is a method of navigation that allows aircraft to operate on any desired course based on location references to a station, rather than navigating directly to and from designated stations. This method helps to limit enroute distance, reduce congestion, and allow instrument flight plans into airports without NAVAIDs.

The United States developed the concept of RNAV in the 1960s. The first such routes were published in the 1970s. Published RNAV routes are no longer in use today, but the navigation concept is still in place. Navigation systems which provide RNAV capability include VOR/DME, DME/DME, LORAN C, GPS, OMEGA and self contained Inertial Navigation Systems (INS) or Inertial Reference Systems (IRS). Instrument approaches available at East Hampton Airport are supplemented with this RNAV navigation.

RNAV is not used today as an independent system, but rather a system that operates using other forms of navigation such as VOR and GPS. This means that an Airport is not responsible for supplying any type of physical equipment to allow RNAV approaches. Current trends in the industry point towards the increased reliance on GPS systems, while the RNAV users decline. The FAA may eventually examine how RNAV approaches can be reduced at airports throughout the country; however, this will not likely impact East Hampton Airport since a GPS Approach is also available.

VOR Navigation

There is a VOR, or Very High Frequency Omni-directional Radio Range, Instrument Approach available to the users of East Hampton Airport. The East Hampton VOR is located approximately 3 miles from the Airport in the Town of Southampton. It is owned, operated and maintained by the Federal Aviation Administration.

A VOR is a ground-based transmitter that provides a system of radio navigation to aircraft by broadcasting a VHF radio signal encoding both the identity of the station and the angle to it. This information tells the pilot in what direction he lies from the VOR station in relation to the earth's magnetic North and is used to navigate to and from other VORs and NAVAIDs along the destination route. A nationwide network of "air highways", known in the U.S. as "Victor airways" (below 18,000 feet MSL) and "jet routes" (at and above FL180), exists linking VORs and airports.

FIGURE III-35
VOR ANTENNAE

Source: www.sri.com

VORs became the major radio navigation system in the 1960s, when they took over older systems. However, with the advent of GPS and Satellite Navigation, the concept of the VOR has become somewhat outdated. Firstly, VOR transmitters and receivers are expensive to install and maintain. In addition VORs have limited maximum ranges of between 25– 130 nm; which means that an extensive network of stations needs to be used to provide reasonable coverage along main air routes. Aircraft fly along these routes from one VOR station to the next. This results in an overall flight path that is longer than it would be if the route was flown directly from origin to destination. The VOR network is also a major cost to the FAA in terms of maintenance as well as to Airlines and other users who operate by means of this system.

The 2001 Federal Radio-Navigation Plan includes a schedule to extend the phasing out of most land-based radio navigation systems to allow more time to transition to GPS. It appears that during the year 2010, the industry will begin to start reducing the amount of VOR and VOR based approaches to an amount that is minimally required. After a smooth transition to GPS system is achieved, the remaining system will be phased out, with a much reduced number remaining to provide a back up system of approach and navigation.

All three approaches at the Airport are based on the East Hampton VOR. However, these approaches can also be executed via GPS navigation. Therefore, the Airport will not likely need to be concerned with drastically changing its approaches once the VOR system has been phased out.

Instrument Landing System (ILS)

An ILS is used to provide aircraft with vertical and lateral navigation information during approach and landing to an airport. It consists of a ground-based antenna (known as the Localizer) which provides lateral navigation. Another antenna (know as the Glide Slope) provides vertical guidance. Both antennas are located on the Airport, usually near the ends of the runway. Transmitters known as marker beacons provide distance information to identify the location of an aircraft on the approach (fixes). They are normally located off airport property or at the outer edge of it. A visual component to this system is the installation of an approach lighting system that extends beyond the end of a runway.

Currently, an ILS system is not available to the users of East Hampton Airport. Although ILS systems are currently prevalent within the National Airspace System, the number of ILS systems will be reduced as more GPS-based approach systems are integrated into the airspace system and equipment becomes accepted and available to users. The phase-down may be similar to the phase-down of the VOR network moving from full coverage, down to minimal necessity, and to possibly a basic backup network. However, the time frame for this to occur may be longer and the specifics are still open to change. Therefore, an ILS system is probably not a practical planning effort for East Hampton Airport. Additionally, an ILS system would make the Airport's safety surface criteria more stringent where compliance with them may not be possible without major modifications to the airfield.

GPS Navigation

Increased GPS, or Global Position System, presence is a result of the Government's efforts to modernize the U.S. transportation infrastructure. Today, GPS has become a primary and most cost effective method of navigation. This satellite based concept requires very little or no physical equipment to be maintained by an airport or the FAA.

FIGURE III-36
MODERN GPS-EQUIPPED COCKPIT

Source: www.bruceair.com

The transition to a National Airspace System primarily relying on the use of GPS based navigation has begun. GPS modernization is a multi-phase effort to be executed over the next 15 plus years. Additional modifications to the system are planned to enhance the ability of GPS to support both civil and military users. This effort resides primarily with the government and the users of the NAS and will not likely be a concern for airports.

Similar to East Hampton Airport, many airports across the nation provide non-precision approaches that are a combination of GPS and other traditional NAVAIDs. Both straight in approaches to East Hampton Airport can be flown as GPS, VOR, or a combination of both.

To conclude, as the technology and subsequent accuracy and availability of air navigation advances increase; the transportation infrastructure will change accordingly. It is a process that occurs deliberately and over many years. Today, the United States air navigation system is leaning towards increased use of GPS and other satellite-based methods of navigation. The older systems for executing Instrument Approaches at East Hampton Airport will likely be phased out and replaced by GPS in the years to come. The Airport will not likely be affected by this, as it is a federal government responsibility to determine the schedule to ensure a smooth transition into the newer technology era.

Therefore, physical navigation system enhancements will not be included in any of the Alternatives. The alternatives would assume that the capabilities of the existing navigational aids would be supplemented with GPS approaches of similar visibility minimums. There would be no added ability to utilize the airport under inclement weather and it will have no effect on aircraft traffic.

B. Airside Improvements

Airside Improvements under review in this section include modifications to runways, taxiways, and airport geometric concepts to accommodate the four Alternatives. Each Alternative will be the basis for planning and setting these dimensional standards at the airport. Additionally, a Design Aircraft is tied to each Alternative. Therefore, options for Design Aircraft as they pertain to East Hampton Airport will have varying effects on the physical layout of the airfield, including; Runway Length, Runway Safety Areas (RSAs), FAR Part 77 Approach Surfaces, Runway Object Free Areas (ROFAs), and Runway Protection Zones (RPZs). A description each of these concepts is given below:

Runway Length Explained

Anticipating the runway length desired at an airport is the primary goal for airfield analysis, since most geometry standards are based on the location of the runway. The planning methodology used may differ from one airport to another depending on the circumstances.

One method for determining runway length calculates a length based on the performance requirements of each specific Design Aircraft. Calculations are made to estimate how much runway an aircraft will use during takeoff and landing taking into account atmospheric and environmental variables. These include changes in temperature, pressure, condition of the runway (whether it is dry or wet from precipitation), runway grade or slope, and the airport's elevation above mean sea level. Formulas, charts, and graphs exist in the Aircraft Flight Manual (AFM) and/or the Pilots Operating Handbook (POH) so that real-time conditions can be accounted for and runway length requirements are estimated as accurately as possible. The AFM/POH contains the information and instructions prescribed by the manufacturer that a pilot should comply with to operate the aircraft safely.

Required landing/take-off distance calculations are time critical in nature and the pilot or dispatcher responsible for a specific flight will make these calculations as close as possible to departure. This is because the above mentioned variables are dynamic in nature and a change could affect the aircraft's performance requirements. For example, as temperature increases, air becomes less dense and reduces an aircraft's performance efficiency resulting in an increased distance required for takeoff from a runway.

By using conditions that are likely to occur at an Airport, required runway length can be determined. The AFM/POH for each of the Design Aircraft associated with the four Alternatives was used to determine a potential runway length. The same variables were used for each aircraft:

1. Aircraft at Maximum Take-Off or Maximum Landing Weight
2. Temperature of 80˚ F (the mean daily maximum temperature during the hottest month at East Hampton Airport)
3. 0 (Zero) Knot Headwind
4. Pressure Altitude at Sea Level
5. Standard Day (Air Pressure & Humidity)
6. Runway gradient of 1% (plus or minus condition that favors a longer length used)
7. No Take-Off or Departure Obstacles
8. Aircraft Special Components (on/off condition that favors a longer length used)

These conditions were applied to each of the Design Aircraft. For Runway 10-28, the results are as follows:

a) <u>No Action Alternative-Twin Otter</u>
The Twin Otter is associated with the No Action Alternative. In this case, the existing runway length of 4,255 ft. will remain the same.

a) <u>Alternative #1-Beech Baron</u>
The landing distance required was estimated at 1,625 ft. The estimated take-off length required was 1,700 ft.

b) <u>Alternative #2-Citation 560</u>
The landing distance required was estimated at 2,816 ft. The estimated take-off length required was 4,225 ft.

c) <u>Alternative #3 -Challenger 604</u>
The landing distance required was estimated at 2,800 ft. The estimated take-off length required was 6,700 ft.

Large aircraft such as the Challenger have requirements in excess of the existing runway lengths at East Hampton Airport using these variables. However, according to the AFM/POH, these aircraft can still operate safely and in accordance with the manufactures specifications by adjusting another element of the departure; weight. Larger and heavier aircraft will require a longer length of runway to be able to accelerate up to the speed necessary to achieve flight regardless of environmental and atmospheric variables. By decreasing aircraft weight, runway length required for take-off can be decreased. Certain aircraft using East Hampton Airport take advantage of this, allowing them to safely and legally operate with the existing runway dimensions.

Another method for determining runway length within the industry comes from the "Airport Design Software Program," developed and endorsed by the FAA. Information about it can be found in FAA Advisory Circular 150/5325-4A "Runway Length Requirements for Airport Design." This program provides recommended runway lengths for broad categories of aircraft based on size and approach speed. Aircraft are considered either small (meaning they have a Maximum Certificated Takeoff Weight (MTOW) of less than 12,500 lbs.) or large (having an MTOW of 12, 500 lbs or greater.) The large group is then classified into two additional weight categories; those greater than 60,000 pounds or those 60,000 pounds or less. Additionally, general environmental and atmospheric variables that can be expected at the airport are considered. These include airport elevation, temperature, runway slope, length of typical trips conducted by aircraft, and runway condition (wet vs. dry). The aircraft size categories are further broken down by lengths that an estimated percentage of airplanes in a specific size category can operate with that length.

When East Hampton Airport's information was input into the software, the following runway lengths that pertain to the design aircraft choices were recommended:

AIRPORT AND RUNWAY DATA

Airport elevation . . . . . .…….. . . . . ….	**56 feet**
Mean daily maximum temperature of the hottest month	**80.10 F.**
Maximum difference in runway centerline elevation . . . . . ….....	**24 feet**
Length of haul for airplanes of more than 60,000 pounds . . . .…	**500 miles**
Wet and slippery runways	

RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes . . . . . ….…	**2420 feet**
95 percent of these small airplanes . . . . ….…	**2970 feet**
100 percent of these small airplanes . . . . . ……...	**3520 feet**
Small airplanes with 10 or more passenger seats . . . . . ….....	**4100 feet**
Large airplanes of 60,000 pounds or less	
75 percent of these large airplanes at 60 percent useful load	**5280 feet**
75 percent of these large airplanes at 90 percent useful load	**6920 feet**
100 percent of these large airplanes at 60 percent useful load	**5500 feet**
100 percent of these large airplanes at 90 percent useful load	**7710 feet**
Airplanes of more than 60,000 pounds . . . . . ….…	**Approximately 5030 feet**

REFERENCE: Chapter 2 of AC 150/5325-4A, Runway Length Requirements for Airport Design.

These numbers again pertain to a grouping of aircraft. The four potential Design Aircraft would likely fall into the above groups as follows:

a) No Action Alternative - Twin Otter

The Twin Otter is associated with the No Action Alternative. In this case, the existing runway length of 4,255 ft. will remain the same.

b) Alternative #1 - Beech Baron

The Beech Baron would fall into the small airplane category with less than 10 passenger seats. The FAA "Airport Design Software Program," gives a range of runway lengths from 2,420 ft up to 4,100 ft. for this category of aircraft. The actual runway length requirement for the Beech Baron is 1,700 ft. based on manufacturer performance specifications. Therefore, the lower limit of runway lengths for this category of aircraft will be used. A runway length of 2,450 ft. (rounded up to the nearest 50 ft increment) for this group would be sufficient.

c) Alternative #2 - Citation 560

The Citation 560 falls into the large airplane weight category that is greater than 12,500 lb. MTOW but 60,000 lbs. or less. Even though the FAA "Airport Design Software Program," gives a range of runway lengths from 5,280 ft up to 7,710 ft for this category of aircraft, the actual runway length requirement for the Citation 560 is 4,225 ft. based on manufacturer performance specifications. Since the existing Runway 10-28 length is 4, 255 ft, and because this aircraft can only operate on Runway 10-28, we will use 4,255 as the runway length for this alternative

d) Alternative #3 - Challenger 604

The Challenger also falls into the weight category that is greater than 12,500 lb. MTOW but 60,000 lbs. or less. The FAA "Airport Design Software Program," gives a range of runway lengths from 5,280 ft up to 7,710 ft for this category of aircraft. The actual runway length requirement for the Challenger 604 is 6,700 ft. based on manufacturer performance specifications. Therefore 6,700 ft will be used as the required runway length for this alternative.

Runway Approach Surface Explained

14 CFR FAR Part 77 establishes standards for determining objects affecting navigable airspace. It provides for aeronautical studies of obstructions to air navigation, to determine their effect on the safe and efficient use of airspace. The standards apply to existing and proposed man-made objects, objects of natural growth, and terrain.

Standards for determining obstructions state that an existing object, including mobile objects and potential future objects are considered an obstruction to air navigation if it is taller than any of the following heights or surfaces:

1. A height of 500 feet above ground level at the site of the object;
2. A height that is 200 feet above ground level or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport with a runway no longer than 3,200 feet in length and that height increases the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet;
3. A height within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area, which would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment to be less than the required obstacle clearance;
4. A height within an en route obstacle clearance area, including turn and termination areas, of a Federal airway or approved off-airway route, that would increase the minimum obstacle clearance altitude; and
5. The surface of a takeoff and landing area of an airport or any imaginary surface established under §77.25, §77.28, or §77.29. However, no part of the takeoff or landing area itself will be considered an obstruction.

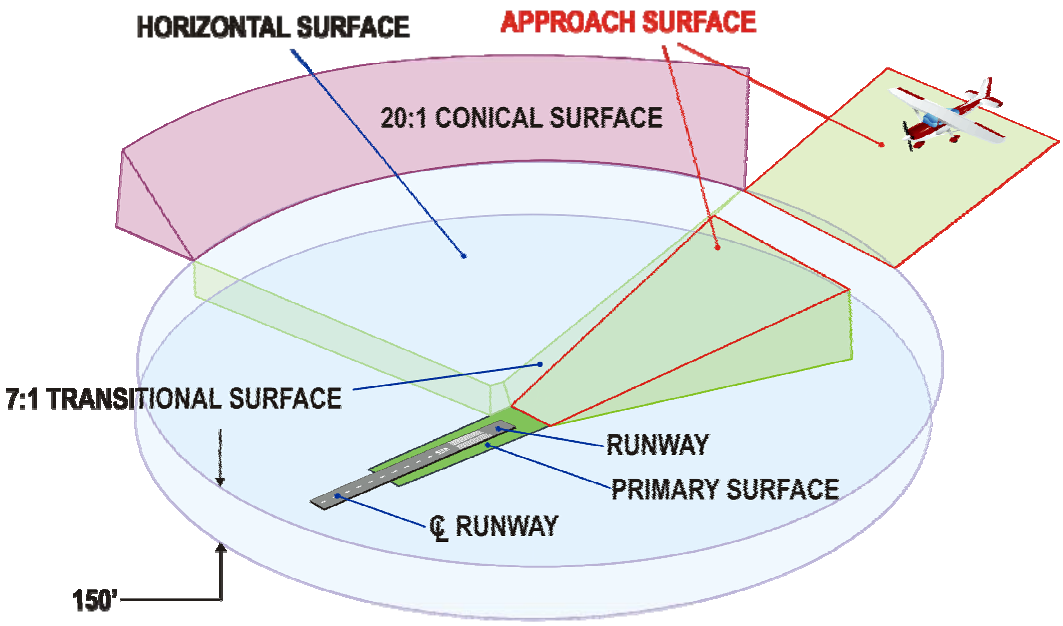
Additionally, the following heights are added to roads or other traverse ways that may impact the FAR Part 77 surface:

1. 17 ft. for an Interstate Highway, where over crossings are designed for a minimum of 17 ft. vertical distance.
2. 15 ft. for any other public roadway
3. 10 ft. for the height of the highest mobile object that would normally traverse a private road.
4. 23 ft. for a railroad.
5. An amount equal to the height of an object that would normally traverse a waterway or any other traverse way.

East Hampton Airport is considered a civil airport under Part 77 regulations. All applicable surfaces of this regulation apply; however only the Approach Surface as it pertains to our runway analysis will be described in this Chapter.

The FAR Part 77 Approach Surface begins at the end of the runway primary surface, (which is 200 feet beyond the location of the runway end). It is a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end.

FIGURE III-37
FAR PART 77



FAR PART 77 IMAGINARY SURFACES

Penetrations to the FAR Part 77 Approach Surface can be mitigated by installing Visual Glide Slope Indicators, lighting and marking obstructions, and/or threshold displacement. This will be at the discretion of the FAA. Threshold displaced is the most severe form of mitigation. Displacing a threshold means that the landing threshold of the runway is moved further down to provide the required clearance. Essentially, the runway is shortened for landing purpose. The existing threshold used for departing aircraft on that same runway may remain. Criteria for determining the new threshold siting location is described in FAA Advisory Circular 150/5300-13. It is based on the runway type and the instrument approaches available at the airport.

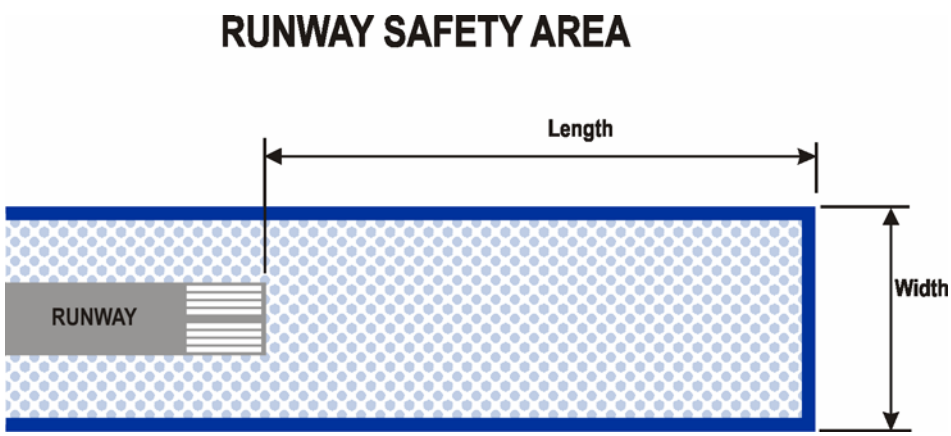
Airport Safety Surface Geometry Explained

As the Design Aircraft changes, the airfield geometry concepts and dimensional requirements will change. These standards can be found in FAA Advisory Circular 150/5300-13, which is the industry standard for federally obligated airports. The following concepts apply to East Hampton Airport and are primarily based on the ARC of the Design Aircraft:

Runway Safety Area (RSA):

The Runway Safety Area is a rectangle centered along the runway and extends a certain distance widthwise from the centerline and lengthwise beyond the end of the runway a specified distance. The dimensions are based on the Airport Reference Code of that runway and the type of instrument available for that runway. The RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations to reduce the risk of damage to airplanes in the event of an undershoot, overshoot or excursion from the runway. Additionally, it must also have proper drainage, be capable of supporting snow removal and emergency equipment under dry conditions, and be free of objects that functionally do not need to be located in the RSA.

FIGURE III-38

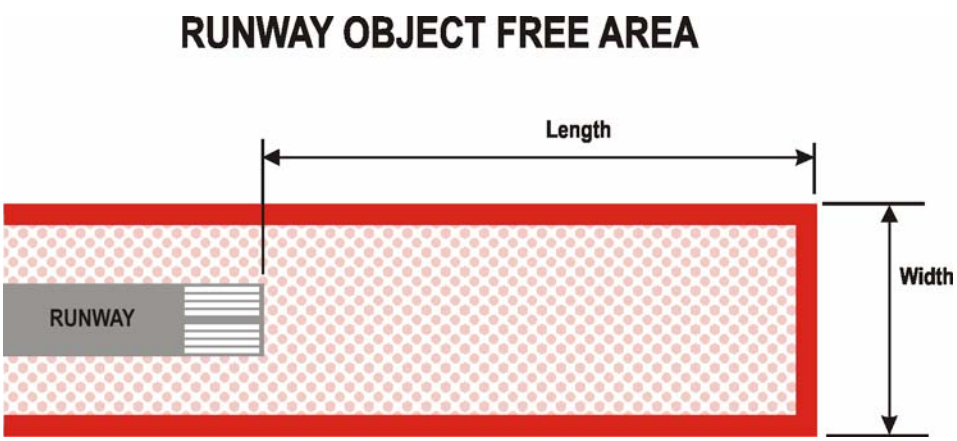


Source: DY Consultants

Runway Object Free Area (ROFA)

ROFA standards require the clearing of all above ground objects protruding above the RSA edge elevation non-essential to air navigation or ground maneuvering. The dimensions are based on the Airport Reference Code of that runway and the type of instrument available for that runway. It is acceptable to place objects that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes and to taxi and hold aircraft in the ROFA.

FIGURE III-39

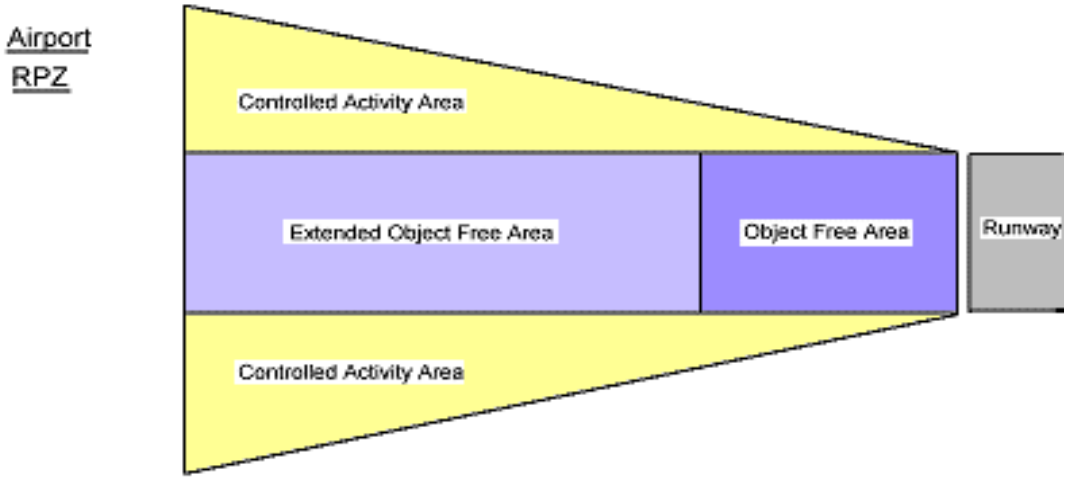


Source: DY Consultants

Runway Protection Zones (RPZ)

An RPZ is an area of controlled activity used to enhance the protection of people and property on the ground. Trapezoidal in shape, it is located 200 ft. beyond each runway end and centered along the runway centerline. The dimensions are based on the Airport Reference Code of that runway and the type of instrument approach available for that runway. The RPZ length and width required increases as the severity of demand of either of these factors increases. As such, it is common that the footprint of this surface will extend outside of airport property. Ideally, an airport would acquire such property or at least clear the area of all objects, however it is not required. There are provisions for compatible land use in these areas. Certain uses are permitted as long as they do not create a wildlife attractant, are outside of the runway object free area, and do not interfere with NAVAIDs. Land uses that are prohibited include residences and places of public assembly. Fuel farms and automobile parking should not be located in the RPZ.

FIGURE III-40
RUNWAY PROTECTION ZONE



Source: www.wsdot.wa.gov

Table 28 at the end of the following Runway Analysis section can be used to provide a quick comparison of runway distance requirements and airfield geometry concepts mentioned above. The runway distances displayed are based on the Aircraft Flight Manual (AFM) and/or the Pilots Operating Handbook (POH) and the most demanding environmental conditions such as a hot summer day, wet runway, etc.

1. Runway Analysis

The following sections, paragraph i through iii, provide a detailed description of how the four alternatives apply to the runways at East Hampton Airport.

i. Runway 10-28

The following is an analysis of four (4) potential alternatives for Runway 10-28.
They include:

1. No Action Alternative
2. Alternative #1
3. Alternative #2
4. Alternative #3

Each alternative was based upon a development option to meet the intent of the alternative. A particular alternative aircraft was assumed for each scenario to determine design standards (such as runway length and safety area dimensions) for that particular aircraft or group of aircraft. This aircraft is called the Design Aircraft.

Runway 10-28 No Action Alternative:

The No Action Alternative is based upon the present runway configuration. The current Design Aircraft designated from the last approved Master Plan is the Twin Otter (Airport Reference Code of A-II). This aircraft is not representative of the types of aircraft actually using Runway 10 – 28 and is rarely present at the airport. Actually larger and more demanding airplanes make up the majority of the fleet mix at East Hampton Airport. Higher performing aircraft, such as the Citation V and the Gulfstream G-V, are regularly taking off and landing on this runway during the peak season. The design standards associated with this family of aircraft that actually utilize this runway, are more demanding and require greater clearance requirements than the standards that are associated with the outdated Design Aircraft, the Twin Otter. The design standards are not appropriate for the actual utilization of the runway.

Under the No Action Alternative, the runway in its existing configuration would be maintained. The Twin Otter is a small aircraft with an Airport Reference Code of A-II. The existing runway length of 4,255 ft. would be maintained. The existing runway width of 100 feet would also remain. Runway markings and shoulders will also remain the same.

The current 100 ft. width of Runway 10-28 is more representative of the Design Criteria applicable to today's typical users of the airport, such as the Citation and the Gulfstream. The runway length is more than required for the Twin Otter. A runway length of 4255 feet at East Hampton is capable of servicing higher performing jets, such as the Citation and the Gulfstream.

Should the Twin Otter be maintained as the Design Aircraft, the following is a brief description of standards associated with this aircraft and a status of compliance with these standards.

In addition, the following safety standards will be maintained:

FAR Part 77 Approach Surface: Specifically for the Twin Otter, the inner edge of the approach surface (which starts 200 ft. from the end of the runway) is 500 feet in width; it expands uniformly to a width of 2,000 feet, and extends for a horizontal distance of 5,000 feet at a slope of 20:1. These standards are for a runway with a non-precision instrument approach with visibility minimums greater than ¾ mile for small propeller driven aircraft with maximum takeoff weight less than 12,500 lbs. Visibility or Approach minimums describe the worst weather condition (in terms of visibility) that an appropriately equipped aircraft and pilot can land.

The Approach Surface to Runway 10 is clear of obstructions and is in compliance with FAR Part 77's imaginary approach surface.

Vehicular traffic on Daniels Hole Road is an obstruction to FAR Part 77 (which assumes a vehicle height of 15 ft on a public roadway) for aircraft on approach to Runway 28. Even though a vehicle on Daniel's Hole Road is an obstruction to FAR Part 77, further investigation using Threshold Siting Criteria contained in Advisory Circular 150/5300-13 Chg 10 reveals that the Runway 28 end would need to be displaced approximately 150 ft. due to vehicles on Daniel's Hole Road.

This is determined using Table A2.1 “Approach/Departure Requirements Table” with a Runway Type titled “Approach ends of runways expected to support instrument straight in night operations, serving approach category A and B aircraft only”.

RSAs: The extended Runway Safety Area (RSA) dimensions for the Twin Otter would be 300 feet beyond the end of the runway by 150 feet wide. There would be no impact on Runway 10-28, as the standard RSA at both ends are currently available for the Design Aircraft.

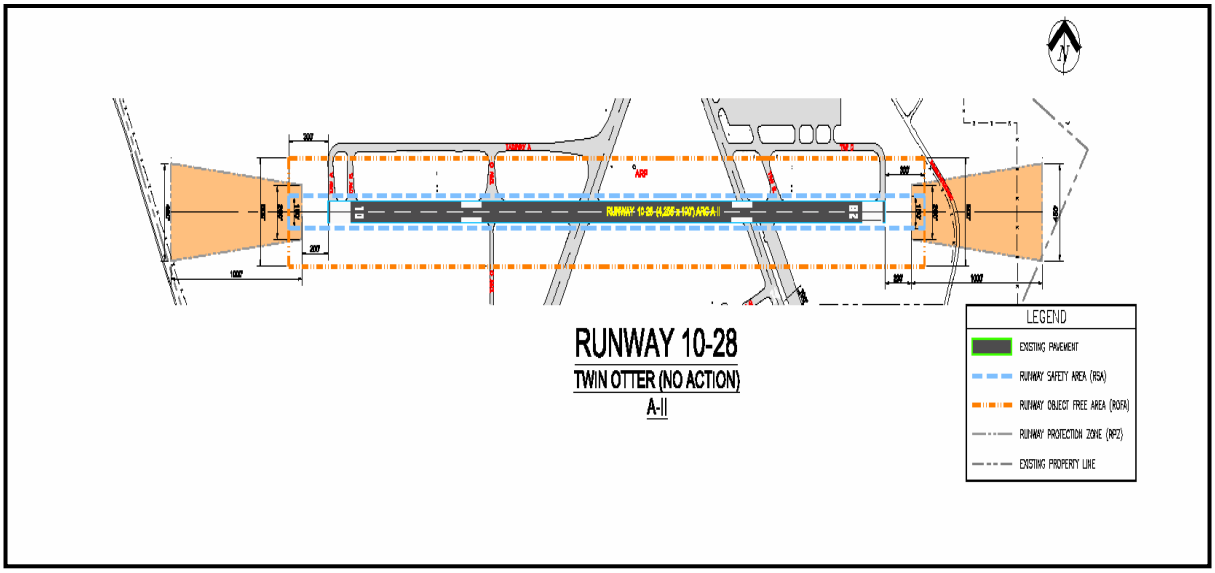
ROFAs: The Runway Object Free Area (ROFA) measures 300 feet off the end of each runway and 500 feet wide (250 feet from either side of centerline) for small A-II aircraft. The Twin Otter is considered a small aircraft, since its maximum takeoff weight is less than 12,500 lbs. The Runway 10 end currently meets these standards. The Runway 28 end substantially meets these standards with a length of 298 ft and a width of 498 ft. This is due to Daniels Hole Road.

RPZs: The Runway Protection Zone (RPZ) dimensions (which begin 200 ft. from the end of the runway) measure 250 feet for the inner width, 450 feet for the outer width, and 1,000 feet in length. These RPZ dimensions are specifically for runways serving aircraft in Approach Categories A and B (such as the Twin Otter) with visibility minimums not lower than 1 mile. The RPZ is a two dimensional area of land that should be either owned or under the control of the airport. In its current configuration the RPZ requirements are satisfied at both ends of the runway.

Impacts: Additional impacts to the airfield under this scenario would be minimal and insignificant since the runway would basically stay in its current configuration.

This alternative is inappropriate and is not addressing the concerns of the airport and the community. This Alternative is assuming a design aircraft that is outdated and not an actual reflection of the operations of the field under its current usage or under a realistic projected use of the East Hampton Airport.

FIGURE III-41
NO ACTION ALTERNATIVE



Source: DY Consultants

Runway 10-28 Alternative #1:

This alternative is based upon developing a plan that would provide minimal impact upon the community with little regard to the demands of the airport by the flying public. This may be achieved by designing the runway to service exclusively small (12,500lbs or less) aircraft. The design standards associated with this type of aircraft would lower noise levels and require less land disturbance to physically accommodate infield development. The Beech Baron is an example of this and may be considered as a design aircraft since it is a small aircraft weighing under 12,500 lbs and is categorized as Airport Reference Code B-I.

Aircraft more demanding than the Beech Baron are currently using Runway 10-28. This alternative will decrease runway length and dimensional safety standards for the Baron. As a result, the runway dimensions applicable to a Baron would not be appropriate for the current fleet mix at East Hampton Airport.

According to a standard FAA Airport Design Computer Program, the recommended runway length for aircraft within the family of aircraft similar to the Baron is 2,450 feet. The standard runway width for a B-I aircraft on a visual and non-precision instrument runway (greater than ¾ statute mile visibility) is 60 feet. Therefore, Runway 10-28 would be reduced to 2,450 feet long by 60 ft wide.

This alternative proposes to reduce the runway length by eliminating 1805 feet of runway. To achieve this reduction in length, 1605 feet of the runway can be removed from the west end and 200 feet from the east end of the runway. The runway would be narrowed by 20 feet on both sides of the runway. All edge lights and threshold lights would be relocated to the standard offsets from the runway edges and ends. Site grading, drainage and other utility work will be necessary to achieve the intent of this alternative. In addition, the runway markings and the airfield sign system would be modified and relocated to the correct locations for this smaller runway. The PAPI system which provided pilots with a visual guidance while descending to the runway would be relocated at the western end of the runway for the new runway threshold. Because the western end of the runway would no longer exist, the parallel taxiway servicing the western portion of the runway would also be removed.

FAA would not view this alternative favorably because;

1. Larger aircraft that are of significant presence at the Airport would not be able to operate with these reduced runway lengths, and the FAA would view this as restricting traffic.

2. The current length and width were constructed with FAA funds and they would object to the reduction.

Compliance to FAA standards under this alternative are summarized as follows:

Part 77 Approach Surface: The inner edge of the approach surface (which starts 200 ft. from the end of the runway) is 500 feet in width, expands uniformly to a width of 2,000 feet, and extends for a horizontal distance of 5,000 feet at a slope of 20:1.

The Runway 10 Approach end would be relocated significantly towards the east and away from potential obstructions. The surface would be clear of obstructions and would be in compliance with FAR Part 77's imaginary approach surface.

Vehicular traffic on Daniels Hole Road is an obstruction to FAR Part 77 (which assumes a vehicle of 15 ft height on a public roadway). Further investigation indicates that a separation distance of 500 feet from the end of the runway to the inner edge of the road would be required as per Threshold Siting Criteria contained in Advisory Circular (AC) 150/5300 Chg 10. Removing 200 feet from the Runway 28 end, would allow the Runway 28 approach to be unobstructed.

RSAs: The extended Runway Safety Area (RSA) dimensions for the Beech Baron would be 240 feet beyond the end of the runway by 120 feet wide (60 feet from either side of the runway centerline). Under this alternative, standard RSAs would be available at both ends of the runway.

ROFAs: The Runway Object Free Area (ROFA) measures 240 feet off the end of each runway and 250 feet wide (125 feet from either side of centerline). The standard ROFA at both ends would be available under this alternative. Daniels Hole Road is located just beyond the end of the ROFA at the 28 end.

RPZs: Under this alternative, the Runway Protection Zone (RPZ) dimensions (which begins 200 ft. from the end of the runway) are 250 feet for the inner width, 450 feet for the outer width, and 1,000 feet in length. These RPZ dimensions are specifically for runways serving aircraft in Approach Categories A and B (such as the Baron) with visibility minimums not lower than 1 mile. Under this alternative, the RPZ requirements would be satisfied at both ends of the runway.

Impacts: From an aeronautical standpoint, impacts to the airfield under this scenario would be significantly negative. A shorter runway would not support the current fleet mix.

a. The present demand placed upon the airport would not be satisfied. The current usage of the airport includes high end traffic and is a result of the demographics associated with the surrounding community. The airport is being utilized by private and corporate entities with significant levels of disposable income. This results in jet traffic similar to the Citation V and various models of Gulfstream jets. These jets and all other jets would be precluded from using Runway 10-28 due to insufficient length.

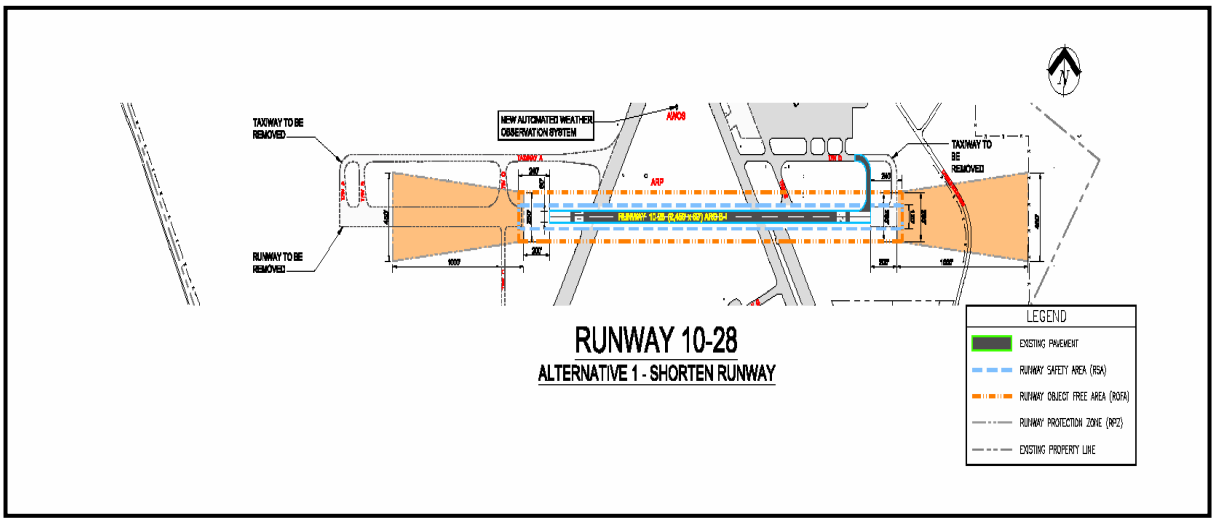
b. This airside option would not be acceptable for the airport's current use or its projected aircraft use. The Beech Baron would not be indicative of a current or future design aircraft and would not be appropriate for East Hampton Airport. This alternative would not be considered a realistic projection of the airport. This alternative assumes that the current use of the airport would diminish and that small propeller type aircraft would be the only users of the airport. Based upon forecasts and past activity, this scenario is not likely to occur.

The environmental impacts would be minimized due to the type of traffic that would use a smaller runway. In addition to the type of aircraft, the quantity of traffic would significantly be reduced, should the facilities not be made available to a portion of the present traffic (by reducing the length of Runway 10-28).

The effect on noise would be reduced on Runway 10-28. The overall effect upon the surrounding community regarding noise may not be significantly different. It could be anticipated that high end turbo jet traffic may be substituted with

additional helicopter traffic. The introduction of helicopter traffic often has a greater negative impact with regard to noise levels. In this case, the locations within the flight path of helicopters would be impacted as a result of this option.

FIGURE III-42
ALTERNATIVE 1



Source: DY Consultants

Runway 10-28 Alternative #2:

This alternative is based on accommodating current fleet mix without extensive changes to the runway such as lengthening the runway. This concept looks at maximizing the use of the existing runway configuration and determining appropriate usage while complying with FAA Standards. The Cessna Citation V (C 560) was used as the Design Aircraft. Using this aircraft as the design aircraft slightly increases the physical demands on the airport from A-II to B-II standards. The definition of a Design Aircraft is the most demanding airplane that will have at least 500 operations per year at East Hampton Airport. Presently, the Citation V is the most demanding aircraft that can utilize the existing runway length with over 500 operations annually.

Using the aircraft performance data specific to the Cessna Citation, a length of 4,225 feet would be required for typical conditions during the summer months. Runway length for the Citation 560 was analyzed using performance charts provided by the manufacturer. While reviewing runway length requirements, conservative assumptions were made on environmental considerations and actual data was used regarding the physical conditions of the runway (such as gradients). Based upon the analysis, the critical length requirement was 4225 feet for takeoff operations.

It should be noted that this length is based upon the current usage of the airport by FAR Part 91 Operators. FAR Part 91 Operators are all flights that are not governed by FAR Part 121 Rules, which pertain to flights by entities that are in business to transport individuals by air such as scheduled air carrier and air taxi operations. Airplanes operating under FAR Part 121 would require greater runway lengths. This alternative assumes that the airport will continue to operate under FAR Part 91 operations.

The existing runway length of 4,255 ft. available on Runway 10-28 is more than adequate to support operations of the Citation V based on the aircraft performance data. The existing length of 4,255 ft. or the maximum required runway length of 4,225 feet obtained from the Cessna Citation V performance charts in the Aircraft Flight Manual would be ideal.

Additionally, the standard width for a B-II runway with a non-precision instrument approach with visibility minimums not lower than ¾ mi. is 75 feet, meaning the current pavement on Runway 10-28 could be reduced 25 feet from its current width of 100 feet. There would be

airport user related impacts associated with this reduction. Specifically, the runway width requirement for the next higher Design Group (Approach Category C) is 100 ft. Currently, there are infrequent operations of this size of aircraft. Decreasing the runway width would not likely reduce the presence of these aircraft at the airport; however, operational safety impacts may exist. The runway width can remain as is, requiring no change.

If the runway width is reduced, the existing runway edge lights, depending on their age, would either need to be moved in or replaced. Moving the edge lights would be an extensive project that would be considered a capital improvement. There would be no need to remove or add pavement. The runway would be narrowed by providing a runway edge marking and maintaining the existing pavement along the edges as a shoulder. The runway itself would be maintained by asphalt overlays and routine maintenance repairs.

Under this alternative, there would be a need to displace the Runway 28 end to provide appropriate clearance over vehicles on Daniels Hole Road for aircraft landing from the east. This would involve remarking the pavement, adding threshold lights at the displaced threshold for Runway 28, and relocating the PAPI to provide visual guidance to the displaced threshold.

The following FAA Standards were reviewed with regard to this alternative. These standards are based upon the Airport ARC B-II with approach minimums one mile or greater.

> **Part 77 Approach Surface:** Specifically for the Cessna Citation (ARC B-II) with current approach minimums, the inner edge of the approach surface (which starts 200 feet from the beginning of the runway) is 500 feet in width, expands uniformly to a width of 3,500 feet, and extends for a horizontal distance of 10,000 feet at a slope of 34:1.
>
> The existing airfield configuration does not currently meet the obstruction clearance criteria (FAR PART 77) for the approach to Runway 28 but does for Runway 10. Vehicular traffic on Daniels Hole Road currently is an obstruction to the FAR Part 77 Approach Surface for Runway 28. Even though a vehicle on Daniel's Hole Road is an obstruction to FAR Part 77, further investigation using Threshold Siting Criteria contained in AC 150/5300-13 Chg 10 reveals that the Runway 28 end would need to be displaced approximately 150 ft. This distance is arrived at by using Table A2.1 "Approach/Departure Requirements Table" with a

Runway Type titled "Approach ends of runways expected to support instrument straight in night operations, serving approach category A and B aircraft only".

RSAs: The extended Runway Safety Area (RSA) dimensions required would be 300 feet long by 150 wide (75 feet from either side of the runway centerline). There would be no impact to the existing or reduced runway length for Runway 10-28, as the standard RSA at both ends are currently available.

ROFAs: The Runway Object Free Area (ROFA) measures 300 feet long of the end of each runway and 500 feet wide (250 from either side of the runway centerline). There would be no impact to the existing Runway 10-28, as the standard ROFA at both ends are currently available.

RPZs: The Runway Protection Zone (RPZ) dimensions (which start 200 ft. from the end of the runway), measure 500 feet for the inner width, 700 feet for the outer width, and 1,000 feet in length. These RPZ dimensions are specifically for runway serving aircraft in Approach Categories A and B (such as the Cessna Citation) with visibility minimums not lower that 1 mile. In its current configuration the RPZ requirements are satisfied at both ends of the runway.

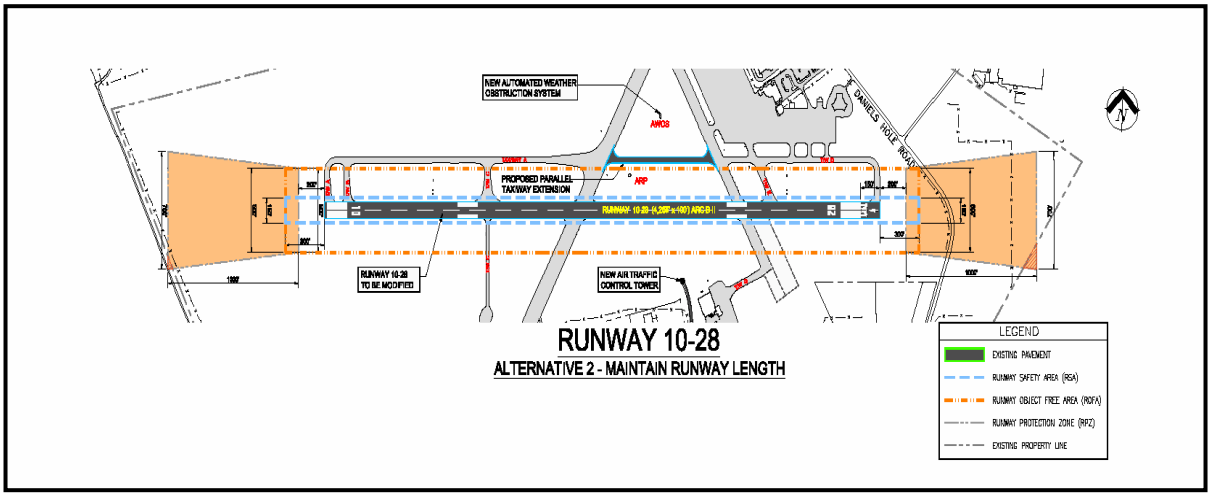
Impacts: There would be no impacts to the operation of the Citation and smaller aircraft. The design standards applied to the runway would be appropriate for a Citation. However aircraft larger than the Citation would be impacted. Some would be unable to use this runway due to its landing length or they would have to reduce their weight. Operationally, airplanes will land further to the west due to the displaced threshold.

In all likelihood this alternative would not have any effect on the type of traffic utilizing the airport. Although the design standards will be for the Citation V, the occasional use of this runway by more demanding aircraft may continue to occur. This alternative does limit the capability of the more demanding planes and does deter planes from using the runway that are in an Airport Reference Code (ARC) greater than the Citation 560.

The displacement of the runway will lessen the noise impact of the aircraft landing from the east. It will not be a significant reduction but will have some effect.

FIGURE III-43

ALTERNATIVE 2



Source: DY Consultants

Runway 10-28 Alternative #3:

This alternative provides a plan that would be considered unconstrained and would involve additional runway length to Runway 10-28. This concept assumes the availability of land to increase runway length and to mitigate environmental impacts that would result from this development. The intent of this alternative is to provide a runway that complies with the design standards that are associated with the most demanding aircraft that presently uses the airport.

A representative of this class of airplane currently using Runway 10-28, is the Challenger 604 (also known as the CL-604). Most of the time, this aircraft is able to operate on Runway 10-28 only through the use of weight restrictions. The CL 604 is a large aircraft (maximum takeoff weight greater than 12,500 lbs) with an Airport Reference Code of C-II. Use of this aircraft as the Design Aircraft would greatly increase the physical requirements of Runway 10-28, as well as the setback distances necessary to satisfy safety standards.

Using the Airplane Flight Manual for the CL 604, the required runway length would be 6,700 ft. Since the required width would be 100 ft for a runway with an ARC of C-II, with visibility minimums greater then one mile, no modification to the existing width would be necessary. A runway length of 6,700 ft. would require an extension of 2,445 ft. This runway will not fit within the existing airport boundary. Road relocation would be necessary to provide the required runway length.

The runway would be extended to the east by 2,445 ft with a new pavement section. The pavement section must be of substantial strength to withstand the load of the Challenger aircraft. The existing runway may require strengthening to structurally accept the operations of the Challenger. The western end of the runway would remain in its present location. A Runway Safety Area (RSA) of 1,000 ft in length beyond the end of the runway would need to be established for this high performing aircraft. The RSA for both ends would require grading and stabilization to support this aircraft without damage under a rare occurrence, should an airplane undershoot or overshoot the runway.

A parallel taxiway to service the runway extension would be necessary to access the new runway end in a safe environment. The taxiway would be constructed with a width of 35 ft. The taxiway centerline to runway centerline separation would be 300 ft. The existing and

remaining parallel taxiway would not require relocation. Similar to the runway, there may be a need to strengthen the taxiway to accept the loading of the Challenger.

A major relocation of Daniels Hole Road would be necessary to provide compliance to the RSA requirements as well as providing the necessary clearance to the FAR Part 77 Approach Surface.

Other miscellaneous work associated with this alternative includes necessary airfield lighting, signing, marking, PAPI relocation, grading and drainage improvements to accommodate this extensive runway extension.

The following analysis provides FAA Standards and methods needed for this alternative. These standards are required for the design aircraft (the Challenger) with visibility minimums of one mile or greater:

Part 77 Approach Surface: The inner edge of the approach surface (which starts 200 feet from the end of the runway) is 500 feet in width, expands uniformly to a width of 3,500 feet, and extends for a horizontal distance of 10,000 feet at a slope of 34:1. The approach to Runway 10 is clear of obstructions. In order to provide a clear approach to Runway 28, we need to use "Threshold Siting Criteria" contained in AC 150/5300-13 Chg 10. The appropriate distance between Daniel's Hole Road and the landing threshold for Runway 28 is 500 ft. This distance is arrived at by using Table A2.1 "Approach/Departure Requirements Table" with a runway type titled "Approach ends of runways expected to support instrument straight in night operations, serving greater than approach category B aircraft". Even though the threshold siting criteria would require 500 ft between the Runway 28 landing threshold and Daniels Hole Road, the RSA and the ROFA standards would require 1000 ft.

RSAs: The extended Runway Safety Area (RSA) dimensions for the Challenger would be 1000 feet beyond the end of the runway by 500 feet in width (250 feet from either side of the runway centerline). In order to satisfy the RSA requirements for this alternative, Daniels Hole Road would be relocated (1,000 ft + 2,445 ft = 3,445 ft) from the present Runway 28 threshold to satisfy this condition.

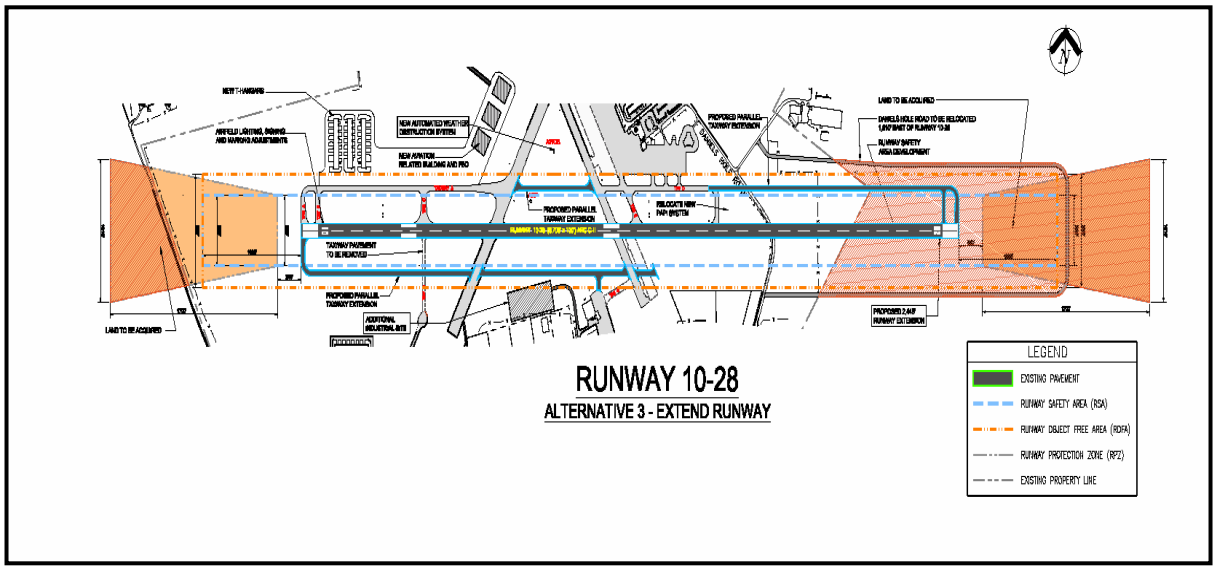
ROFAs: The Runway Object Free Area (ROFA) dimensions require 1,000 feet off the end of the runway by 800 feet in width (400 feet from either side of centerline. Daniels Hole Road would be relocated (1,000 ft + 2,445 ft = 3,445 ft) from the present Runway 28 threshold to satisfy this condition.

RPZs: The Runway Protection Zone (RPZ) dimensions required measure 500 feet for the inner width, 1,010 feet for the outer width, and 1,700 feet in length. The airport should own or control the RPZ at each end. The township owns the land containing the RPZ on the approach end of Runway 10, however under this alternative, the Town would have to acquire land on the approach end of Runway 28 in order to own the land for the extension and the RPZ.

Impacts – This alternative would have severe impacts to the airport and its environment. It would require the acquisition of off airport land on the east side of the airport. It also would require the relocation of Daniels Hole Road. Due to the nature of the project, an Environmental Impact Statement Study would be implemented for a project of such magnitude. It would support unlimited use of the Challenger and may result in limited use by even larger aircraft. Noise levels would increase and have a major impact to adjacent housing since the Runway 28 threshold would be located closer to residential areas. This type of expansion would be costly and require a major construction project.

In general, this alternative would completely satisfy the requirements necessary for the most demanding aircraft presently using the airport. It would also have the greatest impacts to the local community due to the type of traffic and the relocation of the runway end towards a residential development.

FIGURE III-44
ALTERNATIVE 3



Source: DY Consultants

ii. Runway 4-22

The following is an analysis of four (4) potential alternatives for Runway 4-22. Each alternative will be analyzed based on a selected usage of the runway. Prior to being closed Runway 4-22 was utilized by single engine and small twin engine aircraft.

Runway 4-22 No Action:

This alternative analyzes Runway 4-22 as it exists with no changes using the ARC of A-II from the last valid Master Plan conducted in 1989.

The current runway length of 2,501 ft is sufficient to serve small general aviation aircraft. The current runway width of 100 ft is larger than what would be required (60 ft) for the type of aircraft that use this runway.

The pavement condition for Runway 4-22 has deteriorated such that the runway is currently closed. There are no parallel taxiways associated with this runway and the Runway 22 approach end was displaced 380 ft due to trees in the approach as well as vehicles on Daniel's Hole Road.

Daniel's Hole Road is located within the Runway Safety Area (RSA) and the Runway Object Free Area (ROFA) on the northern end of the runway (Runway 22 approach end). The required dimensions of the RSA are 300 feet beyond the end of the runway and 150 feet in width. The required dimensions for the ROFA are 300 feet beyond the runway end and 500 feet in width. If active, the runway would not be in compliance with the required RSA and ROFA. The Runway 22 approach end would need to be shortened by approximately 228 ft to meet the RSA and ROFA required dimensions.

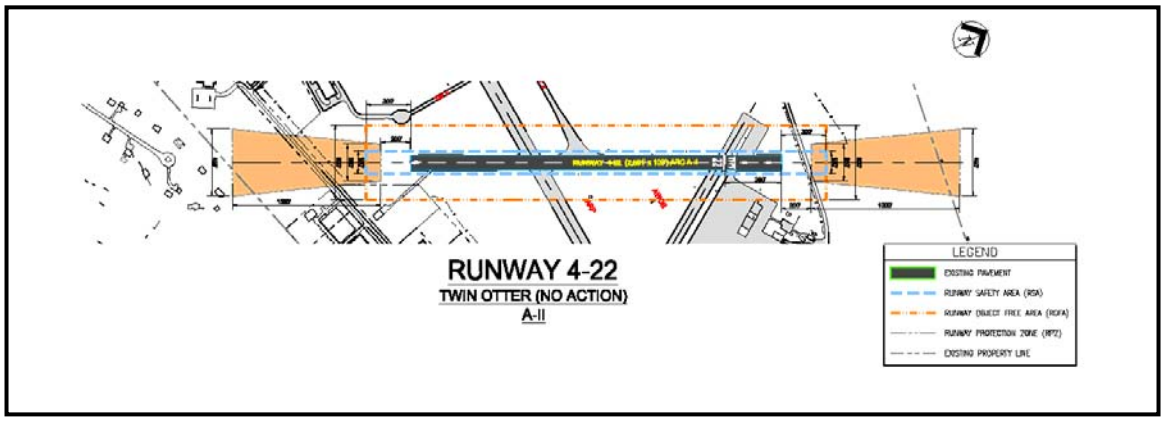
Currently the Runway 22 threshold is displaced 380 feet due to trees in the approach as well as a 15 foot vehicle on Daniel Hole Road. If the trees were removed and the Runway 22 approach end was shortened by 228 ft (to meet RSA and ROFA), there would be no need for a displaced threshold.

The approach surfaces for Runway 4 are clear of obstructions, and this end of the runway meets the requirements for the RSA and the ROFA.

The RPZs for this runway are substantially, although not completely on airport property, and are in compliance with FAA standards.

Although it is not marked to the standards of a taxiway, the runway is being used as a taxiway. The condition of the pavement is very poor and its ability to serve as a taxiway is limited in duration. The runway will require action to be taken to standardize this pavement section. The No Action alternative (with the runway in its present closed condition) would transfer the majority of small traffic to Runway 16-34. Due to compliance issues, the No Action is not feasible for Runway 4-22.

FIGURE III-45
NO ACTION ALTERNATIVE



Source: DY Consultants

Runway 4-22 Alternative #1:

This alternative would convert Runway 4-22 into a taxiway with a width of 35 ft, which would be sufficient for use by single engine and small twin engine general aviation aircraft. There would be no further landings or takeoffs associated with this runway, thereby minimizing environmental impacts for this particular runway.

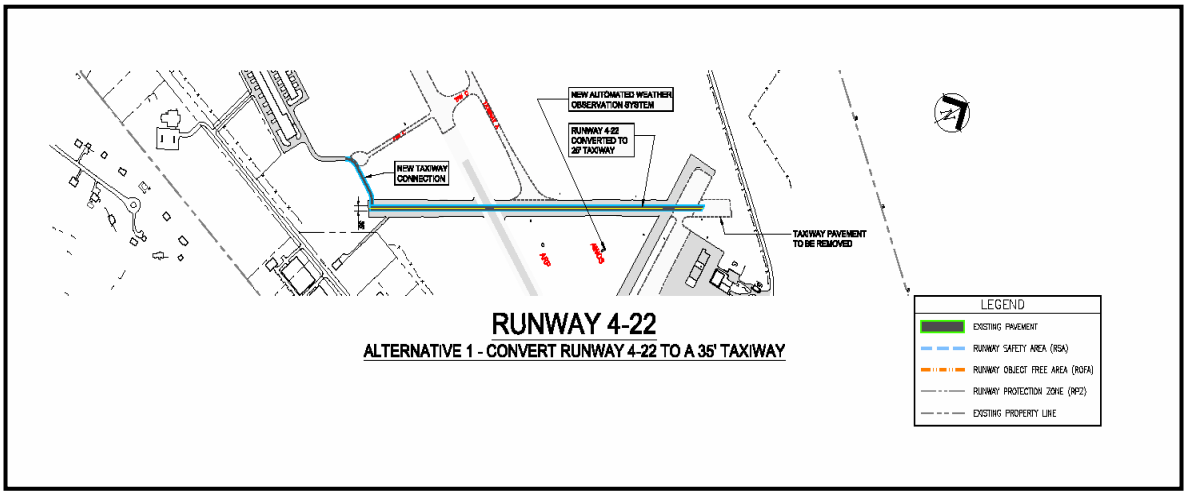
This would require the rehabilitation of the center 35 ft of the existing pavement and the removal of the remainder outside 35 ft. Taxiway edge lights would need to be installed along with appropriate taxiway markings. Additional discussion of the physical requirements needed to convert this runway to a taxiway is included in the taxiway section of this chapter.

This would be an improvement over the current use of this pavement which is in poor condition and provide for the permanent closure of Runway 4-22 which is not needed to provide adequate wind coverage at the airport. The closure of this runway would eliminate air traffic to both of these approaches to Runway 4-22 (from the north and south). This would limit the areas affected by noise impacts.

The impact, upon the airport as a whole, would be negligible since there would be no net increase/decrease in traffic as a result of closing Runway 4-22. Traffic would shift to the other two runways, causing a slight increase in traffic to the other two runways. This alternative would have a positive impact on safety, since back taxiing on Runway 4-22 would be eliminated.

This alternative to Runway 4-22 may also be considered in Alternative #2 for the airport since it has been determined that all three (3) runways may not be required to satisfy crosswind conditions at the airport.

FIGURE III-46
ALTERNATIVE 1



Source: DY Consultants

Runway 4-22 Alternative #2:

The intent of this alternative is to maximize the use of the existing airfield with minimal changes, while addressing any compliance issues.

Under this alternative, obstructing trees in the approach to Runway 22 would be removed. Runway 4-22 would be shortened on the north end by approximately 126 feet to bring the RSA and ROFA inside of Daniels Hole Road. The Runway 22 threshold would require a displacement of 60 for a 15 ft vehicle on Daniels Hole Road. The entire runway would be rehabilitated. The width would be reduced to 60 feet. At a length of 2,375 ft, the runway would be able to accommodate single engine and small twin engine aircraft as it did prior to being closed. Runway edge lights would need to be reinstalled along with appropriate markings.

The FAA standards would be addressed as follows;

Part 77 Approach Surface: The inner edge of the FAR Part 77 approach surface (which starts 200 ft. from the end of the runway) would be 250 ft in width, and would expand uniformly to a width of 1,250 ft, and would extend for a horizontal distance of 5,000 feet at a slope of 20:1. The approach surface for Runway 4 is clear of obstructions. Currently, the approach surface for Runway 22 is displaced 380 ft due to trees in the approach and vehicles on Daniel's Hole Road. Shortening the runway on the north end by 126 ft. and removing obstructing trees would require a displacement of 60 ft. due to vehicles on Daniels Hole Road, (using the Threshold Siting Criteria contained in AC 150/5300-13 Chg 10)

RSAs – The Runway 4 approach end has the required Safety Area length and width (240 ft long by 120 ft wide). Currently, the Runway 22 approach end Safety Area does not meet these standards since Daniels Hole Road is located within the RSA. If the runway was shortened by 126 ft on the north end, RSAs for both ends of the runway would meet these dimensional requirements.

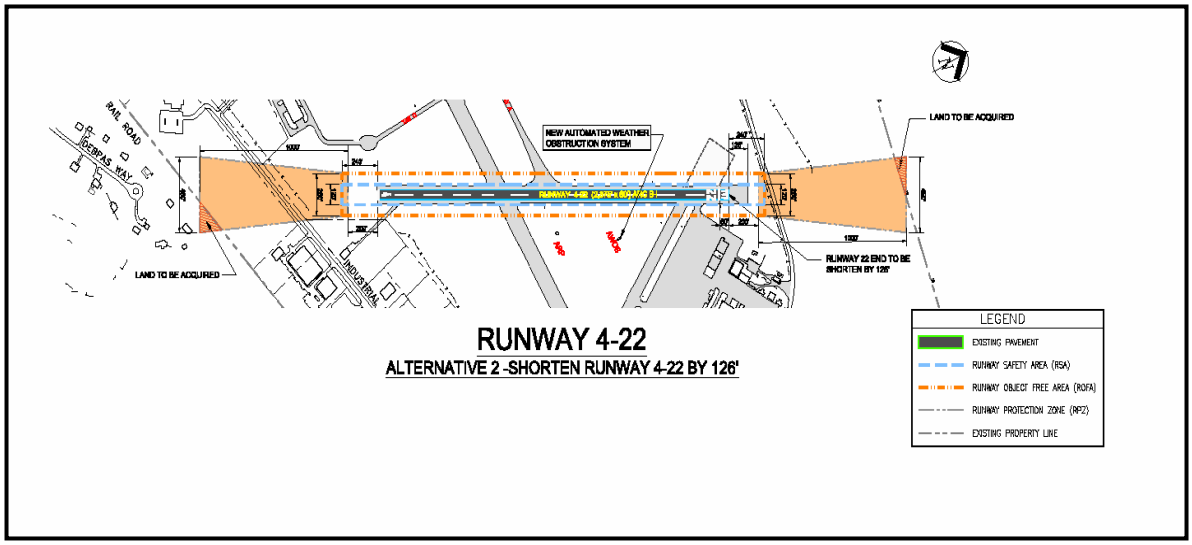
ROFAs – The Runway Object Free Area (ROFA) measures 240 feet off the end of each runway and is 250 feet wide (125 feet from either side of centerline). The Runway 4 approach end ROFA meets these required dimensions. The Runway 22 approach end does not meet these dimensions since Daniels Hole Road is located

within the ROFA. If the runway was shortened by 126 ft on the north end, ROFAs for both ends of the runway would meet these dimensional requirements.

RPZs – Reducing runway length by 126 ft from the north end would leave 0.21 acres off airport property. On the south end, 0.3 acres are off airport property. Both RPZs would be in compliance with FAA Standards.

Under this alternative, the runway length would be shortened by 126 ft to 2375 feet. This would have minimal impact since most single engine and small twin engine aircraft would still be able to utilize this runway.

FIGURE III-47
ALTETRNATIVE 2



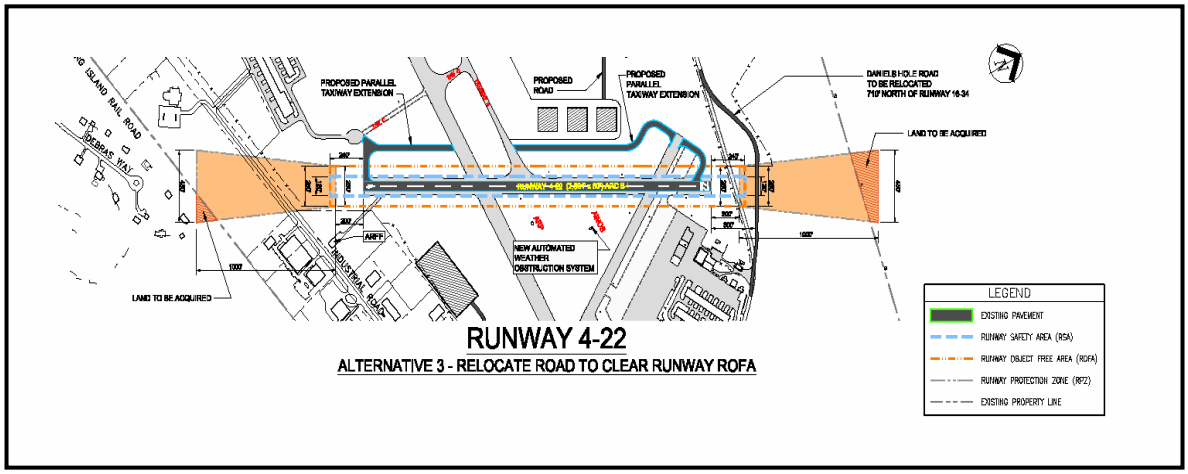
Source: DY Consultants

<u>Runway 4-22 Alternative #3</u>:

Under this alternative Runway 4-22 would be rehabilitated, trees on the approach to Runway 22 would be removed and Daniels Hole Road would be relocated (approximately 200 feet) so that the displaced threshold on Runway 22 could be removed. Runway length would remain at 2501 ft. and the runway width would remain at 100 ft. The runway would meet the dimensional requirements the RSA and the ROFA and there would be no obstructions.

Overall, this alternative would maintain the present use of the runway and would not add to the traffic of the airport. It would therefore have a minimal if any impact. The only impact associated with this alternative would be that concerned with moving Daniel's Hole Road.

FIGURE III-48
ALTERNATIVE 3



Source: DY Consultants

ii. Runway 16-34

The following is an analysis of four (4) potential alternatives for Runway 16-34. Each alternative will be analyzed based on a selected usage of the runway.

Runway 16-34 No Action

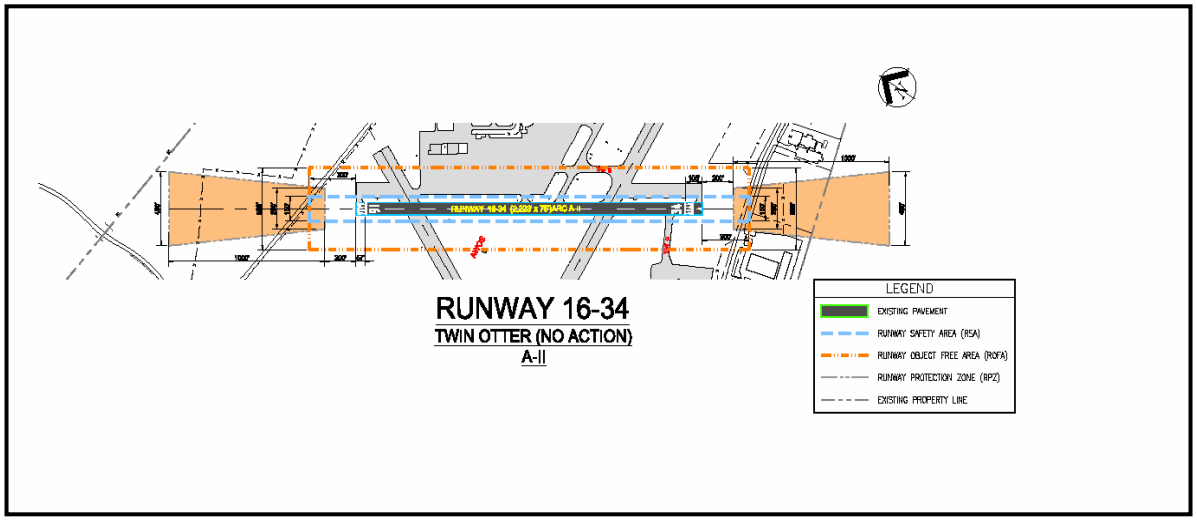
This alternative analyzes Runway 16-34 as it exists with no changes using the ARC of A-II from the last valid Master Plan conducted in 1989.

The current runway length of 2,223 ft is sufficient to serve small general aviation aircraft. These are typically aircraft weighing less than 12,500 lbs. The current runway width of 75 ft is larger than what would be required (60 ft) for the type of aircraft that used this runway. The threshold for Runway 16 is displaced 57 ft due to vehicles on Daniels Hole Road. Runway 34 is displaced 106 ft due to trees in the approach.

The northern end of the runway (Runway 16 approach end) as well as the southern end of the runway (Runway 34 approach end) do not meet the Runway Safety Area (RSA) dimensions of 150 ft width and 300 ft length nor the Runway Object Free Area (ROFA) dimensions of 500 ft width and 300 ft length.

The RPZ in the approach to Runway 16 is owned by the airport. Approximately 50% of the RPZ in the approach to Runway 34 is owned by the airport. Both RPZs meet FAA requirements.

FIGURE III-49
NO ACTION ALTERNATIVE



Source: DY Consultants

Runway 16-34 Alternative #1:

Under this alternative Runway 16-34 would be shortened approximately 5 feet on the north end, to bring the RSA and ROFA inside Daniels Hole Road and the threshold for Runway 16 would be displaced 60 from the end to accommodate a 15 ft vehicle on Daniels Hole Road. Obstructing trees in the approach to Runway 34 would be removed and the threshold for Runway 34 would be displaced 60 ft to accommodate a 15 ft vehicle on Industrial Road. The runway would be rehabilitated. The runway length would be 2,218 ft and the width would be reduced to 60 ft. With these dimensions, the runway would be able to accommodate single engine and small twin engine aircraft as it currently does now.

The FAA standards would be addressed as follows;

Approach Surface: The inner edge of the FAR Part 77 approach surface (which starts 200 ft from the runway end) would be 250 ft in width, and would expand uniformly to a width of 700 ft, and would extend for a horizontal distance of 1,000 feet at a slope of 20:1. A 15 ft vehicle on Daniels Hole Road is a penetration to the Part 77 approach surface for Runway 16. A displaced threshold would need to located 60 ft from the newly relocated (by 5 ft) Runway 16 threshold. This is determined using AC 150/5300-13 Table A2-1 Approach/Departure Requirements Table. Also a 15 ft vehicle on Industrial Road is a penetration to the Part 77 approach surface for Runway 34. A displaced threshold would need to be located 60 ft from the Runway 34 threshold.

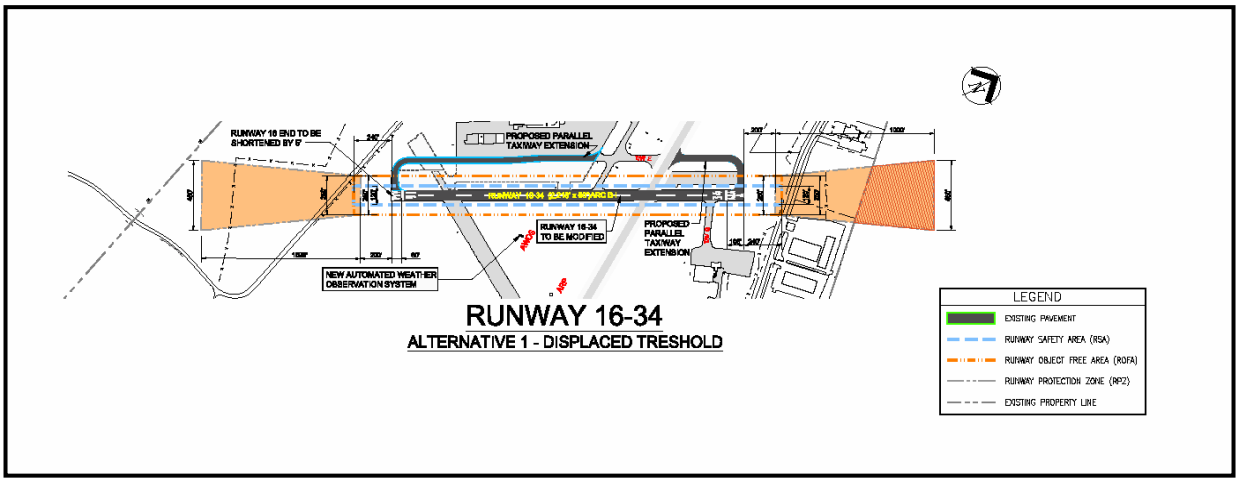
RSAs – The Runway 16 approach end would be shortened by 5 ft to bring the RSA inside of Daniels Hole Road, thereby meeting the RSA required dimensions of 120 ft width and 240 ft length. The Runway 34 approach end meets the RSA required dimensions.

ROFAs – The Runway 16 approach end would be shortened by 5 ft to bring the ROFA inside of Daniels Hole Road; thereby meeting the ROFA required dimensions of 120 ft width and 240 ft length. The Runway 34 approach end meets the ROFA required dimensions.

Alternative 1 would have minimal impact on this runway since most single engine and small twin engine aircraft would still be able to utilize this runway.

Any operation of Runway 16-34 would have a severe impact on the use of the Terminal Apron, due to runway/taxiway separation standards. If Runway 16-34 is open, many of the aircraft parking locations along the western edge of the apron would not be able to be used. This would result in inadequate aircraft parking during the busy summer season.

FIGURE III-50
ALTERNATIVE 1



Source: DY Consultants

Runway 16-34 Alternative #2:

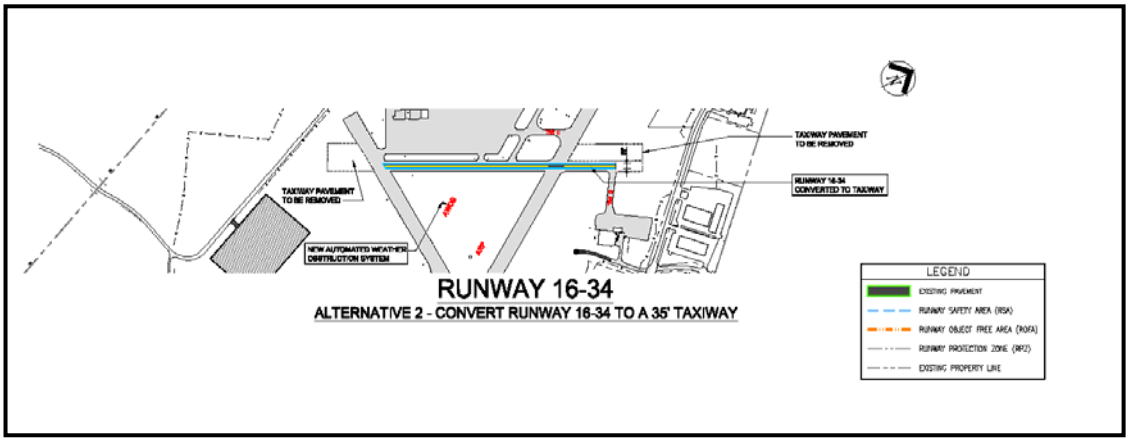
This alternative would convert Runway 16-34 into a taxiway with a width of 35 ft, which would be sufficient for use by single engine and small twin engine general aviation aircraft. This would require the rehabilitation of the center 35 ft of the existing pavement and the removal of the remainder outside 35 ft. Taxiway edge lights would need to be installed along with appropriate taxiway markings. Additional discussion of the physical requirements needed to convert this runway to a taxiway is included in the taxiway section of this chapter.

This would be an improvement over the current use of this pavement which is in poor condition and provide for the permanent closure of Runway 16-34 which is not needed to provide adequate wind coverage at the airport. The closure of this runway would eliminate air traffic to both of these approaches to Runway 16-34. This would limit the areas affected by noise impacts.

The impact, upon the airport as a whole, would be negligible since there would be no net increase/decrease in traffic as a result of closing Runway 16-34. Traffic would shift to the other two runways, causing a slight increase in traffic to the other two runways. This alternative would have a positive impact on safety, since back taxiing on Runway 16-34 would be eliminated.

This alternative to Runway 16-34 may also be considered in Alternative #1 for the airport, since it has been determined that all three (3) runways may not be required to satisfy crosswind conditions at the airport.

FIGURE III-51
ALTERNATIVE 2



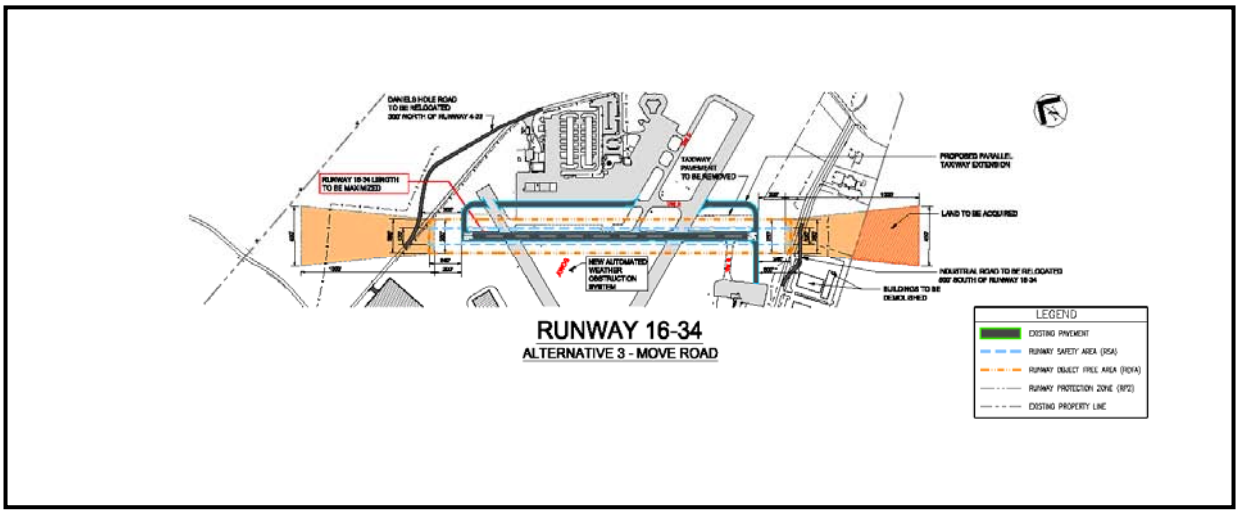
Source: DY Consultants

Runway 16-34 Alternative #3:

Under this alternative, Runway 16-34 would be rehabilitated, trees on the approach to Runway 34 would be removed, Daniels Hole Road would be relocated approximately 60 feet and Industrial Road would be relocated approximately 75 ft. This would allow single engine and small twin engine aircraft to operate on the current length of 2,223 ft without displaced thresholds. RSA and ROFA dimensional requirements would also be met. The RPZ located in the approach to Runway 16 is located on airport property. Approximately 50% of the RPZ located in the approach to Runway 34 is located on airport property. They are both in compliance with FAA standards

Overall, this alternative would have a minimal if any air traffic impact. There would be major impacts associated with the relocation of Daniels Hole Road and Industrial Road.

FIGURE III-52
ALTERNATIVE 3



Source: DY Consultants

TABLE III-28
DESIGN AIRCRAFT REQUIREMENTS

Runway Dimensions	A-II Twin Otter		B-I Beech Baron		B-II Cessna 560		C-II Challenger 604	
	No Action	Existing	Alt #1	Existing	Alt #2	Existing	Alt #3	Existing
Runway 10-28 Dimensions:								
Length (feet):	4,255	4,255	2,450	4,255	4,255	4,255	6,700	4,255
Width (feet):	100	100	60	100	100	100	100	100
Runway 28 ROFA								
Length (feet):	300	300	240	240	300	300	1,000	300
Width (feet):	500	500	120	120	150	150	500	500
Runway 10 ROFA								
Length (feet):	300	300	240	240	300	300	1,000	1,000
Width (feet):	500	500	120	120	150	150	500	500
Runway 16-34 Dimensions:			**B-I Beech Baron**				**B-I Beech Baron**	
Length (feet):	2,223	2,223	2,218	2,223	*For Alternative 2 Runway 16-34 is Converted into a Taxiway*		2,223	2,223
Width (feet):	75	75	60	75			60	75
Runway 34 ROFA								
Length (feet):	300	204	240	240			240	240
Width (feet):	500	500	250	250			250	250
Runway 16 ROFA								
Length (feet):	300	127	240	240			240	240
Width (feet):	500	500	250	250			250	250
Runway 4-22 Dimensions:			*For Alternative 1 Runway 4-22 is Converted into a Taxiway*		**B-I Beech Baron**		**B-I Beech Baron**	
Length (feet):	2,,501	2,501			2,375	2,501	2,501	2,501
Width (feet):	100	100			60	100	60	100
Runway 22 ROFA								
Length (feet):	300	72			240	114	240	200
Width (feet):	500	500			250	250	250	250
Runway 4 ROFA								
Length (feet):	300	300			240	240	240	240
Width (feet):	500	500			250	250	250	250

1989 Critical Design Aircraft
Existing condition is less than standard

Source: DY Consultants

2. Taxiway and Other Improvements

Taxiways

Taxiways exist at airports to promote safe, efficient, and expeditious aircraft movement primarily to and from runways and parking aprons, while minimizing runway crossings and back taxiing.

Taxiway Improvements will be discussed in the context of the following alternatives;

5. No Action Alternative
6. Alternative #1
7. Alternative #2
8. Alternative #3

<u>No Action Alternative-Twin Otter ARC-II:</u>

Under this alternative no improvements would be made. The taxiways system would continue to force aircraft to back taxi on runways and have multiple runway crossings.

East Hampton has an under developed system of taxiways. Currently, only one partial parallel taxiway exists along Runway 10-28 and Runway 16-34. This creates the undesirable condition known as “back taxiing”. Back taxiing is a term used by pilots and air traffic controllers which means that an aircraft is taxiing on the runway, opposite to the landing direction, to the beginning of the runway for the purpose of departure. This has a direct and negative effect on safety. Aircraft departing on Runways 4, 16, 34, and 22 need to back taxi on the runway to reach the approach end of the runway for departure. Runway 4-22 is currently closed due to its poor pavement condition; however it is used as a taxiway.

Currently the existing taxiway widths are in compliance with the FAA requirements for Group II aircraft. Taxiway A, B, E and G are 40 feet wide with Taxiway D being 35 feet wide. The Runway-Taxiway separation distance for Taxiway A and Taxiway D, which are parallel to Runway 10-28, is 300 feet, which is in compliance with the FAA Runway-

Taxiway separation criteria. Runway 4-22 does not have a parallel taxiway. Taxiway E is a short partial parallel taxiway to Runway 16-34. It is located 240 feet from Runway 16-34 which is in compliance with the FAA requirements. However, the distance between the Runway 16-34 centerline to the taxilane centerline adjacent to the aircraft parking apron is only 105 feet and not in compliance with the FAA separation criteria which states that the separation distance should be 240 ft for Group II aircraft.

Alternative #1-Beech Baron ARC B-I:

A taxiway improvement, which would greatly increase safety and the expeditious flow of aircraft, would be to remove the existing closed pavement on the northeast side of Runway 16-34 from the threshold of Runway 16 to the intersection with Runway 4-22 and provide a new 35 foot wide parallel taxiway with a runway-taxiway separation criterion of 225 feet (AC 150-5300-13 Table 2-1 for Group B-I) or if Runway 16-34 is restricted to small aircraft only (weighing 12,500lbs or less), this distance could be reduced to 150 ft. Similarly at the Runway 34 end, removal of the existing closed pavement and construction of a 35 feet wide parallel taxiway would be undertaken to provide a partial parallel taxiway to Runway 16-34.

The existing main apron taxilane centerline to runway centerline separation distance is only 105 feet which is not in compliance with the FAA runway/taxiway separation criterion for ARC A-II. In order to be in compliance with the separation criteria for Group I aircraft, the taxilane centerline should be remarked at a distance of 225 feet from the runway centerline (or 150 ft if Runway 16-34 is restricted to small aircraft only) and the portion of the pavement to the west of the taxilane be indicated as unusable pavement.

This would have a minimal environmental impact, since existing closed pavement would be removed and replaced with pavement which is narrower than the existing taxiway. Providing a parallel taxiway to Runway 16-34 would prevent back taxiing for departures on Runway 16 and Runway 34 and thereby improve safety. The biggest impact would be the loss of tie-downs on the terminal apron. With this alternative there would not be any increase in traffic.

Alternative #2-Cessna Citation B-II

This alternative will consider utilizing the existing airside and landside facilities as much as possible while increasing safety and controlling the impact upon the surrounding community, using the current mix of aircraft that operate at East Hampton Airport. In order to facilitate movement of aircraft using Runway 10-28, a complete full length parallel taxiway to Runway 10-28 would be very beneficial (approximately 75% of a full parallel taxiway already exists). Currently aircraft from the main apron have two routes to the threshold for Runway 10. One is to travel north on the apron, then onto Runway 4-22 (currently closed and in poor condition), then onto Taxiway A to the threshold. Another route is south on Taxiway E and then back taxi on Runway 10-28. The addition of a taxiway which would connect Taxiways D and A would provide a much more direct and safer route.

This proposed parallel taxiway would provide access to airplanes within the Airport Reference Code (ARC) of a B-II such as a Citation V. The existing Taxiway A and D centerline and Runway 10-28 separation distance is 300 feet. In order to maintain consistency with the existing Taxiways A and D, the proposed parallel taxiway would be designed and constructed such that the width of the taxiway is 35 feet and the separation between the Runway 10-28 centerline and the taxiway centerline would be 300 feet. The proposed taxiway would be marked and fillets to Runway 4-22 constructed so as to meet the Group II aircraft criteria.

Runway 16-34 would be closed and permanently converted to a taxiway. The usable pavement width would be reduced to 35 feet, the edge lighting system would be modified, pavement markings would be changed to taxiway markings, a new sign system would be installed and circuitry would be adjusted to isolate the taxiway system from the runway circuitry.

This alternative would allow full use of the terminal apron, which currently does not meet runway-taxiway separation standards.

These improvements would be considered a maximum use of the field while accompanying a design aircraft that is presently active at the airport.

Alternative #3-Challenger C-II:

Under this alternative, the following would be added to all of the previously mentioned taxiway improvements. A parallel taxiway south of Runway 10-28 from the Runway 10 threshold to the proposed taxiway parallel to Runway 16-34 would facilitate movement of aircraft located in the T –hangars in the southwest corner of the airport, and aircraft operating from the apron in the southeast corner of the airport as well as future development on the south side of Runway 10-28. Taxiway G would be relocated south to the threshold for Runway 34 and a new taxiway would be constructed from the ramp to the southern parallel taxiway to Runway 10-28.

Under this alternative, the Challenger 604 can be considered to be the design aircraft for Runway 10-28. The Challenger belongs to a C-II ARC and the FAA runway-taxiway centerline separation for this group of aircraft is 300 feet. The required parallel taxiway width for a Group II aircraft is 35 feet. Taxiways A and D both satisfy the required runway-taxiway centerline separation criteria as well as the taxiway width criteria for this group of aircraft.

If Runway 4-22 were to be rehabilitated as a runway, a parallel taxiway, on the west side of this runway, from the Runway 4 threshold to Runway 16-34, would provide an efficient and safer route for aircraft traveling between the threshold for Runway 10, the main apron and for aircraft in the T-hangars in the southwest corner of the airport. If Runway 4-22 is converted to a taxiway, constructing a taxiway, between the approach end of Runway 10 to the T-hangars located in the south west portion of the airport will increase tenants' accessibility of the runway and reduce taxi time.

Current users of the Airport have asked for the addition of a holding apron adjacent to Taxiway D at the approach end of Runway 28. This would allow an aircraft to pass another one that is being held because of a delay. A bypass taxiway has been incorporated at the approach end of Runway 28 to accommodate this.

As mentioned earlier, providing a parallel taxiway to Runway 10-28 to connect the existing Taxiways A and D would also prove to be beneficial to the taxiing aircraft. This would however require the relocating of the segmented circle located in the triangular infield area such that it clears the taxiway object free area.

Providing a network of parallel taxiways, will definitely improve the accessibility to the runway ends and other parts of the airport and at the same time improve safety by reducing the need for aircraft to travel on runways.

3. Runway Closure Alternatives

Based on the following information, it would be possible to close a runway at East Hampton Airport. The Airport Improvement Program does not financially support a third runway when two runways will provide 95% wind coverage, as is the case at East Hampton Airport. Currently, any combination of two of the three runways will provide adequate wind coverage based on historical wind data.

If the existing configuration and conditions remain, Runway 10-28 would continue to exist as the main runway, Runway 4-22 would remain closed and used as a taxiway, and Runway 16-34 would remain the crosswind runway used by smaller, piston aircraft. The advantages and disadvantages associated with the permanent closure of Runway 4-22 (as described below) currently apply. However, the pavement condition of Runway 4-22 is not stable enough to continue to serve the Airport as a taxiway and would require improvement. A considerable cost would be incurred and construction at the Airport would occur to rehabilitate Runway 4-22's pavement, even for taxing operations.

The following is an examination of the advantages and disadvantages of associated with closing each of the runways:

Closing Runway 4-22…

If Runway 4-22 were permanently closed, Runways 16-34 would remain for use by small, piston aircraft and Runway 10-28 would remain to accommodate both smaller, piston aircraft as well as larger, jet aircraft.

The advantages associated with closing Runway 4-22 include:

- Average noise contours would change as result of the traffic redistribution over the two remaining runways. Residents underneath the flight path of the landing and departure ends of Runway 4-22 would be relieved.
- Once rehabilitated as a 35 ft taxiway, maintenance costs would be much less than for a runway, since there would be approximately 50% less pavement to maintain.

The disadvantages associated with closing Runway 4-22 include:

- Runway 4-22, which offers the most wind coverage during the summer months, would no longer serve the users of the airport
- Taxiing time and effort for tenants who house their aircraft in the t-hangars at the each approach end of Runway 4-22 would increase, since one of the two remaining runways would have to be used.
- The largest disadvantage would be the loss of aircraft parking on the terminal apron due to the ramp being too close to Runway 16-34

Two options can be pursued for use of the pavement from the abandoned Runway 4-22. The first option would entail rehabilitating the pavement to continue serving the airport as a taxiway. This means the runway would officially be converted into a taxiway. The second option entails completely closing the pavement due to its poor condition, meaning that the pavement would be officially closed and unavailable.

Advantages associated with the taxiway conversion option include:

- Airport accessibility would be preserved.
- An area to be developed for aviation, if desired, would be made available.

Disadvantages associated with the taxiway conversion option include:

- Local or federal funding for the pavement rehabilitation would be required
- There would be a considerable amount of construction at the Airport during the rehabilitation process.

Advantages associated with the taxiway closure option include:

- No funds would be necessary for maintenance or rehabilitation of the pavement

Disadvantages associated with the taxiway closure option include:

- An impediment to the accessibility of the airport would be created.
- Users would have to circumnavigate the closed pavement, possibly congesting the remaining taxiways and crossing runways in several places. Current practices recommend that a system of taxiways is provided to allow an aircraft to maintain an average taxiing speed of 20 M.P.H. and to minimize runway crossing. See AC 150/5300-13.
- Increased taxiing time would inconvenience aircraft and passengers.
- Airport capacity and efficiency may be compromised during peak season causing delays and bottlenecks at entrances and exits to remaining runways.

Closing Runway 16-34…

If Runway 16-34 were closed, Runway 4-22 would remain available to serve smaller, piston aircraft and Runway 10-28 would remain to serve both smaller, piston aircraft as well as larger, jet aircraft.

The advantages associated with closing Runway 16-34 include:

- Average noise contours would change as a result of the traffic redistribution over the two remaining runways. Residents underneath the flight path of the landing and departure ends of Runway 16-34 would be relieved.
- The separation distance between Runway 16-34 and the terminal parking area is non-standard. The edge of the apron which serves as a taxilane was constructed approximately 100 ft from the centerline of Runway 16-34. The minimum required distance for a taxiway/taxilane from a runway (which is restricted to only small aircraft – under 12, 500 lbs MTOW) is 150 ft. Additionally, no aircraft can park within 125 ft of the runway centerline. If Runway 16-34 remained open (exclusively for small aircraft use only), the taxilane and a portion of the terminal apron would violate runway/taxilane separation standards. The FAA would require that a portion of the terminal ramp be kept empty to satisfy the separation requirements. If Runway 16-34 is closed or converted into a taxiway, the apron can be fully utilized and would comply with separation standards.

The disadvantages associated with closing Runway 16-34 include:

- Reduced wind coverage during the winter months, mainly December through January.

Runway 10-28 is the main runway at East Hampton Airport because it is the longest and the only runway to offer a straight in instrument approach. Runway 10-28 should be excluded from the closure analysis because the following might occur if it were closed:

- The airport would be unavailable to larger aircraft, which are the primary users of the airport. Only small, piston aircraft would be able to use the remaining two runways due to their shorter length.
- High end charter and passenger transport, which mainly operate luxury jets, could no longer exist at the airport.
- Residents of East Hampton or adjacent communities who own and operate their own private or timeshared jets aircraft would be required to operate into and out of Westhampton Airport.
- Alternate transportation would be necessary and could create an increase in helicopter traffic in the vicinity of East Hampton Airport or an increase in the already present vehicular traffic congestion on the ground.
- Current grants assurances require the Airport to maintain its availability to its users.

The answer to the question of which runway should remain open and which should be closed resides with the Town of East Hampton based on the best interests of the community. Any combination of runways will provide the adequate wind coverage. Federal funded airports are required to maintain their availability to the users of the airport through grant assurances. Closing Runway 10-28 would in effect restrict use of East Hampton Airport to smaller, piston aircraft. Therefore, a combination Runway 10-28 (the main runway) and one other runway (either Runway 16-34 or Runway 4-22) is ideal.

C. Landside Considerations

1. Aprons and Facilities

Aprons

The aircraft aprons providing tiedowns to based aircraft are leased to and managed by Sound Aircraft Service and Myer's Aero Services. It is the prerogative of the Airport to determine the type and amount of additional facilities they might choose to offer. As such, tie down modifications will be discussed in the context of the following alternatives;

1. No Action Alternative
2. Alternative #1
3. Alternative #2
4. Alternative #3

<u>No Action Alternative:</u>

Under this alternative no improvements or additions would be made. The tie-down facilities are currently at capacity, however; they appear to be sufficient to satisfy the current demand at the airport. According to Airport Management, there currently is no demand for additional aircraft parking at East Hampton Airport. Maintaining the current apron capacity would prohibit additional tie-downs in the future.

Under the current Grant Assurances, East Hampton Airport is required to maintain the Airport accessible to current traffic demands. This does not mean that new facilities must be constructed to accommodate new growth. Therefore, the Airport would be in full compliance with federal requirements under this Alternative.

There are no current community or user related impacts under this Alternative, as it is merely maintaining the Airport in its current condition. The type and frequency of air traffic would also remain unchanged.

Alternative #1:

The Minimum Environmental Impact Alternative may also consist of maintaining existing facilities. Again, there is no immediate demand for additional tie down space at the Airport. Therefore, supplying additional tie down space may be considered in excess of what is currently required at the Airport.

There are no current community or user related impacts under this Alternative, as it is merely maintaining the Airport in its current condition. The type and frequency of air traffic would also remain unchanged.

Alternative #2:

This alternative will examine how the Airport could efficiently accommodate the conservative forecast for based aircraft at East Hampton Airport. Planning analysis may be used to determine future adequacy of tie down space provided for based aircraft. Based Aircraft forecasts from Chapter 1 show a small amount of potential demand in the near future. To examine long term needs, typical planning practices look 20 years ahead to anticipate activity and determine what is necessary to accommodate it. According to the forecast (Table I-12) there will be 120 based aircraft in the year 2025. That is an increase of 19 based aircraft over a 20 year period. These aircraft would likely be single engine or small twin engine propeller aircraft based on historical usage of the Airport.

It is the norm to assume that 60% of based aircraft at an airport like East Hampton would prefer to store their aircraft in a hangar. Therefore, it could be assumed that over the next two decades, 8 of the projected 19 additional tenants (them remaining 40 %) will require tie downs at the Airport.

Tie-down space for single engine and light twin engine airplanes, which is the type that would be expected, require a minimum of 900 square feet per aircraft. Therefore, approximately 9,900 square feet of additional apron would be needed at the Airport.

Tie downs would likely be; near the current tie-down spots, outside of all FAA Safety Surfaces, and in compliance with all FAA design criteria.

There may be slight impacts to the community in terms of noise due to a small increase in frequency of operations due to the additional traffic at the Airport. Again, the type of new aircraft will likely be small and propeller driven. The associated noise impacts would be slight.

Alternative 3:

Under the Unrestricted Growth Alternative we will examine how the Airport could construct facilities to accommodate an increase in both small propeller and larger jet aircraft. Under this alternative, a 9,900 ft apron to provide tie downs for the additional 11 forecasted aircraft as well as additional transient aircraft parking would be added to the Airport:

The ideal location for transient aircraft parking would probably be at the south end of the airport off the Approach end of Runway 34. The amount of transient aircraft parking would be contingent up the activity levels, normally based on fuel sales volumes. Fuels sales for the FBOs for 2006 are still being calculated and a more precise estimation of required apron space will be provided once complete. However, for planning purposes, we will use an apron similar in size to the East Hampton Airlines apron.

There would be several impacts under this alternative. If new tenants were acquired for tie downs or transient operations were increased, noise related impacts to the community would also increase due to additional traffic at the Airport. The Airport on the other hand may benefit financially from the additional sources of revenue provided by these aircraft.

It is also important to consider other factors when determining the amount of apron an Airport would prefer to construct. Variables that might increase or decrease the desired apron size might include current tenant preferences (tie-down vs. hangar), anticipated changes in services at the airport and surrounding areas that might attract a new customer base or changes in regional or industry trends that might affect activity levels.

Attendants Office Relocation

Aircraft parked on the transient parking apron obscure the view of the Airport Attendant's office in the terminal building to the runway/taxiway pavements. Relocating this office will improve safety and security by allowing a clear line of sight between the office and the aircraft operations area.

Currently the terminal building itself is in good condition. The second floor was originally intended to be used as the Airport Attendants Office. The idea was later discarded before construction of the building began. Today the second floor would require renovation to accommodate the office. This option may be slightly costly (see cost estimate later in the report) however, it is a better solution than relocating the office to a new location. Selecting a different location would require the construction of a new, separate facility providing a line of sight to the Airport.

Impacts on the Airport include increased safety and security. It is unlikely that any impacts to the community would exist, as the renovation to the terminal would not be major. This project is consistent with the goals of Alternative #2.

Construction of an Airport Maintenance Facility

A new maintenance building would provide shelter for the airport equipment and materials required to adequately maintain the facility. Sheltering equipment from weather and the elements will prolong its useful life and help maintain proper functioning. Locating the maintenance building adjacent to the fuel farm is ideal. This location is easily accessible to Airport personnel and would not impede aircraft operations.

A maintenance building would benefit personnel and equipment and has been requested by the Airport. No negative impacts would exist to the community. This project is consistent with the intent of Alternatives #1, #2 and #3. As a result, the Maintenance facility will be considered as a component of each of the alternatives presented later in the report.

2. Fuel Farm

The fuel farm in its current state is inadequate during peak season. Daily fuel deliveries of 9,000 gallons of Jet A fuel occur each day during the summer months and are very costly. These deliveries originate from providers located in Philadelphia, New Jersey and Queens and must be transported out to the Airport further adding to vehicular traffic congestion. Moreover, general industry practice would expect an ideal fuel farm to supply a three day reserve however; the seasonality of East Hampton Airport skews this general concept. Making improvements and increasing the capacity of the fueling system will have no impact upon aviation traffic at the East Hampton Airport.

Currently there is a 12,000 Gallon Jet-A tank at the fuel farm. Adding an additional 12,000 gallon Jet A fuel tank would cut the deliveries to every other day during peak season. This would provide one day of storage during the peak summer months. Additionally, the existing Jet A fueling facility should be replaced as it is in poor condition. The fuel farm would be modified by installing an additional above ground tank for Jet A fuel adjacent to the location of the existing tank. This effort would require the construction of existing concrete foundations, modifications to the utilities, and adjustment to the dispensing system and providing necessary site work.

The AVGAS fueling facility was replaced in 2000 and is in good condition. The capacity of this tank is expected to remain adequate to meet the anticipated demand for this type of fuel.

The primary compliance issues in upgrading the fuel farm facility would be to meet environmental standards for this type of system. The major issues would involve proper detection systems and the necessary secondary containment in the case of spills. From an aeronautical standpoint, the system would adhere to airfield clearance requirements and needs to be secure under the guidelines established by the Transportation Security Administration (TSA).

Actions that would benefit the Airport include increasing the current Jet A fuel storage capacity, replacing the existing Jet A storage tank, enlarging the area for easy ingress and egress of the fuel delivery trucks, adding security cameras, installing fencing and providing lighting.

Upgrading the fuel farm would not increase air traffic or impact the type of traffic at East Hampton, but would serve the existing users of the Airport and help facilitate the Airport's effort to provide fuel. Additionally, the community would not be adversely impacted by upgrading the fuel farm.

This project is consistent with Alternative #1, Alternative #2, as well as Alternative #3. As a result, the facility will be considered as a component of each of the alternatives presented in Chapter 5 of this report, with the exception to the No Action Alternative.

3. Hangar Development

Typical aviation planning practices assume that 60% of based aircraft would prefer to store their aircraft in a hangar. It is also presumed that 70% of those owners would prefer T-hangars rather than conventional hangars. Applying this methodology to the 101 currently based aircraft, it can be presumed that an additional 43 T-hangars and 18 conventional hangars should be desired and considered at some point in the future. However, since there currently is not a waiting list for hangar space, it can be presumed that future demand of hangar space will be less than this value.

Hangars

T-hangars and conventional hangars currently exist at East Hampton Airport to provide aircraft shelter and housing. These hangars are leased to and managed by Sound Aviation, Myers Aero Service, and East Hampton Airlines. The actual number of hangars an airport should provide is open to interpretation based on demand, space available for aeronautical use, and character of the airport and its clientele. As such, hangar additions will be discussed in the context of the following alternatives;

1. No Action Alternative
2. Alternative #1
3. Alternative #2
4. Alternative #3

No Action Alternative

Under this alternative no hangar improvements or additions would be made.
The existing hangars at East Hampton Airport are at capacity. Currently there are 5 conventional hangars and 59 T-hangars at the Airport. East Hampton does not have a waiting list for additional hangars at this time and the forecasted level of based aircraft at the airport is relatively stagnant. According to Airport Management, there currently is no outside interest in providing new hangars at East Hampton Airport.

Under the current Grant Assurances, East Hampton Airport is required to maintain the Airport accessible to current traffic demands. Not expanding current apron facilities would prohibit acquiring additional tenants in the future. Construction of new facilities to accommodate new growth is not required. Therefore, the Airport would be in full compliance with federal requirements under this Alternative.

There are no current community or user related impacts under this Alternative, as it will merely maintain the Airport in its current condition.

Alternative #1:

Alternative #1 may also consist of maintaining existing facilities. Again, there is no immediate demand for additional hangar space at the Airport. Therefore, supplying additional facilities may be considered in excess of what is currently required.

There is no current community or user related impacts under this Alternative, as it will merely maintain the Airport in its current condition.

Alternative #2:

Since there is no immediate demand for hangars, we will not consider adding them under this alternate.

Alternative 3:

Under Alternative 3 we will examine how the Airport could construct facilities to accommodate an increase in both small propeller and larger jet aircraft. Though there

currently is not a hangar waiting list, it could be a reasonable assumption that more hangars will desired in the future. Planning analysis may be used to determine future adequacy of the hangar space provided. Based Aircraft forecasts from Chapter 1 show a small amount of potential demand in the near future. Using the same 20 year projection of 120 based aircraft in the year 2025; an increase of 19 based aircraft is expected during this time frame.

Again, it is the norm to assume that 40% of based aircraft at an airport like East Hampton would prefer to store their aircraft in a hangar. Therefore, it could be assumed that over the next two decades, 8 of the projected 19 additional tenants (40 %) will require hangars at the Airport.

Under this alternative, the following would be added to the Airport:

1. One row of T-hangars for small propeller driven aircraft.
2. 2 Conventional hangars to accommodate jet aircraft newly based at the Airport.

An additional row of T-hangars could be located by the existing hangar community located off the approach of Runway 4. This location would likely have the least impact since there are already hangars in this area and a taxiway for access the runways. The hangars would be placed outside of all Airport Design Safety Surfaces.

2 Conventional Hangars could be placed between the approach end of Runways 16 and 10, adjacent to and west of Runway 4-22. Apron space would be designed and provided according to the size of the hangar structure and the location of the facility. Construction has not previously taken place in this location. The hangars would be constructed so as not to conflict with Airport Design Safety requirements. An environmental assessment would be required.

There would be several impacts under this alternative. If new tenants were acquired for hangars, noise related impacts to the community would increase due to additional traffic at the Airport. The Airport on the other hand may benefit financially from the additional sources of revenue provided by these aircraft. Moreover, already based aircraft that park in the tie-down areas of the Airport would be provided with another storage option.

It is also important to consider other factors when determining the amount of hangars an Airport would prefer to construct. Variables that might increase or decrease the required hangar space determination might include current tenant housing preferences, anticipated changes in services at the airport and surrounding areas that might attract a new customer base or changes in regional or industry trends that might affect activity levels. Other airports within the area including Brookhaven, Gabreski and Long Island MacArthur Airports; are currently constructing or have waiting lists for new hangar space. It appears that industry is moving toward constructing new hangars to store aircraft that are presently renting tie-down space. The Transportation Security Administration has also issued an industry recommendation to hangar aircraft at general aviation airports.

4. Auto Parking, Circulation and Access Improvements

Based upon interviews with Airport Management, the current parking is inadequate during peak season. Parking facilities are being used to park vehicles of individuals that are not users of the Airport. The main lot has become a “park and ride” for local residents and vacationers looking for alternate locations for vehicles due to parking rules or space limitations at their homes and rentals. Auto parking and circulation may not be a problem if only airport users parked in the facility. The Airport should consider options for implementing constraints that would discourage the public from using the lot for non-airport related activities. These may include:

1. Charging a fee for regular or long term parking lot usage.
2. Modifying and enforcing existing parking lot rules and regulations.
3. Construction of physical controls such as lot attendants, automated ticketing equipment, and scan card activated arms, or a combination thereof.

Popular methods for general aviation airports such as East Hampton Airport include the scan key method supplemented by a long-term parking fee enforcement program. Combining these two controls will allow based tenants to park and access their aircraft without incurring additional charges while ensuring that the lot is limited to customers of the terminal and FBOs.

This improvement would have no effect on the air traffic at East Hampton Airport. In order to achieve control of the parking lot, the parking area would be segregated to provide airport users with a reserved area. This would be achieved by providing fencing and a security

system that may consist of a card reader or other methods of preventing non-airports users from using this designated area.

Should it be determined that the remainder of the lot be accessible at a fee, there would be a need to provide other controls. This could be achieved by physically providing an attendant which would require the construction of a collection booth with utilities. Another alternative would be to install a metering system which can be unmanned.

The implementation of this parking system will require local planning and building code approvals.

The Airport is obligated under the assurances that are associated with the acceptance of FAA grants. These assurances require that all revenues generated at the airport must remain on the airport. If a parking fee is instituted, the revenues from this operation must be used for airport expenditures, such as maintenance and capital improvements.

Setting procedures for parking lot controls should be considered since the lot currently continues to be overcrowded and is insufficiently available to the based and transient users of the Airport. Instituting parking controls will likely benefit the Airport and its users. A user fee-based system would provide another source of revenue for the Airport and/or the Town of East Hampton. However, construction and maintenance of the system will be another expense for the Airport. Convenience of a free parking lot for the community will no longer exist.

The installation of parking controls would be considered in Alternatives 1, 2 and 3. As a result, the preferred control method will be considered as a component of each of the alternatives presented later in the report.

Figure 53
Proposed Airport Facilities Plan

5. Roadway Relocation

Depending upon the Alternative chosen for the Airport, roadway relocation may be required to satisfy airport design requirements and/or standards. The specific action required is described in the individual Alternative Analysis sections. Road relocation could be pursued to rectify the following non-compliant conditions:

1. Inadequate Runway Length
2. Inadequate Runway Safety Areas and Runway Object Free Areas
3. Penetrations to the Approach Surface

Road relocation pertains to Daniels Hole Road and Industrial Road. Daniels Hole Road is located within close proximity of the thresholds for Runway 28, Runway 22 and Runway 16. Industrial Road is located close to the threshold for Runway 34.

Road relocation would be consistent only with the intent of Alternative #3. The relocation of Daniels Hole Road will not be considered in the No Action Alternative as well as Alternatives 1, and 2. If road relocation is necessary, further analysis would be required. Compliance with zoning and environmental requirements will have to be studied. Delays caused by construction will impact the Airport and the Community of East Hampton. Road relocation is costly. The nature of this project would make it eligible for Federal Funding, through the FAA AIP program. However, a benefit to such a complex project would be the creation jobs for the community.

More detailed discussions of this issue are included within the runway sections of this report.

D. Non-Aviation Use

1. Conservation/Recreation

Through the Town of East Hampton Comprehensive Plan, it is apparent that conservation and recreation areas have been very important to maintain and create for use as parks and playing fields.

There are two (2) areas being considered for these purposes. One area is directly north and east of the terminal building. Approximately 107 acres of the lot located on the north side of Daniels Hole Road will be considered. See Figure 53. The other area is the Maidstone property on the northwest corner of the airport. It is approximately 96 acres.

The areas would be considered in all potential alternatives (Alternatives #1, #2 and #3), with exception to the No Action Alternative, to preserve and maintain the land for the purposes intended.

2. Industrial Use

The airport currently consists of approximately 610 acres based on tax map information. The map of East Hampton Town Industrial Park was filed on April 17, 1998. The industrial park, currently zoned as industrial, consists of 56.166 acres on the south side of the airport property. Lot number 5 (1.8939 acres) was released from airport property and is no longer part of the airport property.

Building's 13-23, 25-29, 32-33, 35-38, and 40-41 are located within the industrial park. Currently, 8 out of the 24 buildings are used for aviation purposes or reserved for the potential aviation in the near future. The other buildings are currently being used for non-aviation purposes. Descriptions of these buildings were provided in Table I-3 in Chapter I, Section A.

There is currently no aircraft access to the buildings within the industrial park. These areas are currently vacant and have the potential for future aviation use. An additional area for revenue generation purposes would by designated as industrial use. This area will be considered in all potential alternatives (Alternatives #1, #2 and #3), with exception to the No Action Alternative.

E. Environmental Management

1. Preservation of Endangered Species and Habitat Maintenance

Cleared areas at the East Hampton Airport are composed of disturbed land as a result of earlier clearing and development. The parent soil in the area is the Plymouth loamy sand, a common outwash soil found throughout Suffolk County. This is a deep, overly well drained soil with low fertility. Observations around the main runway complex indicate the upper stratum of soil was removed or disturbed during land clearing operations exposing the light colored coarse sand and pebble mixture characteristic of the subsoil of this series.

Due to both the parent soil characteristics and the absence of the upper soil strata, the airport area cannot support a complete ground cover year round. At the time of inspection, vegetation covered only about 50 percent of the surface. Plant cover grows slowly under these conditions and open areas are mowed only once annually.

Plant and animal species were inventoried as part of the 1989 Final Environmental Impact Statement, a 1999 survey by the Town of East Hampton, and extensively examined in the draft Environmental Assessment for the East Hampton Airport published in November, 2002. These exercises included comprehensive field surveys of plants and to a lesser extent animal species. A total of 134 plant species were found including 35 woody plants and 99 herbaceous plants. The surveys noted the relatively poor growing conditions and an absence of turf. Given these marginal growing conditions, minimal further site disruption is recommended.

In terms of project development proposals, only one plant species of concern was noted, *Minuartia caroliniana*, the Pine Barrens Sandwort. This species is found close to the triangle formed by the three runways. To a lesser extent, it is found in other areas on the western portions of the airport tract. At one time this plant species was considered an S2 organism with only 6 to 20 known occurrences in the State. It has since dropped to Category S3 or 21 to 100 known occurrences. This species also occurs in sandy areas throughout the Atlantic coastline states. Portions of the habitat for this plant may be utilized for taxiway construction. However, this will not result in the elimination of this plant type since it occurs elsewhere on the site. It is also amenable to relocation as a mitigating measure.
A second species, *Viola pedata*, the Bird's Foot Violet, is found in the vicinity of the main runway ends and will be disturbed by a runway extension. A third plant species a *Spirathes* orchid is known to occur northwest of Runway 4-212, but appears unlikely to be disturbed.

Two bird species of concern, the Grasshopper Sparrow (*Ammodramus savannarum*) and the Eastern Bluebird (*Sialia sialis*) have also been reported on site, but do not nest in areas that are likely to be affected by proposed improvements.

Other plant and animal species of concern were not noted in areas where candidate development proposals are likely. Thus, refraining from excessive land clearing, weed removal, frequent mowing, etc. should be sufficient to insure that on site biota are maintained to the extent that natural conditions permit.

As noted in the 2002 EA, "no rare, threatened or endangered species were identified within the project area and no adverse impacts to the same would be expected." By preserving the existing habitat, it enhances the environment without any negative impacts upon the community or the airport.

The activity described within this section would be implemented under all options (Alternatives #1, #2 and #3), with exception to the No Action Alternative. In that case, nothing would be done.

2. Emergency Preparation and Plans

Efficient response to foreseeable emergencies is a core management responsibility. These events may occur on or off airport. Community wide responsibilities may include access by military or rescue aircraft. Designated staging areas for reception of large fixed wing or helicopters is advisable. The southern portion of the airport north of the industrially developed area would accommodate such activity and facilitate the off loading of supplies or vehicle, the stockpiling of emergency supplies or the congregation of individuals for evacuation.

On airport, the chief concern is adequate maintenance and capacity of fire fighting capacity. As the East Hampton Airport is served by a volunteer fire fighting force, training, inspections and maintenance of equipment and readiness levels is recommended.

As a small general aviation airport, official standards for fire fighting material inventories are expressed under FAA Advisory Circular 150 5210-6D Aircraft Fire Extinguishing Agents. The airport is not required to prepare an official Emergency Preparedness Plan, but

FAA Advisory Circular 150/5200-31A Airport Emergency Plans, which applies to larger airports, should be consulted for general guidance. Additional guidance can be obtained in FAA Advisory Circular 150 5200-18C Airport Safety Self Inspection which specifies the conduct and concerns in safety inspections.

3. Ground Water Protection Considerations

The airport lies above a primary sole source aquifer representing a significant environmental and monetary asset. See Figure III-54. Long Island is dependent on aquifers as its primary source of potable water and that resource is under increasing threat from over consumption and contamination from surface pollution. Protection of this resource is essential as it represents a substantial asset, irreplaceable except through costly remediation. Airport operations and policy should reflect the importance of preservation of water quality through prevention of contamination, defined procedures in the event of environmental contamination, and assured availability of essential equipment and material.

Prevention is a primary strategy. Industrial activities with substantial pollution potential on town/airport lands should be avoided. Similarly such activities as waste disposal, stockpiling of hazardous materials and leakage of toxic or waste chemicals should be carefully monitored and controlled.

Spillage of fuels, oils, or lubricants should be subject to immediate cleanup through deployment of absorbent chemicals. Fuel storage tanks should be designed for easy inspection, maintained to prevent corrosion, designed to isolate petrochemicals in the event of catastrophic failure. Monitoring systems should be used to detect leakage. Contaminated or hazardous materials should be immediately removed by licensed handlers. If immediate removal is not possible, contaminated material should be isolated in a designated holding area that is lined to prevent seepage and covered to prevent dispersion via stormwater runoff. Oil/water separators should be used in any expansion that involves underground storm water drainage. Regular cleaning and disposal of contaminants is recommended. Waste containers and emptied drums should be removed on a routine basis.

Deicing of aircraft during winter months should be done in a designated area. Commercially available mats can be used beneath aircraft to collect spent deicing fluids and the material recycled and eventual impounded for removal or recycling. These portable systems are adequate for routine use by smaller aircraft. There are much more elaborate systems that use

glycol or even heat for large scale deicing should demand levels necessitate such arrangements. Often glycol based systems have geosynthetic liners underlying deicing areas to prevent ground water contamination, and holding tanks for high concentration or low concentration glycol runoff for eventual recycling. Occasionally, heated fuel or heating blankets have been used to prevent wing ice. Depending on wing design, turbine powered business jet aircraft can be extremely vulnerable thin layer accumulations of ice that are essentially invisible. Thus, deicing will continue to be an essential provision for airport operations. Adequate hangar space is also helpful by insuring protection of based aircraft from snow and ice accumulation.

Another source of ground water contaminants includes sewage disposal. All septic systems are considered temporary or limited life structures. Regular inspections and sludge disposal are recommended. Chemical materials, industrial waste or any non biodegradable materials should be disposed of separately and not introduced into underground leaching fields.

Appropriate administrative procedures include preparation of operations manuals or specifications for materials handling should be published. Adequate stockpiles of absorbent materials, cleaning equipment and preparation of temporary holding areas for contaminated waste should be considered in advance of any incidents. Long term ground water monitoring and inspections should be conducted. Any accidents, incidents, fires or other potential sources of ground water contaminants should be promptly addressed. Residual materials or contaminated soil should be isolated and carted off site for disposal and records maintained regarding the extent of any surface contamination on location.

Insert Figure 54-Ground Water Protection Zone

4. Deer Control, Fence Line Openings

Deer fencing was installed on airport property to prevent deer and other wildlife from entering the airfield. Wildlife strikes are a major safety concern among airports, aircraft operators, and the FAA.

The deer fencing is shown on Figure I-1, Existing Airport Facility Plan. Openings in the deer fencing included two (2) on Daniels Hole Road, one on the entrance to the tennis court complex and two (2) on Industrial Road. There is a “Cattle Crossing” on the road to the fire rescue building to deter deer from entering through the gate onto the airfield. Where driveways are within the fence line, gates have been installed.

Installation of the deer fencing has substantially cut down the number of deer on the airport according to airport management. However, existence of wildlife still exists as a hazard to aircraft. Recent wildlife struck by aircraft on the Airport includes both deer and fox.

The existing openings in the deer fencing should be repaired with similar fencing. The fencing would be consistent to FAA standards for this purpose. It would also be beneficial to examine other wildlife mitigation efforts at the Airport. Common types found at airport similar in size and nature to East Hampton include noise makers, compressed air cannons, installing wildlife traps, procedures for maintaining vegetation, and procedures for reducing wildlife attractants such as food, shelter, and water sources.

The installation of deer fencing will enhance safety on the airport. It will not have any significant impacts upon the local community and should benefit all concerned.

This project is essential for the safety of the airport and would be considered in all potential alternatives, with exception to the No Action Alternative.

Figure III-55

Industrial Park

F. Financial Considerations

TABLE III-29
COSTS OF PROPOSED IMPROVEMENTS

No.	Project	Cost	Possible FAA Funding
1	Rehabilitation Airport Beacon	$225,000.00	YES
2	AWOS Installation	$185,000.00	NO
3	Fuel Farm Canopy Improvements	$50,000.00	NO
4	Security Camera Installation	$100,000.00	NO
5	Maintenance Building	$350,000.00	YES
6	Fuel Farm Expansion	$250,000.00	YES
7	Complete Runway 10-28 Parallel Taxiway	$800,000.00	YES
8	Taxiway A Extension	$540,000.00	NO
9	Convert Runway 4-22 (north side) to Taxiway	$1,200,000.00	YES
10	Convert Runway 4-22 (south side) to Vehicle Road	$240,000.00	YES
11	Runway 4-22 Rehabilitation	$3,000,000.00	YES
12	Runway 16-34 Rehabilitation	$700,000.00	YES
13	Runway 10-28 Rehabilitation	$400,000.00	YES
14	Taxiway A Rehabilitation	$560,000.00	YES
15	Taxiway B Rehabilitation	$125,000.00	YES
16	Taxiway C Rehabilitation	$125,000.00	YES
17	Taxiway C Rehabilitation (south side)	$50,000.00	YES
18	Taxiway D Rehabilitation	$400,000.00	YES
19	Taxiway E Rehabilitation	$125,000.00	YES
20	Remove and Replace Airfield Lighting and Signage	$1,725,000.00	YES
21	Remove and Replace Runway 28 Runway End Identifier Lights (REILs)	$45,000.00	YES
22	Remove and Replace Precision Approach Path Indicators PAPIs	$310,000.00	YES
23	Remove and Replace Lighted Wind Cone and Segmented Circle	$44,000.00	YES
24	Construct New Taxiway D-1	$300,000.00	YES
25	Entrance Road Improvements	$100,000.00	YES
26	Seasonal Control Tower	$200,000.00	NO
27	Terminal Building Second Floor Addition	$280,000.00	YES

TABLE III-30
SUMMARY

EAST HAMPTON SUMMARY	NO BUILD	MINIMAL ENVIRONMENTAL	MAXIMUM USAGE	UNRESTRICTED GROWTH
AWOS	NO	YES	YES	YES
CONTROL TOWER	NO	YES	YES	YES
FLY TRACKS	NO	YES	YES	YES
GPS	NO	YES	YES	YES
RUNWAY4-22	NO	CLOSE RUNWAY	MODIFY RUNWAY (Shortened)	MAXIMIZE PAVEMENT (Move Road)
RUNWAY 16-34	NO	MODIFY RUNWAY (Shortened)	CLOSE RUNWAY	MAXIMIZE PAVEMENT (Move Road)
RUNWAY10-28	NO	SHORTEN RUNWAY (Small airplanes only)	MAINTAIN RUNWAY LENGTH (Citation V)	EXTEND RUNWAY (Challenger)
BUILDINGS/FBO'S	NO	NO	NO	YES
FUEL FARM	NO	YES	YES	YES
HANGAR DEVELOPMENT	NO	NO	NO	YES
AUTO PARK	NO	YES	YES	YES
ROAD RELOCATIONS	NO	NO	NO	YES
CONSERVATION/ RECREATION	NO	YES	YES	YES
INDUSTRIAL USE	NO	NO	YES	YES
PRESERVATION OF ENDANGERED SPECIES	NO	YES	YES	YES
EMERGENCY PREPARATION AND PLANS	NO	YES	YES	YES
GROUNDWATER	NO	YES	YES	YES
DEER CONTROL FENCING	NO	YES	YES	YES

Source: DY Consultants

G. Summary

This Chapter has taken a comprehensive look at the facilities East Hampton Airport considering four (4) alternatives: No Action, Alternative #1, Alternative #2, and Alternative #3. The preceding chart summarizes how individual projects would be affected by each of the four alternatives: