

United States Department of Transportation
Federal Aviation Administration
New England Region
Burlington, Massachusetts

RECORD OF DECISION

FOR
APPROVAL OF AIRPORT LAYOUT PLAN
FEDERAL FUNDING OF AIRPORT
DEVELOPMENT
INSTALLATION OF AN APPROACH LIGHT
SYSTEM
&
RECOMMENDATION TO THE DEPARTMENT OF
THE ARMY ON TRANSFER OF MILITARY
SURPLUS PROPERTY
BRIDGEPORT-SIKORSKY MEMORIAL AIRPORT
STRATFORD, CONNECTICUT

October 1999

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I. PURPOSE

This Record of Decision (ROD) documents environmental and aviation safety factors considered in the Federal Aviation Administration's (FAA) decision to proceed with the following actions related to Bridgeport-Sikorsky Memorial Airport (Exhibits in Attachment 1 to this ROD show the general location and layout of the airport):

- Unconditionally approve the Sikorsky Memorial Airport Layout Plan depicting the reconstruction and relocation of Runway 6-24, construction of improved Runway Safety Areas (RSAs) at each end of Runway 6-24, installation of a Medium-Intensity Approach Light System with Sequenced Flashers (MALSF), partial relocation of State Route 113 (Main Street) in the Town of Stratford, and airport development incidental to these improvements. (See Attachment 2, Alternative 2D-Modified.)
- With the exception of the MALSF, provide federal Airport Improvement Program funds for these projects.
- Fund and install a MALSF under FAA's Facilities and Equipment Program.
- Recommend that the Department of the Army transfer to the City of Bridgeport approximately four acres and restrict by covenant the additional use of approximately five acres of the former Stratford Army Engine Plant.

These decisions require compliance with the National Environmental Policy Act, Surplus Property Act, regulations of the Council on Environmental Quality, and directives of the FAA.

II. BACKGROUND

The Federal Aviation Act charges the FAA with providing for a safe and efficient national airspace system. FAA accomplishes this in part by funding airport development that enhances aviation safety. RSAs and Approach Light Systems are examples of airport development that help to accomplish this mission.

Sikorsky Memorial Airport is one of four Connecticut "primary service" airports contained in FAA's *National Plan of Integrated Airport Systems (1998-2002)*. This designation recognizes the significant role that Sikorsky plays in providing access to a national air transportation system. Over 100,000 landings and takeoffs by general aviation aircraft occur at the facility. Business jet activity associated with southern Connecticut's economy comprises a significant component of this.

In April of 1995, the airport completed a comprehensive Airport Master Plan that recommended certain improvements, including reconstruction of the main runway (Runway 6-24), construction of RSAs off both ends of the runway, and installation of an Approach Light System at the southwest end of the runway. FAA defines a RSA as "A defined surface [in this case, turf] surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway." (Advisory Circular 150/5300-13). Aircraft operating in a RSA are operating in an emergency condition.

In 1996, the FAA and the airport commenced an Environmental Impact Statement (EIS) to disclose probable environmental impact from these projects. On February 6, 1996, FAA published in the *Federal Register* a Notice of Intent to prepare an EIS and on March 14, 1996 conducted

governmental agency and public "scoping" meetings to obtain input on what the Scope of Work for the EIS should contain.

A Study Resource Committee (SRC) was formed to review progress and comment on the EIS as it progressed. This 42-member committee met six times during the conduct of the EIS. Public involvement also extended to two larger-scale Public Information Workshops, seven smaller-scale "Focus Group" meetings requested by various community groups, and a newsletter published during the study and mailed to a list of over 400. Finally, a public hearing on the Draft EIS was conducted on June 30, 1998 and attended by over 400 people.

A Final EIS was published in May 1999, entitled *Sikorsky Memorial Airport Final Environmental Impact Statement /Environmental Impact Evaluation for the Proposed Improvements to Runway 6-24*.

III. ALTERNATIVES CONSIDERED

The EIS assessed in greater detail than the Airport Master Plan certain airport deficiencies. These include the deteriorated pavement condition of Runway 6-24; the presence of RSAs to Runway 6-24 that currently do not meet minimum safety standards with regard to area, grade, and objects in the safety area; the absence of a runway Approach Light System for the Runway 6 instrument approach procedure; and a runway length insufficient to accommodate existing and projected air transportation demand. These deficiencies were recast in terms of the need to improve the pavement structure of Runway 6-24; the need to provide, to the extent practicable, RSAs for Runway 6-24 that meet current FAA minimum safety standards; the need to enhance the visual guidance for the Runway 6 instrument approach; and the need to lengthen Runway 6-24.

FAA safety standards require RSAs of 500 feet in width and 1,000 feet in length for each end of Runway 6-24 (Federal Aviation Regulation, Part 139; Advisory Circular 150/5300-13). At the present time there is only 100 feet of RSA length available at the Runway 6 end (southwest end of the runway) and approximately 25 feet of RSA available at the Runway 24 end (northeast end of the runway). There is also a blast fence at the Runway 24 end that separates the end of the runway from Main Street, immediately on the other side. The fence is a solid, rigid structure 200 feet long, eight feet high, and constructed to withstand jet blasts in excess of 130 mph.

Because Sikorsky Memorial Airport provides scheduled air carrier service with passenger aircraft of 30 seats or more, it is required to hold an Airport Operating Certificate from FAA issued under Federal Aviation Regulation, Part 139. This regulation requires, in part, that the airport provide for standard RSAs to the maximum extent practicable at each runway end. The requirement must be met at the time that the airport implements an improvement project for the runway. Runway 6-24 is presently in need of reconstruction due to deterioration of the pavement and the airport intends to pursue this project. Even in the absence of Part 139, FAA requires that reconstruction of the runway comply with all applicable design standards for the runway.

The EIS considered over 25 Runway 6-24 Safety Area and Approach Light System alternatives, including other airports or modes of transportation, a no-action alternative, a wetland avoidance alternative, non-traditional modes of arresting aircraft, and a number of build alternatives. Build alternatives included three groups. The first group would reconstruct the runway in place (requiring no northeasterly relocation of the runway), provide for no Approach Light System or runway extension, and use available land to construct modified-standard RSAs (less than 1,000 feet in length). The second group of alternatives would reconstruct and relocate the runway northeasterly and thus provide for an Approach Light System, but no runway extension, and either standard or modified-standard RSAs. The third group of alternatives would reconstruct and

relocate the runway northeasterly, provide for an Approach Light System, a 323-foot runway extension (increasing runway length from 4,677 feet to 5,000 feet) and modified-standard RSAs.

Some of these alternatives, such as the use of other airports or transportation modes, were not responsive to the need to enhance aviation safety at Sikorsky Memorial Airport or the need to preserve the role of the airport in the National Airspace System. Others were not carried forward because of FAA policy. For example, employment of Engineered Materials Arresting Systems (EMAS) for overruns, most commonly in the form of cellular cement, was dropped from further consideration because FAA policy is not to approve EMAS as a substitute for any length of RSA. Thus, EMAS is limited to those installations where it is not otherwise possible to obtain standard safety areas. A number of alternatives show how it is possible to obtain standard RSAs or modified-standard RSAs of maximum practicable length.

The no-action and 21 preliminary alternatives were subjected to more detailed assessment. Many of these were eliminated from further consideration due to aeronautical and wetland concerns. For example, all alternatives involving a runway extension were dropped when it became apparent that an extension could only be achieved at the expense of creating standard RSAs. Also, by agreement among Study Resource Committee members, deference was given to avoiding high-quality wetlands to the southwest of the runway. These wetlands are either part of, or feed into, the Great Meadows Marsh and Stewart B. McKinney National Wildlife Refuge.

An alternative Approach Light System, a Medium-intensity Approach Light System with Runway Alignment Indicator Lights (MALSR), was considered in the Airport Master Plan and subsequent Environmental Assessment conducted by FAA. These studies indicated the substantial increased environmental impact that would occur with the MALSR compared with the proposed MALSF. Accordingly, the MALSR was rejected from further consideration.

The MALSR is a 2,400-foot system that would extend on airport property south of Lordship Boulevard. By comparison, the proposed MALSF is a 1,400-foot system that would be contained on airport property to the north of Lordship Boulevard. The operational benefit of a MALSR would be reduced from that normally attainable, since the location of Lordship Boulevard in the approach area would prevent a reduction in the landing visibility minimum. Finally, the installation of a MALSF and construction of a

Runway 6 Safety Area require the relocation of the runway approximately 700 feet northeasterly.

Many of the build alternatives would require the relocation of Main Street (State Highway 113) around the new runway and safety area end. Main Street is a two-lane arterial road and is one of two that provides access to the Stratford community of Lordship to the east and southeast of the airport. Various realignments were studied in the EIS.

Four build alternatives and a no-action alternative were studied in substantial detail. They are depicted in Attachment 3. One of the build alternatives involved only reconstruction of the runway in place with no attempt to enhance RSAs or install an Approach Light System (Alternative 1). Another was a wetlands avoidance alternative that would have resulted in a Runway 24 Safety Area of approximately 250 feet, a Runway 6 Safety Area of approximately 100 feet, and no Approach Light System (Alternative 1G). While Alternative 1G is the environmentally preferred alternative, it provides almost no enhancement to aviation safety. It is not the maximum practicable RSA that could otherwise be achieved and would require the retention of a significant obstruction to the RSA in the form of a blast fence to segregate aircraft operations from relocated Main Street traffic. For these reasons, it was not carried forward as the preferred alternative.

Alternative 2B would construct RSAs of 600 feet at each end of the runway. A modification of another build alternative (Alternative 2D-Modified) eventually became the preferred alternative.

Alternative 2D was modified to realign Main Street outside the RSA to the side of the runway and provide a less circuitous route around the proposed RSA.

Alternative 2D-Modified meets to the fullest extent practicable the safety and operational aspects of the identified purpose and need, in consideration of the probable environmental impacts. Features of this alternative include a 500 X 1,000-foot Safety Area at the Runway 24 end, a 500 X 800-foot Safety Area at the Runway 6 end, and a Medium-intensity Approach Light System with Sequenced Flashers (MALSF) at the Runway 6 end. To accommodate these safety enhancements, the runway would be relocated approximately 700 feet northeasterly. It is FAA's intent to carry this alternative forward into the design and permitting process.

IV. ENVIRONMENTAL ISSUES

The EIS examined 19 areas of potential environmental impact: aircraft noise, land use, social, induced socioeconomic, air quality, water quality, wildlife refuge and parkland, historic and archaeological, farmland, biotic communities, endangered and threatened species, wetlands, floodplain, coastal resources and management, energy supply and natural resources, light emissions, solid waste, hazardous materials and environmental contamination, and construction.

Conclusions related to various potentially adverse environmental impact areas are as follows:

- Aircraft noise impact on the Breakwater Key condominiums from relocating Runway 6-24 northeasterly. Alternative 2D-Modified removes the level of significant noise (65 DNL) from residential units by not relocating the runway as far to the northeast as under Alternative 2D.
- Social impact on community access. Build alternatives would result in a range of approximate travel increase times of four seconds to 65 seconds. Alternative 2D-Modified would result in an approximate increase in travel time of 56 seconds.
- Induced socioeconomic effect. Build alternatives would require from zero to approximately four acres of Stratford Army Engine Plant property under Alternative 2D, in order to extend the parallel taxiway to the relocated Runway 24 end and relocate Main Street. Under FAA's preferred alternative for the Army's transfer of the property, the four acres would be transferred directly to the City of Bridgeport for airport use. An additional approximately five acres would be transferred to the Local Reuse Agency with avigation restrictions covering height and electromagnetic, smoke, and light emissions. The Army is in the process of disposing of the entire 75 acres of the former engine plant.
- Endangered and threatened species. A Biological Assessment coordinated with the United States Fish and Wildlife Service concluded that no adverse impact on the endangered piping plover would result from the preferred alternative. Also, no impact to protected plant communities is anticipated.
- Wetlands. Build alternatives would result in the unavoidable loss of between zero and approximately .54 acre of tidal wetland and between zero and 2.41 acres of inland wetland. The preferred alternative would result in the loss of these upper amounts. FAA concludes that there is no practicable alternative that would avoid the loss of these wetland resources. The preferred alternative is subject to Corps of Engineers and State of Connecticut, Department of Environmental Protection permitting and will include all practicable measures to minimize harm (see Mitigation section below).

- Coastal resources. In addition to tidal and freshwater wetlands, the preferred action will result in minor impacts to inter-tidal flats for the glide slope and localizer antennas. Continuing project design will avoid impacts to coastal resources to the fullest extent practicable while meeting the project purpose and need. Unavoidable impacts to coastal resources are fully minimized and will be compensated through restoration and enhancement of coastal resources in the project area.
- Light emissions. Illumination from the MALSF at the Runway 6 end is directed away from residential areas. Adverse impacts resulting from the relocation of the Runway End Identifier Lights at the Runway 24 end are not anticipated.
- Construction impacts. Build alternatives will result in an estimated range of between 56 truck trips per day for 15 days, to 80 truck trips per day for 60 days, the latter from the preferred alternative. Grading impacts would be mitigated through erosion and sedimentation controls (see Mitigation section below).

V. AVIATION SAFETY ISSUES

In 1997, a White House commission on aviation safety charged FAA with the initiation of a major aviation safety program called Safer Skies. This program looks comprehensively at aviation safety and has a component that addresses airport approaches and landings. Aviation safety specialists have been conducting a detailed analysis of approach and landing accidents, with particular emphasis on interventions that might be implemented to break the chain of events that typically leads to such accidents.

Poor weather is often involved in this chain of events. As part of recent congressional testimony on weather as a factor in aircraft accidents and fatalities, FAA's Acting Associate Administrator for Air Traffic Services stated that the significance of weather is "best exemplified in the fact that 24% of all accidents between 1987 and 1996 were weather related. During the same time period, 35% of all aviation fatalities were weather related." The testimony goes on to state that the vast majority of these accidents involved general aviation aircraft, "so we know where we must concentrate our efforts."

A review of FAA's aircraft accident database indicates that 17 aircraft accidents have occurred at Sikorsky Memorial Airport over the last 15 years. Seven of them were related to poor weather conditions and are summarized below. It is probably no surprise to Stratford residents that coastal Connecticut airports are subject to substantial fog and haze.

On April 19, 1998, a single-engine, general aviation aircraft struck the ground outside of the approach area while on an approach to Runway 6 during instrument meteorological conditions at night. The instrument-rated private pilot was fatally injured and the aircraft was destroyed.

On January 16, 1997, a twin-engine, general aviation aircraft landed on Runway 6 at night in unfavorable wind conditions that pushed the aircraft off the side of the runway into the safety area.

On April 27, 1994, a twin-engine, air charter aircraft landed long on Runway 6 at night with a partial obscuration of the airport environment due to ground fog. The aircraft struck the blast fence approximately 25 feet off the end of the runway. A subsequent fire resulted in eight fatalities and serious injury to the remaining occupant. The aircraft was destroyed.

On October 23, 1990, a single-engine, general aviation aircraft, landed long on Runway 6 in instrument meteorological conditions, rolled off the end of the runway and struck the blast fence, injuring the pilot.

On December 24, 1988, a single-engine, general aviation aircraft attempted an approach to Runway 6 in instrument meteorological conditions. On January 3, 1989, the aircraft was found submerged in water 1½ miles from the approach end of the runway and 1500-2000 feet from the runway centerline. The single occupant was a fatality.

On February 19, 1988, a twin-engine, air carrier aircraft attempted nighttime multiple approaches in deteriorating weather conditions of rain and fog. The aircraft crashed into water about one mile from the approach end of the runway, killing the pilot and pilot-rated passenger. There were no other passengers on board. The NTSB found that the pilot executed an improper instrument approach procedure and that neither pilot was qualified for the flight.

On September 3, 1984, a twin-engine, general aviation aircraft descended into the water 6 1/2 miles southwest of the airport during nighttime instrument meteorological conditions. The only known occupant was the pilot, who was assumed to be a fatality. The aircraft was destroyed. Post-accident calculations indicated approximately six gallons of fuel on board, below the normal amount of unusable fuel for the aircraft. The aircraft received several radar vectors for spacing with other aircraft while the pilot attempted to identify the landing runway.

Five of these seven weather-related accidents occurred at night and all seven of them involved Runway 6. The National Transportation Safety Board (NTSB) investigated and made findings related to three of them.

Regarding the air charter accident of April 27, 1994, the NTSB concluded that the probable cause of the fatalities was "the presence of the non-frangible blast fence and the absence of a safety area at the end of the runway". (NTSB Report AAR-94/08) They go on to say that there is "ample evidence for the FAA to expedite the completion of environmental studies and to remedy a dangerous situation by encouraging the earliest installation of an approach lighting system on runway 6." The "ample evidence" they cite is the October 23, 1990, and February 19, 1988, accidents summarized above. Note that the most recent accident above (April 19, 1998) had not occurred at the time NTSB made this finding and the 1984 accident preceded their time period of consideration.

With the exception of the January 16, 1997, accident, FAA believes that the remaining six accidents summarized above are evidence that a standard RSA and Approach Light System would enhance future poor weather approaches and landings. These kinds of improvements at Sikorsky are precisely the kinds of improvements that can break a chain of events leading to an aircraft accident.

The most recent accident on April 25, 1999, which was not summarized above because it did not occur in poor weather, is nevertheless noteworthy with regard to the proposed improvements. A twin-engine general aviation aircraft, while making a nighttime approach to Runway 24, struck the top of the blast fence, damaging the landing gear. The aircraft landed on the runway. There were four occupants and no injuries.

Human error is oftentimes involved in the chain of events leading to an accident. Indeed, over 80% of aircraft accidents involve some form of human error. Contrary to the often-expressed opinion during the conduct of the EIS, however, FAA believes that it is appropriate to provide for safety enhancements even when human error is a factor. For example, an Approach Light System at Sikorsky would reduce the risk of an accident as a consequence of either a poor

decision to continue an instrument approach in marginal weather or a descent below the minimum prescribed altitude over open water where little surface visual reference is available.

Approach Light Systems enable pilots to execute safe approaches to runways in conditions of poor visibility and ceiling. The Approach and Landing Joint Safety Analysis Team, chartered as part of the Safer Skies initiative, recommends stabilized precision, or precision-like, approaches (those that provide both course and elevation guidance) to runway ends. Approach lights are an integral part of precision approach equipment. They provide for timely identification of the runway environment during a critical phase of flight—pilot transition from instrument meteorological conditions to a visual environment. They provide added benefits at night in identifying the airport and runway environment to pilots approaching the airport, especially over open water where spatial disorientation is a risk. They are therefore a particularly appropriate means of enhancing aviation safety at Sikorsky.

RSAs have repeatedly been shown to save lives and reduce property damage. FAA design standards are based on national statistics of the arrested location of aircraft excursions from the runway. On a national basis, it can be expected that standard RSAs will arrest approximately 90% of such excursions (Advisory Circular 150/5300-13). At a particular airport, however, one cannot conclude that a RSA of a given less-than-standard length will arrest a given percentage of aircraft less than 90%. This is because FAA's database of runway excursions is not statistically indicative of what might occur at an individual airport with a less-than-standard RSA. At Sikorsky, however, the benefits of a standard RSA are likely to be significant because the existing length is so short—approximately 25 feet at the northeast end and approximately 100 feet at the southwest end—and because of the blast fence immediately beyond the 25 feet to the northeast.

The RSA at the Runway 6 end would be 800 feet under the preferred alternative, necessitating FAA approval of a modification of the 1,000-foot standard length. FAA considered environmental and aircraft operational factors and concludes that 800 feet is the maximum practical length of RSA attainable. An RSA of 800 feet at the southwest end of the relocated runway avoids significant environmental degradation of the Great Meadow Marsh and National Wildlife Refuge. It also avoids a more circuitous relocation of Main Street around the relocated RSA to the northeast, extension of significant noise levels to residences at the Breakwater Key condominium complex (which could lead to costly mitigation), and lower aircraft approach altitudes over the Milford Point area of the National Wildlife Refuge (as requested by the Fish and Wildlife Service) and the condominium complex. Operationally, a full-length RSA is of greater benefit at the northeast end of the runway because Runway 6 is the instrument runway and aircraft overshoots are typically more common than undershoots. The Sikorsky accident data above supports this.

The presently available length of the Runway 6-24 Safety Areas has generated another often-heard criticism during the EIS that, if the runway is unsafe, FAA should ensure that it is closed; conversely, if it's not unsafe, there is no need for the project. In response, first it should be clearly understood that Sikorsky Memorial airport is presently a safe airport under the proper conditions of use. If FAA concluded otherwise, we would use our authority to correct the unsafe condition. Second, the purpose of the project is to enhance aviation safety, that is, to make the airport safer. The purpose of the project is not to make an unsafe airport safe. This is the case with almost all safety projects that FAA funds.

Before FAA makes major capital investments nationally, it evaluates the benefits and costs. Benefit-cost studies have shown that the benefits of Approach Light Systems and RSAs, in terms of lives saved and property damage averted, significantly outweigh the costs. Anecdotally, the hindsight provided from catastrophic accidents indicates that the cost of one accident alone can outweigh the cost of an Approach Light System and RSA, and this assumes that one can accept the assignment of a statistical value to human life.

The recently completed EIS considers the cost of environmental degradation at Sikorsky. Adverse impacts associated with the preferred alternative involve the unavoidable loss of approximately three acres of wetland (which can be mitigated through restoration or replacement) and an increase in community access time of approximately 56 seconds. On balance, FAA concludes that there is compelling reason to install the Medium-intensity Approach Light System with Flashers and construct the RSAs as specified in the preferred alternative.

It is important to note that the NTSB, following the April 27, 1994, air charter accident summarized above, made specific recommendations to the FAA, the Connecticut Department of Transportation, the City of Bridgeport, and the Town of Stratford.

To the FAA: First, "Inspect all...certificated airports for adequate RSAs and nonfrangible objects, such as blast fences, and require that substandard RSAs be upgraded...." Second, "...in coordination with the City of Bridgeport and Town of Stratford, implement a plan to resolve environmental considerations, and proceed with the installation of an approach lighting system on runway 6 as soon as possible."

To the Connecticut Department of Transportation: "In coordination with the City of Bridgeport, the Town of Stratford and Sikorsky Memorial Airport, relocate state highway 113 away from the runway 24 threshold to provide adequate distance between airplanes and highway 113 to protect vehicles and persons from jet blast."

To the City of Bridgeport: First, "In coordination with the State of Connecticut and the Town of Stratford, following the relocation of state highway 113, Sikorsky Memorial Airport should immediately establish a RSA at the approach end of runway 24 in accordance with Federal Aviation Administration Advisory Circular 150\5300-13 and remove the nonfrangible blast fence." Second, "...in coordination with the Federal Aviation Administration and the Town of Stratford, implement a plan to resolve environmental considerations, and proceed with the installation of an approach lighting system on runway 6 as soon as possible."

To the Town of Stratford: First, "In coordination with the State of Connecticut and the City of Bridgeport, following the relocation of state highway 113, Sikorsky Memorial Airport should immediately establish a RSA at the approach end of runway 24 in accordance with Federal Aviation Administration Advisory Circular 150\5300-13 and remove the nonfrangible blast fence." Second "...in coordination with the Federal Aviation Administration and the City of Bridgeport, implement a plan to resolve environmental considerations, and proceed with the installation of an approach lighting system on runway 6 as soon as possible."

FAA concurs with these recommendations and is taking action through this Record of Decision to comply. As a next step, the City of Bridgeport and FAA will seek appropriate environmental and land use permits from the State of Connecticut (Department of Environmental Protection) and the Town of Stratford.

FAA strongly recommends that the Town of Stratford and the Connecticut Department of Transportation (Conndot) comply with those NTSB recommendations directed to them. Stratford officials have consistently opposed the safety improvements recommended by the NTSB and proposed by FAA. Conndot has recently taken the position that it will consider relocation of the road if "requested and supported by the Town of Stratford." To date, the NTSB considers the responses of Stratford and Conndot to NTSB inquiries on the status of the recommendations as "closed, unacceptable". FAA considers opposition by the Town of Stratford and the recent position of Conndot as contrary to aviation safety.

The RSA project also necessitates extension of the Runway 6-24 parallel taxiway to the new runway end. This in turn requires the transfer of approximately four acres and restricted use of an

additional approximately five acres from the former Stratford Army Engine Plant that has been identified by the Department of the Army for closure and reuse. Land needed for aeronautical purposes receives priority consideration under the Surplus Property Act and FAA is charged with providing a reasoned opinion to the Army on aeronautical use. FAA has recommended that the four acres be transferred directly from the Army to Sikorsky Memorial Airport and that the five acres be transferred to the Local Reuse Agency with aeronautical use restrictions, in order to facilitate the runway relocation and parallel taxiway extension.

Parallel taxiways are basic components for even the smallest of general aviation airports. They segregate taxiing aircraft from aircraft landing and taking off, thus preventing a serious safety hazard termed a runway incursion (more than one aircraft operating on the runway at the same time). In the absence of a parallel taxiway to the new runway end, aircraft would be forced to back-taxi on the runway prior to takeoff or after landing. This makes the runway unavailable for longer periods of time and increases the risk of a runway incursion.

VI. MITIGATION

FAA's commitment to compensate for unavoidable wetland and coastal resource impacts is dependent on the state and federal permit process yet to be undertaken. Nevertheless, FAA commits that it will ensure compliance with agreed mitigation measures specified by either the U.S. Army Corps of Engineers or the Connecticut Department of Environmental Protection as conditions to issuance of permits. The EIS envisions potential improvements to include fill removal and restoration of tidal hydrology to the north of the Marine Basin between the approach ends of Runways 6 and 24. Potential benefits to wetland and coastal resources include restoration of tidal channels and tidal salt marsh. The EIS documents efforts to avoid or minimize impacts to tidal and freshwater wetlands to the greatest extent possible.

To mitigate for potential water quality impacts from storm water runoff of new construction (i.e., runway relocation, taxiway extension, and Main Street relocation), project design will encourage sheet flow where possible and discourage unneeded channeling. For example, the proposed roadway relocation will utilize wherever possible a shoulder section instead of a curbed section. Other measures will include preference for flexible channel linings (preferably grass lined) in lieu of rip rap channel linings, deep sumps as part of catch basin design to increase the effectiveness of sediment removal, and outlet design that dissipates energy in order to avoid erosion.

In order to minimize potential disturbance to piping plovers, least terns, and their habitats, construction activity would not take place during piper plover breeding season. These species are federal and state listed threatened species, respectively.

Construction activity would result in temporary air quality and noise impacts. FAA will ensure development of an efficient construction plan that minimizes disruption to the community and airfield operations while employing Best Management Practices that minimize long-term environmental impacts. A comprehensive sediment and erosion control plan, as well as an emergency spill control plan, would be developed to minimize impacts to water resources and wetlands. Construction of the MALSF would be accomplished outside of the migrating bird nesting season (April 1 to September 15) and the piping plover breeding season (March 15 to August 15).

With regard to the RSAs, FAA will ensure compliance with these mitigation measures through its authority to approve the Sikorsky Memorial Airport Layout Plan and follow-on construction specifications of the airport. FAA would withhold Airport Improvement Program funding if the airport were not in compliance with the mitigation commitments. With regard to the MALSF, FAA itself directly controls the installation through its Facilities and Equipment program and would

continue to own, maintain, and operate the facility.

VII. COMMENTS ON FINAL ENVIRONMENTAL IMPACT STATEMENT

FAA received eight letters of comment following publication of the Final EIS: two each from the Town of Stratford and Conndot and one each from the United States Environmental Protection Agency, the Connecticut Department of Environmental Protection, Protect Your Environment, and a Stratford resident and Director of Protect Your Environment.

The letter from the Stratford Town Manager states the he does not believe that the Final EIS "takes into sufficient account...the increased risk posed to residents of the Breakwater Key condominium complex." (Runway 6-24 would be relocated approximately 700 feet closer to this residential area.) He also states that he is unconvinced that other reasonable alternatives to the RSAs have not been adequately explored, citing the Engineered Materials Arresting System (EMAS) at JFK International Airport.

In response, during the conduct of the EIS FAA has considered the location of the Breakwater Key condominiums. There would be no penetrations to the 20:1 approach slope of the relocated runway end, in conformance with FAA safety standards for this category of runway (Advisory Circular 150/5300-13). While the condominiums would not be an obstruction to the approach surface, FAA and the airport can nevertheless consider obstruction lighting in the vicinity of the condominiums to mark their presence.

With regard to EMAS (cellular concrete is the only form approved for use), alternative arresting systems were considered in the EIS but not in any significant detail because FAA believes that cellular concrete should not be considered a substitute for standard RSAs and at Sikorsky, for a number of reasons, it is impractical. These reasons include the limited land available (approximately 125 feet combined at both runway ends), the inability to safely stop an aircraft at a design speed of 70 knots in the limited room available, the consequent necessity of retaining the blast fence to separate the end of an EMAS surface from Main Street, the necessity of preparing a graded reinforced surface on which to place the material (some of it in or close to wetlands at the southwest end of the runway), the inability of cellular concrete to serve the wide disparity of aircraft weights that utilize Sikorsky, and the inability of cellular concrete to accommodate both heavy fire equipment and a light aircraft at the same time.

Cellular concrete has been installed at JFK International and Laguardia airports. The Laguardia system was recently removed after repeated jet blast caused the top material to degrade, break up, and blow onto a roadway. At Sikorsky, Main Street is at one end and a significant wetland at the other. (At JFK International, construction of a standard RSA was not possible and the amount of land available for installation of cellular concrete was substantially more than at Sikorsky.) Due to the failure of the Laguardia system, the Port Authority of New York and New Jersey is presently evaluating the continued utility of cellular concrete. While we believe that EMAS in general could provide a safety benefit, for these and other reasons, we do not believe that EMAS is a practical alternative at Sikorsky even if FAA were to change its basic policy.

The second Stratford letter transmits a "Resolution Regarding EMAS Arrestor [sic] Systems for Sikorsky Memorial Airport", sponsored by the Town Council, stating "that the Federal Aviation Administration immediately pursue with the manufacturer of EMAS arrestor [sic] systems the feasibility of construction of safety areas at the terminus of the runways at Sikorsky Memorial Airport; and that until said investigation and inquiry is completed, further activity concerning reconfiguration of the runways and creation of oppressive safety areas be suspended."

In response, FAA has considered this resolution and, for the reasons stated above, has determined that EMAS is not a reasonable alternative for Runway 6-24 at Sikorsky Memorial Airport. Furthermore, much of the information in the Resolution that precedes the above quoted conclusion is either incorrect or applied incorrectly. Most significant is a statement that "the manufacturer of EMAS arrestor [sic] beds has indicated that it is feasible to install said system in the safety areas at Sikorsky Memorial Airport." In conformance with the above resolution, FAA contacted the Regional Director of the company that manufactures cellular concrete EMAS and obtained the information that was provided to the Town Council. This information clearly specifies the conditions under which EMAS would be effective. Using preliminary calculations, the manufacturer informed the Town that EMAS would be effective at a design speed of 50-60 knots for the Beech 1900 aircraft based on a 250-foot safety area. Alternatively, EMAS would be effective at a design speed of 70 knots for the G-V aircraft based on a 400-foot safety area. These conditions are not applicable to Sikorsky since the Beech 1900 is not the design aircraft for Runway 6-24, 50-60 knots is lower than the FAA design standard, and 250 feet of RSA is not available at either end of the runway. (Total length available for both RSAs is approximately 125 feet.) While the FAA design speed is 70 knots and the G-V is in the design class of aircraft for the runway, 125 feet falls far short of the 800 feet which the manufacturer informed the Town would be required for the combined runway ends. It is also important to note again that EMAS is not a substitute for standard or modified standard RSAs where they can be constructed. In other words, FAA does not consider 800 feet of EMAS a substitute for 1800 feet of modified-standard safety area that the EIS has determined can be constructed. We regret that the Town Council chose to apply somewhat technical information without first consulting with us and we would again like to offer our technical expertise.

The first Conndot letter states that the relocation of Main Street needs to provide for a 40 mph design speed. In response to a request for clarification from FAA, the second letter states that relocation of Main Street is considered a less desirable alternative but Conndot will "give it consideration if it is requested and supported by the Town of Stratford. At that time, specific design issues that would need to be addressed can be identified." In response to this second letter, Conndot is aware that the Town of Stratford has neither requested nor supported the relocation of Main Street or the proposed airport safety improvements; Stratford officials have consistently opposed them. FAA therefor concludes that Conndot presently will not consider relocation of Main Street. Since relocation of Main Street is essential to construction of the RSAs and establishment of the approach light system, we further conclude that such a position on the part of Conndot is contrary to aviation safety. We respectfully and strongly recommend that Conndot consider the findings and conclusions of this Record of Decision and the recommendations of the NTSB, reconsider their position, and take action to bring about the relocation of Main Street in accordance with Alternative 2-D Modified of the Environmental Impact Statement and this Record of Decision.

The EPA letter states that "We found the FEIS responsive to the majority of concerns raised in our July 1998 comment letter and were pleased to see that the FAA committed to implement the project in accordance with the United States Fish and Wildlife (USFWS) recommendations concerning piping plovers." EPA would have preferred more information on the safety benefits of the projects in the FEIS. EPA also expressed concern about the absence of specific storm water management information and concludes that this information will need to be addressed in the Clean Water Act, Section 404 permit process.

In response, the above section on aviation safety (V. Aviation Safety Issues) provides additional information that addresses aviation safety benefits. FAA believes that the water quality section of the FEIS is reasonable considering the level of project design undertaken for the EIS. While specific water quality interventions are normally specified as part of the permit process, once project design has been advanced, the mitigation section above has been updated to commit to some specific measures. In general, the storm water management system will be designed and

constructed to maximize surface flow and allow pollutants to settle from storm water runoff prior to discharge into receiving open waters.

The letter from the Connecticut Department of Environmental Protection is six pages long and difficult to summarize. It is therefor printed, along with a response, as Attachment 4 to this Record of Decision.

The letter from Protect Your Environment (PYE) states that the PYE Board of Directors rejects the proposed action and EIS on the basis that Sikorsky Memorial Airport is safe. They go on to state that the RSAs and Approach Light System are inappropriate and inadvisable for an airport the size of Sikorsky and that "the long-term cumulative effects on the surrounding environment and natural habitat are incalculable, as the report states, and therefore, unacceptable."

In response, the comment about safety has been raised many times by PYE and our statement on the nature of safety enhancements in the above aviation safety section is meant to reiterate our response. Regarding cumulative effects, this section of the EIS does not state that impacts are incalculable. Other sections of the EIS use qualitative, rather than quantitative, methods of environmental analysis, if this is the reference that PYE intends. However, it is not the intent of the EIS to use the term "incalculable" or other similar term to mean large in magnitude. Instead, qualitative assessments are used where quantitative impacts cannot be calculated.

The letter from a Stratford resident and Director of PYE states that the EIS has "overlooked reasonable and suitable technologies that are currently available..." The letter then makes reference to EMAS and requests that we consider this technology at Sikorsky memorial Airport.

In response, the FEIS, the aviation safety section above, and responses to Town of Stratford letters above address this concern.

VIII. DECISION

I have considered the environmental impact and enhancement of aviation safety of the proposed projects. Subject to the mitigation measures specified above, I am directing unconditional approval of the of the Sikorsky Memorial Airport Layout Plan, as modified to depict the projects as specified in the Final EIS. I am also taking action to direct the use of federal funds for the purpose of constructing these projects, under the Airport Improvement Program, the Facilities and Equipment Program, and, potentially, the Passenger Facility Charge program without limitation. Finally, through this Record of Decision and supporting EIS, I affirm our recommendation to the Department of the Army to transfer approximately four acres of the former Stratford Army Engine Plant to the Sikorsky Memorial Airport and restrict the use of an additional approximately five acres, as specified in the application of the City of Bridgeport. Under the authority delegated to me, I find that the federal actions stated herein are reasonably supported.

These actions are taken pursuant to 49 U.S.C. § 40101 *et seq.*, and constitute orders of the Administrator that are subject to review by the appropriate Court of Appeals of the United States in accordance with the provisions of 49 U.S.C. § 46110.

/s/

10/5/99

Robert S. Bartanowicz
Regional Administrator
New England Region

Date

ATTACHMENT 1

ATTACHMENT 2

ATTACHMENT 3

ATTACHMENT 4

RESPONSE TO CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION LETTER OF 7/9/99

1. Page 1, Paragraphs 1 and 2: No direct response required.
1. Page 1, Paragraph 3: The DEP has provided additional guidance regarding the project's consistency with the CCMA and their coastal management program. It is the FAA's full intent to integrate the DEP's information as appropriate, and, as design elements and permit processes evolve, to request coastal consistency review at least 90 days prior to the start of any construction.
1. Page 2, Paragraph 1: The Alternatives section above provides detail on why Alternative 1G was eliminated. Additionally, it should be noted that narrowing process for alternatives began very early in this environmental planning process. Prior to developing a broad range of alternatives, several environmental tenets were established to avoid impacts, including: (1) no alternative involving fill in the marsh at the Runway 6 end would be considered; and that (2) no alternative whose approach light system extended beyond Lordship Boulevard would be considered. This determination was then followed by the formulation and evaluation of more than 20 alternatives, which were initially screened using aeronautical and wetland impact criteria.

This environmental planning process focused on minimizing a number of impacts from its inception. In fact, the preferred alternative identified in the Final EIS/EIE not only minimized the total wetland impacts from that of the proposed action in the Draft EIS/EIE, but also reduced impacts in other disciplines (e.g., noise impact, elevation over piping plover), as an optimum solution was sought. As such, while the total impact footprint in tidal wetlands is slightly increased by 0.1 acre, reductions in other impacts were achieved.

2. Page 2, Paragraph 2: The Coastal Resources and Management section of the Final EIS provides information supporting consistency of the proposed action with the Connecticut Coastal Management Act (CCMA) and the Connecticut Conservation and Development

Policies Plan. Should the Connecticut Department of Environmental Protection not concur during permit review that the proposed action is consistent with the CCMA, the applicable law that would make consistency unachievable is the Federal Aviation Act, which charges the Administrator with providing for a safe and efficient national airspace system. The authority to promulgate safety regulations is derived from this legislation. FAA can agree to modify an airport design standard related to aviation safety only when the standard cannot practicably be achieved. The determination of what can or cannot practicably be achieved at a particular airport is within FAA's discretionary authority. As stated in the Record of Decision, FAA has determined as part of the EIS that approximately 1,000 feet and 800 feet of RSA are practical at the Runway 24 and Runway 6 ends respectively.

3. Page 2, Paragraph 3: The FAA has evaluated a wide range of alternatives and concluded that some do not adequately fulfill the proposed purpose and need for the project. Alternative 1G provides for no increase in the 100 feet of land available as RSA at the Runway 6 end and would allow only 200-300 feet of safety area at the Runway 24 end. It would also require establishment of the approach light system beyond Lordship Boulevard.

It is noted that if Alternative 1G were modified further and the runway shifted to the northeast (as was previously evaluated in this process), wetlands impacts would be encountered relatively quickly. As soon as modification of the runway and roadway alignments affected wetlands, there would be little, if any, environmental benefit from any incremental reductions in the northeasterly shift.

4. Page 2, Paragraph 4: {SEE GENERAL RESPONSE TO #4 ABOVE}
5. Page 3, Paragraph 1: The remnant wetland area in question would not be filled. While the increase in stormwater discharge volume may change the character of this tidal wetland, a more precise characterization of impact will be quantified when design of the proposed action is advanced through the permit process. In light of the fact that some impact may occur, FAA will incorporate this wetland into its wetland mitigation plan.
6. Page 3, Paragraph 2: Additional information on the catwalk access will be provided during the state and Federal permitting processes.
7. Page 3, Paragraph 3: The FAA is committed to mitigation of wetland impacts. As the design of project elements and mitigation plans advances, the FAA will consider the integration of the DEP's suggested amenities. The final scope of mitigation amenities will be described in permit applications.
8. Page 3, Paragraph 4: {SAME AS #9 ABOVE}
9. Page 4, Paragraph 1: The FAA has reviewed the layout and requirements of Alternative 1G. The FAA has reaffirmed that, since the resulting safety area dimension is well below standard and the relocated roadway would still be in close proximity, a need would still exist for a blast fence to protect off-airport traffic and pedestrians from high performance general aviation aircraft engine blast.
10. Page 4, Paragraph 2: The FAA understands that a determination of consistency requires all feasible alternatives to be fully evaluated. However, the FAA maintains that Alternative 1G is not a reasonable alternative to accomplish the stated purpose and need. The FAA believes that, if Alternative 1G were modified, it would approximate the series of

alternatives from which Alternative 2D-Modified emerged. Therefore, the FAA has focused on minimizing the various impacts of the preferred alternative. {SEE ADDITIONALLY RESPONSE #4 ABOVE}

11. Page 4, Paragraphs 3 and 4, and Page 5, Paragraphs 1, 2, and 3: The DEP's comments and suggestions will be taken under advisement and considered further as the design and permit processes evolve.
12. Page 5, Paragraph 4: Applicable proposed improvements of Runway 6-24 at Sikorsky Memorial Airport are state actions receiving state funding and involve a state road. As such, past DEP guidance has suggested that the Inland Wetlands and Watercourses Act will be administered by the DEP, and not by the local wetlands agency. Likewise, the flood certification program, as referenced, would be applicable.
13. Page 5, Paragraph 5: The FAA will commit to the appropriate level of sampling, testing, and remediation of contaminated soils discovered during construction. In accordance with Federal, state, and local regulations, any hazardous or environmentally contaminated materials encountered during the project construction process will be handled and/or disposed of properly. This task will ultimately be assigned to the General Contractor or a specialty sub-contractor as specified in the construction documents and as required by state and Federal permits.
14. Page 5, Paragraph 6: The soil samples reported in the EIS/EIR to contain elevated levels of petroleum-based hydrocarbons were all collected in an area designated as "*E-1 Airport Earthfill*" located south of Runway 6 (see Exhibit No. III-16 of the EIS/EIR). The proposed improvements associated with Alternative 2D-Modified do not involve any such construction activities in this area. The composition of these samples consisted of a mixture of soil and asphalt reportedly placed there during some previous landfill activities. It is likely that the asphalt particles are the cause of the elevated hydrocarbon levels in the samples. Asphalt itself is not considered a hazardous substance; thus these results do not represent a hazardous condition.
15. Page 6, Paragraph 1: Testing was performed in areas to be acquired or directly disturbed. Measures will be incorporated into the design and construction phases to recapture and/or remove channel sediments, as appropriate. The sediments in the tidal channel leading from the RCRA landfill, located on the former Stratford Army Engine Plant property, were not known or reported as contaminated by the Department of Defense at the time the EIS/EIR was published. However, according the DEP, these sediments may have been sampled by now. In any case, as the design and construction plans for the airport improvements are further developed, coordination with the DOD, EPA, and DEP will resume.
16. Page 6, Paragraph 2: {SEE RESPONSE TO COMMENT ON #16 ABOVE}
17. Page 6, Paragraph 3: The environmental audit conducted in support of the EIS/EIR sought to discover any historic dumping, disposal, or discharging (both illegal and permitted) of all forms of solid wastes (including hazardous substances) in the vicinity of the airport and the planned improvements. The full results of this investigation are reported in the EIS/EIR. Unfortunately, not all spills, dumping, and releases are reported

or recorded and can remain undiscovered until they are inadvertently disturbed. The essential purpose of the environmental audit is to reduce the risk of encountering environmental contaminants during the construction process. {SEE ADDITIONALLY #15 ABOVE}

18. Page 6, Paragraph 4: To the extent that it is agreed that the referenced research would be beneficial and actually feasible, the FAA would consider participation in or support of such a project as a possible mitigation measure.