

## RECORD OF DECISION

### APPROVAL OF AIRPORT LAYOUT PLAN AND FEDERAL FUNDING OF RUNWAY 2-20 SAFETY AREA AND EXTENSION OF TAXIWAY B

#### TWEED-NEW HAVEN REGIONAL AIRPORT NEW HAVEN, CONNECTICUT

## 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 Tweed-New Haven Regional Airport (Exhibits in Attachment 1 to this ROD show the general location and layout of the airport):

- Approve the Tweed-New Haven Regional Airport Layout Plan depicting the (1) construction of Runway 2-20 Safety Areas at each end of the runway and (2) reconstruction, realignment, and southerly extension of Taxiway B in the southeast quadrant of the airport. These improvements are depicted on Attachment 2 to this ROD.
- Determine that these projects are eligible for federal grant-in-aid funds (49 USC 47101 *et seq.*) and Passenger Facility Charge funds (49 USC 40117).

These decisions require compliance with the National Environmental Policy 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. Runway Safety Areas (RSAs) and taxiways are examples of airport development that help to accomplish this mission.

Tweed-New Haven Regional Airport is one of three Connecticut "primary service" airports contained in FAA's *National Plan of Integrated Airport Systems (1998-2002)*. This designation recognizes the significant role that Tweed plays in providing access to a national air transportation system. US Airways Express serves the airport, with service to Philadelphia and Washington. Approximately 100,000 annual landings and takeoffs occur at the facility, most of these by general aviation aircraft. Business jet activity associated with southern Connecticut's economy comprises a significant component of these general aviation landings and takeoffs.

The airport is currently completing a comprehensive revision of its Airport Master Plan. The RSA and taxiway improvements represent the most important short-term needs of

the airport derived from this planning process and are recommendations of the previous planning process completed in 1982 as well.

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 1992, the FAA and the airport completed an Environmental Assessment (EA) to ascertain probable environmental impact from the proposed improvements. The EA concluded that, due to the potential for significant impact to wetland resources, the preparation of an Environmental Impact Statement (EIS) was required in order to disclose probable environmental impact from the improvements. On April 15, 1992, FAA published in the *Federal Register* a Notice of Intent to prepare an EIS and on May 28, 1992, and July 16, 1992, conducted governmental agency and public “scoping” meetings to obtain input on what the Scope of Work for the EIS should contain.

A Planning Advisory Committee (PAC) was formed to review progress and comment on the EIS as it progressed. This 18-member committee met ten times during the conduct of the EIS. Public involvement also extended to four larger-scale Public Information Meetings and/or Workshops and numerous smaller informational meetings among airport management, FAA officials, members of the EIS study team, federal and state regulatory officials, PAC members, and residents of the communities surrounding the airport.

FAA published a Draft EIS in October 1999, entitled *Runway Safety Area & Taxiway Improvements Draft Environmental Impact Statement/Draft Environmental Impact Evaluation*, and conducted a public hearing on the Draft EIS on November 9, 1999. Approximately 200 people attended the hearing.

FAA published a Final EIS in May 2000, entitled *Runway Safety Area & Taxiway Improvements Final Environmental Impact Statement/Final Environmental Impact Evaluation*.

### **III. ALTERNATIVES CONSIDERED**

The EIS assessed in greater detail than the Airport Master Plan the following deficiencies: (1) RSAs to Runway 2-20 that currently do not meet minimum safety standards with regard to area, grade, and objects in the safety area, including a perpendicular tidal creek 240 feet south of the runway with rip rap sides and a perpendicular road to the north of the runway, either of which could result in a catastrophic accident; (2) the lack of on-airport emergency equipment access to areas beyond the limited safety area available to both the north and south of Runway 2-20; (3) the adverse safety and efficiency implications of a parallel taxiway to the Runway 2 end that is presently 850 feet short of the runway end, resulting in the need to back taxi on the

runway prior to takeoff to the north or after landing to the south; and (4) the poor pavement condition of existing portions of the parallel taxiway serving Runway 2-20.

These deficiencies result in the need to extend the RSA at the Runway 2 end (south end of the runway) and Runway 20 end (north end of the runway), relocate a portion of Morris Creek outside the Runway 2 end RSA, relocate Dodge Avenue outside of the Runway 20 end RSA, extend the RSA at the Runway 20 end to the maximum extent practicable, relocate a portion of Morris Creek/Tuttle Brook to accommodate the extension of the RSA at the Runway 20 end, extend the parallel taxiway to the Runway 2 end, and reconstruct and realign the existing parallel taxiway.

FAA safety standards require RSAs of 500 feet in width and 1,000 feet in length for each end of Runway 2-20 (Federal Aviation Regulation, Part 139; Advisory Circular 150/5300-13). At the present time there are only 240 feet of RSA length available at the Runway 2 end and no RSA available at the Runway 20 end. Morris Creek runs perpendicular to the Runway 2 end 240 feet south of the threshold. Just to the south of this section of Morris Creek is a discontinued, raised roadbed that also runs perpendicular to the runway. To the north and along runway centerline there is 270 feet of RSA available prior to Tuttle Brook, which traverses the area to the west of centerline and prevents a standard width. Dodge Avenue runs perpendicular to the Runway 20 end beyond Tuttle Brook.

Because Tweed-New Haven Regional 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. Even in the absence of Part 139, FAA requires that reconstruction of the runway comply with all applicable design standards for the runway (Advisory Circular 150/5300-13).

The EIS considered 10 RSA alternatives and 6 taxiway alternatives, including a no-build alternative for each improvement. The alternatives were considered in accordance with a two-tier evaluation: first, whether they met the purpose and need to enhance aviation safety and efficiency and, second, their environmental impact.

Runway 2 Safety Area alternatives included a no-build and three build alternatives. The three build alternatives meet the purpose and need. One of them would have done so by employing a concept known as “declared distances”, which permits the same area for some aircraft operations to be considered as runway safety area and for other operations as available runway. This would have resulted in a reduction in runway length of 600 feet for all but Runway 2 takeoffs. Since this reduction would have significant adverse effect on the utility of the runway, it was not considered further. The remaining two alternatives differed in the amount of fill in floodplain and tidal wetland and, along with the no-build alternative, were carried forward for additional environmental impact assessment.

Runway 20 Safety Area alternatives also included a no-build alternative and three build alternatives. One of the build alternatives would have required the relocation of Dodge Avenue onto Holmes Street and acquisition of 15 residences. Given the opposition to this course of action, this alternative was not considered practical. Another alternative would have reduced the RSA to 850 feet in order to avoid these shortcomings. Tuttle Brook, which traverses the area, would be relocated around the new RSA, between the end of RSA and relocated Dodge Avenue. This alternative was later reconsidered when design details indicated that a retaining wall would have to be constructed beyond the 850-foot modified-length RSA, in order to relocate Tuttle Brook. FAA concluded that it would be contrary to aviation safety to construct an obstacle within the 1,000 feet otherwise available for a standard RSA. The Preferred Alternative addresses this deficiency by culverting the stream under the RSA and revising the grade so that a retaining wall is no longer required. This alternative also permits a standard RSA length of 1,000 feet on runway centerline but 950 feet at the northeast corner. FAA has agreed to approve this airport-requested modification to standard. The no-build and this Preferred Alternative were carried forward for additional environmental impact assessment.

Additionally, implementation of an Engineered Materials Arresting System (EMAS) was considered but dropped from further consideration because FAA policy is not to approve EMAS as a substitute for any length of RSA. EMAS is limited to those installations where it is not otherwise possible to obtain standard safety areas. Thus, consideration of EMAS would only apply to the northeasterly edge of the Runway 20 RSA, between the centerline where 1,000 feet is achievable and the northeastern corner where FAA has determined that the maximum practicable length is 950 feet. FAA believes that EMAS is not a practicable substitute for this 50 feet of deficient sideline length and that it is not practical to achieve the full standard RSA.

Taxiway alternatives included: (1) a no-build alternative that would only reconstruct the taxiway to its designed weight-bearing capacity; (2) an alternative that would have both reconstructed and strengthened the existing taxiway to accommodate the design group of aircraft that utilize the airport; and (3) an alternative that would have realigned/reconstructed and strengthened the existing taxiway to achieve a standard 400-foot offset from the runway; and two additional alternatives that would have additionally extended the taxiway 850 feet to the Runway 2 end, one (4) continuing the existing 275-foot offset from the runway and one (5) realigning the taxiway and extending it with a 400-foot standard offset. The latter three alternatives vary in aerial extent of wetlands impact, with a 400-foot offset requiring substantial wetlands fill.

In consideration of the actual aircraft that use or are expected to use the runway, and their requisite wing-tip clearance requirements, FAA has agreed to modify the standard to 275 feet. This is the Preferred Alternative for the parallel taxiway. In unusual instances when multiple aircraft requiring 400 feet of separation are operating on the runway and parallel taxiway, the air traffic control tower can require the aircraft on the taxiway to stand off on that portion of the taxiway with a 400-foot offset from the runway.

The Preferred Alternative for the Runway 2-20 RSAs and parallel taxiway meet 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 2 end, a 500 X 950-foot Safety Area at the Runway 20 end, and a reconstructed, realigned and extended parallel taxiway to the Runway 2 end with a runway-to-taxiway distance of 275 feet. The airport has carried this alternative forward into the design and permitting process.

#### **IV. ENVIRONMENTAL ISSUES**

The EIS examined 19 areas of potential environmental impact: aircraft noise and compatible land use; social; induced socioeconomic; air quality; water quality; parkland and wildlife refuge; historical, archaeological, architectural, and cultural resources; biotic communities; endangered and threatened species; wetlands; floodplains; Coastal Zone Management Program and coastal barriers; wild and scenic rivers; farmland; energy supply and natural resources; light emissions; solid waste; hazardous materials; ground transportation; construction; and environmental justice.

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

- Unavoidable adverse impact to coastal resources (including tidal wetlands, inland (freshwater) wetlands, and watercourses) extends to approximately 9.89 acres. There is no practicable alternative that avoids wetlands impacts and the Preferred Alternative (proposed action) includes all practicable measures to minimize harm to wetlands. A comprehensive wetlands restoration program designed to minimize impacts is proposed as mitigation (See Section VI of this ROD).
- FAA has concluded in the Draft and Final EISs that the Preferred Alternative is consistent with the State's Coastal Zone Management goals and policies. The State has waived Federal Coastal Zone consistency review and is currently reviewing wetlands-related permit applications. The consistency review period has expired and FAA consequently concludes that the Preferred Alternative is presumed to conform with the State's Coastal Zone Management Program, in accordance with applicable provisions of Federal Coastal Zone regulations.
- As a result of the relocation of Dodge Avenue, ground transportation noise will increase approximately 3 decibels for residents of Holmes Street. In accordance with Federal Highway Administration standards, this increase is not considered significant. A planting of shrubs between the relocated Dodge Avenue and Holmes Street will screen the road from the view of residents.
- Including provisions in construction documents that address safety, traffic routing, air quality, water quality, and equipment noise will mitigate short-term construction impacts of equipment noise, dust, and truck traffic. The airport will employ engineers and inspectors to monitor compliance.
- The proposed safety improvements will not affect the underlying demand for aircraft operations or different types of aircraft operations. Therefore, no difference in the

aircraft noise or air quality environment is expected between the No-Build Alternative and the Preferred Alternative.

- The Preferred Alternative will have no or insignificant effect on the social or induced socioeconomic environment; parkland or wildlife refuges; historical, archaeological, architectural, or other cultural resources; biotic communities other than wetlands; endangered or threatened species; floodplains; coastal barriers; wild and scenic rivers, farmland; energy supply and natural resources; light emissions; hazardous materials; or environmental justice considerations.

Based on the Draft and Final EISs, FAA also makes the following determinations:

- The project is reasonably consistent with existing plans of public agencies for development of the area. The projects would be contained entirely within the bounds of the airport, which is zoned for transportation use, with the exception of that portion of Dodge Avenue which runs through the proposed RSA and mitigation involved with improvements to the Morris Creek tide gate. Vacant airport land to the south of Runway 2-20 would be changed from primarily wetland to a turf area. Vacant airport land to the north of the runway would be regraded, remaining as an open turf area with the addition drainage containment areas. Off-airport land in the vicinity of the improvements is residential, along Dean Street, Burr Street, and Holmes Avenue. There are no known plans to redevelop these areas.
- Fair consideration has been given to the interests of communities near the location of the improvements. FAA and the airport conducted an extensive community involvement program and project mitigation reflects community issues such as ground traffic associated with the relocation of Dodge Avenue and potential increased flooding.
- There is no practicable alternative that avoids wetland impacts and the proposed action includes all practicable measures to minimize harm to wetlands.
- There is no practicable alternative that avoids encroaching on floodplain and the project conforms to applicable floodplain protection standards.

While the No-Build Alternative is the environmentally preferable alternative, the Preferred Alternative is the least environmentally damaging practical alternative that achieves the EIS purpose of enhancing safety and efficiency at Tweed-New Haven Regional Airport.

## **V. AVIATION SAFETY AND EFFICIENCY 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.

RSAs are one such intervention and have repeatedly been shown to save lives and reduce property damage.

FAA's design standards for RSAs are based on national statistics, taking into account accident rates and location with respect to runways. The accident database for a single airport is not statistically significant. Nevertheless, it is noteworthy that an exemplary accident occurred at New Haven in 1987 when a light general aviation aircraft on an emergency landing rolled off the end of Runway 2 and struck a fence, substantially damaging the aircraft. 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%.

Emergency rescue, medical and fire-fighting response time is also adversely affected at New Haven by the lack of standard RSAs. Certificated airports such as New Haven regularly test their response times. Presently, aircraft emergencies located on the airport and beyond the available 240 feet at the south end of Runway 2-20 and 349 feet at the north end of the runway can only be accessed if emergency equipment exits the airport and travels on local streets. The presence of wetlands to the south of the runway also greatly complicates access.

The potential for runway incursions (more than one aircraft or ground vehicle operating on the runway at the same time) is also a safety concern where taxiways do not extend to the runway end, such as Runway 2. Full-length parallel taxiways segregate taxiing aircraft from aircraft landing and taking off. In the absence of a parallel taxiway to the 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. Full-length parallel taxiways are basic components for even the smallest of general aviation airports. Runway 2-20 is one of the few air carrier runways in New England without a full parallel taxiway.

Aircraft taking off on Runway 2 typically must back-taxi approximately 850 feet on the runway, turn around, and then take off. Similarly, larger aircraft landing on Runway 20 may pass the taxiway exit and have to back-taxi in order to exit the runway. These situations complicate air traffic control and detract considerably from airport efficiency during peak operating hours.

## **VI. MITIGATION**

The EIS covers a comprehensive environmental mitigation program (Chapter 5 of the Draft EIS and Section 1.4 of the Final EIS). FAA will ensure compliance with these mitigation measures through its authority to approve the Tweed-New Haven Regional Airport Layout Plan and follow-on construction specifications of the airport. FAA will withhold Airport Improvement Program funding if the airport does not comply with the mitigation commitments. FAA recognizes that these mitigation measures may

subsequently be modified by agreed mitigation measures specified by either the U.S. Army Corps of Engineers or the Connecticut Department of Environmental Protection as conditions pursuant to issuance of permits.

Mitigation measures are summarized as follows:

- Coastal resources including tidal wetlands, inland wetlands, and watercourses. Restoration of 37 to 43 acres of *Phragmites*-dominated wetlands, to include new tide gates at the existing tide gate structure; various measures along Dean Street to eliminate the effects of higher tide levels in Morris Creek; plantings to enhance the wetland environment along the southern and northern segments of relocated Morris Creek; and a wetlands mitigation monitoring program to document the establishment of low marsh vegetation and other conditions, including the identification of wetland restoration areas requiring remediation. Watercourse and habitat enhancement measures are included with the realignment of Tuttle Brook/Morris Creek.
- Ground transportation noise/aesthetics. Minor noise/visual/aesthetic impacts to Holmes Street and Burr Street due to the relocation of Dodge Avenue are addressed by providing plantings of shrubs between the relocated roadway and private properties.
- Construction. Including provisions in construction documents that address safety, traffic routing, air quality, water quality, and equipment noise will mitigate short-term construction impacts of equipment noise, dust, and truck traffic. The airport will employ engineers and inspectors to monitor compliance. 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.

## **VII. COMMENTS ON FINAL ENVIRONMENTAL IMPACT STATEMENT**

FAA received seven letters of comment following publication of the Final EIS: one from the Environmental Protection Agency (EPA), one from the U.S. Army Corps of Engineers, and six from individuals.

The EPA letter states “We agree with the modifications and extensions to the mitigation program described in the DEIS and summarized in the FEIS and have no objections to the project.”

The Corps of Engineers letter states that they have reviewed the alternatives to avoid and minimize adverse impacts to waters and wetlands and determined that the Preferred Alternative is the least environmentally damaging practical alternative (LEDPA) in accordance with their guidelines. They also provided a checklist to use as a mitigation guide toward permitting.

One of the community individuals wrote in support of the improvements. Five other community individuals were critical of the improvements.



One resident of East Haven noted that the EIS identified 69 homes that FAA considers incompatible with aircraft noise levels and that noise levels will increase another 3 to 5 decibels as a result of the project (from ground traffic as a result of the relocation of Dodge Avenue). The letter also states that the Connecticut Department of Transportation (CONNDOT) denied a permit for similar work at Sikorsky Memorial Airport in Stratford. Finally, the letter is critical of culverting a section of Tuttle Brook, noting that it is habitat for great blue herons and bluebirds, and filling wetlands and then attempting to restore others.

In response, the EIS is concerned with quantifying the difference in noise exposure in the future, comparing the No-Build alternative to the Preferred Alternative. There will be no difference in aircraft noise exposure in the future with or without the improvements. Furthermore, the EIS states that 69 acres, not homes, will be impacted with or without the project. Most of this acreage is open-space, wetlands. However, the analysis in the EIS should not be construed as indicating that there is not an aircraft noise problem, only that the proposed improvements will not add to the noise problem. The 3 to 5 decibel increase in ground traffic is based on a different noise metric from that used to calculate aircraft noise and the two are not additive. The 65 DNL noise level in the EIS is a measure of cumulative noise and considers all aircraft operations over a year. The 3 to 5 decibel increase is a measure of the maximum sound level of single events in the peak hour for ground traffic on the relocated road. If this increase were calculated using the same metric as aircraft noise there would be no perceptible difference from the additional 3 to 5 decibels.

Finally, (1) CONNDOT has not denied a permit for similar work at Sikorsky; (2) the section of Tuttle Brook proposed to be culverted is not habitat for great blue herons and, to the extent that songbirds such as bluebirds utilize Tuttle Brook, the project will result in a net gain in stream length that is not in culvert; and (3) FAA views the proposed wetlands restoration as a net benefit to the wetland ecosystem on and in the vicinity of the airport.

A New Haven resident is critical of pollution and noise from the airport, use of wetlands for airport development, and use of federal funds to re-channel a section of Morris Creek.

In response, as stated in the EIS, air pollution and aircraft noise are not expected to change as a result of the proposed improvements. While wetlands and watercourses will be adversely affected, FAA concludes that the benefits to aviation safety outweigh the anticipated adverse impacts, especially in consideration of the wetland restoration proposed as mitigation.

Another East Haven resident is generally opposed to the improvements, expressing a concern for the quality of life, as well as geography and topography as obstacles.

In response, while FAA does not believe that the proposed improvements will adversely affect the quality of life of residents in the vicinity of the airport, FAA understands that

residents have issues with the impact of the airport on their quality of life. Geography and topography are not impediments to the proposed improvements except to the extent that rising terrain to the north of Runway 2-20 prevents the construction of a small corner of the Runway Safety Area.

A New Haven resident objects to the intrusion on and destruction of wetlands, also noting a diminished quality of life.

In response, FAA has considered both the adverse impact on wetlands, proposed wetland mitigation, and the benefit to aviation safety. FAA concludes that the improvements need to go forward.

Finally, an East Haven resident states that the improvements will not benefit the Town of East Haven, will jeopardize health and water quality, increase noise levels, destroy a vital wetland, have a detrimental effect on an already stressed coastal area, and not likely achieve the goal of wetland restoration.

In response, FAA believes that the proposed Runway Safety Area will benefit not only aviators but also people and property on the ground. This is part of the rationale for constructing standard Runway Safety Areas. The relocation of Dodge Avenue outside of the proposed Runway Safety Area will greatly reduce the risk of an aircraft colliding with vehicle traffic on Dodge Avenue. The investigation conducted as part of the EIS did not find any adverse effect from the proposed improvements on community health, water quality, or aircraft noise levels. The improvements would adversely affect wetlands, but FAA believes that the proposed wetland restoration will reduce the stress already placed on the wetlands system on and in the vicinity of the airport.

## **VIII. DECISION**

I have considered the environmental impact and enhancement of aviation safety and efficiency of the proposed projects. Subject to the mitigation measures specified above, I am directing approval of the of the Tweed-New Haven Regional Airport Layout Plan, as modified to depict the projects specified in the Draft and Final EIS. I am also determining that the projects are eligible for federal funding under the Airport Improvement Program and, potentially, the Passenger Facility Charge program without limitation. 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.

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Vincent A. Scarano  
Manager, Airports Division  
FAA New England Region

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Date

ATTACHMENT 1

ATTACHMENT 2