

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

GEORGE BUSH INTERCONTINENTAL AIRPORT
RUNWAY 8L-26R AND ASSOCIATED NEAR-TERM
MASTER PLAN PROJECTS
AND
ASSOCIATED FEDERAL ACTIONS

RECORD OF DECISION

August 2000

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SECTION 1 – INTRODUCTION

Through this record of decision (ROD), the Federal Aviation Administration (FAA) approves the actions associated with the proposed new air carrier length runway (8L-26R) and related near-term master plan improvements at George Bush Intercontinental Airport (IAH). A detailed description and analysis of the Federal actions and proposed action is provided in the Final Environmental Impact Statement, George Bush Intercontinental Airport/Houston, Houston Texas, July 2000 (FEIS).

This public record of decision is issued in accordance with the requirements of the Council on Environmental Quality (CEQ), 40 CFR 1505.2. The principal features include:

- A statement of the agency's decision;
- An identification of all the alternatives considered by the agency in reaching its decision, with a specification of the alternative that is considered to be environmentally preferable; and
- The means adopted (mitigation measures) to avoid or minimize environmental harm from the alternative selected.

The proposed action, more specifically described in Chapter 2 of the FEIS, consists of the following airport improvements:

- Construction of one new air carrier length runway (8L-26R);
- Expansion of an existing runway (15R-33L);
- Construction of a new cargo area;
- Construction of associated taxiways;
- Construction of Taxiway SD bridge and apron;
- Construction of a new consolidated rental car facility;
- Construction of two aircraft rescue and firefighting (ARFF) stations; and
- Expansion of the international passenger terminal;

The Federal actions required to accomplish the proposed airport improvements and which are approved in this ROD include:

- Approval of the Airport Layout Plan depicting one new air carrier length runway and associated airport improvements identified as part of the proposed action in Chapter 2 of the FEIS;
- Installation and/or relocation of visual and instrument aids to navigation, including the relocation of the Category I ILS from Runway 15L/33R to Runway 15R/33L and installation of the Category III ILS for Runway 8L/26R.
- Approval of associated flight procedures and safety actions (Implement revised air traffic arrival and departure procedures for Runway 15R-33L; Publish revised instrument approach procedures for Runway 15R-33L; Cancel instrument approach procedures for Runway 15L-33R; Implement triple simultaneous parallel instrument landing system (ILS) approach and departure procedures for Runways 9-27, 8R-26L, and the new

- Runway 8L-26R; and
- Determination that the proposed action and airport improvements are eligible for federal funding (subject to the availability of funding) in accordance with FAA Order 5100.38A, Airport Improvement Program Handbook.

The Federal actions are also discussed in Chapter 2 of the FEIS.

The FAA's decision is based on the information contained in the FEIS and all other applicable documents available to the FAA and considered by it, which constitute the administrative record. Based on this review, the FAA has determined that the technically preferred alternative is also the environmentally preferred alternative.

This approval should not be construed to mean that funding will be approved, but only that the agency has determined that the proposed action is eligible for Federal funding based on completion of the environmental review process. Approval of the project is based in part on the airport sponsor's agreement to perform certain mitigation measures outlined in the FEIS and the ROD.

In reaching this determination, careful consideration has been given to:

- IAH as a part of the national air transportation system and the Airport's capacity/delay reduction needs through the year 2017;
- The aviation safety and operational objectives of the project in the light of the various aeronautical factors and judgments presented;
- The anticipated environmental impacts of the proposed action and alternatives, and mitigation measures to avoid or minimize environmental impacts from the alternative selected;
- Consideration of alternatives to the proposed action, including the environmentally preferred alternative; and
- Mitigation measures to minimize or avoid harm from the proposed action, including the means to monitor and enforce mitigation measures through conditions of approval set forth in the ROD.

A discussion of the leading factors considered by the agency in reaching this decision follows.

SECTION 2 - NEED AND PURPOSE

Introduction

George Bush Intercontinental Airport (“IAH” or “the Airport”) is operated by the City of Houston Airport System (HAS) and is situated north of the City of Houston, Texas, on nearly 8,800 acres of land. There are 45 scheduled and non-scheduled air carriers serving IAH (FAA 1998 ACAIS). For one of these air carriers – Continental Airlines – IAH serves as a "major hub." In 1998, IAH was the 14th busiest airport in the United State in terms of total passengers and the 15th busiest in terms of aircraft operations (FAA 1999 ACE Plan). That year, a total of 14,283,730 passengers were enplaned at IAH. There were 440,000 aircraft operations in 1998.

Need and Purpose for the Proposed Action

Since the Airport is the Houston/Galveston metropolitan area’s only connecting hub airport, its continued ability to serve in this role is critical to the long-term economic well-being of the region. Accordingly, airport improvements are consistent with the goal of preserving the Airport’s long-term capacity improvement potential. The proposed improvements are intended to maintain and enhance the Airport’s ability to support connecting hub operations by reducing airfield congestion and aircraft delay, accommodating forecast growth in passenger and cargo activity, and enhancing the efficiency of airport operations.

A traditional connecting hub airport provides a wide range of aircraft, surface vehicle and passenger processing facilities to support the activities of the connecting airlines as described in FEIS (Section 2.2). Given the scale of the facilities required to support aircraft operations, the maintenance of a safe and efficient airfield is the most critical element of these requirements. Accordingly, this section provides a description of the airfield demand, capacity, and delay analysis conducted to assess the ability of the existing airfield to accommodate forecast demand, and the specific needs addressed by each of the individual projects included in the proposed action.

Frequently, the eleven (11) arrival and departure banks at the Airport overlap (FEIS, Figure 2-5), resulting in high levels of demand for both arrival and departure capacity. As noted previously, this pattern of activity also places sharply varying demands on passenger processing facilities during the course of a day. Forecast growth in demand will cause airfield capacity to be exceeded with increasing frequency, leading to unacceptable levels of congestion and delay (FEIS, Figures 2-6 and 2-7). In addition to the increasing demand on the airfield, other components of the Airport will be increasingly congested and levels of service will deteriorate further.

The proposed improvements will reduce aircraft delay, enhance passenger levels of service, and maintain the Airport’s ability to serve as an airline connecting hub through the 20-year forecast period and beyond. These improvements are necessary to enhance the efficiency and capacity of the national air transportation system that relies heavily upon the ability of individual airports,

like IAH, to work effectively together as a related and dependent network. Since airline deregulation began, and with the subsequent development of the "hub and spoke" system (illustrated by Continental's choice of IAH as a major hub for their operations), the role of the Airport is integral within the national airport system.

While the projects would collectively enhance the Airport's ability to meet forecast growth, each of the projects contributes separately to meeting specific needs, as described below. Together, these projects make-up the proposed action and are as follows (FEIS, Figure 2-2):

1. Proposed Runway 15R-33L Improvements

Runway 15R is used primarily by general aviation and commuter aircraft. The extension of Runway 15R-33L would permit jet air carrier aircraft to use the runway for departures, in effect adding an air carrier departure runway. To operate as an effective departure runway, Runway 15R-33L must be extended to a length that would accommodate most aircraft departures. Aircraft departing on Runway 15R – used in conjunction with 15L – would generally turn right for destinations to the west and north. The overflight patterns for the extended runway would be similar to existing patterns (FEIS, Chapter 4). Overflights by arriving and departing aircraft would occur to the west, south, and southeast of Runway 15R-33L.

The most common use of runways at the Airport consists of using Runways 26 and 27 (west flow) or 8 and 9 (east flow) for arrivals, while using Runway 15L for air carrier aircraft departures. This pattern of operations increases the efficiency of the airfield by avoiding "mixed operations" (landings and takeoffs) on any runway. During peak departure periods, Runway 8-26 must also be used to accommodate some departure demand. Consequently, the spacing between arrivals on Runway 8-26 must be increased to allow for these departures. Because periods of overlapping arrival and departure demand occur throughout the day (FEIS, Figure 2-5), these mixed operations increase delay for arriving and departing aircraft. Providing an additional air carrier departure runway would reduce the need to mix landings and takeoffs on Runway 8-26.

Under optimal conditions (west flow, VFR) the current airfield can accommodate nearly 80 operations every 30 minutes. The proposed Runway 15R-33L improvements would increase airfield capacity 26%, to more than 100 operations every 30 minutes under both peak departure and peak arrival conditions. The project would increase airfield capacity by 6 operations (or 8%) under mixed arrival and departure conditions. Such a flow rate represents the maximum throughput rate that can be sustained for short periods (10-15 minutes). For example, actual traffic counts obtained from the Houston Air Traffic Control Tower show maximum 10-minute flow rates of 27 operations, which corresponds to a 30-minute flow rate of 81 operations (or 162 operations per hour). The expanded hourly equivalents of these 10-minute traffic counts are shown in FEIS (Appendix C). However, the actual anticipated flow rates of 108 arrivals per hour during VFR conditions and 96 arrivals per hour during IFR conditions are expected.

As shown FEIS (Figure 2-7 and Table 2-3), this improvement alone would reduce delays by

1.3 minutes per operation by 2002, resulting in an annual savings of \$13 million. By 2007, these savings would reach 5 minutes per operation and \$61 million annually. After 2008, delays would exceed 15 minutes per operation even with this proposed improvement, indicating that additional improvements would be required to maintain acceptable levels of delay.

The extension and widening of Runway 15R would enhance departure capacity by limiting the need to mix operations on Runway 8-26. While the improvement to 15R would be beneficial in reducing arrival delay as well as departure delay, it does not provide sufficient additional arrival capacity to accommodate forecast demand over the longer term.

2. Proposed Runway 8L-26R

The proposed Runway 8L-26R would substantially increase arrival capacity. The arrival and departure patterns for Runway 8L-26R would be similar to the patterns used by aircraft operating on the existing Runway 8-26. The existing 8-26 runway will be redesignated Runway 8R-26L when the new runway is commissioned. Arriving aircraft would use a straight-in arrival flight track from both the east and west. Most departing aircraft would turn to the north after departure, similar to the current pattern of departures from Runway 8-26 (FEIS, Chapter 4). The new runway would require that aircraft departing on Runway 8R-26L – the current Runway 8-26 – during IFR conditions fly straight out rather than turning to the north. These conditions occur about 8% of the time. Although the new runway would be routinely used for arrivals, departing aircraft would use the runway during any temporary closure of other runways for maintenance, construction, or other requirements.

Under optimal conditions (west flow, VFR), proposed Runway 8L-26R would increase total airfield capacity by 21 operations every 30 minutes (maximum achievable throughput rate), or an increase of 26% of total airfield capacity, under arrival, departure, or mixed demand scenarios. Accordingly, the proposed runway would significantly reduce total delay through the forecast period. As shown in the FEIS (Figure 2-7 and Table 2-3), this improvement alone would reduce delays by 2.3 minutes per operation by 2002, resulting in an annual savings of \$23 million. By 2007, these savings would be 9.2 minutes per operation and \$113 million annually.

The optimum location for such a runway should preserve the opportunity for future development of a close-in parallel runway (approximately 1,000 feet north of existing Runway 8-26). Accordingly, the proposed Runway 8L-26R should be as widely spaced as possible from the existing Runway 8-26, in this case 5000 feet, to allow room for a future, possible inner-parallel. As the need for additional capacity materializes and the potential benefits of future technology become clearer, the Airport could assess if and when additional runways would be required.

3. International Services Expansion Program (ISEP)

The ISEP would expand and enhance the services provided at the Mickey Leland International Arrivals Building (IAB) site. The expanded passenger processing facilities would help to maintain service levels in response to continued growth in passenger traffic. The ISEP

improvements address current and short-term needs, which should be met without any increase in airfield capacity. HAS would construct this project with or without the proposed runway improvements; therefore, this project is independent of the proposed runway improvements.

- **Additional Air Carrier Aircraft Gates.** The ISEP would provide 15 additional “narrowbody equivalent” air carrier jet, or “contact,” gates, an 18% increase in the number of such gates at the Airport. Without these gates, growth in passenger activity could be accommodated with some loss in efficiency and passenger level of service. In addition, the lack of contact gates can lead to the use of remote gates or “hardstands” which require the use of transporters or shuttles to transfer passengers between the terminal and remotely parked aircraft.
- **Parking Structure.** Approximately 2,500 parking spaces would be provided in a new parking structure, an increase of approximately 1,600 spaces compared to the spaces provided in the current surface parking lots. In the absence of these additional parking spaces, origin and destination (O&D) passengers would have several options for reaching the Airport, such as (1) the use of off-airport parking, (2) transit, (3) taxicabs, and (4) being dropped off. Increased drop-off traffic is of particular concern because drop-off trips essentially double the vehicle miles traveled when compared with the trip associated with a passenger using a private automobile and parking. Experience at parking-constrained airports indicates that drop-off traffic increases as the availability of close-in parking decreases. Leigh Fisher Associates examined the relationship between close-in parking transactions and curbside use at selected airports. In this analysis, close-in parking transactions were determined through examination of parking records, and curbside use was determined through passenger surveys. At these airports, 18% to 36% of the passengers used the curbside (i.e., they were dropped off by private vehicle). The analysis indicates that airports with the lowest percentage of close-in parking transactions experienced about twice as much curbside activity as the airports with the highest percentage of close-in parking transactions. For this analysis, close-in parking is defined as being within walking distance of the passenger terminal complex, meaning that no mode change between the parking facility and the terminal is required. The analysis indicates that not providing additional close-in parking as proposed would cause increased vehicular activity and congestion at the curbside and on the Airport access routes.
- **Terminal Facilities.** The remaining terminal and roadway improvements consist of reallocating terminal space and expanding terminal facilities to relocate and expand the Federal Inspection Service (FIS) area, remodel the space vacated by the FIS facilities, provide additional ticket counters, and enhance pedestrian circulation within the terminal. The people-mover system would be extended from Terminal C to the IAB and from Terminal B to Terminal A. The curbside would be reconfigured to accommodate the relocated FIS facilities. In the absence of these improvements, international passengers would experience increasing levels of congestion in the FIS facilities and other areas of the terminal and terminal roadways. In 1997, 1.9 million international enplaned passengers used the Airport, representing 13.6% of all airport passengers.

4. Taxiway SD Bridge, Ramp Widening, and Air Cargo Facilities

Construction of a Taxiway SD bridge and widening of the south ramp serving Terminals A and B would improve aircraft circulation in the terminal complex. The proposed air cargo development would replace facilities displaced by the taxiway and ramp project and provide additional areas for air cargo operators.

- **Taxiway SD Bridge and Ramp Widening.** This project would eliminate a choke point between the two terminal ramp areas on the south side of the terminal complex. At present, only one taxiway connects these ramp areas. Consequently, aircraft taxiing to or from the eastern terminal complex (Terminal C and the IAB) must often wait for aircraft taxiing in the opposite direction. This project would also enhance circulation for aircraft landing on Runway 26 that are destined for the south side of Terminal C.
- **The Taxiway SD bridge and expansion of the Terminal AB ramp** would provide a bypass taxiway to accommodate these and other ground movements. Additionally, the project would address current ground congestion and delay, while the runway projects are proposed principally to address the projected growth in runway delay. If the proposed runway improvements were not implemented, this project would still be justified to improve ground circulation and reduce the current level of congestion.
- **Replacement of Air Cargo Facilities.** The initial requirement for air cargo development is to relocate facilities displaced by construction of the Taxiway SD bridge. As the new air cargo area would be required for relocation of existing users, this facility must be completed prior to the initiation of the Taxiway SD bridge and associated airfield circulation improvements. The air cargo facilities that would be displaced by the Taxiway SD bridge are part of a larger air cargo area. Therefore, a one-for-one replacement of aircraft ramp area at a new location would not provide the aircraft circulation space required to accommodate the displaced activity. Further, this development was sited in the northeast corner of the Airport as it requires a large area with direct airfield and roadway access. These requirements effectively eliminated other potential sites on the airport.

5. Consolidated Rental Car Facility

The consolidated rental car facility would provide the optimal means of meeting current and future demand for rental car facilities at the Airport. This project would replace several existing separate rental car facilities with a larger single consolidated facility, providing greater space for the existing rental car companies. By consolidating users and mandating a transport system, HAS would reduce the number of rental car shuttles needed to serve the terminal area. In addition, this facility would be closer to the major off-airport origins and destinations, thus further reducing on-airport vehicular traffic. If this consolidated facility were not constructed, demand for rental cars could continue to be served, but with a lower quality of service to the passenger and increased congestion on airport roadways. Demand would be served because operators would either maximize efficiency of their individual operation at the expense of the roadway network, construct additional off-airport facilities, or both. For example, on-airport rental car companies facing a shortage of space could split operations to provide additional

storage and maintenance facilities at an off-airport location. This approach would entail greater use of shuttles, unnecessary vehicular movements, and transfers of rental cars between locations to maintain acceptable levels of customer service.

Demand for rental cars is a function of the nonresident origin and destination (O&D) traffic at an airport. This traffic would be served whether or not improvements are implemented at the Airport. In 1997, about 49% of the 14 million enplaned passengers originated in the Houston area. By 2017, it is estimated that 44% of over 30 million enplaned passengers would originate in this area. If additional runway capacity is not developed at the Airport, it is likely that the airlines would continue to serve the O&D demand. If the number of available airline seats decreases, it is more likely that connecting rather than originating passengers would be routed through other airports. Therefore, demand for rental cars is not dependent on the development of additional airfield capacity.

SECTION 3 - AGENCY ACTIONS

Actions to implement the proposed project at George Bush Intercontinental Airport are to be taken by the FAA and the City of Houston.

The general Federal actions, include:

- Approval of the Airport Layout Plan depicting one new air carrier length runway and associated airport improvements identified as part of the proposed action in Chapter 2 of the FEIS;
- Installation and/or relocation of visual and instrument aids to navigation, including the relocation of the Category I ILS from Runway 15L/33R to Runway 15R/33L and installation of the Category III ILS for Runway 8L/26R.
- Approval of associated flight procedures and safety actions (Implement revised air traffic arrival and departure procedures for Runway 15R-33L; Publish revised instrument approach procedures for Runway 15R-33L; Cancel instrument approach procedures for Runway 15L-33R; Implement triple simultaneous parallel instrument landing system (ILS) approach and departure procedures for Runways 9-27, 8R-26L, and the new Runway 8L-26R; and
- Determination that the proposed action and airport improvements are eligible for federal funding (subject to the availability of funding) in accordance with FAA Order 5100.38A, Airport Improvement Program Handbook.

The underlying safety elements of the FAA approval actions shall include:

- Determinations, through the aeronautical study process, of effects upon safe and efficient utilization of airspace, including obstructions to navigable airspace (FAR Part 157, 49 USC 40103(b) and 40113).
- Determination of conformance with FAA design criteria and approval of construction plans and specifications (Grant Requirements).
- Determination that the proposed action is in conformance with federal grant agreements with consideration of the provisions of Federal Aviation Regulations (FAR Parts 77, 157, and 169).
- Review and approval of amended Airport Certification Manual (FAR Part 139).
- Review and approval of amended Airport Security Plan (FAR Part 107)(49 USC 44706).
- Installation and/or relocation of visual and instrument aids to navigation, including the relocation of the Category I ILS from Runway 15L/33R to Runway 15R/33L and installation of the Category III ILS for Runway 8L/26R.
- Development of air traffic control and airspace management procedures to effect the safe and efficient movement of air traffic to and from the proposed new runway, including the development of a system for the routing of arriving and departing traffic and the design, establishment, and publication of standardized flight operating procedures, including instrument approach procedures and standard instrument departure procedures (49 U.S.C. § 40103(b) and FAR Part 95), as needed.
- Designation of controlled airspace and revised routing (FAR Part 71 and 75), as needed.

The Airport has submitted a revised ALP for approval showing the proposed airside and landside improvements that comprise the proposed action. These were identified in the FEIS (Section 2.1.2.) and include the projects proposed by the City of Houston. These are also identified in the FEIS as the "Preferred Alternative." These are:

- Construction of one new air carrier length runway (8L-26R);
- Expansion of an existing runway (15R-33L);
- Construction of a new cargo area;
- Construction of associated taxiways;
- Construction of Taxiway SD bridge and apron;
- Construction of a new consolidated rental car facility;
- Construction of two aircraft rescue and firefighting (ARFF) stations; and
- Expansion of the international passenger terminal.

We have determined that the ALP may be approved to depict these airport improvements. We considered the effect upon the safe and efficient utilization of airspace, factors affecting the control of air traffic, conformance with FAA design criteria, and federal grant agreements (see Federal Aviation Regulations [FAR] and 49 U.S.C. 47107(a)(16).

The Houston Airport System (HAS) has applied for federal financial assistance for some of project items depicted on the ALP and described in the FEIS (Section 2.1.2). We have determined that HAS is eligible for federal funding, although this should not be construed as a commitment to issue a grant for federal funding. .

In reaching this determination, careful consideration has been given to:

- IAH as a part of the national air transportation system and the Airport's capacity/delay reduction needs through the year 2017;
- The aviation safety and operational objectives of the project in the light of the various aeronautical factors and judgments presented;
- The anticipated environmental impacts of the proposed action and alternatives;
- Consideration of alternatives to the proposed action, including the environmentally preferred alternative; and
- Mitigation measures to minimize or avoid harm from the proposed action, including the means to monitor and enforce mitigation measures through conditions of approval set forth in the ROD.

A discussion of the leading factors considered by the agency in reaching this decision follows.

SECTION 4 - ALTERNATIVES ANALYSIS

In addition to the relevant environmental statutes, the FAA, in its consideration of alternatives, has kept in mind two agency statutory missions: to encourage the development of civil aeronautics and air commerce in the United States (49 U.S.C. 40104); and to plan the kind of airport development necessary to provide a safe, efficient, and integrated system of public-use airports adequate to anticipate and meet the needs of civil aeronautics, national defense and the United States Postal Service (49 U.S.C. 47103). As a policy consideration, the construction and operation of the proposed improvements will provide significant delay benefits (which are a function of capacity compared to demand) not only to Southeast Texas, but also to the national airspace system.

While the FAA does not have the authority to control or direct the actions and decisions of the City of Houston relative to planning for this project, it does have the authority to withhold project approval, including federal funding and the other federal actions discussed in this ROD. It was from this perspective that all the various alternatives were considered in terms of evaluating and comparing their impacts to determine whether there was an alternative superior to that proposed by IAH.

This chapter describes the process used to identify reasonable alternatives meeting the purpose and need for the proposed action. The proposed improvements are intended to maintain and enhance the ability of George Bush Intercontinental Airport to support connecting hub operations by (1) reducing airfield congestion and aircraft delay, (2) accommodating forecast growth in passenger and cargo activity, and (3) enhancing the efficiency of Airport operations. Sixteen preliminary airfield development alternatives were identified prior to the agency scoping meetings and public information workshops. These alternatives were presented in the *Pre-Scoping Document* (FEIS, Appendix A) and at the scoping meeting and public information workshops. These preliminary alternatives were used to develop the categories of alternatives described in this chapter.

As explained in the FEIS, the discussion of alternatives, with the exception of the no action alternative, includes three other, non-runway projects. These are the (1) International Services Expansion Program (ISEP), (2) Taxiway SD Bridge, Ramp Widening, and Air Cargo Facilities, and (3) Consolidated Rental Car Facility. These were considered a part of each of the build alternatives.

Types of Alternatives

The following five types of alternatives were identified:

- **Type A—No Action.** The Houston Airport System would take no action to substantially improve the existing airfield.
- **Type B—Runway 15R-33L Alternatives.** Commuter/general aviation Runway 15R-33L would be extended and widened to increase departure capacity by

accommodating larger air carrier aircraft.

- **Type C—Runway 8L-26R Alternatives.** A new runway (8L-26R) parallel to and north of Runway 8-26 would be constructed, primarily to increase arrival capacity.
- **Type D—Runway 9R-27L Alternatives.** A new runway parallel to and south of Runway 9-27 would be constructed, primarily to increase arrival capacity.
- **Type E—Demand Management Alternatives.** Various management measures to reduce and/or more evenly distribute aviation demand at the Airport would be implemented. No improvements to the airfield would be implemented.

Potential Alternatives

The potential alternatives are described briefly below and a schematic diagram of each can be found in the FEIS (Figure 3-1).

Alternative A—No Action. In this no-build alternative, no substantial improvements would be made to the existing airfield.

Alternative B.1—Extend (to the North and South) and Widen Existing Runway 15R-33L to 10,000 Feet by 150 Feet. This alternative consists of extending and widening existing 6,038-foot by 100-foot Runway 15R-33L to 10,000 feet by 150 feet. The runway would be extended 500 feet to the north and 3,462 feet to the south to allow larger aircraft to depart from the runway during peak hours. In this alternative, the thresholds of Runways 15R and 15L would be staggered 500 feet. A greater stagger would result in unacceptable operational penalties because of interactions between aircraft on the parallel runways.

Alternative B.2—Extend (to the South) and Widen Existing Runway 15R-33L to 10,000 Feet by 150 Feet. This alternative consists of extending and widening existing 6,038-foot by 100-foot Runway 15R-33L to 10,000 feet by 150 feet. The runway would be extended 3,962 feet to the south to allow larger aircraft to depart from the runway during peak hours. In this alternative, the thresholds of Runways 15R and 15L would be aligned.

Alternative C.1—Construct New Parallel Runway 8L-26R with 1,020-Foot Runway Separation. This alternative consists of constructing a new 9,400-foot-long by 150-foot-wide Runway 8L-26R 1,020 feet north of and parallel to existing Runway 8-26 (which would be renamed 8R-26L) to accommodate air carrier aircraft. Alternative C.1 would permit independent VFR arrivals and departures on the close parallel runways, with some restrictions. The 1,020-foot separation would permit Airplane Design Group V (includes aircraft with wingspans of 171 through 213 feet, such as the B-747) or smaller aircraft to hold on the ground between the two runways.

Alternative C.2—Construct New Parallel Runway 8L-26R with 3,400-Foot Runway Separation. This alternative consists of constructing a new 9,400-foot-

long by 150-foot-wide Runway 8L-26R 3,400 feet north of and parallel to existing Runway 8-26 (which would be renamed 8R-26L) to accommodate air carrier aircraft. The 3,400-foot separation would permit dual independent ILS approaches to Runways 8R-26L and 8L-26R with high-update radar. Current separation requirements would not permit triple independent ILS approaches to Runways 8R-26L, 8L-26R, and 9-27.

Alternative C.3—Construct New Parallel Runway 8L-26R with 4,300-Foot Runway Separation. This alternative consists of constructing a new 9,400-foot-long by 150-foot-wide Runway 8L-26R 4,300 feet north of and parallel to existing Runway 8-26 (which would be renamed 8R-26L) to accommodate air carrier aircraft. The 4,300-foot separation could permit triple independent ILS approaches to Runways 8R-26L, 8L-26R, and 9-27 with a final monitor aid.

Alternative C.4—Construct New Parallel Runway 8L-26R with 5,000-Foot Runway Separation. This alternative consists of constructing a new 8,500-foot-long by 150-foot-wide Runway 8L-26R 5,000 feet north of and parallel to existing Runway 8-26 (which would be renamed 8R-26L) to accommodate air carrier aircraft. To avoid the relocation of Farm to Market Road (F.M.) 1960 (Loop 184), the new parallel runway would be constructed at a length of 8,500 feet, with the thresholds staggered from those of Runway 8-26. Continental Airlines, the primary airline serving the Airport, has indicated that 8,500 feet would be the minimum acceptable length for accommodating arriving aircraft. The 5,000-foot separation would permit triple independent ILS approaches to Runways 8R-26L, 8L-26R, and 9-27. This separation might also permit quadruple independent ILS approaches if a fourth parallel runway (Runway 9R-27L) were to be constructed.

Alternative B/C.3—Extend (to the North and South) and Widen Existing Runway 15R-33L to 10,000 Feet by 150 Feet and Construct New Parallel Runway 8L-26R with 4,300-Foot Runway Separation. Alternative B/C.3 consists of extending existing Runway 15R-33L to the north and south to 10,000 feet, widening the runway to 150 feet, and constructing a new 9,400-foot-long by 150-foot-wide Runway 8L-26R 4,300 feet north of and parallel to existing Runway 8-26 to accommodate air carrier aircraft. This alternative would increase both arrival and departure capacity. The 4,300-foot runway separation could permit triple independent ILS approaches to Runways 8-26 (which would be renamed Runway 8R-26L), 8L-26R, and 9-27 with a final monitor aid.

Alternative B/C.4—Extend (to the North and South) and Widen Existing Runway 15R-33L to 10,000 Feet by 150 Feet and Construct New Parallel Runway 8L-26R with 5,000-Foot Runway Separation. Alternative B/C.4 consists of extending existing Runway 15R-33L to the north and south to 10,000 feet, widening the runway to 150 feet, and constructing a new 8,500-foot-long by 150-foot-wide Runway 8L-26R 5,000 feet north of and parallel to existing Runway 8-26 to accommodate air carrier aircraft. To avoid the

relocation of F.M. 1960, the new parallel runway would be constructed at a length of 8,500 feet, with the thresholds staggered from those of Runway 8-26. Continental Airlines, the primary airline serving the Airport, has indicated that 8,500 feet would be the minimum acceptable length for accommodating arriving aircraft. This alternative would increase both arrival and departure capacity. The 5,000-foot separation would permit triple independent ILS approaches to Runways 8R-26L, 8L-26R, and 9-27. The 5,000-foot separation might also permit quadruple independent IFR approaches if a fourth parallel runway (Runway 9R-27L) were to be constructed.

Alternative D.1—Construct New Runway 9R-27L with 1,020-Foot Runway Separation. This alternative consists of constructing a new 9,400-foot-long by 150-foot-wide Runway 9R-27L 1,020 feet south of and parallel to existing Runway 9-27 (which would be renamed 9L-27R) to accommodate air carrier aircraft. Alternative D.1 would permit independent VFR arrivals and departures on the close parallel runways, with some restrictions. The 1,020-foot separation would permit Airplane Design Group V or smaller aircraft to hold on the ground between the two runways. Operations on the parallel runway pair to and from the west would interfere with the use of existing Runways 15R-33L and 15L-33R.

Alternative D.2—Construct New Runway 9R-27L with 3,400-Foot Runway Separation. This alternative consists of constructing a new 8,500-foot by 150-foot Runway 9R-27L 3,400 feet south of and parallel to existing Runway 9-27 (which would be renamed 9L-27R) to accommodate air carrier aircraft. The 3,400-foot separation would permit dual independent ILS approaches to Runways 9R-27L and 9L-27R with high-update radar. Current separation requirements would not permit triple independent ILS approaches to Runways 9R-27L, 9L-27R, and 8-26. Operations on this new runway to and from the west would interfere with the use of existing Runways 15R-33L and 15L-33R.

Alternative D.3—Construct New Runway 9R-27L with 4,300-Foot Runway Separation. This alternative consists of constructing a new 8,250-foot-long by 150-foot-wide Runway 9R-27L 4,300 feet south of and parallel to existing Runway 9-27 (which would be renamed 9L-27R) to accommodate air carrier aircraft. The 4,300-foot separation would permit triple independent ILS approaches to Runways 9R-27L, 9L-27R, and 8-26 with a final monitor aid. Operations on this new runway to and from the west would interfere with the use of existing Runways 15R-33L and 15L-33R.

Alternative D.4—Construct New Runway 9R-27L with 5,000-Foot Runway Separation. This alternative consists of constructing a new 8,250-foot-long by 150-foot-wide Runway 9R-27L 5,000 feet south of and parallel to existing Runway 9-27 (which would be renamed 9L-27R) to accommodate air carrier aircraft. The 5,000-foot separation would permit triple independent ILS approaches to Runways 9R-27L, 9L-27R, and 8-26. This separation might also

permit quadruple independent ILS approaches if a fourth parallel runway (Runway 8L-26R) were to be constructed. Operations on this new runway to and from the west would interfere with the use of existing Runways 15R-33L and 15L-33R.

Alternative E.1—Transfer Activity to Other Existing Airport(s). This demand management alternative consists of the transfer of some future aviation activity from George Bush Intercontinental Airport to one or more existing airports in the Houston/Galveston metropolitan area, possibly eliminating the need for airfield improvements at the Airport.

Alternative E.2—Encourage Use of Other Modes of Transportation. This demand management alternative consists of encouraging the use of other modes of transportation by origin and destination (O&D) passengers. Approximately 30% of the O&D passengers using the Airport travel short-haul distances to and from Houston (less than 500 miles). Most of this short-haul demand could be accommodated within one day by the use of other modes of transportation, such as automobiles, buses, and trains.

Alternative E.3—Reduce Peak Period Activity. Connecting hub airports are characterized by high concentrations of activity during peak periods. This demand management alternative consists of reducing the concentration of activity during these periods, which, in turn, might reduce the need for additional facilities.

Screening of Alternatives

The alternatives were screened to eliminate those that were not practicable, did not meet the stated purpose and need for the proposed action, or were inferior to similar alternatives on environmental grounds. With these guidelines in mind, the following screening criteria were developed.

- **Hub Maintenance.** As a fundamental condition of the purpose and need for the proposed action, the ability of the Airport to serve as a connecting hub must be maintained. Accordingly, alternatives that would adversely affect the ability of the Airport to support connecting hub operations would be inconsistent with the purpose and need for the proposed action.
- **Delay Reduction.** Alternatives intended to enhance departure capacity must reduce aircraft delay sufficiently to justify the economic investment. Alternatives intended to enhance arrival capacity should provide the ability to accommodate three independent IFR arrival streams.
- **Environmental Factors.** Alternatives providing the same type of runway configuration and operational benefits are considered to be similar for purposes of this analysis. Alternatives that are clearly inferior to similar alternatives on environmental grounds should be eliminated. Some of the relevant environmental factors include effects on wetlands, potential

roadway relocation, aircraft noise exposure, air quality, and the disruption of existing development patterns.

Each of these factors was applied to each alternative. All but six of the alternatives were eliminated based their ability to meet the described needs.

Comparison of Alternatives Retained for Detailed Consideration

On the basis of the screening criteria used to evaluate potential alternatives, six alternatives were determined to be reasonable, prudent, and feasible and were retained for consideration. From the list of potential alternatives described above, the following alternatives were retained for detailed consideration in the FEIS: Alternative A (no action), Alternative B.1, Alternative C.3, Alternative C.4, Alternative B/C.3, and Alternative B/C.4.

A comparison of the operational issues, cost considerations, environmental impacts, and ability to meet project needs for each of the six alternatives was retained for detailed consideration in the FEIS. A summary comparison of the six alternatives is provided in the FEIS (Table 3-1). The comparison summarized in the FEIS addressed material differences among the alternatives in certain impact categories. In some categories, the impacts were potentially significant. These impact categories included aircraft noise, social, air quality, construction, and wetlands. From this final comparison, a preferred alternative was selected.

Selected Alternative

The six alternatives retained for detailed consideration all have certain environmental impacts. The no-action alternative, Alternative A, generally has the least environmental impact, but would not meet any of the project needs. Alternatives B.1, C.3, and C.4 would meet some, but not all of the defined project needs.

Of the six alternatives considered in detail, only Alternatives B/C.3 and B/C.4 would meet all defined project needs. As these alternatives involve construction of both Runway 15R-33L improvements and new parallel Runway 8L-26R, the area physically affected by development would be greater than for the other alternatives. This larger development area results in somewhat greater impacts to wetlands, as well as the need to acquire developed property. All of these impacts can be mitigated (FEIS, Chapter 6). Although construction of the runway improvements and the new runway would lead to increased air pollutant emissions during construction, the long-term air quality benefits of these alternatives would be greater than for all other alternatives. In terms of aircraft noise exposure, these alternatives would affect fewer people than the Runway 15R-33L extension only, but more than construction of Runway 8L-26R only (FEIS, Chapter 5). These noise impacts can also be mitigated.

Both Alternatives B/C.3 and B/C.4 could permit triple independent ILS approaches. Because of the greater separation between the parallel runways, Alternative B/C.4 would be more likely than Alternative B/C.3 to permit quadruple independent ILS approaches if a fourth parallel runway

were to be constructed. In terms of potential environmental impacts, these alternatives are essentially the same. Alternative B/C.4 would affect 3% more wetlands, require 4% more relocations, and include 7% fewer people in the DNL 65 noise contour than would Alternative B/C.3.

The FAA carefully considered and analyzed the impacts of the various alternatives. We also evaluated the ability of these alternatives to satisfy the identified purposes and needs for this proposal. The agency also reviewed the testimony at the public hearings, comments submitted in response to the circulation of the DEIS, including those received through coordination with federal, state, and local agencies. After distribution of the FEIS, the FAA also reviewed the letters from the Coastal Coordination Council and the Office of the Governor (Appendix 1) essentially concluding that they had no comments on the FEIS. Taking all of these factors into consideration, the FAA selected Alternative B/C.4 as the preferred alternative because it would meet all defined project needs and provide the greatest flexibility in meeting the longer term needs of the Airport. Because the environmental impact differences between Alternative B/C.4 and the only other alternative meeting all project needs (B/C.3) are negligible, Alternative B/C.4 is also the environmentally preferred alternative.

SECTION 5 - PUBLIC AND AGENCY INVOLVEMENT

Agency and public input were actively solicited throughout the environmental process. The public information program included information meetings at three points in the process in addition to the public hearing on the Draft EIS. Each of these public information meetings were conducted at two separate locations in the potentially affected areas. In all cases, these meetings were advertised in local community newspapers and as well as in the Houston Chronicle, the primary newspaper of general distribution in the Houston metropolitan area. In addition, meeting notifications were sent to numerous government agencies, elected officials, Airport tenants, business groups, environmental groups, and neighborhood leaders. The following public and agency involvement opportunities were provided during the preparation of the EIS.

Scoping

- A Pre-Scoping Document was distributed to 36 Federal, State, and local agencies on November 3, 1998.
- An agency scoping meeting was conducted on December 9, 1998.
- Public scoping meetings were conducted on December 9 and 10, 1998. Approximately 80 people attended the two meetings. A total of 154 comments were submitted on the Pre-Scoping document, either in writing or at the scoping meetings.

Public Information Meeting 1

- Meeting notification included a legal notice in the Houston Chronicle, display ads in several local newspapers, press releases, and a flyer mailed to 385 agencies, elected officials, Airport tenants, business groups, environmental groups, and neighborhood leaders.
- Meetings were conducted between 6:00 p.m. and 9 p.m. on June 22 and 24, 1999. Approximately 90 persons attended the two meetings.

Public Information Meeting 2

- Meeting notification included a legal notice in the Houston Chronicle, display ads in several local newspapers, press releases, and a flyer mailed to 476 agencies, elected officials, Airport tenants, business groups, environmental groups, and neighborhood leaders.
- Meetings were conducted between 6:00 p.m. and 9 p.m. on August 31 and September 2, 1999. Approximately 80 persons attended the two meetings.

Draft EIS

- 200 copies of the Draft EIS were distributed
- These were available at seven local libraries, HAS, and the FAA.
- The notice of availability of the Draft EIS was published in the November 26, 1999, Federal Register.

Public Hearing

- Public hearing notification included a legal notice in the Houston Chronicle, display ads in several local newspapers, press releases, and flyers mailed to government agencies, elected officials, Airport tenants, business groups, environmental groups, and neighborhood leaders.
- The public hearing was conducted on December 16, 1999. Approximately 90 persons attended the public hearing. A total of 119 comments were received from 82 agencies, jurisdictions, interest groups, and individuals.

Air Quality General Conformity

- A draft general conformity determination was issued in April 2000.
- Copies were available at 7 local libraries, HAS, the FAA and were distributed to the appropriate resource agencies.
- Notification included a legal notice in the Houston Chronicle published on April 30, 2000, for the draft and July 16, 2000, for the final determination.
- Coordination meetings were held with the U.S. EPA (February 9, 2000) and TNRCC (May 18, 2000).
- A final general conformity determination was issued in June 2000 and was included in the FEIS.

Final EIS

- 200 Copies of the Final EIS were distributed.
- These were available at 7 local libraries, HAS, and the FAA.
- Notification included a legal notice in the Houston Chronicle published on July 16, 2000.
- The notice of availability of the Final EIS was published in the July 21, 2000, Federal Register.

Descriptions of the public and agency meetings can be found in the FEIS (Appendix A). A summary of comments received on the Draft EIS and at the public hearing are also located in the FEIS (Appendix H). There were no comments received from the public on the FEIS.

SECTION 6 - IMPACTS AND MITIGATION MEASURES

This section describes the environmental impact categories that were examined in the FEIS, the potential impacts, and mitigation for the proposed action.

Impact Categories

This section contains a summary of the principle findings relative to environmental consequences of the proposed action of each of the impact categories examined. More detailed descriptions of the evaluations conducted for each of the environmental categories examined for the selected alternative can be found in the FEIS (Section 4).

In accordance with environmental guidance found in FAA Order 1050.1D, Change 4, *Policies and Procedures for Considering Environmental Impacts*, and Order 5050.4A, *Airport Environmental Handbook*, 24 impact areas were systematically examined in this EIS. These 24 areas were:

- (1) Noise;
- (2) Compatible Land Use;
- (3) Social;
- (4) Induced Socioeconomic;
- (5) Environmental Justice;
- (6) Hazardous Materials;
- (7) Air Quality;
- (8) Water Quality, Water Supply, and Stormwater Control;
- (9) Department of Transportation Act, Section 4(f) Lands;
- (10) Biotic Communities;
- (11) Historic, Architectural, Archeological and Cultural Resources;
- (12) Endangered and Threatened Species of Flora and Fauna;
- (13) Wetlands;
- (14) Floodplains;
- (15) Coastal Zone Management Program and Coastal Barriers;
- (16) Wild and Scenic Rivers;
- (17) Farmlands;
- (18) Energy Supply and Natural Resources;
- (19) Light Emissions;
- (20) Solid Waste;
- (21) Construction;
- (22) Design, Art, and Architecture;
- (23) Cumulative Impacts; and
- (24) Other Considerations.

Impacts

A detailed environmental analysis of the potential environmental impacts resulting from the construction and operation connected with the selected alternative was accomplished as part of the FEIS. Two study periods were examined, 2002 for the baseline conditions and 2017 for conditions anticipated occurring in the future with and without development of the preferred alternative. The following are impacts in the area of potential effect (APE):

(1) Noise

Aircraft noise exposure in the Airport environs was analyzed for 2002 and 2017 conditions in accordance with the methodology for preparing aircraft noise exposure maps contained in FAA Order 5050.4A. For all of the alternatives reviewed in the FEIS, including the preferred alternative, noise levels would decrease from existing conditions. The FAA's Integrated Noise Model (INM), Version 5.1a, was used to evaluate potential aircraft noise effects.

Most of the land affected by the alternatives under consideration (for both years) is currently undeveloped. However, for most of the alternatives, residences and one or two religious facilities would be affected by DNL 65 and greater. The impacts of the alternatives on population and occupied dwellings range from approximately 300 to 900 affected persons and from 100 to 350 affected dwellings.

Aircraft noise would be introduced to new areas as the result of constructing the new parallel Runway 8L-26R. The additional departure capacity provided by the extension of Runway 15R-33L would allow greater use of this runway for departures, leaving the widely-spaced parallel runways free to accommodate more arrivals. Consequently, (1) the DNL 65 noise exposure area would be expected to extend over a greater area southwest of the Airport as a result of increased departures on Runways 15R and 15L, and (2) the DNL 65 noise exposure area would be expected to shrink northwest of the Airport as a result of fewer departures on the parallel runways.

Potentially significant noise impacts associated with the extension and widening of Runway 15R-33L would occur in the area along the western perimeter of the Airport. These impacts relate to the increased use of Runway 15R for departures. Because increasing departure activity on Runway 15R is the purpose of extending and widening the runway, limiting the use of this runway is not consistent with the purpose and need for the Runway 15R-33L project. These impacts would occur in areas directly beside the runway.

Potentially significant noise impacts associated with proposed Runway 8L-26R would occur in the areas along the extended centerline immediately east and west of the proposed runway. These impacts would be generated by aircraft arrivals on the runway. Because use of the new runway for arrivals during peak arrival periods is the purpose of the proposed action, limiting the number of aircraft landing on the new runway would not be consistent with the purpose and need for the project. The area of potential effect (APE) for noise impacts consists of the areas that would be exposed to DNL 65 associated with the operation of the runways under the proposed

action and its alternatives for 2002 and 2017. At these higher levels, remedial treatments, such as sound insulation, purchase assurance, transaction assistance, and acquisition of easements or similar programs, are typically used. In urban areas, outright acquisition of property is typically recommended only in areas exposed to higher levels of aircraft noise. For informational purposes, the noise effects within the DNL 60 noise exposure were also considered in the FEIS analysis.

Compared to the no action alternative, the preferred alternative will increase the number of people exposed to noise. For the preferred alternative, the number of homes and people exposed to DNL 65 and greater by 2002 is estimated to be 261 and 665, respectively. For the no action alternative, the number of homes and people exposed to DNL 65 and greater by 2002 is estimated to be 145 and 433, respectively. Primarily, the change in impact is to the southwest of the airport due to an increase in operations on expanded Runway 15R. One noise sensitive facility (a religious facility) and single- and multi-family residential neighborhoods are located in the impact area. By 2017, significant impacts would remain to the west of Runway 15R-33L and a small portion of the Kenswick neighborhood would experience a significant noise increase from continued growth in arrivals on Runway 26R. Mitigation for this area is described later in the section under MITIGATION.

Initial aircraft noise analyses was based upon completion of the proposed improvements by 2002. The proposed new runway is now scheduled to be completed in 2003, with 2004 being the first full year of operation for the preferred alternative. Total aircraft operations in 2004 are forecast to be 572,800, an increase of 9.3% over forecast 2002 aircraft operations. Air carrier jet operations, the major contributor to aircraft noise at the Airport, are forecast to increase 5.9% between 2002 and 2004. The forecast growth in aircraft operations between 2002 and 2004 would increase aircraft noise levels by less than 1.0 dB. This increase would not result in a discernible change in the noise exposure areas.

At this time, it appears that by 2017, some additional noise sensitive properties may begin to reach the threshold of significant impact due to forecasted increases in operations. Specifically, significant impacts would remain to the west of Runway 15R-33L, and a small portion of the Kenswick neighborhood may experience a significant noise increase resulting from continued growth in arrivals on Runway 26R. How these potential properties, and any other noise sensitive areas that may be identified in the development of the future contours, are to be addressed is described in the section under MITIGATION.

(2) Compatible Land Use

When compared to the no action alternative for 2002, each build alternative would impact a greater area of land, including residential land uses. For 2002, the preferred alternatives would have a greater number of dwelling units exposed to DNL 65 and greater. However, with noise mitigation measures, all of the land uses within the DNL 65 noise exposure area for each alternative would be compatible with aircraft noise.

The APE for compatible land use impacts consists of areas that would be exposed to DNL 65

associated with operation of the proposed action and its alternatives for 2002. For informational and comparison purposes, the land uses within the DNL 60 noise exposure area were also considered in this analysis. For the preferred alternative:

- A total of 5,569 acres of land in 2002 would be exposed to DNL 65 and greater. These land areas would include 123 acres of single-family residential land use in 2002.
- In 2002, 242 occupied dwelling units would be exposed to DNL 65 to 70 and 19 units would be exposed to DNL 70 to 75. Without noise mitigation measures, these residential properties would be incompatible with the aircraft noise levels. The affected areas would include subdivisions south and west of Runway 15L-33R, east of Runway 9-27, and east and west of new parallel Runway 8-26.

Mitigation for compatible land use is described below.

(3) Social Impacts

The social impacts associated with the preferred alternative include the relocation of residences, no more than one business, and alterations in surface transportation patterns.

The impacts associated with the preferred alternative include the acquisition of 1,685 acres of land north of the current airport boundary to accommodate the new runway. This would include a small number of housing units. One small subdivision, Lakeview Park, would be acquired in its entirety. There would be no disruption to the larger community. The average age of the residential properties in the Lakeview Park Subdivision is 29 years.

A small number of roadways will require closing. A section of Farrel Road would be closed. It is a secondary roadway that parallels other roadways in the area, such as Richey Road. This section of Farrel Road serves only one utility parcel and one residential parcel (which would be acquired) and is currently used primarily by cut-through traffic. A section of Birnamwood Boulevard would be closed. It serves undeveloped parcels and is used for access between Farrel Road and East Richey Road.

Relocation housing is available in the area. Over 1,100 residential properties are for sale in the area bordered by Beltway 8, Lake Houston, the Harris County boundary, and Steubner-Airline Road. Of these properties, approximately 300 are priced between \$50,000 and \$100,000, which is the price range of the homes to be acquired.

Changes in surface transportation would be localized and nearby alternative routes are available. Relatively small numbers of residences and no more than one business would be acquired for any alternative. Accordingly, social impacts are not considered to be significant.

All acquisitions and relocations must comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. The airport sponsor will develop a detailed plan for the relocation of all properties including residential, commercial, public, and nonprofit

organizations consistent with FAA Advisory Circular 150/5100-17, Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects.

(4) Induced Socioeconomic

The economic impact from the proposed alternative will include the acquisition and relocation of residential properties, businesses and undeveloped/vacant land.

These changes produce both positive and negative impacts. The negative impacts induced by implementation of any of the alternatives includes the loss or relocation of jobs and economic activity following relocation of businesses and the loss of property tax revenues to taxing jurisdictions as a result of the acquisition of private properties. The positive impacts include additional economic activity and employment generated by implementation of the proposed action or any of its alternatives.

The preferred alternative would entail the relocation of one commercial establishment with an estimated six employees. The no action alternative would entail no loss or relocation of jobs as a result of business relocations. All of the build alternatives would require property acquisition. The property to be acquired under the preferred alternative has a total assessed value of \$10,046,000 (1997 certified values). The three major taxing jurisdictions that would be affected by these acquisitions include Harris County, the City of Houston, and the Aldine Independent School District. A summary of the estimated annual property tax revenue losses of these tax jurisdictions related to the acquisition of property to accommodate the alternatives is provided in the FEIS (Table 5-17). In addition, the acquisitions include areas of the North Wood Municipal Utility District (MUD). The acquisitions may affect the tax rate of the remaining private properties within the MUD and the consequent indebtedness of the MUD.

Since construction of the preferred alternative would involve relocation of a commercial business located on F.M. 1960, with an estimated six employees, there would be an economic impact due to displacement of the business. The corresponding annual property tax revenue loss for the three jurisdictions associated with this alternative is \$284,100. The total economic impact of construction of the preferred alternative is estimated to be \$1,878,248,700.

No material shifts in patterns of population growth, public service demand, or business activity would result from implementation of the alternative under consideration. Economic activity generated by the alternative would substantially benefit the region. The airport sponsor is required to comply with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 in providing adequate relocation housing for any displaced residents or businesses. If it were determined that any elderly, handicapped, or illiterate persons would require relocation, special advisory services would be provided by the airport sponsor.

(5) Environmental Justice

None of the alternatives considered would generate disproportionate impacts to minority and/or

low-income populations. In each case, there would be no substantial change in the proportion of minority and/or low-income populations affected by significant levels of aircraft noise. No areas characterized by comparatively high proportions of minority and/or low-income populations would be acquired or disrupted by the alternatives under consideration, nor would such areas be exposed to a significant increase in aircraft noise.

Minorities account for 29% of the population in the areas to be acquired. About 21% of the households in the acquisition area would be classified as low-income. In 2002, minorities would represent 31% of the population within the DNL 65 noise exposure area and low-income population would represent 16% of the population within the DNL 65 noise exposure area. In 2017, minorities would represent 25% of the population within the DNL 65 noise exposure area and low-income population would represent 14% of the population within the DNL 65 noise exposure area.

The proportions of minority and/or low-income population affected by this alternative are less than 50% of the affected population, are not meaningfully greater than the minority population and/or low-income population percentage in Harris County, and are not substantially different from the percentage of minority and/or low-income population affected by the no action alternative. Therefore, it is concluded that the preferred alternative would not (1) substantially alter the proportion of minority or low-income population affected by significant levels of aircraft noise, or (2) disproportionately affect minority or low-income populations through acquisition or disruption of established communities. No mitigation measures are needed.

(6) Hazardous Materials

Most regulated hazardous wastes are products of industrial processes not usually in place at airports. However, typical airport materials are among the hundreds of materials subject to some type of regulatory control, including solvents, deicing chemicals, and fuels containing hazardous substances. The preferred alternative is not expected to generate a significant risk of release or spread of a known hazardous materials source. Accordingly, no significant impacts relating to hazardous waste are anticipated.

The construction of Runway 8L-26R will disturb an abandoned municipal landfill and adjacent sandpits located along Landfill No. 2 Road, south of F.M. 1960

As indicated in Chapter 4 of the FEIS, while in operation, the landfill was a repository for household waste, construction and demolition waste, tires and brush. According to Harris County Pollution Control, no known records indicate that the facility accepted hazardous waste. The landfill may contain household hazardous wastes mixed in with other household wastes. However, the results from investigations since the Phase I Environmental Site Assessment indicate that waste associated with normal household garbage and small volumes of construction and demolition wastes were disposed of at the landfill. Based on these investigations, no hazardous wastes appear to be disposed of at this landfill. However, if hazardous materials are found during the removal of the landfill, the materials need to be disposed of in accordance with the Conditions of Approval in this ROD.

Removal of the landfill waste and any site closure that is required would be completed prior to construction of Runway 8L-26R. Adequate landfill space is available in the area and is discussed in the Solid Waste Section of this ROD. Therefore, no significant impacts are anticipated at this time.

Some hazardous materials usage in newly developed areas will occur. This usage may increase over time and has the potential to cause long-term impacts to soils, surface water, and ground water. This potential impact, however, would not be significant because adherence to the Airport's Storm Water Pollution Prevention Plan (SWPPP) and the use of best management practices would avoid or minimize releases of hazardous materials and ensure proper response to any spills that may occur.

The locations of hazardous materials in the area of Runway 15R-33L are known and would be avoided during construction and operation. No impacts to the project area would be anticipated as a result of construction of this alternative. Potential disturbance of contaminated soils during construction would be mitigated through removal and appropriate disposal of contaminated material. No impacts are anticipated from construction of the Taxiway SD/air cargo, consolidated rental car facility, or ISEP projects. No significant impacts are anticipated to result and no further mitigation measures are required.

(7) Air Quality

The Airport is in an area designated "nonattainment" for ozone. Generally, emissions with the preferred alternative would be slightly less than with the no action alternative because the project would decrease airfield congestion and aircraft delay. Construction of the proposed improvements would temporarily increase emissions.

The Clean Air Act Amendments of 1990 and regulations promulgated thereto established thresholds (also called *de minimis* levels) for increases in emissions from a project. For the Houston-Galveston nonattainment area, these thresholds are 25 tons per year (tpy) of volatile organic compounds (VOCs) and 25 tpy of nitrogen oxides (NO_x). If the emissions increases from the project are lower than these thresholds, then no further review is required and the project is presumed to conform with the applicable State Implementation Plan (SIP). If the emissions increases exceed these thresholds, then the Federal agency must prepare a conformity determination. The Texas Air Rules applies the same requirements as the Clean Air Act, as amended. FAA's general conformity determination can be found in Appendix E of the FEIS.

Emissions inventory summaries are provided in Table 5-22 of the FEIS as estimated using the Emissions and Dispersion Modeling System (EDMS). This table shows the operational emissions at IAH in 1998, 2002, 2007 and 2017. The 1998 emissions represent the existing conditions. According to the FEIS (Table 5-24), which shows construction emissions, 2004 would be the first full year of operations for both runways. The 2007 emissions represent the year in which the Houston-Galveston nonattainment area must demonstrate attainment of air

quality standards; and the 2017 emissions represent the end of the EIS forecast period. All of the build alternatives would improve air quality compared to the no action alternative.

Ambient concentrations of air pollutants are subject to the National Ambient Air Quality Standards (NAAQS). The City of Houston and the State of Texas also have ambient air quality standards that are the same as the NAAQS. Detailed modeling results are provided in Appendix E of the FEIS. For all pollutants and averaging times, all estimated worst case concentrations are below the applicable NAAQS as well as the Texas ambient air quality standards.

Construction emissions, as well as emissions from operations, were calculated for each alternative considered. The total emissions for the preferred alternative can be found in the General Conformity Determination (Appendix E, FEIS). Emissions from several components of construction activities were evaluated. These include emissions from on-site construction equipment (backhoes, bulldozers, graders, etc.); haul vehicles (cement trucks, dump trucks, etc.); and construction company worker vehicles getting to and from the site. Since the publication of the Draft EIS, HAS has indicated that clearing of the area may include foresting existing trees and hauling and/or burning the remains of trees. It was assumed in the construction emissions analyses that the site clearing method that would result in the highest emissions would be used. Construction activities for individual projects are scheduled to begin in late 2000 and extend through 2003. Therefore, emissions from these activities were identified separately for each calendar year. Because the Houston-Galveston area is in nonattainment for ozone, *de minimis* levels apply to ozone precursors, specifically VOC and NO_x. VOC and NO_x emissions from each of the construction projects under detailed consideration would exceed the *de minimis* thresholds at some time during the construction period. Accordingly, the SIP budget for construction-related emissions was analyzed.

Construction activity for the proposed project would generate a maximum of nearly 924.5 tons of NO_x during 2001, about 3% of the construction equipment NO_x emissions budget for 1990. The construction emissions would be substantially lower during the remainder of the construction period.

Construction activity for the proposed project would generate a maximum of nearly 721 tons of VOC during 2001, about 16% of the construction equipment VOC emissions budget for 1990. Construction emissions would be substantially lower during the remainder of the construction period. Therefore, because the SIP emissions budget is of sufficient size to account for the needs of the proposed project, the proposed action is deemed to be in conformity with the SIP emissions budgets and goals to attain the ozone standard.

Construction emissions were estimated based on the projected construction activity schedule, including the number of construction vehicles and equipment units as well as their utilization rates. Emissions from onsite burning were estimated using the projected number of acres to be cleared, an EPA conversion factor of 70 tons of vegetation debris per acre of cleared ground, and the construction activity schedule. Emissions factors were taken from EPA databases for vehicle and construction equipment.

Passenger enplanements and aircraft operations with the preferred alternative would be the same as with no action alternative through 2007. By 2017, it is expected that the no action alternative would constrain aircraft activity to 662,400 annual operations. No change in forecast passenger activity from the no action alternative is anticipated.

The total changes in emissions inventories (including construction emissions) relative to the no action alternative were compared to the thresholds given in the Clean Air Act, as amended. Construction emissions levels also were compared to these thresholds. The maximum estimated ambient concentrations were compared to the NAAQS.

The preferred alternative would require slightly longer taxiing times to and from the terminals compared with Runway 8L-26R at 4,300-foot separation. Operational emissions with the preferred alternative would be lower than with other alternatives, including the no action alternative, in 2002, 2007, and 2017. Emissions inventories by source component for the preferred alternative in 2002, 2007, and 2017 are presented in the FEIS (Table 5-30).

Based on the emissions inventory analyses present above, no mitigation of air quality impacts would be required because, for each build alternative, emissions of all pollutants would be lower than for the no action alternative. Similarly, based on the dispersion modeling analyses present above, no mitigation of air quality impacts would be required because, for each build alternative, the predicted concentrations of all pollutants are lower than the applicable NAAQS.

Fugitive dust, which may be emitted during construction and as a result of wind erosion over exposed earth surfaces, has the greatest nuisance potential. Dust generation is highly variable. The amount of dust generated on a given day depends on the types and amount of construction activity and on meteorological and soil conditions. Although construction activities may have a discernible effect within a short distance from the project site, the potential for nuisance is limited and the effect is temporary (i.e., it will cease when construction activities cease). The most likely effect of construction would be increased dustfall immediately downwind of the area of active construction. Adverse air pollutant emissions, primarily dust, would be minimized by the use of procedures set forth in FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports*. These procedures restrict the emission of dust (particulate matter) and provide a series of measures that can be taken to prevent particulate matter from becoming airborne.

Consultation with the Texas Natural Resources Conservation Commission (TNRCC) – the Texas Governor’s designated agency for air quality – certifies that there is a reasonable assurance that the proposed action will meet all applicable air quality standards in accordance with 49 U.S.C. 47106 (c), formerly known as Section 509 (b)(7) of the Airport and Airway Improvement Act, (Appendix 2).

(8) Water Quality, Water Supply, and Stormwater Control

Impacts to surface water and ground water would be caused by the clearing and grading of approximately 2,896 acres of vegetated land. Approximately 481 acres of new impervious

surfaces would be installed for all project elements. Stormwater runoff at the Airport would increase by approximately 915 cubic feet per second (cf/s). Construction activities would result in the filling of approximately 100 acres of wetlands and alteration of surface water drainage patterns (this “100 acre” value varies in the FEIS from 99 to 101 acres due to rounding).

Development of a new Runway 8L-26R to the north and extending and widening existing Runway 15R-33L would create new stormwater drainage channels and detention ponds. The detention ponds would be constructed at channel outlets to control surface water flow and mitigate potential surface water impacts. Proper erosion control would be established during construction activities, and non-impervious areas would be re-vegetated to limit water quality impacts. Significant impacts to surface water resources as a result of development and operation of any of the alternatives would not be anticipated.

The APE for water quality impacts encompasses areas that could be affected by construction activity and waterbodies receiving stormwater runoff. Potential causes of impacts to ground water include clearing of vegetation, compaction of surface soils from heavy equipment, grading of land, filling of wetlands, installation of impervious surfaces, and spills or spread of hazardous materials. Impacts would be minimized by the use of best management practices during construction and operation of the proposed action or its alternatives and by following the airport SWPPP and the guidelines set forth in the National Pollution Discharge Elimination System (NPDES) permit.

Activities associated with ongoing operation of the alternatives, with the exception of the no action alternative, may result in impacts to surface water that include increased runoff, increased water turbidity, decreased floodwater storage, introduction of contaminants, altered drainage patterns, decreased dissolved oxygen concentrations, adverse impacts to aquatic ecosystems, and streambed scouring.

Ground water could also be affected if construction activities uncover or disturb contaminated soils. The abandoned municipal landfill north of the Airport may potentially contain some contaminated media. The results from Phases II and III of the Environmental Site Assessments indicate that waste associated with normal household garbage and small volumes of construction and demolition waste were disposed of at the landfill. Further investigation would be performed during the design and construction process to determine the presence and, if applicable, the extent of hazardous material contamination (FEIS, Section 5.6).

Again, best management practices, such as proper erosion control and reseeded, as well as adherence to the NPDES construction permit, would be used during construction to minimize potential water quality impacts. Construction and operational controls and mitigation measures would ensure that water quality standards are met. Therefore, potential impacts to surface water would not be significant. Although construction and operation activities could affect both surface and ground water resources, most potential impact would be avoided or minimized by the use of standard and specialized construction techniques and operational mitigation measures. Shallow ground water impacts from proposed development would include alterations to water table elevations and infiltration patterns. No impacts to drinking water resources would be anticipated. No significant impacts to ground water resources as a result of development and

operation of any of the alternatives would be anticipated. The use of proper construction and operation techniques, mitigation measures, and adherence to the Airport SWPPP and NPDES permit would prevent significant impacts to water quality as a result of implementation of the proposed action.

Consultation with the Texas Natural Resources Conservation Commission (TNRCC) – the Texas Governor’s designated agency for water quality – certifies that there is a reasonable assurance that the proposed action will meet all applicable water quality standards in accordance with 49 U.S.C. 47106 (c), formerly known as Section 509 (b)(7) of the Airport and Airway Improvement Act, (Appendix 2).

HAS has applied for a Section 404 permit from the U.S. Army Corps of Engineers, Galveston District. This application is still in the review process at the time of this approval. However, any approval given here by the FAA is contingent on a similar approval by the Corps for wetland mitigation.

(9) Department of Transportation Act, Section 4(f) Lands

Section 4(f) of the Department of Transportation Act of 1966 was recodified as Section 303(c) of Title 49 of the United States Code (49 U.S.C. 303). This section of what was the *Department of Transportation Act* provides that the Secretary of Transportation shall not approve any program or project that requires the use of any publicly owned park or other protected resource unless there is no feasible and prudent alternative to the use of such land, and that such a program or project include all possible planning to minimize any adverse effects resulting from the use of the land. Section 4(f) lands include public parks; recreation areas; wildlife and waterfowl refuges; lands of national, state, or local significance; or land that is a historic site of national, state, or local significance as determined by the officials having jurisdiction.

Several structures greater than 50 years old are located in the study area. However, these structures may not qualify for listing in the National Register because they lack architectural integrity due to degradation and significant modern modifications. None of the structures identified in the APE are known to be associated with significant historical events or persons. One residential property, a wood-frame bungalow, also appeared to be potentially eligible for listing in the National Register. The structure is northwest of the Airport on Turkey Road, just west of the intersection with Aldine Westfield Road. A site map showing the location of the structure and photographs showing exterior elevations of the building were forwarded to the State Historic Preservation Officer (SHPO) for review. However, the SHPO determined that the property was not eligible for listing in the National Register of Historic Places.

No public parks would fall within the DNL 65 noise exposure areas for any alternative under consideration. No significant adverse impacts to historically significant structures are anticipated. In the unlikely event that historic properties are discovered during construction, activity in the area should cease and the Texas State Historic Preservation Officer and other appropriate agency officials must be notified within 48 hours of the discovery.

(10) Biotic Communities

The preferred alternative would have an impact on biotic communities. Consultation with the U.S. Fish and Wildlife Service (FWS) and the Texas Parks and Wildlife Department (TPWD) indicates that substantial damage which could not be mitigated should not occur. Large tracts of land north, northwest, and northeast of the Airport contain similar habitats to those at the Airport and would support wildlife displaced by development.

The preferred alternative would result in long-term impacts that would include the clearing and grading of a large area of forest, the permanent loss of habitat, and the displacement of wildlife species. Large areas of low quality habitats, such as Chinese tallow uplands and herbaceous uplands, would be affected. This alternative will also affect a relatively small amount of high quality wetlands habitat. The major portion of these impacts would be related to the construction of Runway 8L-26R. Accordingly, this alternative would have relatively similar impacts to higher quality habitats and, therefore, would all have approximately the same impact to biotic communities.

Correspondence received from the FWS and the TPWD does not indicate substantial damage to wildlife attributable to the construction or operation of any of the alternatives that could not be mitigated. In addition, large tracts of similar habitats near the Airport would support displaced wildlife, thereby limiting damage to the biotic community due to development. Construction and operation of this alternative would involve the removal of sizable habitat acreages; however, the impacts to the biotic communities would not be considered significant.

The preliminary vegetation classification presented in the FEIS (Section 4.2.7) was used to estimate impacts to habitats for each of the alternatives being analyzed for environmental considerations. The construction footprints for the alternative (FEIS Chapter 3) were used to identify the location and extent of anticipated clearing and grading impacts for each alternative. To perform the preliminary classification, digital orthorectified infrared aerial photographs of the Humble and Maeden, Texas, United States Geological Survey (USGS) quadrangles were obtained. These photographs have a resolution of 1 meter and were taken on January 19, 1995. *ER Mapper*, an image analysis program used to analyze and classify aerial or satellite imagery, was used to estimate habitat types and acreage of impact within the construction footprint of each alternative. Field investigations were conducted to verify the classification results.

In addition to evaluating the total acreage impact for each habitat, it is also important to establish the relative value of each habitat. For instance, the loss of 10 acres of significant or important habitat would have a greater impact than the loss of 10 acres of common, low value habitat. Therefore, not only is it important to establish the total acreage of impact but also the relative value of the acreage. For the purposes of this evaluation, habitat importance is based on the ecological functional ability of the habitat, such as the ability of the habitat to provide food, cover, and nesting sites for wildlife, and the relative abundance of the habitat within the ecoregion. As described in the FEIS (Section 4.2.7), the forested and herbaceous wetlands at the Airport are considered to have the highest ecological values, supporting a wide variety of wildlife, including wading birds and waterfowl. These wetlands are relatively uncommon within

the ecoregion.

The pine upland and mixed forested upland habitats have higher ecological values than the herbaceous uplands because of their ability to support a greater variety of wildlife species and the greater abundance of herbaceous upland habitat within the ecoregion. Chinese tallow uplands have the lowest ecological value of the habitats at the Airport because Chinese tallow is an exotic, invasive species that often forms monocultural stands that support a low variety and number of wildlife species.

Letters received from the U.S. FWS and TPWD regarding this proposed action identified numerous depressional herbaceous and forested wetland areas within the project area (FEIS, Section 5.13). Both agencies consider these types of wetland habitats to be important biotic communities for the support of wintering and nesting waterfowl and breeding wading birds. U.S. FWS recommended that measures to avoid or minimize habitat loss should be considered, and that any unavoidable loss of habitat be fully replaced. The letters received from the U.S. FWS and TPWD also described impacts to wetlands that include commonly occurring species. The letters do not indicate substantial damage to wildlife attributable to construction or operation of the alternatives that could not be mitigated. Construction and operation of the development alternatives would involve the removal of sizable habitat acreage; however, the impacts to the biotic communities, on an ecoregion scale, are not considered significant because of the prevalence of these habitats in proximity to the Airport.

The APE for impacts to biotic communities is the area that would be affected by construction and clearing required for the alternatives under consideration. As noted above, correspondence with U.S. FWS and TPWD indicates that the impacts of the alternatives under consideration would not entail significant impact to biotic communities that could not be mitigated. Nevertheless, construction and operation of the alternatives would result in both temporary and permanent impacts to the wildlife and vegetative habitats.

Less mobile wildlife species, such as some small mammals, reptiles, and amphibians, may be killed by construction activities. Mobile species, such as birds and larger mammals, would be displaced from the area to similar habitats nearby. Although much of the area immediately surrounding the Airport is urban land, several large, undeveloped tracts of similar forested and wetlands habitat are nearby, north, northeast, and east of areas of proposed development. Less than 3 miles north and northeast of the Airport is a vast area of undeveloped land between Spring Creek and the San Jacinto River. Less than 9 miles east of the Airport are large tracts of important wildlife habitat at Lake Houston and Sheldon Reservoir. Corridors of undeveloped land are along stream channels and would allow species to move from the Airport to these large tracts of undeveloped land.

The primary impact on vegetation, resulting from construction and operation would be the temporary and permanent alteration of vegetative cover. Following construction, operation of new or extended runways would prevent the reintroduction of woody vegetation and any associated wildlife to the area. Cleared areas surrounding new development at the Airport would be planted with grasses and maintained through periodic mowing. For all of the build alternatives, clearing would also result in the permanent loss of forested areas, changing the

structure and value of the plant community.

Impacts to biotic communities would be caused by the temporary and permanent loss of herbaceous and forested habitat associated with construction clearing and grading activities and the operation and maintenance of new airport areas. The preferred alternative would result in the clearing and grading of biotic communities in the areas of extended Runway 15R-33L, proposed Runway 8L-26R, the air cargo area, and the rental car facility. Construction clearing and grading activities would remove approximately 2,896 acres of vegetation and place fill material within wetland areas. Operation activities would also cause permanent impacts because most areas would be prevented from returning to preconstruction conditions.

The construction of the preferred alternative would result in the clearing of the following approximate acreages of habitat:

- 213 acres of mixed forested uplands
- 164 acres of Chinese tallow uplands
- 1,417 acres of pine uplands
- 960 acres of herbaceous uplands
- 71 acres of forested wetlands
- 28 acres of herbaceous wetlands

Impacts to all habitats, with the exception of herbaceous uplands, would be permanent. Permanent impacts to high quality habitats, such as forested and herbaceous wetlands, would be limited to approximately 100 acres. Construction would also impact approximately 2,753 acres of low to moderate quality habitat. Following construction, areas not covered by impervious surfaces would be seeded and maintained as herbaceous uplands. These low-quality, maintained herbaceous uplands would total approximately 2,371 acres. The loss of habitats would result in the displacement of mobile species to similar habitats on airport property and nearby, and the potential loss of less mobile species.

No threshold of significance has been established for impacts to habitats other than wetlands. Nevertheless, mitigation for impacts to upland habitats would be included in the proposed wetlands mitigation described below.

(11) Historic, Architectural, Archeological and Cultural Resources

No properties listed in the National Register would be affected by physical development or exposed to significant noise impacts as a result of any alternative under consideration. As above, several structures greater than 50 years old are located in the study area; however, these structures do not qualify for listing in the National Register because they lack architectural integrity due to degradation and significant modern modifications. None of the structures identified in the APE is known to be associated with significant historical events or persons. One residential property, a wood-frame bungalow, also appeared to be potentially eligible for listing in the National Register. The structure is northwest of the Airport on Turkey Road, just west of the intersection with Aldine Westfield Road. A site map showing the location of the

structure and photographs showing exterior elevations of the building were forwarded to the State Historic Preservation Officer (SHPO) for review. However, the SHPO determined that the property was not eligible for listing in the National Register of Historic Places.

(12) Endangered and Threatened Species of Flora and Fauna

The U.S. Fish and Wildlife Service stated that “no federally listed or proposed threatened or endangered species are likely to occur at the proposed project area.” Additionally, the Texas Parks and Wildlife Department response did not indicate any threatened or endangered species concerns for the project area. Therefore, no impacts to endangered and threatened species would be anticipated as a result of the proposed action.

(13) Wetlands

All of the build alternatives would have significant impacts to wetlands. The degree of significance depends on the wetland habitat type and the total acreage of impact. The primary impact of construction and operation activities on wetlands would be the permanent filling of wetlands. This impact would be unavoidable. Clearing and grading activities associated with construction would result in permanent loss of wetlands. Operation of new and extended runways would prevent the re-establishment of wetlands that are lost. Following construction, some small herbaceous wetland areas may form within newly developed areas and associated drainage ditches. The re-establishment of forested wetlands would be prevented within the operation area through periodic mowing and maintenance.

Construction and operation activities that fill wetlands would permanently destroy the ecological and hydrologic values and functions of the wetlands. The clearing of vegetation and the filling of wetlands would result in a permanent loss of wetlands wildlife habitat. Many of the larger wetlands north of the Airport provide valuable habitat for wildlife, including birds. These wetlands would be permanently affected by construction and operation of a runway to the north.

Surface drainage patterns would be permanently altered by the loss of wetlands. A primary function of wetlands is to provide sedimentation control. As a result of the removal of existing wetlands, increased silting would impact nearby wetlands and receiving waters. The loss of wetlands would diminish the ability of developed areas to store flood waters, thereby increasing runoff and flooding potential in downstream areas. Wetlands systems often trap sediments and nutrients, and the loss of wetlands would eliminate this function.

Impacts to wetlands from this alternative would result from construction clearing and grading activities, which would remove all vegetation and place fill within approximately 100 acres of wetlands near the expansion activities. Of this acreage, approximately 28 acres are herbaceous wetlands and approximately 71 acres are forested wetlands.

The selection of the preferred alternative addressed the avoidance and minimization of impacts to human and natural resources. As part of the siting effort, wetlands impacts were estimated for

each of the alternatives. For any of the alternatives under consideration, total avoidance of wetlands resources was not possible during the siting process because of the extent of wetlands identified in the project area, and the amount of land required to meet the project objectives.

In the interests of safety, the avoidance and minimization of wetlands impacts surrounding aircraft movement areas would not be suitable because wetlands in these areas are not compatible with safe airport operations. FAA Advisory Circular 150/5200-33, *Hazardous Wildlife Attractants on or near Airports*, identifies wetlands on or near airports as wildlife attractants that are incompatible with safe airport operations because the wildlife can represent a hazard to aircraft. The Advisory Circular recommends siting criteria for use when planning new airport development projects to accommodate aircraft movement. For airports serving turbine-powered aircraft, a distance of 10,000 feet between the Airport's aircraft movement areas, loading ramps, or aircraft parking areas and the wildlife attractant is recommended. A distance of 5 statute miles is recommended if the wildlife attractant may cause hazardous wildlife movement into or across aircraft approach or departure airspace. Wetlands between or in the immediate vicinity of runways and taxiways are not compatible with safe airport operations, according to the FAA's Advisory Circular recommendations. Therefore, avoidance of wetlands impacts due to construction associated with new runways and taxiways is not a suitable mitigation alternative.

Section 6 of the FEIS describes the compensation options available for mitigation of wetlands impacts. As described above, on-site mitigation is not consistent with safe airport operations. Accordingly, the available mitigation options include:

- Financial compensation
- Mitigation banking
- Off-site mitigation projects

Significant wetlands mitigation is planned and is described below.

HAS has applied for a Section 404 permit from the U.S. Army Corps of Engineers, Galveston District. This application is still in the review process at the time of this approval. However, any approval given here by the FAA is contingent on a similar approval by the Corps for wetland mitigation.

(14) Floodplains

The preferred alternative would have an impact on floodplains. These impacts are related to the development of the new air cargo area in the northeast quadrant of the Airport. This facility is needed to accommodate air cargo being displaced as a result of the Taxiway SD bridge and associated ramp widening and additional future activity. Further, this development was sited in the northeast corner of the Airport as it requires a large area with direct airfield and roadway access. These requirements effectively eliminated other potential sites on the Airport.

The proposed air cargo facility would be located in a portion of the Garners Bayou floodway and

associated 100-year and 500-year floodplains. As proposed, the alignment of Garners Bayou would be altered to accommodate construction of the air cargo facility. The entire north/south portion of Garners Bayou would be relocated approximately 850 feet west of its current location. In addition to the relocation of Garners Bayou to the west, a new detention facility between Ditch "G" and Will Clayton Parkway and immediately west of Lee Road would be constructed. To accommodate increased stormwater runoff from the new air cargo facility, an in-line detention facility would be located on the west side of the relocated Garners Bayou. As currently proposed, the air cargo facility would impact approximately 35 acres of floodway, 208 acres of the 100-year floodplain, and 70 acres of the 500-year floodplain.

No other impacts to floodways and/or floodplains are anticipated to result from the construction and operation of the build alternatives. Due to the impacts to the floodway and floodplains that would result from implementation of any of the build alternatives identified above, mitigation would be required. Mitigation measures would include the analysis of impacts to the floodplain and would require compensation in the form of stormwater detention facilities for increased stormwater runoff volumes.

The final drainage engineering design for the air cargo facility would determine the type, dimensions, and location of the stormwater conveyance and detention facilities. Using the most current information available, the stormwater drainage system and mitigation improvements would be designed to maintain, if not improve, existing hydrologic patterns. Because the proposed action would impact a floodway, a floodway analysis would be required. The analysis would include impacts to the floodway and the 100-year floodplain, which would require mitigation, including a letter of Map Revision to the U.S. Federal Emergency Management Agency (FEMA) for anticipated floodway impacts. Floodway impacts are coordinated through and approved by FEMA. Impacts to the 100-year floodplain are reviewed and regulations are administered by the Harris County Flood Control District. The proposed mitigation measures for floodway/floodplain impacts associated with preferred Alternative B/C.4 would be coordinated with Harris County Flood Control District and the City of Houston. No other mitigation is required for implementation of the proposed action.

(15) Coastal Zone Management Program and Coastal Barriers

The airport and land acquisition areas are approximately 17 miles northwest of the Texas Coastal Management Zone and therefore are not subject to the Texas Coastal Management Plan. Accordingly, no impacts to the Texas coastal zone are anticipated as a result of the proposed action.

(16) Wild and Scenic Rivers

The U.S. Department of the Interior maintains a National Inventory of river segments that appear to qualify for inclusion in the National Wild and Scenic River System. A review of the inventory database indicated that there were no designated wild and scenic rivers near the Airport. Accordingly, no adverse impacts are expected to occur and no mitigation measures

would be required.

(17) Farmlands

The area that would be acquired for the proposed alternative is north of the existing airport boundary, south of F.M. 1960, east of Richey Road, and west of Lee Road. None of this land is currently used as farmland, and it is unlikely that it would ever be converted to agricultural use. Therefore, no adverse impacts are expected to occur, and no mitigation measures would be required.

(18) Energy Supply and Natural Resources

All of the build alternatives would reduce aircraft operating times and would therefore reduce aircraft fuel consumption. None of the build alternatives would add appreciably to ground vehicle access times nor would any alternative substantially change the movement patterns for on-airport service vehicles or other vehicles. Similarly, construction of the proposed improvements would require conventional building materials that are readily available in any major metropolitan area. Accordingly, none of the alternatives under consideration would result in significant impacts with respect to energy use or consumption of natural resources, and no mitigation is required to address such impacts.

(19) Light Emissions

Construction of Runway 8L-26R associated with preferred alternative would require installation of an approach lighting system at either end of the runway. These lighting systems would extend for about 2,500 feet from the ends of the runways and would include sequenced strobe lights. In all cases, these lighting systems would be constructed on airport property and would not be adjacent to residential development. Also, because approach lighting systems are angled upward to be visible to approaching aircraft, lights would not be directed into any residence. Accordingly, none of the alternatives under consideration would result in significant impacts with respect to light emissions, and no mitigation is required to address such impacts.

(20) Solid Waste

The preferred alternative will not increase the quantity of solid waste generated at the Airport. However, there will be small, temporary construction impacts resulting from the clearing of debris and structures in the proposed airport expansion/construction area. Removal and proper disposal of such materials will be the responsibility of a qualified contractor hired by the Airport sponsor. There will also be no impacts resulting from the proposed terminal and ancillary facilities development. Further, the implementation of the 2001 approved noise abatement air traffic actions and associated land use compatibility action will not result in an increase in solid waste.

No change in the generation of solid waste at the Airport would occur as a result of any of the build alternatives. Solid waste generation at the Airport is projected to increase through 2017, primarily due to increased numbers of passengers and operations at the Airport, increased airport tenant operations, and routine construction activity. This increase would not be a consequence of implementation of the proposed action or its alternatives. Airport-generated solid waste constitutes only a small percentage of the total waste produced in the Houston area and existing solid waste disposal facilities have sufficient capacity to accommodate projected solid waste generation levels through 2017. Therefore, the increase in solid waste generation would not impact solid waste handling practices or disposal facility capacity in the area.

It is estimated that airport operations and activities would generate approximately 123,500 cubic yards of solid waste in 2002 and 152,000 cubic yards in 2017. This total represents less than 1% of the estimated solid waste generated in Harris County annually and slightly over 1% of the estimated solid waste generated by the City of Houston. All of the Airport solid waste is transported to and deposited in the Waste Management of Texas Sanitary Landfill at Atascocita in Harris County. Demolition and construction-related wastes generated at the Airport are contracted out to private parties, with such wastes being deposited in the various demolition landfills permitted to accept demolition and/or construction debris in the Harris County area. An exception to this is the waste generated at the Airport from arriving international flights. Because of U.S. Department of Agriculture and U.S. Food and Drug Administration regulations, this waste must be incinerated within 48 hours of being unloaded from the aircraft. These international flights are expected to produce approximately 31,000 cubic yards of solid waste in 2002 and 60,000 cubic yards in 2017. This waste would be incinerated at the Airport.

Implementation of the proposed action or its alternatives would produce a considerable amount of construction solid waste from the clearing and grubbing of uncleared sites and typical construction waste (e.g., concrete and lumber). This increase is not anticipated to adversely impact the area's solid waste handling practices or disposal facility capacity.

Based on information obtained during the Phase I Site Assessment for Harris County Landfill #2, landfill cell construction dimensions are estimated to be approximately 60 feet wide by 20 feet deep and 600 feet long. Approximately 12 cells are located within the landfill, containing approximately 320,000 cubic yards of solid waste material. After further investigation to refine the amount of waste to be removed, the Excavation Plan for Harris County Landfill # 2 indicates that approximately 460,000 cubic yards of waste material will need to be removed. Previous coordination with operators of local and regional solid waste landfills identified that sufficient capacity exists within these landfills to accommodate 320,000 cubic yards of solid waste material. The existing landfills in Harris County can easily accommodate the increase in 140,000 cubic yards, the difference between the earlier estimate of 320,000 cubic yards and the current estimate of 460,000 cubic yards. This landfill must be removed to provide for the construction of Runway 8L-26R.

Solid waste disposal sites near an airport are incompatible with safe flight operations because of the potential for bird strikes. The solid waste management plan for the region was reviewed. The Houston-Galveston Area Council, Community and Environmental Planning Department was

contacted to determine if any existing or planned solid waste disposal facilities were within 10,000 feet of any airport runways that would be used by jet aircraft. An abandoned municipal landfill is located along Landfill No. 2 Road north of the Airport. However, a 2-foot-thick earthen cap was applied to the landfill and it does not constitute a potential bird hazard. Since no existing active or planned landfills are within 10,000 feet of the Airport, no potential bird hazards would be expected.

Solid waste collection and disposal services for the Airport are currently provided by Waste Management, Inc. Collection containers and compactors, ranging in capacity from 20 to 40 cubic yards, are provided for airlines, parking garages, and the main terminals. Collection frequency varies from 1 or 2 days per week to 4 or 5 days per week, depending upon container size and location. Currently there are 11 compactors and 30 open-top containers located on airport property. Approximately 101 compactor hauls per month leave the Airport. In addition to the compactor hauls, 100 open-top container hauls per month leave the Airport.

There are 24 active landfills within the 13-county Houston/Galveston planning area. Of these, 12 are located within Harris County. Three active landfills are located within 10 miles of the Airport. Two of these are Class I landfills, where municipal solid waste is compacted and covered daily. These landfills include the Atascocita Landfill and the Browning-Ferris/Whispering Pine Landfill (both operated by Waste Management of Texas). The other landfill, Cougar Landfill (operated by Sanifill of Texas, Inc.) is a Class IV landfill that accepts brush, construction and demolition waste, and/or rubbish that is free of putrescible waste and household wastes, where coverage is required on a weekly basis. The Atascocita Landfill is where all municipal solid waste generated at the Airport is disposed. The Atascocita Landfill is a combination landfill that accepts both municipal solid waste and construction waste. The landfill is 4.5 miles east-southeast of Runway 9-27, which is the nearest runway to the landfill. According to the regional solid waste management plan, no landfills are planned in the area. Since there are no active or planned landfills within 10,000 feet of the Airport, no potential bird hazards would be expected.

Since implementation of the proposed action or its alternatives would not result in significant solid waste impacts, no mitigation would be required.

(21) Construction Impacts

The construction of facilities associated with the proposed action or its alternatives would occur on property owned by the City of Houston, within the boundary of the Airport, and on property to be acquired for the proposed action or its alternatives. The airfield projects would be constructed over a 4-year period. Preliminary site work, including the clearing and grubbing of trees, initial grading, and the installation of the drainage system, would occur in the first and second years. Work during the second through fourth years would include the construction of runway and taxiway pavements, installation of runway lighting, and final grading.

Potential impacts from construction activity are not expected to be significant, provided that all activities are carried out in accordance with known best management practices. Construction

impacts are not generally considered to be significant because they (1) result solely from construction operations, and (2) are limited to specific construction periods.

Changes in aircraft noise exposure would not be expected to occur during construction because the construction of airfield facilities would not affect operation of the existing runways. The potential impact of the solid waste associated with the clearing and grubbing of uncleared construction sites and the removal of typical construction wastes was discussed in the FEIS (Section 5.20).

The expansion of Runway 15R-33L would begin shortly after approval of this ROD. The construction of parallel Runway 8L-26R would not begin until the end of 2001, approximately the time of completion of the extension and widening of Runway 15R-33L. However, clearing of land associated with Runway 8L-26R would begin shortly after approval of this ROD.

Air Quality

For any of the alternatives under consideration, construction activities could result in short-term and temporary emissions of air pollutants from a variety of sources, such as exhaust from construction equipment and vehicles, evaporation of hydrocarbons from curing asphalt, burning of cleared vegetation and construction debris, and fugitive dust. Trucks hauling construction materials to the site would release exhaust emissions over the area traversed.

Fugitive dust, which may be emitted during construction and as a result of wind erosion over exposed earth surfaces, has the greatest nuisance potential. Dust generation is highly variable. The amount of dust generated on a given day depends on the types and amount of construction activity and on meteorological and soil conditions. Although construction activities may have a discernible effect within a short distance from the project site, the potential for nuisance is limited and the effect is temporary (i.e., it will cease when construction activities cease). The most likely effect of construction would be increased dustfall immediately downwind of the area of active construction. Adverse air pollutant emissions, primarily dust, would be minimized by the use of procedures set forth in FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports*. These procedures restrict the emission of dust (particulate matter) and provide a series of measures that can be taken to prevent particulate matter from becoming airborne.

Emissions inventory summaries for alternatives under consideration are provided in Table 5-22 of the FEIS, as estimated using the Emissions and Dispersion Modeling System (EDMS). All of the build alternatives would improve air quality compared to the no action alternative. In addition to analyzing operation emissions, construction emissions were calculated for each component of the alternatives under consideration. The total construction emissions from the proposed action were calculated in the Final General Conformity Determination. It was originally assumed that cleared vegetation and debris associated with construction would be hauled off-site to a landfill. This was incorrect and the emissions estimates were revised. Emission estimates are based on the cleared vegetation and debris associated with construction being burned on-site. Because the Houston-Galveston area is in nonattainment for ozone, *de minimis* levels apply to ozone precursors, specifically VOC and NOx. VOC and NOx

emissions from all of the construction projects under detailed consideration would exceed the *de minimis* threshold at some time during the construction period. The SIP budget contains adequate construction-related emissions and the proposed action was found to be in conformity.

Water Quality

For any of the alternatives under consideration, construction activities could affect surface water and ground water quality. However, much of this impact could be avoided or minimized by the use of standard and specialized construction techniques.

Equipment Noise

For any of the alternatives under consideration, temporary increases in ambient noise levels would take place during periods of active construction or demolition. Equipment used for grading and scraping, as well as for pile driving, can generate noise levels as high as 70 to 95 dBA within 50 to 100 feet of such activities. Trucks carrying materials to and from construction sites would also produce sporadic increases in noise levels along their travel routes. Noise from various types of construction equipment is typically experienced by the equipment operators and other nearby construction workers. Appropriate measures should be taken to protect these operators and workers from excessive noise exposure.

Surface Traffic Congestion

For any of the alternatives under consideration, temporary increases in surface traffic congestion due to increased volumes of construction-related traffic would take place during the construction period. At least two methods of mitigating construction-related traffic congestion would be used during and as part of the proposed runway construction. Daily activities would be scheduled during off-peak traffic periods to the maximum extent possible, and routes used by trucks moving to and from the construction site would be specified to minimize the number of project-related vehicles on the roadways in the Airport environs at any one time.

Many pieces of large excavation equipment may be required to move the subsoil and demolished pavement. Haul road locations and landfill areas would be identified before excavation starts. All access and haul roads would be maintained, damage to local roads would be repaired, and any spillage of excavation material would be removed at the end of each shift.

(22) Design, Art, and Architecture

All of the build alternatives involve remodeling and expansion of terminal facilities in the IAB as well as construction of new air cargo facilities. Design concepts for these structures have not yet been developed. New terminal facilities would be designed in accordance with the ongoing passenger terminal complex visual enhancement program and would be compatible with the existing facilities. HAS would also ensure that new air cargo facilities were designed in accordance with sound design principles for such development.

Clearing of forested areas between the existing airfield and F.M. 1960 would be required. This clearing would alter the view along F.M. 1960. At present, the southern edge of the roadway is generally forested. Following construction of Runway 8L-26R, this view would encompass an open, grassy field for a distance of about 2 miles toward the passenger terminal complex. Aircraft operating on the airfield would be visible from F.M. 1960, although the actual runways and associated taxiways would not be easily seen due to their low profiles. The loss of forest cover was identified as a visual or aesthetic concern to some individuals during the scoping and public involvement process. HAS plans to leave enough forested buffer to effectively hide the Airport from roadway traffic as much as possible.

Although significant adverse design, art, architecture, or visual impacts are not typically anticipated as a result of airport actions, FAA Order 5050.4A identifies a number of considerations in assessing airport actions. The alternatives under consideration were reviewed with respect to the following factors to identify potential design, art, architecture, or visual impacts:

- Appropriate design considerations to minimize potential adverse impacts of encroachment into residential or recreational areas or disruption of scenic vistas.
- Architectural treatment of facilities to reflect and blend in with nearby architectural style. Painting or shielding of structures, such as landing aid supports, may reduce adverse visual impact as long as there is no interference with the safe performance of the facility.
- Normal application of sound design and engineering principles to assure the control of erosion and provide adequate drainage. Extra care in slope design and plantings to minimize adverse visual and other environmental impacts that may be due to actions involving extensive earthmoving.
- Bank stabilization that reflects the natural characteristics of the existing stream may be more aesthetically pleasing and cost less than replacement by concrete drainage structures.
- Recognition of notable architectural, cultural, or ethnic assets of the area in the design of new facilities or major terminal expansion. Such influences may be reflected in interior design, landscaping, or architectural treatment.

The preferred alternative has the potential to alter the visual characteristics of the Airport environs in two ways: (1) the construction of new structures, and (2) the clearing of forested land for airfield development.

The preferred alternative includes the expansion and remodeling of existing facilities at the IAB and the development of new air cargo buildings in the northeast corner of the Airport. Design concepts for these structures have not yet been developed. New terminal facilities would be designed in accordance with the ongoing terminal complex visual enhancement program and would be compatible with the existing facilities. HAS would also ensure that new air cargo facilities were designed in accordance with sound design principles for such development. Accordingly, no adverse design, art, architecture, or visual impacts would result from construction of new airport structures.

(23) Cumulative Impacts

A cumulative impact is defined by the Council on Environmental Quality (CEQ) as:

. . .the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or nonfederal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

On- and off-Airport construction projects that were initiated within the last 3 years or are anticipated to begin within the next 5 years were identified. The projects that were considered for the purposes of analyzing possible cumulative impacts are shown in the FEIS (Figure 4-18). Table 4-19 of the FEIS describes the schedule for and potential impacts of the projects. Brief descriptions of these projects follow.

Terminal Ramp Expansion

This project consists of (1) expansion of the remote aircraft parking ramp north of the IAB for use as a dual taxiway or remote aircraft parking positions, (2) expansion of the north aircraft parking ramp between Terminals B and C, (3) expansion of a section of the north aircraft parking ramp between Terminals B and C to provide a dual-bypass taxiway, and (4) expansion and upgrade of the aircraft parking ramp southeast of Terminal C. The proposed ramp projects are intended to (1) improve terminal ramp circulation by providing bypass taxiways, (2) provide additional remote aircraft parking positions, and (3) strengthen existing ramp areas to permit parking by heavier aircraft. This project would be undertaken with or without the proposed runway development.

East Midfield Taxiway Construction

The proposed taxiway would connect the north and south sides of the airfield to the east side of the terminal complex. The primary purpose of this project would be to provide a bypass taxiway for aircraft movements between areas east of the passenger terminal complex and Runway 9-27. This project would be undertaken with or without the proposed runway development.

Fuel Farm Expansion

This project consists of (1) expansion of the fuel farm within the existing site to provide 9-day storage of aircraft fuel to meet current and projected demand, and (2) construction of additional aboveground fuel storage facilities adjacent to the existing facility. This project would be undertaken with or without the proposed runway development.

Terminal C Parking Garage Expansion

This project consists of construction of an additional level of parking with 800 new spaces in the Terminal C garage. This project would be undertaken with or without the proposed runway

development.

Terminal A and B Parking Garage Construction

This project consists of construction of a 5,500-space parking structure between Terminals A and B (displacing 647 spaces provided in the surface lot on that site). This project would be undertaken with or without the proposed runway development.

Hardy Toll Road Connector Construction

This project consists of construction of a roadway to connect J. F. Kennedy Boulevard with the Hardy Toll Road. This project would be undertaken with or without the proposed runway development.

Economy Parking Lot Expansion

This project consists of construction of 3,000 additional surface public parking spaces adjacent to the existing economy parking lot, and the rehabilitation of pavement surface in the existing parking lot. This project would be undertaken with or without the proposed runway development.

Ditch “D” Holding Pond Construction

This project consists of construction of a detention pond for drainage outfall that will accommodate runoff from future impervious surfaces. The project is consistent with maintaining an agreement between HAS and the Harris County Flood Control District to hold runoff to 1989 levels. This project would be undertaken with or without the proposed runway development.

Off-Airport construction projects that were initiated within the last 3 years or are anticipated to begin within the next 5 years were identified. The projects that were considered for purposes of analyzing possible cumulative impacts are shown in the FEIS (Figure 4-18 and Table 4-19) and indicate the schedule for and potential impacts of the projects. Brief descriptions of these projects follow.

Widening of Greens Road

Greens Road is to be widened to four lanes between Old Greens Road and Aldine Westfield Road. Greens Road is also to be widened to four lanes between J. F. Kennedy Boulevard and Lee Road. These projects would be funded by the City of Houston.

Widening and Reconstruction of Aldine Westfield Road

Aldine Westfield Road is to be widened to four lanes and divided between N. Sam Houston Parkway (Beltway 8) and F.M. 1960. This project would be funded by Harris County.

Widening and Reconstruction of F.M. 1960

F.M. 1960 is to be widened to eight lanes and divided between Aldine Westfield Road and Loop 184. This project would be federally funded.

Reconstruction of N. Sam Houston Parkway (Beltway 8)

Four main travel lanes are to be constructed on N. Sam Houston Parkway (Beltway 8) between Lee Road and Old Humble Road. In addition, a bridge over Lee Road is to be constructed on N. Sam Houston Parkway (Beltway 8). The project would be federally funded.

Houston Area Air Traffic System Improvements

The FAA is planning a study for a potential, major, long-term redesign of the Houston and South Texas area airspace. The purpose of the study is to examine the efficiencies and limitations of airspace in the Houston area to determine the scope of any future airspace redesign. The process is in its preliminary stage, and the FAA has just begun to assess how the issues should be studied. Because there is no definitive proposal for the redesign at this point, potential impacts associated with the proposed redesign cannot be determined at this time.

A redesign of the airspace should improve airspace efficiencies by refining flight tracks and altitudes for aircraft entering and departing the airports' airspace. Efficiency can normally be improved with the use of conventional navigation facilities or the incorporation of navigational technology such as global positioning systems (GPS) or evolving flight management system (FMS) navigation procedures. The addition of radar sites and controller positions and the incorporation of simultaneous parallel instrument approach procedures also would improve airspace efficiencies.

This airspace redesign is an independent process from the improvements proposed for the Airport. Any airspace redesign that would result from the FAA study would be subject to an appropriate environmental review. The modifications to Houston area airspace that would be necessary to accommodate the proposed action, including proposed flight tracks and approach and departure procedures, are addressed in this EIS.

Departure patterns for existing and proposed runways for both east and west flow conditions are shown in the FEIS (Figures 4-19 through 4-22). Aircraft departing on expanded Runway 15R would turn right for destinations to the west and north. The overflight patterns for the extended runway would be similar to existing patterns. Overflights by arriving and departing aircraft would occur to the west, south, and southeast of Runway 15R-33L. Deviations from the traffic flows depicted on these figures may be required as a result of adverse weather, traffic mix, runway closures, equipment failures, emergency situations, and/or Airport construction activities.

The departure patterns for Runway 8L-26R would be similar to the patterns used by aircraft operating on existing Runway 8-26. Most departing aircraft would turn to the north after departure, similar to the current pattern of departures from Runway 8-26. The new runway would require that aircraft departing on Runway 8R-26L (existing Runway 8-26) during IFR

conditions fly straight out rather than turning to the north. These conditions occur about 8% of the time. Arriving aircraft would use a straight-in arrival flight track from both the east and west. Deviations from the traffic flows depicted on the figures in the FEIS may be required as a result of adverse weather, traffic mix, runway closures, equipment failures, emergency situations, and/or Airport construction activities. The general arrival patterns associated with the proposed action for east flow conditions are shown in the FEIS (Figure 4-24). Although the runway would be routinely used for arrivals, departing aircraft would use the runway during any temporary closure of other runways for maintenance, construction, localized weather conditions, or other requirements.

Impacts

As discussed above under “Potential Cumulative Impacts,” potential on- and off-Airport projects initiated within the last 3 years or that are anticipated to begin within the next 5 years were identified. Those known projects with the potential to create adverse impacts to the same environmental resources affected by the build alternatives were identified. A detailed description of these projects is provided in the FEIS (Section 4.4). A summary of the potential cumulative impacts associated with the on- and off-Airport projects is provided in the FEIS (Table 5-36).

The on-Airport projects that have the potential to have a cumulative impact on the Airport environs include:

- Terminal ramp expansion—biotic communities and wetlands
- East midfield taxiway construction—biotic communities
- Fuel farm expansion—biotic communities and wetlands
- Hardy Toll Road Connector construction—social impacts, biotic communities, and wetlands
- Economy parking lot expansion—biotic communities and wetlands
- Ditch "D" holding pond construction—biotic communities and wetlands

The off-Airport project that has the potential to have a cumulative impact on the Airport environs

- Widening of Greens Road - floodplains

Cumulative impacts would only be expected to occur in impact categories where there was an adverse, but not necessarily significant, impact resulting from implementation of the proposed action or its alternatives. These categories include aircraft noise, compatible land use, social impacts, water quality, biotic communities, wetlands, floodplains, and construction. Applicable impact categories are described below.

Aircraft Noise

None of the projects considered for potential cumulative impacts would be expected to generate increased levels of aircraft noise. The two airfield projects include the terminal ramp expansion and the construction of an east midfield taxiway. These projects are intended to improve airfield traffic circulation and would not increase noise levels or introduce aircraft noise to new areas. The proposed action and its alternatives would have significant aircraft noise impacts. However, there would be no additional cumulative impacts in this category.

Social Impacts

The same methodology used to determine social impacts for the project alternatives was used to determine potential cumulative social impacts (FEIS, Section 5.3.2). Of the identified projects with the potential for cumulative impact, only the construction of the Hardy Toll Road Connector is expected to have a social impact. This project will require the closure of a section of Rankin Road, resulting in the alteration in surface traffic patterns. However, this impact would not be considered significant because (1) additional capacity would be added to Aldine Westfield Road as part of the planned widening and reconstruction project, and (2) the closure would not cause an appreciable increase in access times to community facilities, recreation areas, or places of residence or business. The proposed action and its alternatives would not have significant social impacts, and there would be no additional cumulative impacts in this category.

Biotic Communities

The same methodology used to determine the biotic community impacts for the project alternatives was used to determine potential cumulative impacts (FEIS, Section 5.11.2). The on-Airport projects with the potential for cumulative impacts on biotic communities are summarized in the FEIS (Table 5-37). These projects include the terminal ramp expansion, the east midfield taxiway construction, the fuel farm expansion, construction of the Hardy Toll Road Connector, the economy parking lot expansion, and construction of the Ditch “D” holding pond. As shown in the table, implementation of these projects would impact a total of 129.3 acres of wildlife habitat. The potential impact to biotic communities from construction of the off-Airport projects was not available. Depending on the alternative selected, these impacts would represent 5% to 11% of the habitat affected by the proposed action. Because there is no threshold of significance for habitat impacts, and based on the results of our review, these cumulative impacts are not considered to be significant. Nevertheless, habitat impacts would be mitigated as discussed in the FEIS (Chapter 6).

Wetlands

The on-Airport projects that would have impacts on wetlands are summarized in the FEIS (Table 5-38). These projects include the terminal ramp expansion, the fuel farm expansion, construction of the Hardy Toll Road Connector, the economy parking lot expansion, and construction of the Ditch “D” holding pond. The same methodology used to determine the wetlands impacts for the project alternatives was used to determine potential cumulative wetlands impacts (FEIS, Section 5.12.2). The impact to wetlands from the construction of the

Hardy Toll Road Connector was provided by Turner Collie & Braden.

As shown in the table, implementation of these projects would impact 4.6 acres of wetlands. The potential impact to wetlands by the construction of the off-Airport projects was not available. Mitigation requirements for these actions were previously established through the wetlands permitting process. Accordingly, no significant cumulative impacts to wetlands would occur. Mitigation for wetlands impacts is discussed in the FEIS (Chapter 6).

Floodplains

The same methodology used to determine floodplains impacts for the project alternatives was used to determine potential cumulative floodplains impacts (FEIS, Section 5.13.2). The only project that would have a potential impact on floodplains is the widening of Greens Road. A section of this project, east of Old Greens Road, would be constructed in a portion of the 100-year and 500-year floodplains associated with Garners Bayou floodway. Potential impacts to floodplains would be mitigated in project design. The proposed action and its alternatives would not have adverse impacts to floodplains. Therefore, no significant cumulative impacts to floodplains would occur.

Construction

Potential impacts from the construction of the on- and off-Airport projects are not expected to be significant, provided that all activities are carried out in accordance with best known management practices. Because the construction of these projects is not anticipated to occur during the period of construction for the proposed action, a cumulative adverse impact would not be expected.

Mitigation

For any of the build alternatives under consideration, potential cumulative impacts would relate to the filling of wetlands. Mitigation for wetlands impacts is addressed below.

(24) Other Considerations

Adverse impacts that cannot be avoided by the construction of the proposed alternative, short-term uses and long-term productivity, and irreversible and irretrievable commitments of resources are described in the following sections.

Adverse Impacts that Cannot Be Avoided

Construction and operation of the proposed action or its alternatives would result in the following unavoidable adverse impacts.

Aircraft Noise

The potential noise exposure impacts of the project alternatives are described in the FEIS (Section 5.1). The noise impacts would relate to the normal operation of the runways associated with each alternative. Mitigation measures for noise impacts would include remedial treatments, such as sound insulation, acquisition of easements, or similar programs.

Social Impacts

Social impacts are described in the FEIS (Section 5.3). The social impacts associated with the preferred alternative include the relocation of residences and businesses, and the alteration of surface transportation patterns. The provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 would be followed in providing adequate relocation housing for any displaced residents or businesses. Capacity improvements to roadways in the vicinity of the Airport would offset any impacts resulting from the closure of roads required by development of the proposed alternative.

Water Quality, Water Supply, and Stormwater Control

Potential water quality, water supply, and stormwater control impacts are described in the FEIS (Section 5.8). Construction and operation of new and extended runways associated with the preferred alternative may cause short- and long-term impacts to surface water and ground water quality. However, the impacts would be minimized by implementing best management practices during construction and operation of the proposed action as well as by following the Airport's SWPPP and the guidelines set forth in the NPDES permit.

Biotic Communities

Construction and operation of the preferred alternative would result in both temporary and permanent impacts to wildlife and vegetative habitats. As described in the FEIS (Section 5.11), impacts to biotic communities would not be considered significant.

Wetlands

Potential impacts to wetlands are described in the FEIS (Section 5.13). All of the build alternatives would have significant impacts to wetlands. Available mitigation options included financial compensation, mitigation banking, and off-site mitigation (FEIS, Chapter 6). These were each considered in the FEIS. Off-site mitigation is the preferred option and is described below.

Floodplains

Potential impacts to floodplains are described in the FEIS (Section 5.14). All of the build alternatives would have impacts on floodplains. Mitigation measures would include the analysis of impacts to the floodplains and would require compensation in the form of stormwater detention facilities.

Short-Term Uses and Long-Term Productivity

The timing of the project, future alternatives that would be preempted by the proposed action, and the potential long-term risk to a balanced ecosystem are discussed in the following sections.

Timing of the Project

The projects included in the proposed action are intended to maintain and enhance the Airport's ability to support connecting hub operations by reducing airfield congestion and aircraft delay, accommodating forecast growth in passenger and cargo activity, and enhancing the efficiency of airport operations. Since the Airport is the Houston/Galveston metropolitan area's only traditional connecting hub airport, its continued ability to serve in this role beyond the 20-year forecast period is critical to the long-term economic well-being of the region. These projects are being proposed at this time to ensure that the Airport's long-term capacity improvement potential is preserved.

Preempted Future Alternatives

The preferred alternative would be preempted for use as future open space or recreation. Under this alternative, the construction of a new parallel runway north of Runway 8-26 would preempt the future use of on- and off-Airport land for airfield-related development. This land is mostly undeveloped and includes areas of forested upland habitats and wetlands.

Long-Term Risk to a Balanced Ecosystem

The construction and operation of the preferred alternative would not have any adverse impacts to air quality, hydrology, threatened or endangered species, or soils. Each of the build alternatives would have significant impacts to wetlands. The mitigation of wetlands disturbed by construction is described in the FEIS (Chapter 6). Through these mitigation measures, the long-term balance of the ecosystem should be restored.

Irreversible and Irretrievable Commitments of Resources

The proposed action and its alternatives would consume resources needed for construction, which are in abundant supply. These materials include cement, gravel, asphalt, steel, and other conventional building materials. The use of these resources would not curtail the range of beneficial uses of the environment.

Accordingly, the preferred alternative would result in some impacts with respect to these other considerations. However, no mitigation is required to address such impacts beyond that which is already proposed herein.

MITIGATION

The primary responsibility for implementation of the mitigation measures lies with the Airport sponsor, in this case, the City of Houston's Houston Airport System. The FAA will have oversight responsibility and will condition any grant approval upon implementation of the mitigation measures by the Airport sponsor. Mitigation measures for those impact categories where mitigation measures are necessary to avoid or minimize significant environmental impacts, as well as identified or adopted monitoring and enforcement of mitigation programs, are summarized below. The FAA finds that all practical means to avoid or minimize environmental harm have been adopted, through appropriate mitigation planning in accordance with all applicable environmental laws, regulations and statutes.

The FAA has provided for a comprehensive mitigation program, which established measures to mitigate the adverse effects of construction and operation of the proposed development. This mitigation program was developed to meet applicable Federal and State requirements and in consideration of state and local guidelines. The concerns and interests of the public and government agencies were also addressed. The complete details of the mitigation program are described in the FEIS (Section 6). Five major mitigation areas have been identified:

- Noise
- Wetlands
- Water Quality
- Floodplains
- Construction/Surface Traffic Congestion

Mitigation measures for alternatives considered in the FEIS and approved for implementation are Conditions of Approval in this ROD for the approval of the preferred alternative, and the Airport sponsor has agreed to them. The FAA will monitor the implementation of these mitigation measures as necessary to assure they are carried out as project commitments. The FAA finds that these measures constitute all reasonable steps to minimize harm and all practicable means to avoid or minimize environmental harm from the Proposed Federal Action.

Accordingly, having considered: (1) the policies set forth at 49 U.S.C. Sections 40104 and 47101; (2) the ability of the alternatives to meet the purpose and need, and (3) the administrative record which concerns these development projects, the FAA hereby approves the implementation of preferred alternative as described, disclosed, and analyzed in the FEIS, subject to the Conditions of Approval established in this ROD.

FAA's approval of the preferred alternative in this ROD signifies that the project meets FAA standards for agency approval discussed in Section 2 of this ROD. It does not however, signify an FAA commitment to provide financial support for this project, which must await future decisions under the separate funding criteria prescribed by 49 U.S.C. 47115 (d) and 49 U.S.C. 40117.

In accordance with 40 CFR 1505.3, the FAA will take appropriate steps through Federal funding

grant assurances and grant conditions, airport layout plan approvals, and contract plans and specifications to ensure that the following mitigation actions are implemented during project development. The FAA will monitor the implementation of these mitigation measures as necessary. The approvals contained in this ROD are specifically conditioned upon full implementation of these mitigation measures.

Noise Mitigation

As described in the FEIS (Section 6.1.1), noise abatement options would not adequately mitigate the potential significant noise impacts associated with implementation of the proposed action. Accordingly, remedial measures would be implemented to achieve compatible land uses. HAS will mitigate all residential uses existing at the time of this ROD that are within the 65 DNL contour, which is identified in the FEIS (Figure 5-21). The estimated 261 dwelling units that would be exposed to DNL 65 and higher in 2002 would be eligible for mitigation. HAS would acquire or provide sound insulation for all residences existing at the time of this ROD that are within the 65 DNL contour, which is identified in the FEIS (Figure 5-21).

The mitigation program would be initiated in 2001, prior to completion of the extension to Runway 15R-33L. It is anticipated that the program would be completed over a 5-year period. The remedial mitigation program elements are listed below in order of implementation priority.

1. Acquisition of single family residences exposed to DNL 70 and higher (FEIS, Figure 6-4)
2. Acquisition of single family residences and one religious institution exposed to DNL 65 to DNL 70 that would experience a significant (1.5 dB increase or greater) noise impact (FEIS, Figure 6-4)
3. Acquisition of the remaining single family residences exposed to DNL 65 and higher (FEIS, Figure 5-21)
4. Sound insulation for multifamily residences exposed to DNL 65 and higher (FEIS, Figure 6-4)

HAS would conduct all acquisition in accordance with the requirements of the federal *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*. The acquired property would be retained for airport use or resold for compatible development. In the event of resale, HAS would retain an aviation easement including, but not limited to, noise and overflight purposes.

Multifamily residences eligible for the sound insulation program would be tested by qualified acoustical specialists to determine the level of noise attenuation required to meet the noise level reduction criteria of FAR Part 150. If additional noise reduction is required, the acoustical specialists would then prepare plans to achieve the necessary reduction.

By 2017, some additional noise sensitive properties may begin to reach the threshold of significant impact (DNL 65) due to forecasted increases in operations. HAS will reevaluate the noise environment during subsequent updates of the Airport Master Plan, typically updated at 5 to 10 year intervals. Should subsequent noise analyses indicate that noise levels in noise

sensitive areas are approaching the threshold of significance, a remedial program, such as sound insulation, would be developed in consultation with representatives of the affected area. At a minimum, the noise contours will be updated when aircraft operations at the airport reach 85% of the 2017 forecast levels, or about 700,000 annual operations.

Wetlands Mitigation

As discussed in Chapter 5, implementation of the preferred alternative would result in the placement of fill material in wetland areas. The preferred alternative would permanently affect an estimated 100 acres of wetlands. Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers regulates the discharge of dredged or fill material into waters of the United States, including wetlands, through its Section 404 Regulatory Program (33 CFR Parts 320-330). Prior to issuing a Section 404 permit, the Corps of Engineers must be assured that activities in waters of the United States will comply with the Section 404(b)(1) guidelines and will not be contrary to the public interest. The Section 404(b)(1) guidelines prohibit the authorization of a discharge unless appropriate and practicable steps have been taken to avoid, minimize, or mitigate the adverse impact of the proposed discharge on the aquatic ecosystem.

On February 6, 1990, the Corps of Engineers and the U.S. EPA signed a Memorandum of Agreement (MOA) to provide guidance for determining the level and type of mitigation necessary to comply with the guidelines of Section 404(b)(1). The MOA defines mitigation as the following sequential process:

1. Avoidance of wetland impacts
2. Minimization of wetland impacts
3. Compensation for wetland impacts

This mitigation sequence, as it applies to construction and operation of the preferred alternative, is discussed in further detail below.

Avoidance

Avoidance of wetlands impacts is defined as taking “all appropriate and practicable measures to avoid those adverse impacts to the aquatic ecosystem that are not absolutely necessary.” As discussed in Chapter 5, the preferred alternative was developed through a siting process based on the identified project objectives, including avoiding and minimizing impacts to the population and natural resources. As part of the siting effort, wetlands impacts were estimated for each of the alternatives. To meet the project objectives, total avoidance of wetlands was determined not to be possible during the siting process because of the extent of wetlands identified in the project area, the amount of land required for the preferred alternative and the need to take into consideration the population and other natural resources.

Minimization

Minimization of wetlands impacts is defined as taking “all appropriate and practicable measures

to minimize those adverse impacts to the aquatic ecosystem that cannot reasonably be avoided.” As with avoidance, minimization of wetlands impacts surrounding aircraft movement areas would not be practicable because wetlands in these areas are not compatible with safe airport operations.

Compensatory Mitigation

Compensatory mitigation for wetlands impacts is defined as “appropriate and practicable measures to compensate for adverse project impacts to the aquatic ecosystem that cannot be reasonably avoided or minimized.” Compensatory mitigation is only acceptable when it offsets impacts that cannot be avoided entirely or further minimized, such as the unavoidable loss of wetlands as a result of the filling or excavation associated with new runway and taxiway development. Construction and operation of the preferred alternative would result in the loss of an estimated 100 acres of wetlands, of which 28 acres are estimated to be herbaceous wetlands and 71 acres are estimated to be forested wetlands. Once compensatory mitigation has been determined to be necessary and appropriate, it can be accomplished through one or more of the following methods:

- Financial compensation
- Mitigation banking
- On-site or off-site mitigation

A final mitigation plan to compensate for wetlands impacts associated with the preferred alternative would be developed during the Section 404 permitting process and would be subject to the approval of the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency (U.S. EPA), U.S. Fish and Wildlife Service, Texas Natural Resources Conservation Commission (TNRCC), and Texas Parks and Wildlife Department (TPWD). Any approved mitigation plan would take into account the site-specific and cumulative loss of ecological functions provided by the affected wetlands, as well as any identified public value.

No threshold of significance has been established for impacts to habitats other than wetlands. Nevertheless, mitigation for impacts to upland habitat would be included in the proposed wetlands mitigation. Associated upland buffer areas would be incorporated into a wetlands mitigation design to provide mitigation for impacts to biotic communities. These upland buffer areas would be preserved along with the wetlands mitigation areas.

The Corps of Engineers often requires wetlands mitigation project ratios in excess of 1:1 to adequately replace the function and value of the wetlands lost as part of a development project. Depending on the quality of the wetlands affected and the quality and location of the mitigation wetlands, the Corps of Engineers may require a higher ratio than 1:1. For example, if 50 acres of wetlands are affected and the Corps of Engineers requires a 3:1 mitigation ratio, then 150 acres of wetlands would need to be replaced. The Corps of Engineers determines the mitigation ratio during the Section 404 permitting process.

The final mitigation plan for this project may be a combination of one or more mitigation alternatives discussed in the following sections. Preliminary evaluation indicates that sufficient

mitigation options are available to adequately compensate for the loss of wetlands that would result from implementation of the preferred alternative.

The proposed mitigation program was developed through consultation with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. EPA, the TNRCC, and the TPWD. This program includes the mitigation of herbaceous wetlands at the westside airport property shown in the FEIS (Figure 6-5), and the mitigation of forested wetlands on the land between Spring Creek and the San Jacinto River shown in the FEIS (Figure 6-6). A Section 404 permit application incorporating the proposed mitigation program was submitted to the Corps of Engineers on February 15, 2000. The text of this application was provided in the FEIS (Appendix G).

Wetland impacts would be compensated for both in-kind and off-site. The compensation plan would include mitigating forested wetland impacts at the Bahr Woods Mitigation Area and mitigating herbaceous wetland impacts at the former westside airport property. The goal is to fully compensate for wetland losses at these locations through a combination of creation, enhancement, and preservation of wetlands. Implementation of the proposed mitigation plan would decrease or eliminate the temporal loss of wetland functions from the development activities. No loss of jurisdictional wetlands is anticipated to achieve the above goal.

The westside airport property is located in Waller County, Texas, between Katy and Brookshire, approximately 35 miles southwest of the Airport. The property is approximately 1,480 acres and is mostly fallow, but a small portion of the property is used for agriculture. Past uses of the property include cattle ranching and rice farming. The property was purchased by the City of Houston in the mid-1980s.

Wetland mitigation at the westside airport property would consist primarily of restoration and creation of nonforested prairie wetlands and supporting prairie upland habitat. Past agricultural activities have filled wetlands and created extensive, artificial drainageways throughout the site. HAS proposes to provide compensatory mitigation by restoring/creating, enhancing, and/or preserving wetlands at the westside site.

The Bahr Woods Mitigation Area is located in Montgomery County, Texas and is bounded on the east by the west fork of the San Jacinto River and on the west by Woodson's Gully. The site is approximately 2 miles north of the Airport and consists of a 6,600-acre tract of undeveloped land. The location and quality of habitat on the property would provide the opportunity for off-site in-kind mitigation of wetland impacts. The existing vegetative, hydrologic, and hydric soil conditions would be conducive to the enhancement and preservation of existing wetlands and associated uplands and the creation of new wetlands within the expansive 100-year floodplain.

The proposed mitigation for the palustrine forested wetland and the palustrine shrub/scrub wetland impacts, proposed as part of the Airport development activities, would occur at the Bahr mitigation location. The mitigation project includes the enhancement of existing wetlands, creation of new wetlands, and preservation of high quality wetlands and associated upland habitat. It is expected that the final mitigation site compensating for wetland impacts will encompass approximately 900 acres of forested wetland and upland habitats.

Water Quality Mitigation

Activities associated with implementation of the preferred alternative would result in short- and long-term impacts to surface water and groundwater. As stated in the FEIS (Section 5.7), potential impacts include increased runoff, increased water turbidity, decreased floodwater storage, altered drainage patterns, change in water table elevations, and alteration of natural soil strata. Mitigation measures that would address potential water quality impacts are discussed below.

Surface Water Quality

Surface water quality impacts associated with implementation of the preferred alternative would be mitigated through the design, use, and maintenance of structural and nonstructural controls. Structural controls are constructed facilities or vegetative practices generally designed to reduce pollutant levels in stormwater runoff. Structural controls to mitigate surface water quality impacts include erosion and sedimentation control barriers, vegetation controls (grass-lined channels and overland flow areas), and detention ponds. Nonstructural controls are primarily management-based activities designed to prevent or reduce the potential of stormwater runoff contacting pollution-causing activities.

Barriers are structural controls used to minimize sediment erosion during short-term construction activities. Barriers would be placed around the perimeter of the construction site and around stormwater drains to assist in erosion and sediment control by reducing surface water runoff velocity and trapping sediment. Barriers can include filter fabric fences, hay bale fences, or vegetative buffers used alone or in combination.

Vegetation controls, such as grass-lined channels and overland flow areas, would be designed, used, and maintained during implementation of the preferred alternative. Immediately following grading and clearing, bare soil would be planted with grasses. Sedimentation and filtering would occur as overland stormwater flow passes through these vegetated areas. Surface water would then enter grass-lined drainageways that slope toward storm water detention ponds and drainage channels. These grass-lined drainageways would reduce runoff velocity, erosion potential, and sediment load and would limit the potential for contaminant migration.

Detention ponds are used to alleviate surface water impacts on a variety of projects ranging from short-term or long-term construction to permanent urban runoff protection. Detention ponds are usually suggested for construction projects greater than 5 acres. Construction of the preferred alternative would result in approximately 481 acres being converted to impervious surfaces. Much of the remaining project area subjected to clearing and grading activities would be seeded and maintained as herbaceous habitat. Detention ponds would be incorporated as permanent structural controls to alleviate increased runoff. A detention pond would be constructed near the northwestern corner of proposed Runway 8L-26R to intercept increased runoff from the drainage channel prior to reaching Turkey Creek. Two detention ponds would be constructed on the eastern side of the proposed runway and the air cargo area as a receptacle for surface water runoff in the eastern portion of the construction area to alleviate increased stormwater and sediment draining to Garners Bayou. The detention ponds would decrease the velocity of

surface water runoff, reduce the amount of total suspended solids, provide an intercept for deicing fluids to be treated in accordance with the HAS NPDES permit, and reduce flooding of downstream areas.

In addition to structural controls, nonstructural controls may be adopted to address both long- and short-term surface water quality impacts, including hazardous materials storage/disposal, landscaping practices, and outdoor storage practices. These practices, in addition to structural controls, would be outlined in the Storm Water Pollution Prevention Plan (SWPPP) maintained by the Houston Airport System. Through proper planning and management, the combination of structural and nonstructural controls would help minimize surface water impacts throughout the project site. Proper landscaping procedures would control fertilizer and pesticide use. Outdoor storage practices include proper storage of raw materials, products, or byproducts. The SWPPP describes proper procedures for preventing or minimizing stormwater discharges prior to discharge into the receiving stream. These procedures include inspections, training, and preventive maintenance.

A wetlands mitigation project downstream, and within the same watershed, of George Bush Intercontinental Airport could provide additional water quality mitigation. Wetlands can provide flood storage and water quality filtering capabilities; a mitigation project in the watershed could help offset the decrease of these functions on Airport property.

Through proper planning and management, the combination of structural and nonstructural controls would minimize surface water impacts during construction and operation of projects in the preferred alternative.

Groundwater

Impacts to groundwater would be continually addressed during construction and operation of the preferred alternative. Compaction of soils from heavy equipment and the grading of land would cease following construction activities. Revegetation of much of the project site would help to loosen soils over time and would alleviate soil compaction resulting from construction activities. This, in turn, would help to restore groundwater infiltration through soil.

The nonstructural, best management practices described in the SWPPP would help prevent and minimize potential groundwater impacts resulting from spills of hazardous materials or the spread of existing hazardous materials. The SWPPP provides guidance on the management of hazardous materials and proper clean-up procedures. On-airport tenants, employees, and construction workers are trained to carry out the procedures outlined in the SWPPP so that hazardous materials are properly managed. Regular inspections of equipment would be performed and structural and nonstructural controls would be used to detect any deficiencies that may lead to adverse impacts to groundwater.

Long-term impacts to shallow groundwater would be minor and require little mitigation. The creation of new and extended runways and taxiways would result in impervious surfaces that would create anticipated changes to water table elevations and soil strata. The long-term effects of the new surfaces would be new migration pathways for groundwater; however, groundwater

recharge impacts would be minor. The Evangeline Aquifer, a major drinking water resource, is not likely to be affected by construction and operation of the preferred alternative.

Floodplains Mitigation

These impacts are related to the development of the new air cargo area in the northeast quadrant of the Airport (FEIS, Figure 5-31). The proposed air cargo facility would be located in a portion of the Garners Bayou floodway and associated 100-year and 500-year floodplains. As currently proposed, the alignment of Garners Bayou would be altered to accommodate construction of the air cargo facility. The entire north/south portion of Garners Bayou would be relocated approximately 850 feet west of its current location. In addition to the relocation of Garners Bayou to the west, a new detention facility between Ditch "G" and Will Clayton Parkway and immediately west of Lee Road would be constructed. To accommodate increased stormwater runoff from the new air cargo facility, an in-line detention facility would be located on the west side of the relocated Garners Bayou. As currently proposed, the air cargo facility would impact approximately 35 acres of floodway, 208 acres of the 100-year floodplain, and 70 acres of the 500-year floodplain. No other impacts to floodways and/or floodplains are anticipated to result from the construction and operation of the build alternatives.

Due to the impacts to the floodway and floodplains that would result from implementation of any of the build alternatives identified above, mitigation would be required. These impacts would be the direct result of construction of the new air cargo facility in the northeast portion of the Airport. Mitigation measures would include the analysis of impacts to the floodplain and would require compensation in the form of stormwater detention facilities for increased stormwater runoff volumes.

The final drainage engineering design for the air cargo facility would determine the type, dimensions, and location of the stormwater conveyance and detention facilities. Using the most current information available, the stormwater drainage system and mitigation improvements would be designed to maintain, if not improve, existing hydrologic patterns. Because the proposed action would impact a floodway, a floodway analysis would be required. The analysis would include impacts to the floodway and the 100-year floodplain, which would require mitigation, including a letter of Map Revision to FEMA for anticipated floodway impacts. Floodway impacts are coordinated through and approved by FEMA. Impacts to the 100-year floodplain are reviewed and regulations are administered by the Harris County Flood Control District. The proposed mitigation measures for floodway/floodplain impacts associated with preferred Alternative B/C.4 would be coordinated with Harris County Flood Control District and the City of Houston.

Construction/Surface Traffic Mitigation

Temporary increases in surface traffic congestion due to increased volumes of construction-related traffic would take place during the construction period. The following methods of mitigating construction-related traffic congestion would be used during and as part of the

proposed construction.

- Daily activities will be scheduled during off-peak traffic periods to the maximum extent possible, and routes used by trucks moving to and from the construction site would be specified to minimize the number of project-related vehicles on the roadways in the Airport environs at any one time.
- Many pieces of large excavation equipment will be required to move the subsoil and demolished pavement. Haul road locations and landfill areas would be identified before excavation starts.
- Access and haul roads would be maintained.
- Damage to local roads would be repaired.
- Spillage of excavation material would be removed at the end of each shift.

SECTION 7 - COMMENTS ON THE FEIS

Letters were received from the following two agencies/offices in response to the FEIS:

- Coastal Coordination Council
- State of Texas, Office of the Governor

These letters effectively stated that the respective agency and/or office had no comments on the FEIS. These letters are attached to this ROD (Appendix 1). No comments from the public were received on the FEIS.

SECTION 8 - THE AGENCY'S FINDINGS

In accordance with applicable laws and FAA Order 5050.4A, *Airport Environmental Handbook*, par. 94b, the FAA makes the following determinations for this project, based upon all of the available information and data, which are contained in the FEIS and the administrative record:

Federal Funding Findings and Determinations

The FAA understands that the Airport sponsor may apply for Federal grant-in-aid funding approvals in conjunction with its decisions to proceed with the implementation of the project components and mitigation measures covered by this ROD. There are numerous findings and determinations prescribed by statute and regulation that must be made by the FAA as preconditions to agency approvals of airport project funding applications. Any grant-in-aid or approval would also reflect appropriate statutory and regulatory assurances and other terms and conditions for FAA's action. While this ROD provides the environmental study basis to proceed with making those findings and determinations, in the absence of application and a clearly defined course of action that would be followed, it would be premature to consider the bases for them at this time. The agency will make any necessary findings and determinations in connection with its consideration of appropriate applications for Federal funding aid or authorizations.

Project Will Comply with the SIP - Section 176 Clean Air Act Amendments

While the City of Houston and the Airport are within the Harris County, Texas, which is designated as a "nonattainment area" for ozone, the air quality modeling conducted for the FEIS and findings obtained indicate that construction phase of the proposed project would result in emissions from construction that are above the *de minimis* levels prescribed for National Ambient Air Quality Standards ("NAAQS") in the project area or the metropolitan area affected as prescribed under 40 CFR Part 93. The Governor of Texas has certified that there is a reasonable assurance that the project will meet all applicable air quality standards. Based on the air quality investigation and analysis conducted for, and presented in the EIS and the supporting administrative record, the FAA finds that the Airport development actions proposed in the FEIS do exceed the *de minimis* increase levels, but conform to the SIP.

Project Conforms to the Avoidance and Minimization of Harm to Wetlands - Executive Order 11990, as amended

As discussed in the FEIS, several components of the preferred alternative will directly affect wetlands. Thus, the Airport sponsor recognizes that it would have to obtain a permit from the U.S. Army Corps of Engineers ("Corps") under Section 404 of the Clean Water Act as a condition to its proceeding with any airport development under the approvals contained in this ROD.

The FEIS (Section 5.11), discloses that the preferred development alternative will affect approximately 100 acres of wetlands, intermittent stream, and permanent stream beds within the study area for the preferred alternative. While no further practical means could be found to avoid impacts to the wetlands, the Airport sponsor's preliminary design and planning of the proposal, together with the FEIS's consideration of the planning alternatives, provided for avoidance of the impacts to the extent possible, and consideration was given to the practicable measures available to minimize harm to the wetlands where harm could not be avoided. The FEIS (Section 6) provides the detailed information concerning the process and considerations that apply as to the Airport sponsor, as applicant.

The Airport is currently working with the Corps to develop a final, detailed wetlands mitigation plan. The specifics of a mitigation plan are included in the Section 404 permit and that will be required as part of the permitting process. Thus, the approvals of this ROD are conditioned on the Airport sponsor obtaining a Section 404 Permit from the Corps and the wetland mitigation being completed before removal of any existing wetland.

Although it is generally recognized as preferable to attempt to mitigate wetland losses or harm through replacement on site, or at least in the same watershed, that approach is frequently not available on airports. The applicable aircraft safety policies and standards reflect concern where the construction of man-made or enhanced wetlands would present an attractant to wildlife in aircraft movement and operations areas. Such an attractant is not consistent with aviation safety, creating a serious potential for a safety hazard for aircraft striking wildlife on the ground or in the air (FAA Advisory Circular 150/5300-33). The safety standards set forth in FAA's policy statement, while recommended for all public-use airports is prescribed for airport sponsors receiving Federal grant funding assistance. FAA consultation will be necessary for the full and proper consideration of all wetlands mitigation measures on the Airport to ensure that flight safety is not compromised.

The FAA finds that there is no practicable alternative to the preferred alternative's use of approximately 100 acres of wetlands, and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. This project is in compliance with Executive Order 11990, as amended. The project's wetlands mitigation plan includes all practicable measures to minimize harm to wetlands that may result from such use.

Involuntary Displacement Governed by Requirements for Relocation Assistance

Title II of the Uniform Relocation Assistance and Real Property Acquisition Policies Acts of 1970 (42 U.S.C. Section 4601 *et seq.*) and implemented by the Secretary of Transportation under 49 CFR Part 24, require that state or local agencies that undertake Federally-assisted projects, which cause an involuntary displacement of persons or businesses, follow the prescribed procedures and provide relocation benefits to those displaced.

The preferred alternative will involve the displacement and relocation of some residents. The displacement impacts of the project are discussed in detail in the FEIS (Section 5.3.1). Mitigation of those impacts is necessary and required; mitigation for the approvals given under

this ROD relating to displacement impacts caused by the project will be accomplished through that relocation assistance whether or not the project receives Federal funding-assistance.

The FAA finds that: (1) comparable decent, safe, and sanitary dwellings are available for occupancy on the open market in the area; and (2) fair and reasonable relocation payments and assistance will be provided as required by Title II of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, where applicable.

Historic Sites/Properties and Planning to Minimize Harm from Use - 49 U.S.C. Section 303(c) and Section 106, National Historic Preservation Act

As is discussed in the FEIS (Chapter 4) and this ROD, there are no publicly owned parks, recreation areas, or wildlife and waterfowl refuges within the Airport project environment. Further, there are no sites protected under the provisions of Section 106 of the National Historic Preservation Act.

Floodplain Encroachment Has No Practicable Alternative and Action Conforms to Applicable of State and Local Standards – FAA Order 5050.4A, Paragraph 94, Section 6, 6(a), and 6(b) and Executive Order 11988

The relocation of the air cargo facility will impact the 100-year floodplain of Garner Bayou (FEIS Figure 5-31). Specifically, this impact is a drainage ditch extending from Garner Bayou. This air cargo development was sited in the northeast corner of the airport as it requires a large area with direct airfield and roadway access. These requirements effectively eliminated other potential sites on the airport. Construction will comply with all relevant state and local standards to minimize the floodplain impact.

Project Has No Disproportionately High or Adverse Effects on Minority or Low-Income Populations - Executive Order 12898

Section 5 of the FEIS and this ROD addresses the environmental justice concerns of the proposed action. It is concluded that no minority or low-income group or community would be disproportionately affected by the impacts of the proposed action.

FAA's Independent, Thorough, and Objective Evaluation – CEQ regulations 40 CFR 1506.5

As documented in the FEIS and this ROD, the FAA has engaged in a lengthy and extensive processes relating to the screening and selection of the viable alternatives that best fulfilled the identified purposes and needs for development of the sponsor's airport. The process included FAA selecting a consultant/contractor to assist in conducting the environmental process. The DEIS and FEIS document, disclose, and analyze the environmental impacts of the proposed

Federal action and the reasonable alternatives. Appropriate planning and design for the avoidance, minimization, and mitigation of impacts, as required by NEPA, the Council on Environmental Quality's regulations, and the FAA's implementing directives will be taken.

TITLE 49 U.S.C., FORMERLY THE AIRPORT AND AIRWAY IMPROVEMENT ACT (AAIA)

The following findings are made under Title 49 of the United States Code (49 USC 47101, *et seq.*). This was formerly known as the 1982 Airport and Airway Improvement Act (AAIA) which was recodified. Both the current citation and the original citation are provided.

Consistency with Local Plans - 49 U.S.C. 47106(a)(1), formerly Section 509(b)(1)(A) of the AAIA

The FAA finds that the proposed action: (1) is reasonably consistent with existing plans of public agencies authorized by the state in which the Airport is located to plan for the development of the area surrounding the Airport; and (2) will contribute to the accomplishment of the purposes of the 49 USC 47101, *et seq.*

As to the first issue, the Houston-Galveston Area Council (HGAC) is the public agency authorized by the State of Texas to plan for the development of the metropolitan area in which IAH Airport is located. Given HGAC's review of the proposed action, the FAA is satisfied that the proposed action is reasonably consistent with the plans of that public agency as the one authorized by the state to plan for the development of this area.

As to the second issue, the FAA finds that the proposed action will contribute to the accomplishment of the purposes of the 49 USC 47101, *et seq.* The purposes include promotion, continuation and improvement of the nation's airport and airway system required to meet the current and projected growth of aviation and the requirements of interstate commerce, the Postal Service, and the National defense. The FAA finds that the development at the Airport will contribute to the accomplishment of all of these purposes.

Fair Consideration - 49 U.S.C. 47106(b)(2), formerly Section 509(b)(4) of the AAIA

The FAA finds that fair consideration has been given to the interests of communities in or near the project location.

As described in Section 6 of this ROD, nearby communities have had numerous opportunities to express their views. The FAA's extensive consideration of these views is set forth in the FEIS (Appendix A) and this ROD.

Thus, the FAA has determined that throughout the EIS process, beginning at its earliest planning stages, fair consideration has been given to the interests of communities in or near the project location, in compliance with 49 U.S.C. 47106(b)(2).

Resource Agency Consultation, 49 U.S.C. 47106(c)(1)(C), formerly Section 509(b)(5) of the AIA

The FAA has consulted with the U.S. Army Corps of Engineers, Department of the Interior (DOI) and the EPA with regard to the proposed action's impacts on natural resources including, but not limited to, fish and wildlife, natural, scenic and recreation assets, water and air quality, and other factors affecting the environment. Documentation of FAA's consultation with respect to the DEIS with the DOI and EPA is provided in the FEIS (Appendix A).

As documented in the FEIS, there are significant impacts to wetlands, water quality and floodplains. However, given the inability of other alternatives discussed in the FEIS, to satisfy the purposes and needs for the preferred alternative, we have concluded that no possible and prudent alternative exists to development of the proposed alternatives. As discussed in Section 6 of this ROD and documented throughout the FEIS and the administrative record, every reasonable step has been taken to minimize adverse environmental effects resulting from the project.

The selection of the preferred alternative addressed the avoidance and minimization of impacts to natural resources. As part of the siting effort, wetlands impacts were estimated for each of the alternatives. For any of the alternatives under consideration, total avoidance of wetlands resources was not possible during the siting process because of the extent of wetlands identified in the project area, and the amount of land required to meet the project objectives. In the interests of safety, the avoidance and minimization of wetlands impacts surrounding aircraft movement areas would not be suitable because wetlands in these areas are not compatible with safe airport operations.

Chapter 6 of the FEIS describes the compensation options available for mitigation of wetlands impacts. HAS has applied for a Section 404 permit from the U.S. Army Corps of Engineers, Galveston District. This application is still in the review process at the time of this approval. However, any approval given here by the FAA is contingent on a similar approval by the Corps for wetland mitigation.

Chapter 5.14 of the FEIS describes the impact of this project on floodplains. These impacts are related to the development of the new air cargo area in the northeast quadrant of the Airport. This facility is needed to accommodate air cargo being displaced as a result of the Taxiway SD bridge and associated ramp widening and additional future activity. Further, this development was sited in the northeast corner of the Airport as it requires a large area with direct airfield and roadway access. These requirements effectively eliminated other potential sites on the Airport.

The proposed air cargo facility would be located in a portion of the Garners Bayou floodway and associated 100-year and 500-year floodplains. To accommodate increased stormwater runoff from the new air cargo facility, an in-line detention facility would be located on the west side of the relocated Garners Bayou. As currently proposed, the air cargo facility would impact approximately 35 acres of floodway, 208 acres of the 100-year floodplain, and 70 acres of the 500-year floodplain.

Due to the impacts to the floodway and floodplains that would result from implementation of any of the build alternatives identified above, mitigation would be required. Mitigation measures would include the analysis of impacts to the floodplain and would require compensation in the form of stormwater detention facilities for increased stormwater runoff volumes. Because the proposed action would impact a floodway, a floodway analysis would be required. The proposed mitigation measures for floodway/floodplain impacts associated with preferred Alternative B/C.4 would be coordinated with Harris County Flood Control District and the City of Houston.

As demonstrated above, every reasonable step has been taken to minimize the adverse effects to wetlands, water quality and floodplains.

Air and Water Quality Standards, 49 U.S.C. 47106(c)(1)(B), formerly Section 509(b)(7) of the AIA

There is reasonable assurance that the proposed action will be located, designed, constructed, and operated so as to comply with applicable air and water quality standards. The FAA finds that appropriate air and water quality certification has been obtained for proposed action.

The Texas Natural Resources Conservation Commission (TNRCC) is the agency authorized by the Texas Governor to certify that there is reasonable assurance that the proposed action will be located, designed, constructed, and operated so as to comply with applicable air quality standards. The TNRCC provided that certification in its letter to FAA dated August 25, 2000 (Appendix 2). The Office of the Governor for the State of Texas provided no additional comments in its review of the FEIS, which it transmitted to the FAA in its letter dated August 21, 2000 (Appendix 1).

Compatible Land Use Assurances, 49 U.S.C. 47107(a)(10), formerly Section 511(a)(5) of the AIA

This section requires that the FAA receive satisfactory assurances, in writing, that appropriate action has been or will be taken to restrict, to the extent reasonable, the use of land adjacent to or in the immediate vicinity of the Airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft.

Control of the proposed action's impacts will be primarily achieved by implementation of the mitigation measures for land use impacts proposed in the FEIS and committed to in this ROD. All properties acquired through mitigation will be encumbered with deed restrictions for compatible use(s) upon resale.

CONDITIONS OF APPROVAL

This ROD approves the agency actions necessary for implementation of the environmentally preferred alternative, Alternative B/C.4, subject to the airport sponsor meeting the following conditions set forth below. In accordance with 40 CFR 1505.3, the FAA will take appropriate steps through Federal funding grant assurances and conditions, airport layout plan approvals, and contract plans and specifications, to ensure that the following mitigation actions are implemented during project development, and will monitor the implementation of these mitigation actions as necessary to assure that representations made in the FEIS with respect to mitigation are carried out. The approvals contained in this ROD are specifically conditioned upon full implementation of these mitigation measures. These mitigation actions will be made the subject of a special condition included in future Federal airport grants to the City of Houston.

The Mitigation Section of this ROD includes summaries of the mitigation actions discussed more fully in FEIS Section 6 for each environmental impact category. Based on these discussions, the FAA finds that all practical means to avoid or minimize environmental harm have been adopted through appropriate mitigation planning. Mitigation measures for those impact categories where mitigation measures are necessary to avoid or minimize significant environmental impacts, as well as identified or adopted monitoring and enforcement programs, are summarized below:

1. HAS will implement the mitigation measures listed in the FEIS (Section 6) and this ROD (Section 6) as outlined in the FEIS and ROD.
2. HAS will prepare a quarterly update on the status of the mitigation measures and provide this to the FAA (Texas Airports Development Office) until such mitigation efforts are complete. The FAA will monitor the implementation of these mitigation actions as necessary to assure that they are carried out as project commitments. These measures, which constitute all the practicable means to avoid or minimize environmental harm from the proposed action, are hereby adopted.
3. HAS will obtain all appropriate permits, including Section 404 or other permits, required by the U.S. Army Corps of Engineers, prior to construction.
4. HAS will develop of a comprehensive erosion control plan prior to commencement of construction in accordance with the mitigation section of the FEIS (Section 6) and the ROD (Section 6).
5. HAS will remove the Harris County Landfill #2 and garbage and debris located in the adjacent area and on the road (located in and around the site for the new Runway 8L-26R) and its contents in accordance with all applicable local, state, and federal laws, regulations, and requirements. HAS will continue discussions with the Texas Natural Resources Conservation Commission on the best methods to remove the waste material and site closure.
6. HAS will, in the unlikely event that historic properties are discovered during construction, cease activity in the area and the contact Texas State Historic Preservation Officer and other appropriate agency officials within 48 hours of the discovery.

7. HAS will provide copies of all environmental site assessments of the landfill and information regarding the disposal of the contents of the landfill to the FAA (Texas Airports Development Office).
8. HAS will accomplish the burning of on-site debris in accordance with all state and local regulations.
9. To minimize impacts as much as possible, HAS will direct contractors and consultants to design and use “best management” construction practices discussed in the FEIS and this ROD, including those outlined in the Storm Water Pollution Prevention Plan maintained by the sponsor to prevent impacts to air quality and water quality as discussed in section 6 of the FEIS and this ROD

SECTION 9 – DECISION AND ORDER

In the FEIS and this ROD, the FAA identified the proposed action as the "environmentally preferred alternative". Having determined that the agency's preferred alternative, Alternative B/C.4, is the only possible, prudent, and practicable alternative, the remaining decision is whether to approve or not approve the agency actions necessary for implementation of the proposed action. Approval would signify that the City of Houston could proceed with the proposed development, subject to the Conditions of Approval discussed above, and possibly receive Federal funding for eligible items. Not approving these agency actions would prevent the City of Houston from proceeding with Federally supported development in a timely manner.

I have carefully considered the FAA's goals and objectives for the air transportation system, including safety considerations, in relation to the operation objectives of the proposed action and potential impacts to the environment discussed in the FEIS. This process included evaluation of the purposes and needs for the proposed action; alternative means to the proposed action, including "No Action"; environmental impacts of the proposed action and the alternatives; and mitigation necessary to avoid or minimize environmental impacts; and the costs and benefits in terms of effective and fiscal responsible expenditure of Federal funds that would result from achieving the purpose and need.

Based upon the administrative record of this project, I find that the proposed action is reasonably supported and should be approved. I certify, as prescribed by 49 U.S.C. 44502 (formerly Section 308 of the Federal Aviation Act of 1958, as amended), that the proposed project is reasonably necessary for use in air commerce or in the interests of national defense.

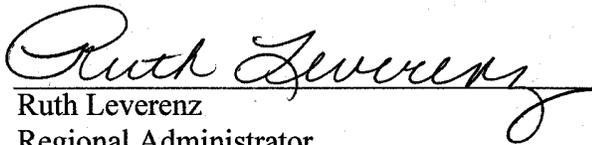
I, therefore, direct that action be taken to carry out the agency actions, including the underlying safety elements, discussed more fully in Section 3 of this ROD including:

- Approval of the Airport Layout Plan depicting one new air carrier length runway and associated airport improvements identified as part of the proposed action in Chapter 2 of the FEIS;
- Installation and/or relocation of visual and instrument aids to navigation, including the relocation of the Category I ILS from Runway 15L/33R to Runway 15R/33L and installation of the Category III ILS for Runway 8L/26R.
- Approval of associated flight procedures and safety actions (Implement revised air traffic arrival and departure procedures for Runway 15R-33L; Publish revised instrument approach procedures for Runway 15R-33L; Cancel instrument approach procedures for Runway 15L-33R; Implement triple simultaneous parallel instrument landing system (ILS) approach and departure procedures for Runways 9-27, 8R-26L, and the new Runway 8L-26R; and
- Determination that the proposed action and airport improvements are eligible for federal funding (subject to the availability of funding) in accordance with FAA Order 5100.38A, Airport Improvement Program Handbook.

I further direct that environmental Mitigation be carried out as described in Section 6 of the FEIS Section 6 of the ROD and in accordance with the Conditions of Approval discussed above in this ROD.

This action is directed to be taken under the authority of 49 U.S.C. 40104, 44502, 40113, 44701, and 46110 (formerly Sections 305, 308, 313(a), 601, and 1006(a) of the Federal Aviation Act of 1958, as amended); and 49 U.S.C. 57101, 47105, 47106, 57120, and 47122 (formerly Sections 502, 511, and 519 of the Airport and Airway Improvement Act of 1982, as amended.)

This decision, as well as subsequent approval of the proposed action for Federal assistance, constitutes an order of the Administrator reviewable in the Circuit Court of Appeals in accordance with the provisions of 49 U.S.C. 46110 (formerly Section 1006 of the Federal Aviation Act of 1958, as amended.)



Ruth Leverenz
Regional Administrator
Southwest Region

SEP 08 2000

Date

Right of Appeal

This order constitutes final agency action under 49 U.S.C. 46110 (formerly Section 1006 of the Federal Aviation Act of 1958, as amended). Any party to this proceeding having a substantial interest may appeal the order to the courts of appeals of the United States or the United States Court of Appeals for the District of Columbia upon petition, filed within 60 days after entry of this order.

Appendix 1 – Post-FEIS Comment Letters



Coastal Coordination Council

P.O. Box 12873 ♦ Austin, Texas 78711-2873 ♦ (512) 463-5385 ♦ FAX (512) 475-0680

Chairman

David Dewhurst
Texas Land Commissioner



Members

Michael L. Williams
Railroad Commission of Texas

Dr. William H. Clayton
Coastal Government
Representative

John Barrett
Agriculture Representative

Bob Dunkin
Coastal Business Representative

Jack Hunt
Texas Water Development Board

Robert J. Huston
Texas Natural Resource
Conservation Commission

John W. Johnson
Texas Transportation Commission

Elizabeth A. Nisbet
Coastal Resident Representative

Donald Swann
Texas State Soil & Water
Conservation Board

Mark E. Watson, Jr.
Parks & Wildlife Commission
of Texas



Janet Fatheree
Secretary

Lloyd Mullins
Permitting Assistance Coordinator
1-888-3-PERMIT

August 9, 2000

Mr. Ben Guttery
Texas Airports Development Office
Federal Aviation Administration
2601 Meacham Blvd.
Fort Worth, TX 76137

Re: Houston Airport System FEIS Runway 8L-26R

Dear Mr. Guttery:

It has been determined that the project referenced above is outside the Texas Coastal Management Program (CMP) boundary. Therefore, this action is not subject to consistency review under the CMP.

Sincerely,

Thomas R. Calnan
Consistency Review Coordinator
Texas General Land Office

TRC/dg

cc: Denise S. Francis, TRACS



Coastal Coordination Council

P.O. Box 12873 ♦ Austin, Texas 78711-2873 ♦ (512) 463-5385 ♦ FAX (512) 475-0680

Chairman

David Dewhurst
Texas Land Commissioner

August 9, 2000



STATE OF TEXAS
OFFICE OF THE GOVERNOR

GEORGE W. BUSH
GOVERNOR

Monday, August 21, 2000

Ben R. Guttery
U.S. Dept. of Transportation/Federal Aviation Adm.
2601 Meacham Boulevard
Fort Worth, TX 76137-4298

RE: TX-R-20000720-0005-50

EIS/George Bush Intercontinental Airport/Houston, Runway 8L-26R

Dear Mr. Guttery:

Your application for assistance referenced above has been reviewed. No substantive comments were received.

We appreciate the opportunity afforded to review your proposal. Please let me know if we can be of further assistance.

Sincerely,

A handwritten signature in blue ink that reads "Denise S. Francis / mhr".

Denise S. Francis, State Single Point of Contact
DSF/mhr

cc: Federal Aviation Administration

POST OFFICE BOX 12428 AUSTIN, TEXAS 78711 (512) 463-2000 (VOICE)/(512) 475-3165 (TDD)



STATE OF TEXAS
OFFICE OF THE GOVERNOR

GEORGE W. BUSH
GOVERNOR

Appendix 2 - Governor's Air and Water Quality Certifications

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

August 25, 2000

Mr. Ben Guttery
Senior Program Manager
Airports - Southwest Region
Texas Airport Development Office, ASW-652
2601 Meacham Blvd.
Fort Worth, Texas 76137-4298

Dear Mr. Guttery:

In accordance with 49 USC 4/106(c), I am writing regarding the City of Houston's expansion program at George Bush Intercontinental Airport. These proposed projects were identified in the Final Environmental Impact Statement Runway 8L-26R and Associated Near-Term Master Plan Projects George Bush Intercontinental Airport/Houston dated July 2000.

We are reviewing mitigation plans submitted as part of the application for a U.S. Corps of Engineers Section 404 permit. We believe that these plans contain sufficient information to make a determination on the state's 401 certification. Furthermore, we are assured that the project will not impair water quality in the state because construction cannot commence prior to 401 certification. Additionally, due to recent agreements, the TNRCC is comfortable that this project will be in compliance with the National Ambient Air Quality Standard for ozone.

Therefore, I certify that there is reasonable assurance that the project will be located, designed, constructed, and operated in compliance with applicable state air and water quality standards.

Sincerely,


Jeffrey A. Saitas, *Executive Director*

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tnrcc.state.tx.us

printed on recycled paper using soy-based ink

Robert J. Huston, *Chairman*
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