

CHAPTER 2
ALTERNATIVES

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2.1 INTRODUCTION

This Environmental Assessment (EA) discloses the environmental impacts that would result from implementation of the Proposed Project, the reasonable alternatives to the Proposed Project, and the No Action Alternative. The Federal Aviation Administration (FAA) has the responsibility to:

- » Identify a range of reasonable alternatives that fulfill the purpose and need for the Proposed Project, as described in Title 40, of the Code of Federal Regulations (CFR), § 1502.14, and FAA Order 1050.1F, paragraph 7-1.1(e). At a minimum, the range of reasonable alternatives will include the Proposed Project and the No Action Alternative.
- » Rigorously explore and objectively evaluate all reasonable alternatives, and—for alternatives that were eliminated from detailed study—briefly discuss the reasons for their elimination (40 CFR § 1502.14[a]) (1978).
- » Identify the FAA’s preferred alternative, unless an applicable law prohibits the expression of such a preference (40 CFR § 1502.14[e]) (1978).

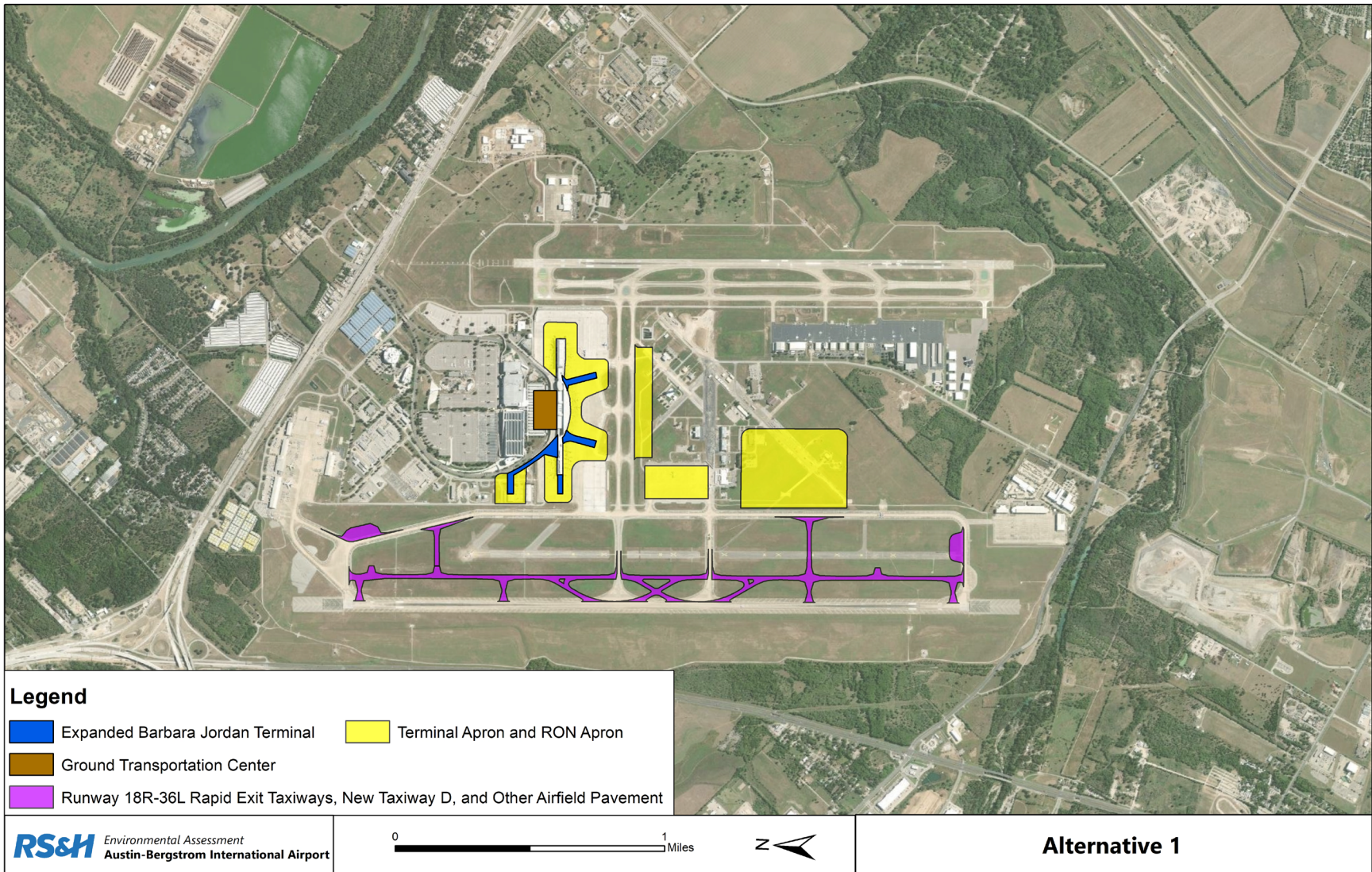
This chapter of the EA lists the reasonable alternatives and also describes the process for screening the alternatives and the results of the process.

2.2 IDENTIFICATION OF POTENTIAL ALTERNATIVES

This section provides a brief description of potential alternatives that are subject to the screening process described in **Section 2.3**. The focus of these alternatives is on the terminal and concourses. The other components of the project, such as landside access, employee and public parking, support facilities, utilities, and airfield improvements (i.e., taxiways and taxiway connectors [runway high speed exits]) can be accommodated with each of the terminal and concourse alternatives. The following potential alternatives were included in the Master Plan and are evaluated in this EA:

- » **Alternative 1: Maximum Capacity of Barbara Jordan Terminal.**
Alternative 1 maximizes the capacity of the BJT by expanding to passenger processor (e.g., ticketing, baggage drop-off, and security screening) to the northwest, converting Parking Garage 1 to a Ground Transportation Center (GTC) and parking, developing two pier concourses to the south, developing one pier concourse to the northwest, and extend the existing BJT to the west (see **Exhibit 2-1**). The two pier concourses developed to the south would extend up to the taxiway Object Free Area (OFA) for Taxiway G, with the necessary space for aircraft parking. However, this would require converting

EXHIBIT 2.1
ALTERNATIVE 1: MAXIMUM CAPACITY OF BARBARA JORDAN TERMINAL



existing Taxiways G and H to taxilanes. This would reduce airfield efficiencies for aircraft taxiing between the east and west airfields. The northwest and western concourse extensions would be developed as far west as possible, while preserving space for airfield improvements on the west side of the Airport. Alternative 1 would have a total of 67 aircraft gates and provide for 74 remain overnight (RON) aircraft parking spaces south of Taxiway H. Assuming a similar number of enplaned passengers per gate that existed in 2019, this alternative would accommodate the forecast increase in operations and enplanements in 2032.

- » **Alternative 2: Expanded Barbara Jordan Terminal.** This alternative would include expanding the BJT by developing a new western concourse oriented in a north-south configuration (see **Exhibit 2-2**). The existing parking garage located adjacent to the BJT would be converted to a GTC. Alternative 2 would have a total of 64 aircraft gates and provide for 74 RON aircraft parking spaces. Assuming a similar number of enplaned passengers per gate that existed in 2019, this alternative would accommodate the forecast increase in operations and enplanements in 2032.
- » **Alternative 3: New/Expanded Arrival/Departure Hall with New Pier Concourse and New Concourse B.** This alternative would include converting the existing BJT to a concourse and constructing a new pier concourse oriented in a north-south configuration that would connect to a new Concourse B oriented in an east-west configuration (see **Exhibit 2-3**). The existing parking garage adjacent to the BJT would be replaced by the new/expanded arrival/departure hall. Alternative 3 would have a total of 64 aircraft gates and provide for 74 RON aircraft parking spaces. Assuming a similar number of enplaned passengers per gate that existed in 2019, this alternative would accommodate the forecast increase in operations and enplanements in 2032.
- » **Alternative 4: New/Expanded Arrival/Departure Hall with New Concourse B.** This alternative would include converting the existing BJT to a concourse and constructing a midfield satellite Concourse B oriented in an east-west configuration and connected to the BJT via a tunnel (see **Exhibit 2-4**). The existing parking garage adjacent to the BJT would be replaced by the new/expanded arrival/departure hall. Alternative 4 would have a total of 57 aircraft gates and provide for 82 RON aircraft parking spaces. Assuming a similar number of enplaned passengers per gate that existed in 2019, this alternative would accommodate the forecast increase in operations and enplanements in 2032.
- » **No Action Alternative.** The City of Austin would not develop a replacement passenger terminal building and no physical changes to the BJT would occur.

**EXHIBIT 2-2
ALTERNATIVE 2: EXPANDED BARBARA JORDAN TERMINAL**

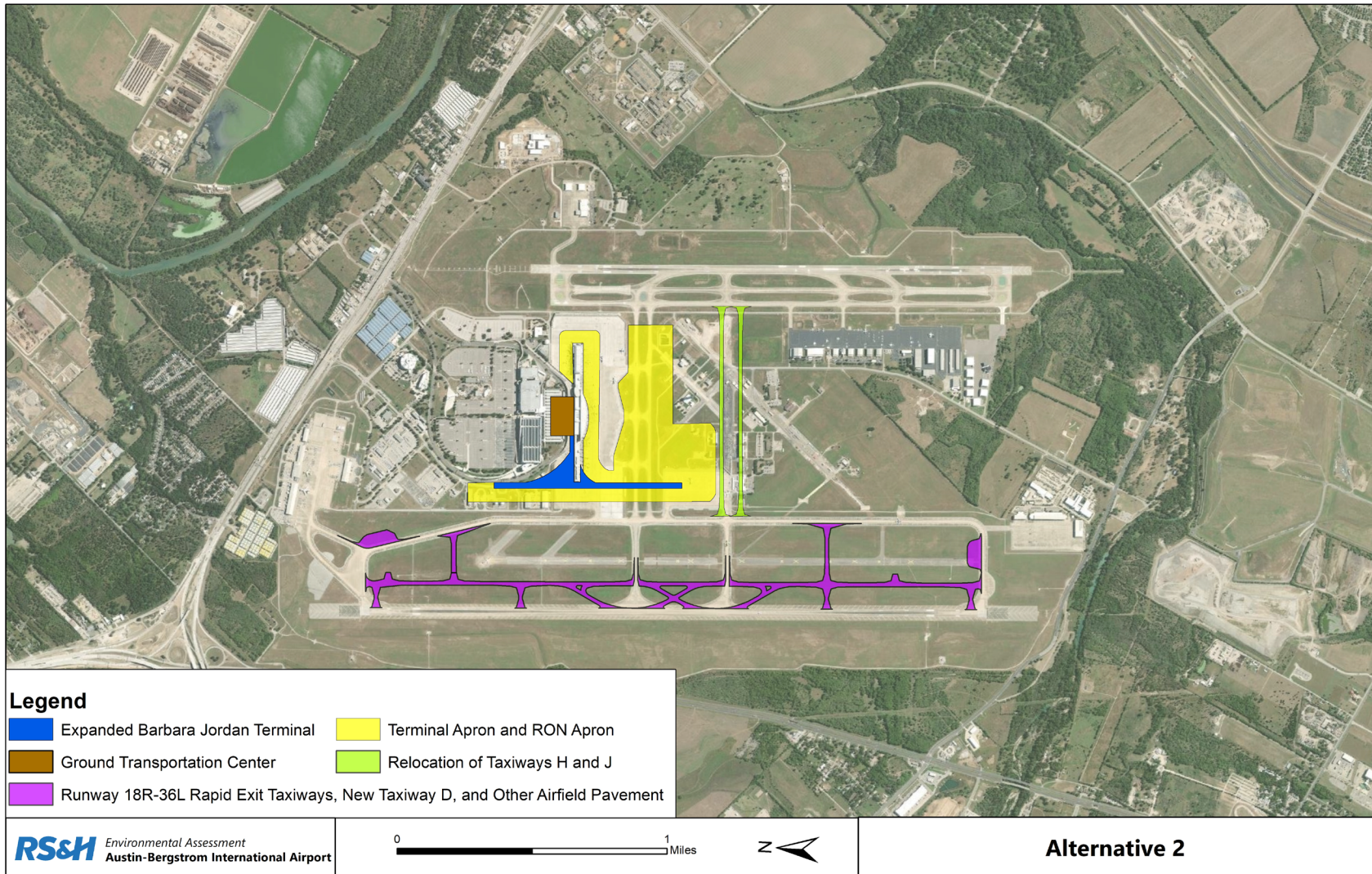


EXHIBIT 2-3
ALTERNATIVE 3: NEW/EXPANDED ARRIVAL/DEPARTURE HALL WITH NEW PIER CONCOURSE AND CONCOURSE B

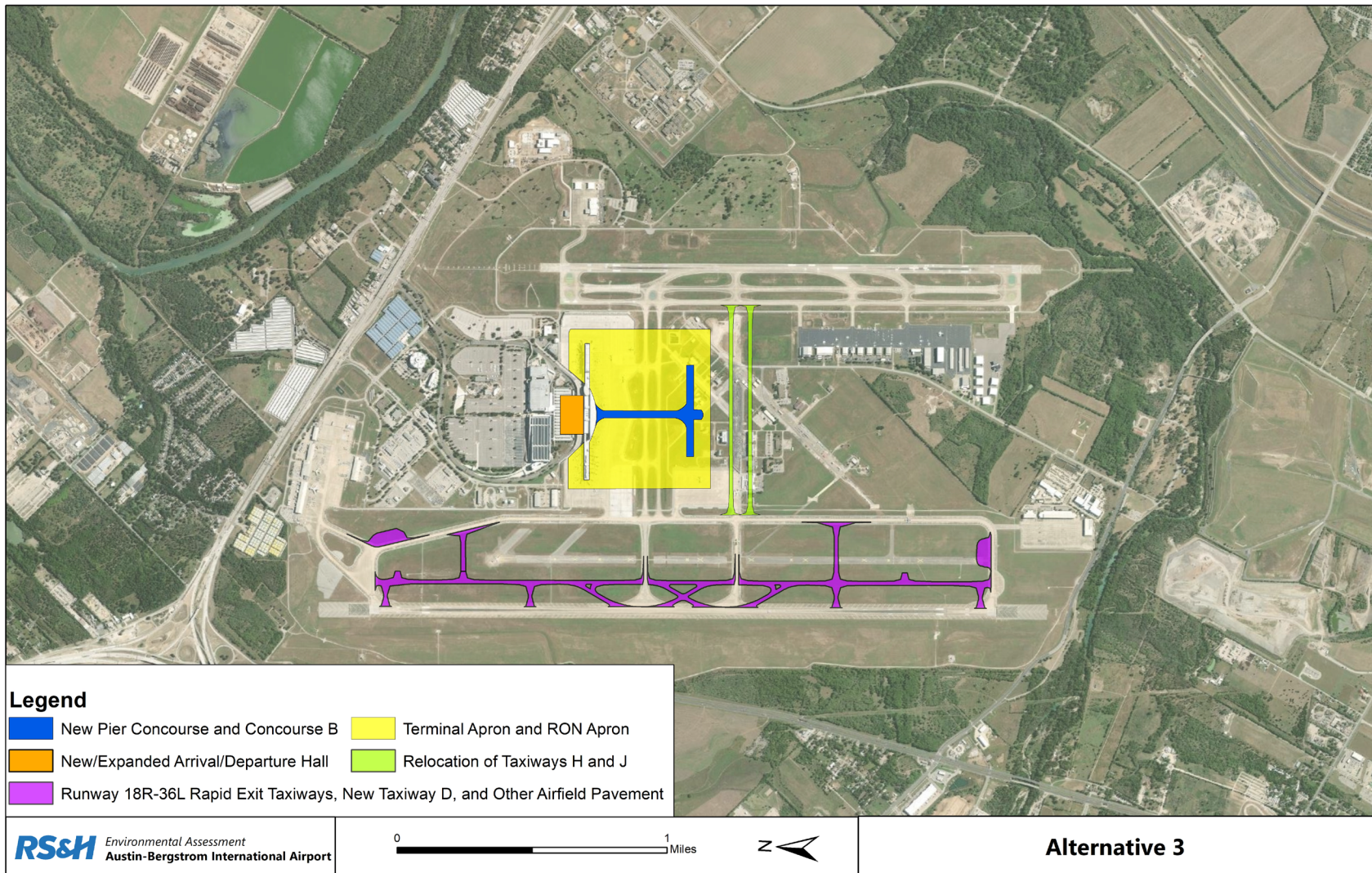
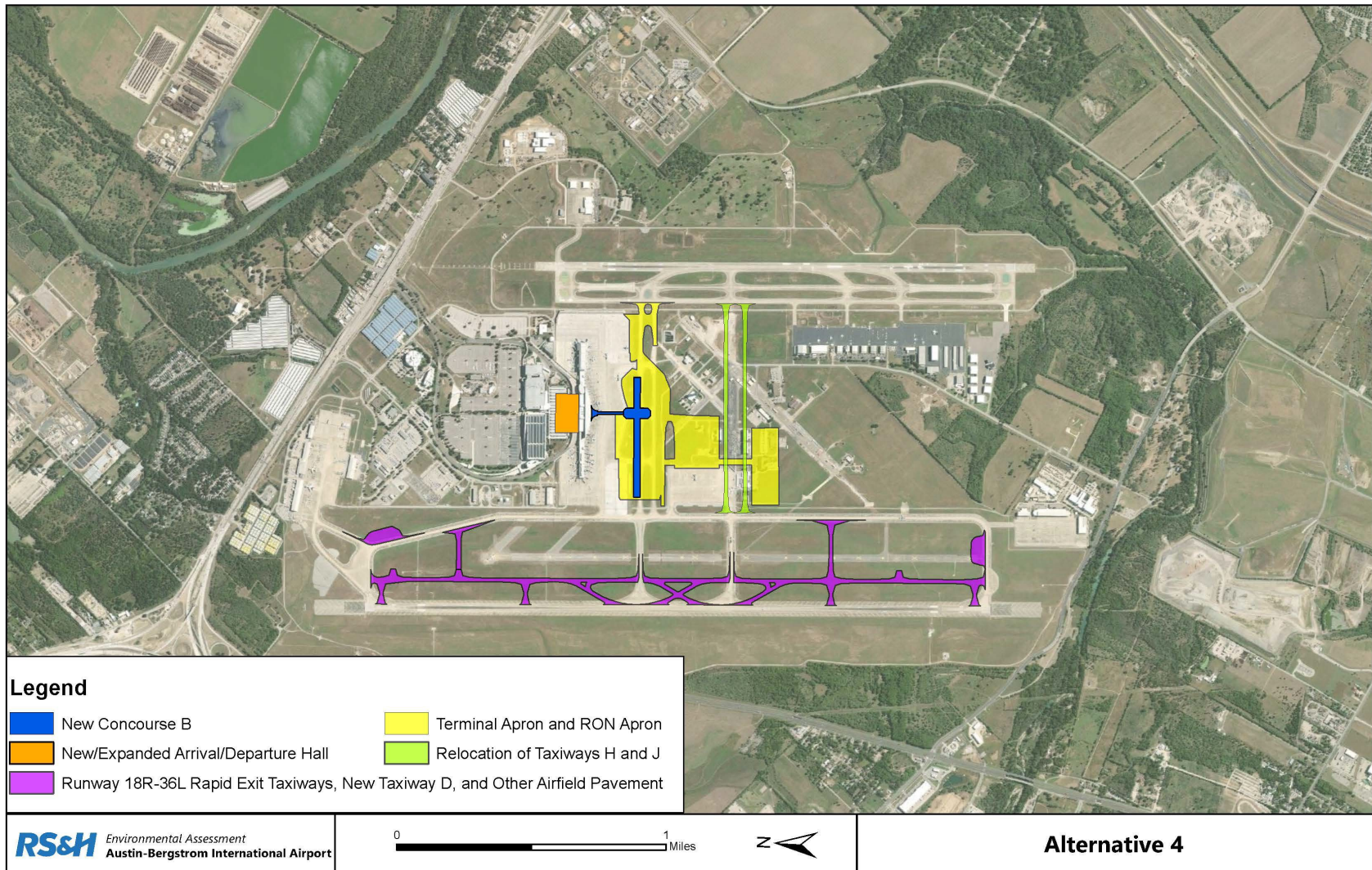


EXHIBIT 2-4
ALTERNATIVE 4: NEW/EXPANDED ARRIVAL/DEPARTURE HALL WITH NEW CONCOURSE B



This alternative would result in the use of up to 20 hardstands for remote passenger operations (remote gates). These remote gates would be located southeast of the BJT, southwest of the BJT, and north of the South Terminal (see **Exhibit 2-5**). Passengers on aircraft using the remote gates would be processed through the BJT and access the remote gates via a bus operation.

For 2027, it was assumed that each contact gate at BJT would have the same number of enplanements as that which occurred in 2019. It also was assumed that each remote gate associated with BJT would have two departures per day. In addition, it was assumed that the number of departures from the South Terminal would be 18 per day, which is the number of departures authorized in the agreement between the City and the operator of the South Terminal. **Table 2-1** provides the number of enplanements that could be accommodated under the No Action Alternative in 2027, which is slightly greater than the 10,784,200 enplanements forecast for 2027.

**TABLE 2-1
AIRCRAFT OPERATIONS AND ENPLANEMENTS UNDER THE NO ACTION ALTERNATIVE IN 2027**

2027	Barbara Jordan Terminal	South Terminal	TOTAL
Annual Enplanements at Contact Gates	8,133,319 ^{/a/}	886,950 ^{/b/}	9,020,269
Annual Enplanements at Remote Gates	1,781,200 ^{/c/}	0	1,781,200
TOTAL	9,914,519	886,950	10,801,469

Notes: /a/ Assumes no increase in the number of departures or in the average number of enplanements per departure from that which occurred in 2019.

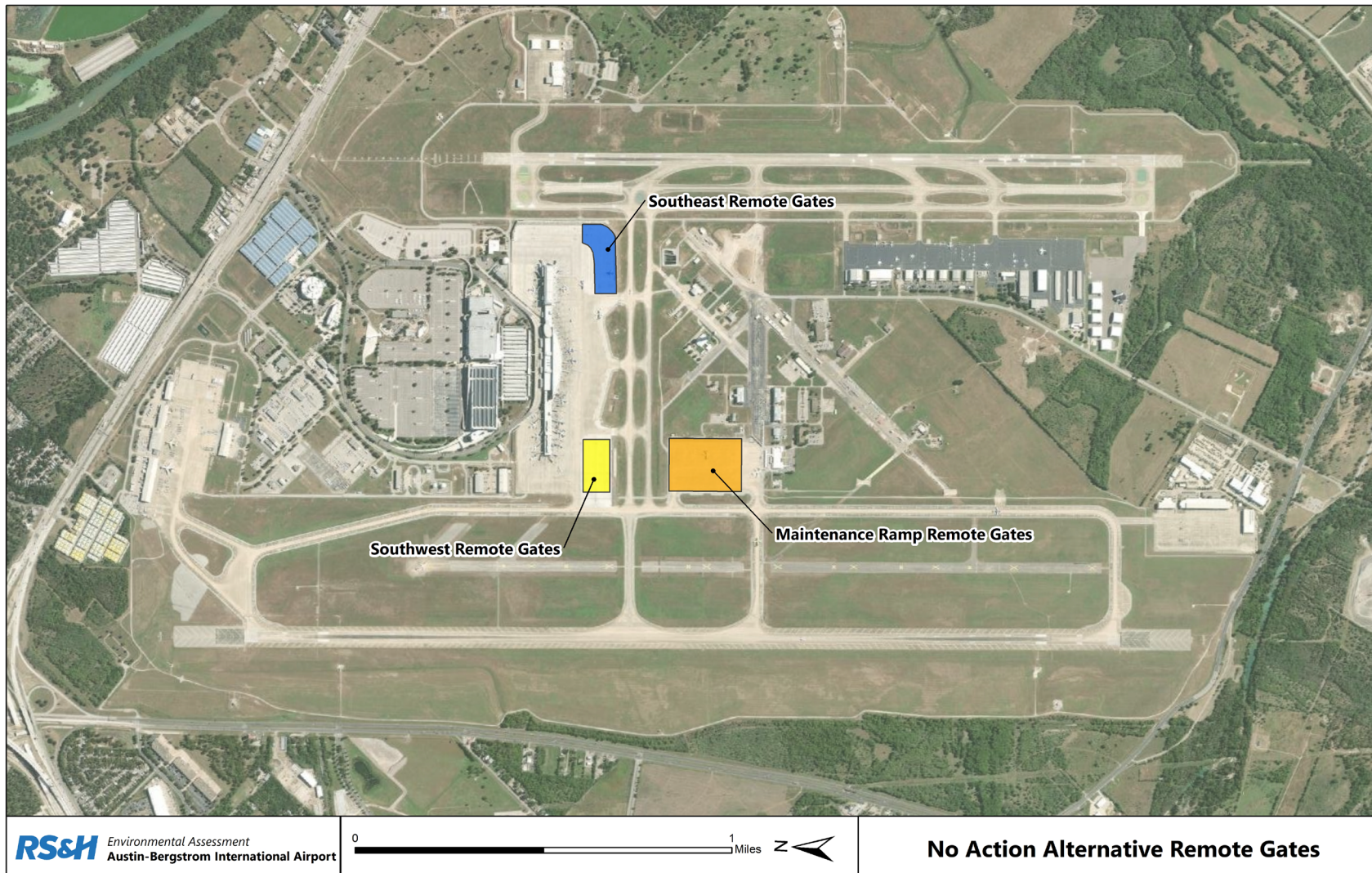
/b/ Assumes six departures for each of the three gates with an average of 135 enplanements per departure.

/c/ Assumes two departures for each remote gate with an average of 122 enplanements per departure.

Source: RS&H, 2021.

For 2032, it was assumed that each contact gate at BJT would have the same number of enplanements as that which occurred in 2019. It also was assumed that each remote gate associated with BJT would have two and a half departures per day. In addition, it was assumed that the number of departures from the South Terminal would be 18 per day, which is the same number of departures assumed for 2027. **Table 2-2** provides the number of enplanements that could be accommodated under the No Action Alternative in 2032, which is about 10.5 percent less than the 12,578,400 enplanements forecast for 2032.

**EXHIBIT 2.5
NO ACTION ALTERNATIVE HARDSTAND LOCATIONS**



Source: City of Austin, 2020.

**TABLE 2-2
AIRCRAFT OPERATIONS AND ENPLANEMENTS UNDER THE NO ACTION ALTERNATIVE IN 2032**

2032	Barbara Jordan Terminal	South Terminal	TOTAL
Annual Enplanements at Contact Gates	8,133,319 ^{/a/}	886,950 ^{/b/}	9,020,269
Annual Enplanements at Remote Gates	2,226,500 ^{/c/}	0	2,226,500
TOTAL	10,359,819	886,950	11,246,769

Notes: /a/ Assumes no increase in the number of departures or in the average number of enplanements per departure from that which occurred in 2019.

/b/ Assumes six departures for each of the three gates with an average of 135 enplanements per departure.

/c/ Assumes two and a half departures for each remote gate with an average of 122 enplanements per departure.

Source: RS&H, 2021.

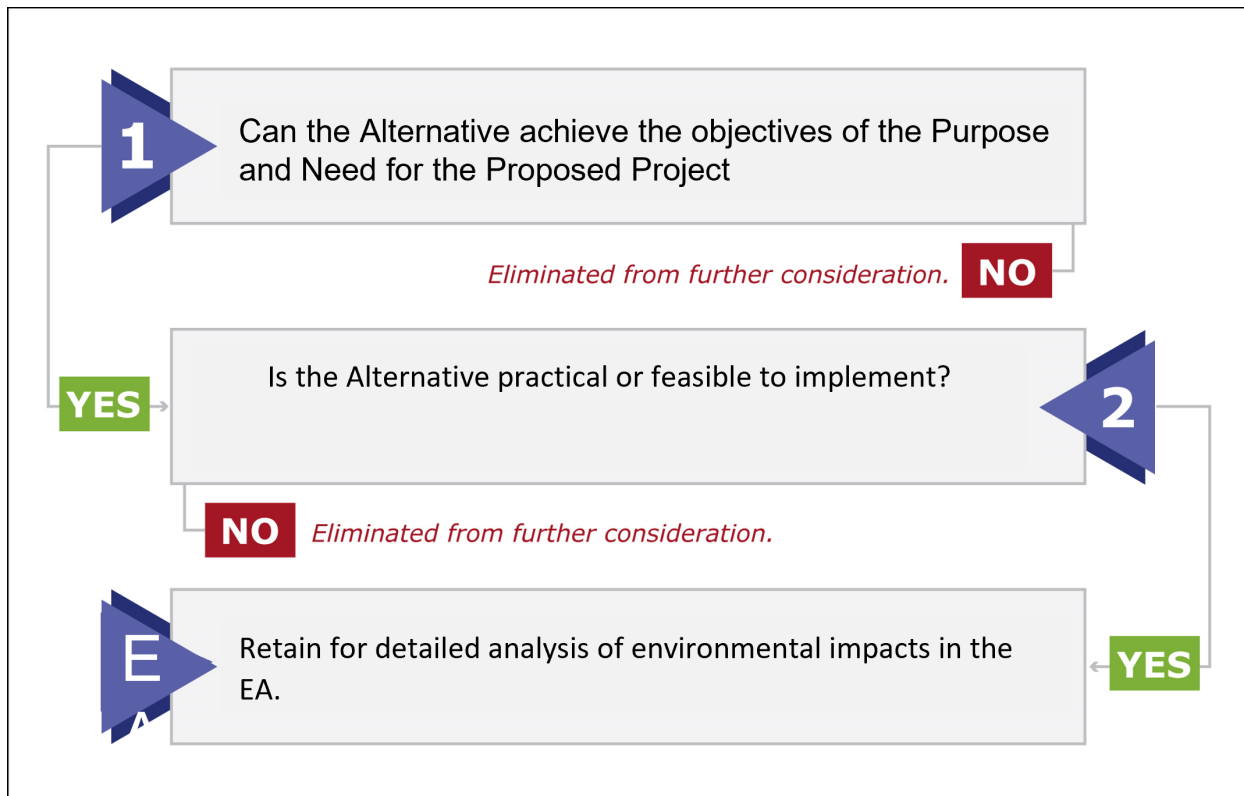
2.3 SCREENING PROCESS

For this EA, a two-step screening process was used to identify and evaluate a range of reasonable alternatives. In Step 1, each alternative was analyzed to determine whether the alternative could achieve the objectives of the Purpose and Need to accommodate the forecast increase in passengers by meeting requirements for the number of aircraft gates, the space for ticketing / check-in facilities, the space for passenger security screening, the space and facilities for baggage handling, the space for U.S. Customs and Border Protection facilities, the space for gate holdrooms, the space for concessions, and the space for other ancillary facilities and services. Alternatives that would not meet these objectives were eliminated from further consideration.

In Step 2, alternatives were eliminated if they would not be practical or feasible to implement from a technical or economic standpoint. This screening criteria includes whether the alternative would have a material effect on airfield operations, a material effect on landside operations, or would be reasonable to construct.¹ Any alternatives that were not eliminated through this screening process were retained for a detailed evaluation of their environmental impacts. The screening process is portrayed conceptually in **Exhibit 2-6**.

¹ "Reasonable to construct" is defined as an alternative that could be implemented using sound engineering judgment, with costs that are not of an extraordinary magnitude, or without a material effect to airfield operations, infrastructure, facilities, or utilities.

**EXHIBIT 2.6
ALTERNATIVES SCREENING PROCESS**



Source: RS&H, 2021.

2.4 SCREENING STEP 1: CAN THE ALTERNATIVE ACHIEVE THE OBJECTIVES OF THE PURPOSE AND NEED FOR THE PROPOSED PROJECT?

Each potential alternative was evaluated to determine its ability to achieve the objectives of the Purpose and Need of the Proposed Project.

2.4.1 Alternative 1: Maximum Capacity of Barbara Jordan Terminal

Alternative 1 would increase the number of aircraft gates and would increase the gate holdroom and concessions area within the BJT. However, Alternative 1 would not increase the space for ticketing/check-in, passenger security screening, baggage handling, U.S. Custom and Border Protection, or other ancillary facilities and services to accommodate the forecast increase in passengers. As a result, this alternative does not meet the Purpose and Need of the Proposed Project. Therefore, Alternative 1 was eliminated from further consideration.

2.4.2 Alternative 2: Expanded Barbara Jordan Terminal

Alternative 2 would increase the number of aircraft gates and would increase the gate holdroom and concessions area within the BJT. However, Alternative 2 would not increase the space for ticketing/check-in, passenger security screening, baggage handling, U.S. Custom and Border Protection, or other ancillary facilities and services to accommodate the forecast increase in passengers. As a result, this alternative does not meet the Purpose and Need of the Proposed Project. Therefore, Alternative 2 was eliminated from further consideration.

2.4.3 Alternative 3: New/Expanded Arrival/Departure Hall with New Pier Concourse and Concourse B

Alternative 3 would accommodate the forecast increase in passengers by providing adequate space and facilities associated with aircraft gates, ticketing/check-in, passenger security screening, baggage handling, U.S. Custom and Border Protection facilities, gate holdrooms, concessions, and other ancillary facilities and services. As a result, this alternative meets the Purpose and Need of the Proposed Project. Therefore, this alternative achieves the Purpose and Need of the Proposed Project and will be considered in Step 2 Screening.

2.4.4 Alternative 4: New/Expanded Arrival/Departure Hall with New Concourse B

Alternative 4 would accommodate the forecast increase in passengers by providing adequate space and facilities associated with aircraft gates, ticketing / check-in, passenger security screening, baggage handling, U.S. Customs and Border Protection facilities, gate holdrooms, concessions, and other ancillary facilities and services. As a result, this alternative meets the Purpose and Need of the Proposed Project. Therefore, this alternative achieves the Purpose and Need of the Proposed Project and will be considered in Step 2 Screening.

2.4.5 No Action Alternative

This alternative would keep the Airport in its existing configuration. In 2027, the existing BJT and South Terminal would be able to accommodate the forecast increase in passengers and would meet the required aircraft gates but would not provide adequate space for ticketing / check-in, passenger security screening, baggage handling, U.S. Customs and Border Protection facilities, gate holdrooms, concessions, and other ancillary facilities and services. The annual operations and number of aircraft served at AUS would be the same under the No Action Alternative as the Proposed Project. However, under the No Action Alternative, the forecasted increase in operations would be served by the existing facilities,

resulting in less efficient operations, decreased efficiency from an airline staffing perspective, and diminished passenger service and experience levels. As a result, airlines would have to adjust scheduling, which would result in issues related to the availability of existing gates and in turn, creating inefficient operations. It is anticipated that additional inefficiencies would compound over the projected timeframe as operations increase. This results in more turns per gate per day as well as during the peak periods. It also would result in increased hold times on the aircraft apron while aircraft wait for gates to become available. Airlines may have to use non-contiguous gates throughout the BJT, which would require a shuffling of staff and airline operations on a daily basis. This could also lead to increased inefficiencies as staff travel time between aircraft gates increases. Airlines also would have to use remote (off-gate) apron parking/loading supported by a bussing operation for the passengers to access the parked aircraft. In addition, gate holdrooms and other terminal support facilities would continue to become more constrained, resulting in a decrease in passenger service and experience. There would be a noticeable deficiency in passenger services, resulting in increasing congestion and crowding.

In 2032, the existing BJT and South Terminal would not be able to accommodate the forecast increase in passengers and would not provide an adequate number of aircraft gates or adequate space for any other terminal-related facility.

The No Action Alternative must be carried forward in the assessment of environmental impacts as required by 40 CFR § 1502.14(d) (1978). The No Action Alternative serves as the basis for comparison of the impacts of the other reasonable alternatives that are carried forward for analysis.

2.4.6 Summary of Step 1 Screening Process

Table 2-3 provides a summary of the Step 1 screening process for the potential alternatives. Alternatives 3 and 4 achieved the objectives of the Purpose and Need of the Proposed Project. These two potential alternatives and the No Action Alternative will be considered in the Step 2 Screening process.

**TABLE 2-3
SUMMARY OF STEP 1 SCREENING PROCESS**

Screening Criteria	Would the Alternative Meet the Purpose and Need?				
	Alternative 1 – Maximum Capacity of Barbara Jordan Terminal	Alternative 2 – Expanded Barbara Jordan Terminal	Alternative 3 – New/Expanded Arrival/Departure Hall with New Pier Concourse and Concourse B	Alternative 4 – New/Expanded Arrival/Departure Hall with New Concourse B	No Action Alternative
Meets Aircraft Gate Requirements	Yes	Yes	Yes	Yes	Yes
Meets Ticketing / Check-In Requirements	No	No	Yes	Yes	No
Meets Passenger Security Screen Requirements	No	No	Yes	Yes	No
Meets Baggage Handling System Requirements	No	No	Yes	Yes	No
Meets U.S. Custom and Border Protection Requirements	No	No	Yes	Yes	No
Meets Gate Holdroom Requirements	Yes	Yes	Yes	Yes	No
Meets Concession Requirements	Yes	Yes	Yes	Yes	No
Meets Other Area Requirements	No	No	Yes	Yes	No
Move to Level 2 Screening?	No	No	Yes	Yes	No ^{/a/}

Note: /a/ Required to be included in the EIS by 40 CFR § 1502.14(d) (1978).
Source: RS&H, 2018.

2.5 SCREENING STEP 2: IS THIS ALTERNATIVE PRACTICAL AND FEASIBLE TO IMPLEMENT?

Each potential alternative was evaluated to determine whether the potential alternative would have an effect on airfield operations, an effect on landside operations, or would be reasonable to construct.

2.5.1 Alternative 3: New/Expanded Arrival/Departure Hall with New Pier Concourse and Concourse B

Alternative 3 would require the relocation of Taxiway H and J. The relocation of these taxiways would ensure that the operation of the airfield would not be materially affected by the construction of the new pier concourse and Concourse B. In addition, Alternative 3 would require the relocation of the existing Air Traffic Control Tower (ATCT), the aircraft rescue and fire fighting (ARFF) facility, the deicing ponds, and the lighting vault. Relocation of these facilities would have a material effect on airfield operations. This alternative also would be unreasonable to construct based on the additional cost, effort, and time to construct a new ATCT as well as the additional cost to construct all of the project components. As a result, Alternative 3 is not practical and feasible to implement and has been eliminated from further consideration.

2.5.2 Alternative 4: New/Expanded Arrival/Departure Hall with New Concourse B

Alternative 4 would require the relocation of Taxiway H and J. The relocation of these taxiways would ensure that the operation of the airfield would not be materially affected by the construction of the new Concourse B. As a result, Alternative 4 would not have a material effect on airfield operations. In addition, Alternative 4 would not have a material effect on landside operations and would be reasonable to construct. Thus, Alternative 4 would be practical and feasible to implement. As a result, this alternative has been retained for detailed evaluation in the EA.

2.5.3 No Action Alternative

The No Action Alternative would result in the continued use of the existing BJT. Because no construction would occur as part of the No Action Alternative, this alternative would have an effect on airfield operations because the number of aircraft gates would not be sufficient and there are not sufficient number of hardstands for parking aircraft. In addition, the No Action Alternative would have an effect on landside operations as the existing BJT cannot accommodate the forecast increase in passengers. Although the No Action Alternative would not meet the Step 2 Screening criteria, it is carried forward into the Environmental Consequences Chapter as required by 40 CFR § 1502.14(d) (1978).

2.5.4 Summary of Step 2 Screening Process

Table 2-4 provides a summary of the Step 2 screening process for the two potential alternatives that were carried forward from Step 1 Screening. One

potential alternative (Alternative 4) would be practical and feasible to implement. This alternative, along with the No Action Alternative, will be evaluated in detail in this EA.

TABLE 2.4
SUMMARY OF STEP 2 SCREENING PROCESS

Screening Criteria	Would the Alternative be Practical and Feasible to Implement?		
	Alternative 3 – New/Expanded Arrival/Departure Hall with New Pier Concourse and Concourse B	Alternative 4 – New/Expanded Arrival/Departure Hall with New Concourse B	No Action Alternative
Minimal Effect on Airfield Operations	No	Yes	No
Minimal Effect on Landside Operations	Yes	Yes	No
Reasonable to Construct	No	Yes	Yes
Retain for Detailed Evaluation in EA?	No	Yes	No /a/

Note: /a/ Required to be included in the EA by 40 CFR § 1502.14(d) (1978).

Source: RS&H, 2021.

2.6 ALTERNATIVES RETAINED FOR ANALYSIS IN THIS EA

Based on the two-step screening process, the No Action Alternative and Alternative 4 (New/Expanded Arrival/Departure Hall with Concourse B) have been retained for detailed evaluation in this EA. This EA assesses the No Action Alternative and Alternative 4 for potential impacts under the projected future conditions. Specific study years were broken out for certain resources (air quality, climate, noise, and socioeconomics [surface traffic]) in order to assess the near-term and long-term impacts.

2.7 FEDERAL LAWS AND REGULATIONS CONSIDERED IN THIS ANALYSIS

Table 2-5 lists the federal laws, statutes, executive orders, U.S. Department of Transportation (U.S. DOT) and FAA orders, FAA Advisory Circulars (AC), and other federal guidance considered during the preparation of this EA.

**TABLE 2.5
FEDERAL LAWS AND REGULATIONS CONSIDERED IN THIS ANALYSIS**

Federal	Airport and Airway Improvement Act of 1982, as amended (49 USC [United States Code] 47101 et seq.)
	American Indian Religious Freedom Act (42 USC 1996)
	Antiquities Act of 1906 (54 USC 320301 et seq.)
	Archaeological and Historic Preservation Act (54 USC 312501 et seq.)
	Archaeological Resources Protection Act (16 USC 470 et seq.)
	Aviation Safety and Noise Abatement Act of 1979 (49 USC 47501 et seq.)
	Clean Air Act of 1970, as amended (42 USC 7401 et seq.)
	Clean Water Act (33 USC 1251 et seq.)
	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Community Environmental Response Facilitation Act of 1992 (42 USC 9601 et seq.)
	Endangered Species Act of 1973 (16 USC 1531 et seq.)
	FAA Reauthorization Act of 2018 (Public Law No. 115-254)
	Farmland Protection Policy Act (7 USC 4201 et seq.)
	Federal Aviation Act of 1958, as amended (49 USC 40101 et seq.)
	Hazardous Materials Transportation Act of 1975 (49 USC 5101 et seq.)
	Land and Water Conservation Fund Act of 1965 (16 USC 4601 et seq.)
	Migratory Bird Treaty Act (16 USC 703 et seq.)
	National Environmental Policy Act of 1969 (42 USC 4321 et seq.)
	National Flood Insurance Act (42 USC 4001 et seq.)
	National Historic Preservation Act (54 USC 300101 et seq.)
	Native American Graves Protection and Repatriation Act (25 USC 3001 et seq.)
	Pollution Prevention Act (42 USC 13101 et seq.)
	Protection of Historic and Cultural Properties (36 CFR Part 800)
	Resource Conservation and Recovery Act of 1976, as amended by the Solid Waste Disposal Act of 1980 (42 USC 6901 et seq.)
	Rivers and Harbors Act of 1899 (33 USC 401 et seq.)
	Safe Water Drinking Act of 1974 (42 USC 300 et seq.)
	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 61 et seq.)
U.S. Department of Transportation Act, Section 4(f) (49 USC 303[c])	
Wild and Scenic Rivers Act (16 USC 1271 et seq.)	

Executive Orders	E.O. 11593, Protection and Enhancement of the Cultural Environment (36 FR [Federal Register] 8921 et seq., May 13, 1971)
	E.O. 11988, Floodplain Management (42 FR 26951 et seq., May 25, 1977)
	E.O. 11990, Protection of Wetlands (42 FR 26961 et seq., May 24, 1977)
	E.O. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629 et seq., February 11, 1994)
	E.O. 13045, Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885 et seq., April 23, 1997)
	E.O. 13175, Consultation and Coordination with Indian Tribal Governments (65 FR 67249, November 9, 2000)
	E.O. 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (66 FR 3853, January 17, 2001)
U.S. Department of Transportation and FAA Orders	FAA Order 1050.1F: <i>Environmental Impacts: Policies and Procedures</i> (July 1, 2015) (See also <i>1050.1F Desk Reference</i>)
	FAA Order 5050.4B: <i>National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions</i> (April 28, 2006)
	FAA Order 1050.10D: <i>Environmental Pollution Control and Abatement at FAA Facilities</i> (September 13, 2004)
	FAA Order 1210.20; <i>American Indian and Alaska Native Tribal Consultation Policy and Procedures</i> . (January 28, 2004)
	FAA Order 5100.38D, Change 1, Airport Improvement Program Handbook (February 26, 2019)
	U.S. DOT Order 5650.2: <i>Floodplain Management and Protection</i> (April 23, 1979)
	U.S. DOT Order 5610: Environmental Justice and Minority and Low-Income Populations (May 2, 2012)
	U.S DOT Order 5650.1: Protection and Enhancement of the Cultural Environment (November 20, 1972)
FAA Advisory Circulars	FAA AC 150/5020-1: Noise Control and Compatibility Planning for Airports
	FAA AC 150/5060-5: Airport Capacity and Delay
	FAA AC 150/5070-6B: Airport Master Plans
	FAA AC 150/5300-13A: Airport Design
	FAA AC 150/5360-13A – Airport Terminal Planning.
	FAA AC 150/5370-10G: Standards for Specifying Construction of Airports
Code of Federal Regulations	Title 14, CFR Part 77, Safe, Efficient Use, and Preservation of Navigable Airspace
	Title 14, CFR Part 150, Airport Noise Compatibility Planning
	Title 14, CFR Part 158, Passenger Facility Charges
	Title 33, CFR § 328.3, Navigation and Navigable Waters
	Title 40, CFR Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
	Title 40, CFR Parts 1500–1508, President’s Council on Environmental Quality

Source: RS&H, 2021.

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