

## CHAPTER 9: ENVIRONMENTAL OVERVIEW

This section summarizes the environmental factors that were considered in determining airport requirements and evaluating alternative development options. The discussion of environmental factors in this section focuses on issues relating to the preferred airfield development program.

### 9.1 LEVELS OF ENVIRONMENTAL REVIEW

As a federal agency, the FAA must ensure that the requirements of the National Environmental Policy Act are met prior to taking any major action which may potentially affect the environment. FAA actions typically include funding of airport projects, installation of FAA facilities, and approval of ALPs. In general, there are three levels of environmental documentation that may be required prior to development of individual projects.

#### 9.1.1 Categorical Exclusions

A categorical exclusion addresses actions which the FAA and the Council on Environmental Quality (CEQ) have determined do not normally have potential to cause environmental impacts or change land use. These actions normally involve administrative and planning-related actions, such as landscaping, repair and maintenance, or equipment acquisition.

#### 9.1.2 Environmental Assessment

An environmental assessment (EA) applies to those actions that have been found by experience to sometimes have significant environmental impacts. The purpose of an EA is to determine whether the proposed project will have significant impacts. Upon review of the EA findings, the FAA either issues project approval in the form of a Finding of No Significant Impact (FONSI) or directs the preparation of an Environmental Impact Statement (EIS) to further investigate potential environmental impact before project approval can be granted. Sample actions requiring an EA may include a major runway extension, land acquisition, or other projects having potential to generate significant noise or other impacts.

#### 9.1.3 Environmental Impact Statement

An EIS addresses projects having the potential to create significant environmental impact. An EIS documents the need for action, alternatives to the proposed action which would entail less environmental impact, and mitigation measures to offset or reduce impacts. Examples of actions that typically require preparation of an EIS include a new air carrier runway or major terminal facility.

### 9.2 ENVIRONMENTAL IMPACT CATEGORIES REVIEWED

Per FAA Order 5050.4B there are 23 environmental impact categories that must be considered by the FAA in the review of proposed projects. The following sub-sections discuss the potential for impact to pertinent environmental categories.

### 9.2.1 Land Use Impacts

Residential areas exist north and west of the Airport, which will have to be considered in terms of noise and land use compatibility for the proposed relocation/extension of the parallel runway. However, the relocated runway will not cause displacement of residents or businesses.

The Master Plan Update proposes land acquisition for FAA standard runway safety requirements associated the relocation of Runway 11R-29L. The relocation of Runway 11R-29L can be accomplished on the present Airport property however meeting object free area and runway protection zone requirements requires partial acquisition of a business property. With the acquisition of adequate land to promote land use compatibility for the relocation of Runway 11R-29L, no significant impacts should result with regard to land use compatibility.

### 9.2.2 Air Quality

National ambient air quality standards (NAAQS) are defined by the EPA and consist of six “criteria” pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), suspended particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), and sulfur dioxide (SO<sub>2</sub>). Areas that exceed the applicable standards for a criteria pollutant are designated non-attainment for that pollutant. Pima County is currently in attainment for all criteria pollutants except portions of the area are in non-attainment for PM<sub>10</sub>. The Clean Air Act requires any state that has a designated non-attainment area to develop a State Implementation Plan. The SIP is the plan developed by the state to bring non-attainment areas into conformance with NAAQS, in accordance with applicable deadlines.

It is expected that the main contributors to air quality impacts resulting from recommended projects would be during construction of the proposed projects. Proposed projects, to include the relocation/extension of Runway 11R-29L and construction and demolition of taxiways, would necessitate air quality analysis during the environmental review process for their impacts during construction and use.

Aircraft ground support equipment, once the proposed projects are implemented, could also contribute to changes in airport-related emissions. The conversion of the predominantly diesel-powered ground support equipment to alternative fuels, however, is becoming more common at airports located in regions where air quality is a major concern.

Air quality impacts of emissions during construction and the specific use of the project(s) will need to be evaluated for conformance to the SIP and regional air quality standards for all projects requiring environmental documentation. TAA is pursuing several on-airport solar projects that will potentially mitigate regional air quality concerns.

### 9.2.3 Biotic Resources

This section provides a general discussion of the various biotic community types which may be impacted by the implementation of these impacts.

## Vegetation and Soils

Airport Wash supports a riparian corridor, which provides important cover and nesting habitats for many wildlife species, especially migratory birds. The riparian corridors also function as movement corridors for many wildlife species. Healthy riparian communities also perform an important erosion control function. This riparian habitat is scattered in areas slated for “large scale industrial development” in the future development plan. A biotic resources survey should be conducted to determine potential impacts to riparian vegetation as required for the appropriate level of environmental documentation. Mitigation for wildlife plant and animal species, particularly migratory birds, would likely be required as part of the NEPA process and environmental documentation.

The majority of the area’s vegetation consists of tropical-subtropical desert lands, with patches of tropical-subtropical swamp along wash corridors, and pockets of warm temperate grasslands scattered throughout. The tropical-subtropical desert lands, which make up the majority of TIA lands, coincide with more well-drained hydric soils (Group B). These soils are better suited for development and will require fewer modifications for construction and improvements. The areas with the tropical-subtropical swamp have lower filtration rates and are less well-suited for development. As most of the projects are located on the desert lands, no significant impacts are anticipated to soils.

Permits under the following programs may be required prior to development of Master Plan Update projects.

- Native Plant Preservation Plan (NPPP) - As per the requirements of the Pima County NPPP (Ordinance No. 1998-39), an NPPP is required on sites for which a grading plan is required or the total area covered by all grading permits is 14,000 square feet or more.
- Arizona Native Plant Law (ANPL) - The ANPL protects plants at some level on all lands, regardless of ownership. When the environmental documentation for projects is developed, a notice of intent to clear land per the requirements of the ANPL would be submitted to the Arizona Department of Agriculture. Following confirmation from the Department, a salvage permit and tags would be required before any plants are salvaged from the area. Salvage and removal are generally restricted to those individual plants judged to be of medium-to-high quality and possessing moderate-to-high transplant potential.

## Wildlife and Habitat

While lands further south of the Study Area include significant concentrations of protected wildlife and habitat, there are no other conservation lands identified by Pima County’s Sonoran Desert Conservation Plan.

A field survey to determine the types of species living on airport property is necessary as part of environmental documentation for projects. Proposed projects could include impacts to wildlife habitat, via encroachment, or indirect impacts such as noise or vibration disturbance from construction, which could result in the displacement of some wildlife. However, given the relative abundance of these species elsewhere, it is extremely unlikely that there would be any population-

level or cumulative adverse impacts to wildlife in the Tucson Basin. Potential impacts of projects should be evaluated during the environmental review process.

### Threatened and Endangered Species

Section 7 of the Federal Endangered Species Act requires each Federal agency to ensure that “any action authorized, funded, or carried out by such an agency...is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with the affected States, to be critical....”.

There are no specifically identified critical habitats for endangered and protected species within the Study Area. However, there is a high potential for occurrences of endangered species given the vegetative cover and riparian corridors in the area. As such, appropriate vegetation and wildlife surveys should be conducted prior to development of any applicable project. Survey results would then be incorporated into the appropriate level of environmental documentation. Where necessary, mitigation plans should be developed and implemented.

#### 9.2.4 Floodplains

FAA Order 5050.4B defines floodplains as the area that would be inundated by a 100-year floodplain. By Executive Order, Federal agencies are directed to avoid taking an action within a 100-year floodplain where practical.

FEMA floodplain maps indicate that portions of TIA lie within the 100-year floodplain, particularly to the east of the current airfield. The Airport Wash includes 100-year floodplain and many of the washes in the Study Area are in special flood hazard areas. Also, sections of Franco Wash, Summit Wash and Lee Moore Wash are within Zone A. Much of Airport Wash and its forks are also in Zone A.

These floodplains represent significant riparian resources that may be impacted by development. Employment (Office/Industrial) uses and the Large Scale Industrial uses planned for the property south of Hughes Access Road are both located in the Zone A Flood Zone. Development will also include additional Industrial/Logistics land use in the Zone A Flood Zone.

According to Pima County regulations governing development in floodplains and riparian areas affected projects would require a Floodplain Use Permit and mitigation for any areas over one-third of an acre disturbed. Prior to final design, strategies for advanced engineering to avoid impacts to the floodplain should be considered.

#### 9.2.5 Department of Transportation Act: Section 4(f)

49 U.S.C. *Section 303(c)*, commonly referred to as Section 4(f) of the DOT Act, states that it is federal policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Under Section 4(f), FAA may approve a program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of a historic site of national, State, or local significance only if: (1) there is no prudent and feasible alternative to using that land; and

(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Development of the Master Plan Update projects does not involve the direct taking of any identified Section 4(f) properties. However, identification of any publicly owned park and recreation lands needs to be conducted in the vicinity of proposed projects that could involve indirect “use” or impacts. Accordingly, the only potential significant impacts on human activities to any Section 4(f) sites would be associated with potential increased noise levels resulting from increased aircraft operations and any potential changes to approach and takeoff alignments associated with the extended/relocated runway. Analysis of Section 4(f) impacts would be necessary as part of the environmental documentation for the runway relocation.

### **9.2.6 Historic, Architectural and Cultural Resources**

There are several structures and sites that are potentially eligible for inclusion in the NRHP in the TIA vicinity. The eligible structures include the Triple Hangars on the West Ramp, originally constructed in 1942. The projects include recommended airfield improvements adjacent to the Triple Hangars. This includes constructing a bypass taxiway and re-constructing the itinerant aircraft apron next to the hangars. Any potential direct or indirect effects to this site should be evaluated as part of future environmental documentation as these projects are advanced.

Several artifact sites are known to exist on airport property, primarily as isolated occurrences. Most of the study area was inhabited by Indian or other historic settlements in the past. Therefore, undisturbed land areas considered for development may require archaeological survey or field investigation as part of the requisite environmental documentation.

A National Historic Landmark, San Xavier del Bac, is located approximately three miles west of the Airport. Inclusion of this property as part of the noise and Section 4(f) impact analysis may be necessary for the environmental analysis for the proposed runway relocation.

### **9.2.7 Light Emissions and Visual Effects**

The proposed projects will not alter the nature of current airport lighting. The positioning of runway and taxiway lighting, VASIs, and REILs, in conjunction with the proposed relocation of Runway 11R-29L would not disrupt light sensitive facilities in the surrounding area.

The Employment (Office/Industrial) land uses and commercial nodes proposed in the northern portion of TIA, where residential land use is prevalent, will need to be coordinated with the City of Tucson during the development review process to ensure that light emissions will not adversely impact or change the character of the surrounding area. No significant impacts from light emissions are anticipated by the implementation of the Master Plan Update

The airfield improvements would also not result in any changes to the visual quality of the Airport area. As is the case with light emissions impacts, TIA will need to coordinate closely with the City of Tucson to ensure that the character development is consistent with surrounding land uses.

### **9.2.8 Natural Resources / Energy Supply**

There may be a slight increase in fuel consumption associated with the relocation of Runway 11R-29L and the associated taxiway configuration for airplanes taxiing to and from the terminal building. However, run-up times would be kept to a minimum and flight patterns are not anticipated to change or result in additional fuel consumption.

No known mineral or fossil fuel deposits exist in the vicinity of the airport. No exotic construction materials will be needed and materials can be acquired through local suppliers and contractors. Based on these factors, there are no significant impacts to the energy supply or to natural resources anticipated.

### **9.2.9 Noise Compatibility**

Aircraft noise has traditionally been the most significant environmental issue facing airport development. Land use compatibility with aircraft noise is typically determined on the basis of the annual average Day-Night Average Sound Level (DNL). DNL is measured in decibels (dBs) and is normally illustrated by lines, or contours, joining equal noise values drawn over a base map of an airport and surrounding area.

The FAA uses the Integrated Noise Model (INM), a computer program which calculates DNL values based on the number, type and location of aircraft operations as the basis in determining noise impacts. According to Federal guidelines, most land uses are considered to be compatible with noise levels of DNL 65 dBA or less.

Noise exposure impacts would likely need to be evaluated in the environmental documentation for the proposed relocation of Runway 11R-29L. If the type and/or number of aircraft using TIA change as a result of an additional Group IV runway, any changes to aircraft generated noise exposure would need to be analyzed. None of the other proposed projects would be expected to have noise impacts. However, temporary noise impacts due to construction would need to be considered in any environmental documentation. Techniques to reduce construction noise impacts on surrounding communities should be considered.

### **9.2.10 Socioeconomic, Environmental Justice and Children's Health and Safety Risks**

No significant adverse social impacts are expected to result from development of any of the projects because no relocation of residences or businesses would be necessary. However, detailed analysis of potential social impacts associated with these projects should be conducted for projects that could affect noise, air quality, or safety of nearby residences and businesses.

### **9.2.11 Solid Waste**

Other than refuse created during construction of the various proposed airfield improvements, the proposed improvements would not significantly increase solid waste generated by the Airport. There is no anticipated significant impact resulting from solid waste generation or disposal from the recommended improvements.

### 9.2.12 Water Quality

The following sections describe surface water, ground water, storm water and wastewater associated with the proposed projects. Most potential impacts could be mitigated through design considerations, controls during construction, and other mitigation measures.

Several permits, approvals, or certifications associated with water quality may be required prior to development of projects:

- Sole Source Aquifer - According to Section 1424(e) of the Safe Drinking Water Act, the EPA must be contacted if the following criteria are met:
  - The construction project is federally funded; and
  - The project site is located on or has the potential to contaminate an aquifer designated by the US Environmental Protection Agency as a sole source aquifer.

The Master Plan Update projects will likely be federally funded (either partly or wholly) and are located within the upper Santa Cruz and Avra Basin sole source aquifer designated area (49 CFR 2948). Therefore, EPA Region IX should be contacted when the environmental documentation is being prepared. After review of the project, it is expected that EPA will either issue a letter of approval or require a mitigation plan before the project can proceed.

- National Pollutant Discharge Elimination System (NPDES) Permit - Under the Clean Water Act, construction that disturbs one or more acres requires a Section 402 NPDES permit to minimize impacts from storm water runoff. The Master Plan Update projects would impact approximately 170 acres of land, which would most likely require a permit. The process includes submittal of a Notice of Intent to be covered under the construction general permit and the development of a storm water pollution prevention plan indicating the procedures used to reduce or eliminate the potential impacts on water quality from construction activities. The Airport has developed a Storm Water Pollution Prevention Plan for Construction Activities template that is used for all construction projects.
- Section 404 Dredge and Fill Permit - Clean Water Act Section 404, under the jurisdiction of the Army Corps of Engineers, requires a permit be obtained for dredge and fill activities involving Waters of the U.S. Permitting may be accomplished under either a general permit or an individual permit. Decisions on the type of permit required will depend on the extent of impact from construction activities on effected Waters of the U.S. During the design phase, it is recommended that proposed construction activities be discussed with the Army Corps of Engineers to determine actual permit requirements. Arizona Department of Environmental Quality may have to certify the 404 permits according to the requirements of Section 401 of the Clean Water Act. The need for certification should be determined in the environmental phase.

## Surface Water

There are no rivers or major streams in the vicinity of the Airport. Runoff from the Airport is conveyed by the Airport Wash, which flows from southeast to northwest toward the Santa Cruz River.

Surface water contamination during construction and use of new facilities would be mitigated through the use of controls and by adherence to the Airport's General Storm Water Permit for Construction Activities and Multi-Sector General Storm Water Permit for Air Transportation. No impacts to surface water are anticipated with the proposed projects.

## Ground Water

According to Arizona Department of Water Resources registration records, there are two wells that may be located within the area of the Airport. Both wells are owned by the Arizona State Land Department and are registered as "exempt" for industrial water production. Complete delineation of these wells should be conducted as part of environmental documentation.

In 1981, volatile organic compounds were discovered in groundwater in southeast Tucson. The site was listed on the National Priorities List in 1982 as the TIA Area Superfund site. The site covers approximately five square miles and includes a portion of the Airport property.

## Storm Water

TAA has a Multi-Sector General Permit for Air Transportation covering storm water discharges. No unusual storm water treatment problems have been documented and no capacity problems are anticipated in the near future. Evaluation of potential effects on storm water should be included in environmental documentation. The additional pavement required to relocate the runway and for the proposed taxiways should be considered for their potential impacts to the quantity of storm water runoff.

## Wastewater

Pima County Wastewater Management treats all sanitary waste generated at the Airport. No unusual wastewater treatment problems have been documented and no capacity problems are anticipated in the near future.

### 9.2.13 Wetlands

The Airport Wash Watershed includes a 100-year floodplain zone and riparian corridor with intermittent wetland areas. According to Pima County regulations governing development in floodplains, construction will require a Floodplain Use Permit and mitigation for any areas over one-third of an acre disturbed. In addition to the North and South Airport Washes east of the current airfield, the Hughes and Franco Washes traverse the undeveloped area further south. Wetlands would be impacted by projects included in the area.

A wetland jurisdictional determination will be required prior to permitting of improvements that impact existing wetlands and potential impacts to wetlands would need to be evaluated as part of the environmental documentation process

### 9.3 CONCLUSION

This Environmental Overview has not identified any environmental factors that are expected to constrain the development of the Airport as recommended in the Master Plan Update. However, the final determination of impacts, mitigation requirements, and permitting will be determined by the FAA and as required by the National Environmental Policy Act of 1969.

According to FAA Order 5050.4B, *NEPA Implementation Instructions for Airport Projects*, the proposed Runway 11R-29L relocation, which relocates and lengthens the runway to 11,000 feet to accommodate D-IV aircraft, would require at a minimum the preparation of an EA. However, if it is determined through the EA or through other analysis that the action could create significant environmental impact, the action could fall within the framework of airport actions normally requiring an EIS (Paragraph 903(a)).

The other proposed projects identified in the Master Plan Update are of a smaller magnitude than the runway relocation. The remainder of the proposed projects identified would require environmental approval through the preparation of a Categorical Exclusion Checklist, a documented Categorical Exclusion or an EA. Since it is the FAA that determines which type of environmental documentation will be required for each potential project, it is recommended that airport staff discuss each project with the agency as early as possible to make certain there is sufficient time to obtain the environmental approval before construction is initiated.

The projects proposed as part of the Land Use program will also need to be evaluated for environmental impacts as more details are developed. **Table 9-1** summarizes the Preferred Comprehensive Development Plan's anticipated level of NEPA documentation by individual project.

Table 9-1: Anticipated Environmental Documentation by Project

Anticipated Project	Potential Environmental Documentation Required	Potential for Categorical Exclusion Reference	Comments
<i>Airfield Projects</i>			
Relocate/Expand Full Length Group IV Parallel Runway 11R-29L	Environmental Assessment / Environmental Impact Statement	N/A	Assumes expansion is extensive and impacts previously undisturbed land.
New Center Parallel Taxiway	Categorical Exclusion	FAA Order 1050.1E paragraph 310e	Assumes ground was previously disturbed by associated runway/taxiway construction and that no protected species has located to the project area.
New Outboard Parallel Taxiway	Categorical Exclusion	FAA Order 1050.1E paragraph 310e	Assumes ground was previously disturbed by associated runway/taxiway construction and that no protected species has located to the project area.
Displace Runways 11L and 11R Arrivals Thresholds	Categorical Exclusion	FAA Order 1050.1E paragraph 309b	Assumes installation of in-pavement lights would not cause a significant lighting impact and that noise impacts are not significant.
South Run-Up Area Access Improvements	Categorical Exclusion	FAA Order 1050.1E paragraph 310e	Assumes ground was previously disturbed in areas that will be impacted by construction and that no protected species has located to the project area and that noise impacts are not significant.
Bypass Taxiway northwest of the RPZs for Runway 11L and 11R	Categorical Exclusion	FAA Order 1050.1E paragraph 310e and 310e	Assumes ground was previously disturbed in areas that will be impacted by construction and that no protected species has located to the project area.
Taxiway Safety and Operational Enhancements	Categorical Exclusion	FAA Order 1050.1E paragraph 310e	Assumes ground was previously disturbed in areas that will be impacted by construction and that no protected species has located to the project area.

<i>Terminal Projects</i>			
Terminal Renovation Improvements (Phase 1)	Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Assumes no major construction or expansion associated with improvements.
Terminal Renovation Improvements (Phase 2)	Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Assumes no major construction or expansion associated with improvements.
Terminal Renovation Improvements (Phase 3)	Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Assumes no major construction or expansion associated with improvements.
Expand Concourse East	Environmental Assessment / Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Depending upon extent of expansion an EA could be required. Categorical exclusions for terminal improvements are typically for improvements within the current footprint where additional capacity is not expected.
Expand Concourse West	Environmental Assessment / Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Depending upon extent of expansion an EA could be required. Categorical exclusions for terminal improvements are typically for improvements within the current footprint where additional capacity is not expected.
<i>Landside Projects</i>			
RAC Garage Solar Canopies	Categorical Exclusion	FAA Order 1050.1E paragraph 310h	
Economy Parking Solar Canopies/Increase Economy Covered Parking	Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Assumes ground was previously disturbed in areas that will be impacted by construction and that no protected species has located to the project area.
Expand Rental Car Fueling and Wash Rack	Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Assumes ground was previously disturbed in areas that will be impacted by construction and that no protected species has located to the project area.
Rental Car Storage Area	Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Assumes ground was previously disturbed in areas that will be impacted by construction and that no protected species has located to the project area.
Extend Country Club Road (Phase 1)	Categorical Exclusion	FAA Order 1050.1E paragraph 310a	Assumes construction would not result in a decrease in Level of Service for surface transportation.

Extend Country Club Road (Phase 2)	Categorical Exclusion	FAA Order 1050.1E paragraph 310a	Assumes construction would not result in a decrease in Level of Service for surface transportation.
Expand Economy Parking Lot	Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Assumes ground was previously disturbed in areas that will be impacted by construction and that no protected species has located to the project area.
<b><i>GA Projects</i></b>			
Reconstruct Itinerant Aircraft Apron	Categorical Exclusion	FAA Order 1050.1E paragraph 310e	Assumes ground was previously disturbed in areas that will be impacted by construction and that no protected species has located to the project area.
Extend Taxiway G	Categorical Exclusion	FAA Order 1050.1E paragraph 310e	Assumes ground was previously disturbed by associated runway/taxiway construction and that no protected species has located to the project area.
<b><i>Support Projects</i></b>			
ATCT Relocation	Categorical Exclusion	FAA Order 1050.1E paragraph 309b	Assumes relocation of airfield lighting would not cause a significant lighting impact.
Land Acquisition	Environmental Assessment	N/A	
<b><i>Projects Beyond Master Plan Update Horizon</i></b>			
New ARFF Station	Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Assumes ground was previously disturbed in areas that will be impacted by construction and that no protected species has located to the project area.
Develop Fuel Farm	EA/ Categorical Exclusion	FAA Order 1050.1E paragraph 310h	Depending upon location.
Develop Future Far Parallel Runway	Environmental Impact Statement	N/A	Assumes construction is extensive and impacts previously undisturbed land.

Source: HNTB Analysis

N/A = Not Applicable