

**Chapter 6
Environmental Evaluation**

Austin-Bergstrom International Airport Master Plan Update

INTRODUCTION

This chapter presents an environmental screening of the preferred development alternative (Concept A-07A). The objective of the environmental task included in the scope of work for the master plan was to conduct a general environmental evaluation to identify environmental issues that must be resolved prior to implementing the preferred development alternative. The intent of the evaluation was to identify potential significantly adverse environmental impacts associated with the master plan, to conduct a qualitative review of potential impacts, and identify requirements to resolve environmental issues including the need for environmental documentation and permits.

The overview evaluation is based on nineteen impact categories described in FAA Order 5050.4A, Airport Environmental Handbook, and this chapter is organized by each impact category. It is important to note that this is not intended as a quantitative analysis, or a NEPA (National Environmental Policy Act) document such as an Environmental Assessment. The need for special studies or investigations, and environmental documentation to comply with NEPA will be identified herein, and should be initiated prior to construction of the preferred alternative.

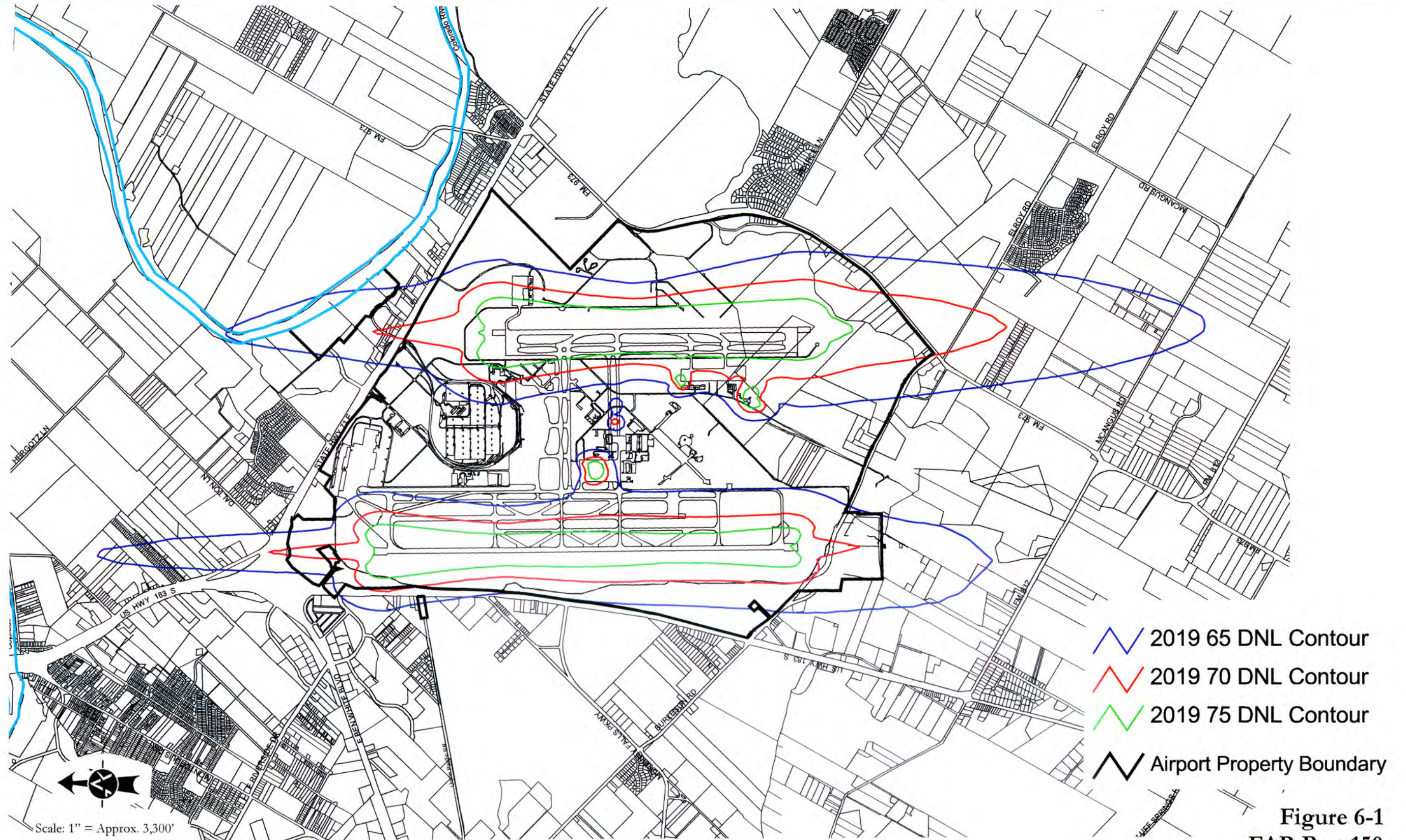
NOISE

Potential Impacts

Potential noise impacts will involve potential changes in noise exposure due to increases in future aircraft operations and potential changes in runway utilization. The Master Plan Update is based on a projection of some 372,670 aircraft operations in the long-term. The Master Plan Update also anticipates the eventual development of a third parallel runway on the west side of the Airport. This is assumed to occur sometime beyond the twenty year master plan period. Both of these factors have an effect on the noise contours that reflect noise exposure for the Airport environs.

Qualitative Assessment of Impacts

The current Noise Exposure Map (NEM) for the Airport was prepared as part of the FAR Part 150 Program Update (March 1999). The Part 150 Update contained a long-range noise contour, presented as Figure 6-1, based on a forecast of aviation activity for the year 2019 (280,596 annual aircraft operations). The aircraft operations forecast in the Part 150 Update for the year 2019 are summarized in Table 6-1. Additional forecasts of aircraft operations were prepared as part of the Master Plan Update based on current data that was available at the time of their preparation. These were presented in Chapter 3 of this report and as previously explained, the High Growth forecast was adopted for airport planning purposes. The High Growth forecast estimates a total of 372,670 aircraft operations in the year 2020, which are also summarized and compared to the long-range forecast of the Part 150 Program. The difference in aircraft operations between the FAR Part 150 and Master Plan Updates will result in different noise exposure conditions.



Scale: 1" = Approx. 3,300'

Source: Noise Compatibility Program. November 7, 2000.

-  2019 65 DNL Contour
-  2019 70 DNL Contour
-  2019 75 DNL Contour
-  Airport Property Boundary

**Figure 6-1
FAR Part 150
2019 Noise Contours**

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**Table 6-1
LONG RANGE FORECASTS OF FAR PART 150
AND MASTER PLAN UPDATES**

Operation	FAR Part 150 Long-term (2019) Forecast	Master Plan Update Long-term (2020) High Growth Forecast
Air Carrier	159,262	222,902
Air Taxi/Commuter	26,686	40,268
General Aviation	90,517	104,000
Military	4,131	5,500
Total	280,596	372,670

Two primary reasons that will cause a change in the noise contours shown in Figure 6-1 are the number of aircraft operations associated with the High Growth scenario and the eventual addition of a third runway. First, noise contours associated with the Master Plan forecast can be expected to generally encompass a greater area than the 2019 Future Condition noise contours contained in the Part 150 Update (Figure 6-1). This is based on the observation that annual aircraft operations are greater in the High Growth scenario of the Master Plan.

Secondly, the 2019 Future Condition noise contours in the Part 150 Update are based on the existing two parallel runways. With construction of a third parallel runway sometime after the master plan period, changes to the noise contour for the West Runway identified in the Part 150 Program can be expected. Since the third runway would primarily be used for departures it can be assumed that the component of the noise contours influenced by departure operations would shift to the east to correspond with takeoffs on the third runway.

Requirements to Resolve Impacts

The extent of potential noise impacts associated with the Master Plan Update can be identified through the preparation of noise contours that reflect the proposed runway configuration and based on the High Growth forecast for the year 2020. Noise contours should be prepared using the FAA Integrated Noise Model (INM) in order to define noise exposure. Input files for aircraft operations for the INM should be consistent with the High Growth forecast (372,670 annual operations) and the aircraft fleet mix contained in Technical Report 2, Aviation Demand Forecasts. It will also be important to allocate aircraft operations to each runway. Use of runways by air carriers should consider the origination and destinations of flights to be consistent with air traffic control practice. Cargo operations may be assumed to primarily occur on west runways since they are more convenient to proposed cargo area locations. Likewise, general aviation aircraft may be assumed to operate on the existing East Runway since it is most convenient to general aviation areas. In terms of use of a third runway, noise modeling should assume it is primarily used as a departure runway predominantly by air carrier aircraft with westerly destinations. Some cargo aircraft may still prefer the existing West Runway for departures due to runway length and location with respect to the proposed west side cargo area.

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Once long-term (2020) noise contours are prepared for the Master Plan they can be compared with the long-term (2019) contours of the FAR Part 150 Update to identify differences. Airport zoning should then be reviewed to determine if modifications are warranted.

The City has adopted an ordinance relating to airport hazards and compatible land uses and the DOA has been very proactive with respect to this issue. The ordinance is very stringent and exceeds FAA recommendations for compatible land use planning. The ordinance defines three airport overlay zones (AO-1, AO-2 and AO-3) based on noise exposure and identifies specific land uses permitted in each airport overlay zone. Land uses may be permitted, permitted under certain conditions or prohibited within an airport overlay zone. The airport overlay zones are defined by noise contours and are depicted on the ABIA Land Use Map on file with DOA. Once the long term (2020) noise contours are prepared for the Master Plan Update, they should also be compared with the ABIA Land Use Map to identify the relationship with present airport overlay zones and to determine if changes to the airport overlay zones are appropriate.

COMPATIBLE LAND USE

Potential Impacts

FAA Order 5050.4A states that “The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of noise impacts related to that airport.” The potential impacts in terms of this environmental category may involve noise exposure of different areas of noncompatible land use than those described in the FAR Part 150 Update.¹ The DOA plans to update the FAR Part 150 study in 2004 and every five years thereafter.

Qualitative Assessment of Impacts

Determining the extent of potential impacts for this environmental category requires that new noise contours as described in the previous subsection be prepared. If the noise analysis concludes that there is no significant change in noise contours, a similar conclusion can usually be drawn with respect to compatible land use.

If it is assumed that noise contours for the High Growth 2020 scenario are greater than the 2019 Future Condition noise contours contained in the FAR Part 150 Update, it is probable that there will also be an increase in noncompatible uses within the noise contours. While most of the land within the noise contours is undeveloped, the FAR Part 150 Update indicated the majority of noncompatible land uses (residential) located north of the two existing runways, with additional land uses impacted to the west and south of the West Runway, and to the east and south of the East Runway. It should be noted that the DOA presently plans to acquire some impacted neighborhoods as a result of the FAR Part 150 conclusions. Properties planned for acquisition as part of the noise mitigation program are shown in Figure 6-2.

¹ Table 4.2, Federal Aviation Regulation Part 150 Program Update Noise Exposure Maps (NEMs). City of Austin. March 22, 1999.

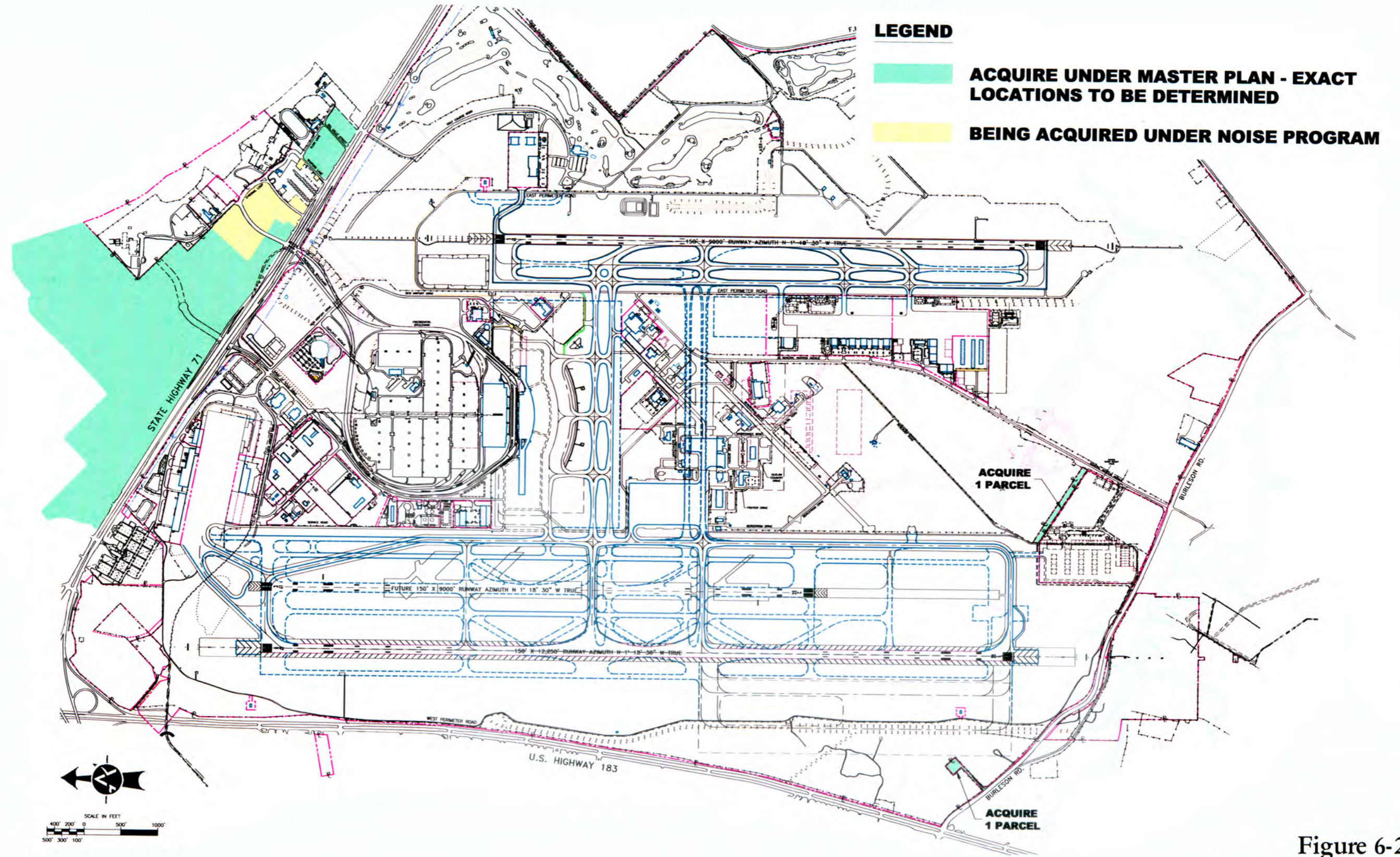


Figure 6-2
Land Acquisition

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Requirements to Resolve Impacts

The extent of potential land use impacts associated with the Master Plan Update can be identified through a compatible land use analysis using noise contours prepared for the High Growth 2020 forecast. This should be accomplished as part of the next FAR Part 150 Update. Noise contours should be superimposed over current and planned land uses, and land uses within the noise contours should be quantified. From this analysis the extent of incompatible uses and noise sensitive sites can be identified.

Once the extent of impacts are determined, appropriate noise abatement, land use and compatibility planning strategies should be reviewed to determine if changes of current measures are appropriate. As mentioned above, the City airport hazards and compatible land use ordinance is very restrictive and controls the development of future incompatible land uses.

SOCIAL IMPACTS

Potential Impacts

Potential social impacts attributable to airport development can be caused by a variety of factors. The potential social impacts defined in FAA Order 5050.4A are:

- Relocation of residents and businesses
- Alteration of surface transportation patterns
- Division or disruption of established communities
- Disruption of orderly, planned development
- Creation of an appreciable change in employment

Three of these potential social impacts—relocation of residents and businesses, division or disruption of established communities, and disruption of orderly, planned development—can be caused by expansion of an airport. The Master Plan Update proposes new parking areas north of SH 71 for employees, long term parking, and rental cars. The Airport has already acquired some of the real estate needed for the proposed parking areas. This land, once occupied by Del Valle ISD schools and administration buildings, is currently vacant. Additional areas of land acquisition are proposed in the Master Plan Update and are shown on Figure 6-2. The exact locations of land to be acquired north of SH 71 remain to be determined. The proposed development is not expected to result in significant social impacts associated with relocation of residents and businesses, division or disruption of established communities, or disruption of orderly, planned development.

Two of these potential social impacts—alteration of surface transportation patterns and creation of an appreciable change in employment—can be caused by the expected increase in passenger traffic and the development of new facilities on existing airport property. The Master Plan Update proposes the addition of a new airport entrance on the south side of the Airport along Bursleson Road. The Master Plan Update also proposes the development of new facilities on the existing airport and across SH 71 to the north of the existing airport. The proposed development is expected to result in

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social impacts associated with alteration of surface transportation patterns and an appreciable change in employment.

Qualitative Assessment of Impacts

In performing the analysis, three types of environmental effects or impacts need to be evaluated:

- Direct effects;
- Indirect effects; and
- Cumulative effects.

Direct effects are caused by the action and occur at the same time and place (e.g., construction activities). Indirect effects are those caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (e.g., impacts caused by growth induced by the project). Cumulative effects result from the incremental impact of the proposed project when added to other past, present, and future actions regardless of who undertakes such other actions (e.g., effects of the interaction of this project with other past, present, and future activities in the area).

The expected alteration of surface transportation patterns would be caused by two factors—the development of a new second airport entrance on the south side of the Airport along Burleson Road and the forecast increase in traffic levels. The addition of a new airport entrance translates directly into altered surface transportation patterns. Likewise, an increase in passengers translates directly into increased surface traffic.

A traffic study presented in the Final Environmental Impact Statement (EIS) was performed in 1993 and addressed surface transportation patterns through the year 2012. This study considered transportation patterns associated with a single north or south entrance to the Airport (but not both), and underestimated the rate of increase in passengers. The Master Plan Update proposes both a north and a south airport entrance and forecasts a higher rate of increase in passengers than previously forecast in the 1993 study.

Alteration of surface transportation is expected to have a direct social effect during construction of the south entrance. Construction activities are likely to impede traffic on Burleson Road and ingress/egress to Moya Park. Area growth induced by the airport development is expected to have an indirect, but positive, social effect by providing improved roadways in the area. Once completed, the airport development coupled with proposed widening of Burleson Road by others is expected to have a positive cumulative social effect.

The Final EIS concluded employment impacts created by the airport development would derive from construction, airport operations, and indirect and induced employment related to construction and operations. The Final EIS also concluded there would be direct, indirect, and induced demand from airport-associated demand derived from other airport attributes, such as warehousing, retail, hotel, office, and the like. Implementation of the preferred development alternative is expected to have similar effects.

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The expected change in employment would be caused by two factors—the construction activities associated with airport development and the additional work force requirement associated with new facilities. Construction activities will have a direct social effect by creating a temporary demand for workers. New facilities will have an indirect social effect by creating a permanent demand for workers.

The temporary and permanent increases in the number of jobs available in the area are expected to have a positive social impact on the community. The construction phase might require specialized workers from outside the community, but the attraction of outside specialists associated with airport construction is expected to be temporary. The addition of new airport facilities will increase the number of permanent jobs available in the community, and the available pool of local work forces will most likely fill these positions. A minor influx of outside laborers into a growing community is normal, but is not expected to impact the local community adversely.

Property north of SH 71 will be impacted by the proposed master plan development. Depending on parcels involved, these may require relocation. One residential parcel is impacted by proposed development of the west side cargo area and will require relocation. One other commercial property (junk yard), located along General Aviation Avenue, is also impacted by proposed development and will require relocation. Relocation impacts to the community are expected to be minimal due to the low number of residences impacted by the proposed airport development. Relocation impacts to existing businesses may be more substantial.

Requirements to Resolve Impacts

FAA Order 5050.4A lists the construction or relocation of an airport entrance or service road connecting to public roads that adversely affects the capacity of such public roads as an action normally requiring the preparation of an Environmental Assessment.

A new transportation study should be conducted to assess the potential effects of altered surface transportation patterns and anticipated increases in traffic levels. The study should evaluate surface traffic patterns using current passenger projections, and include an assessment of any capital improvements that might be needed to address the capacity of roads surrounding ABIA. While the existing north entrance currently uses a controlled access exit for SH 71, no such exit exists for Burleson Road. The study should analyze future traffic patterns and requirements to accommodate new traffic at the south airport entrance.

If a new traffic study concludes altered transportation patterns and increased traffic levels might require the relocation of residents and businesses, division or disruption of established communities, and disruption of orderly, planned development, then an Environmental Assessment should be prepared to assess the potential for adverse social impacts. It is important that DOA collaborate with local and state transportation planners to resolve and minimize adverse social impacts.

The acquisition of the business and residential parcels to be relocated will require that provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 be met.

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INDUCED SOCIOECONOMIC IMPACTS

Potential Impacts

The potential for induced socioeconomic impacts attributable to major airport development proposals can be caused by a variety of factors. The potential for induced or secondary socioeconomic impacts on surrounding communities identified in FAA Order 5050.4A are:

- Shifts in patterns of population movement and growth
- Public service demands
- Business and economic activity

Qualitative Assessment of Impacts

Significant impacts in other categories, especially noise, land use, or direct social impacts, create a greater potential for induced or secondary socioeconomic impacts on surrounding communities.

The qualitative assessment of noise impacts finds the difference in aircraft operations between the FAR Part 150 and Master Plan Updates will result in different noise exposure conditions. Noise contours associated with the Master Plan forecast are expected to generally encompass a greater area than the 2019 Future Condition noise contours contained in the Part 150 Update, the component of the noise contours influenced by departure operations is expected to shift to the east. The recommended requirements to resolve the potential noise impact include preparation of noise contours using the FAA Integrated Noise Model (INM) to define noise exposure.

Compatible land use is closely linked to noise impacts associated with airport operations. If there is no significant change in noise contours, then there should be no significant secondary socioeconomic impact on surrounding communities from noise associated with airport operations.

The induced socioeconomic impacts associated with the proposed airport development are positive. The proposed airport development is expected to create job opportunities for people in the community, especially in the Del Valle area, both through direct and indirect means. This should result in a potential for economic growth in the surrounding area, with a corresponding increase in tax revenue for the City of Austin, the Del Valle ISD, and Travis County.

Requirements to Resolve Impacts

If long-term (2020) noise contours prepared for the Master Plan Update identify significant differences when compared with the long-term (2019) contours of the FAR Part 150 Update, then the potential for induced or secondary socioeconomic impacts may be significant. In such a circumstance, FAA Order 5050.4A suggests a more thorough analysis of induced effects may be needed. After the potential noise impacts associated with the Master Plan Update are assessed, the potential for induced or secondary socioeconomic impacts should be revisited to determine if additional analysis is warranted.

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AIR QUALITY

Potential Impacts

Potential air quality impacts attributable to airport development include potential changes in bulk emissions due to increases in future aircraft operations (including corresponding ground vehicular traffic) and different ground access circulation patterns, and potential changes in emission concentrations due to runway and terminal building layout. As indicated in previous sections, the Master Plan Update is based on a projection of 372,670 annual aircraft operations in the long term. The Master Plan Update also recommends a new south entrance road to a new south unit terminal. A south airport entrance will alter vehicular circulation patterns. The development of a south unit terminal building will affect ambient concentration of air emissions.

Qualitative Assessment of Impacts

The primary sources of air emissions at ABIA are private vehicles accessing the Airport. Other sources include aircraft, ground service equipment, fuel storage facilities and transfer operations, a variety of other airport support functions, and airport construction activities. These activities are sources of carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), particulate matter, and sulfur dioxide (SO₂). Travis County, where ABIA is located, is a borderline attainment/non-attainment area for ozone (O₃) under the National Ambient Air Quality Standard (NAAQS). A large facility such as ABIA will impact the overall air quality of the region.

In June 2001, the U.S. Environmental Protection Agency (EPA) issued O₃ Flex Guidelines that were implemented through a memorandum of agreement between EPA, the Texas Natural Resource Conservation Commission, and local governments in the Austin / San Marcos Metropolitan Statistical Area. The purpose of the O₃ Flex Agreement is to improve air quality in the region to assure continued attainment of the federal 1-hour standard for ground-level ozone. Under this agreement, the Department of Aviation resolved to direct vehicle operators in its employ and on its property or construction sites to limit vehicle or equipment engine idling time to no more than five minutes. The Department of Aviation has developed and implemented numerous air quality initiatives, both landside and airside, to reduce fixed and mobile emission sources at ABIA. Most of the initiatives, detailed in the Airport Clean Air Plan, are part of the airport's normal operating procedures while others are implemented on "ozone action days".

Two air quality analyses were considered in this environmental screening. These were the analyses conducted as part of the Final EIS for the New Austin Airport at Bergstrom, and an Emissions Inventory of 1999 ABIA operations.

The Air Emissions Inventory (AEI) of the Final EIS used the FAA Aircraft Engine Emissions Database (FAEED), MOBILE 5a, and MOBILE 4.1 models to estimate air emissions from the future of ABIA. The modeling performed for the Final EIS accounted for all sources of air emissions for the different scenarios analyzed for the original airport development. The AEI of the

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Final EIS, in combination with dispersion modeling for CO, determined that the amount of ozone attributable to ABIA would not cause, or contribute to, a Travis County violation of the NAAQS.

The air quality analysis included in the EIS was based on an estimate of 5,000,000 enplaned passengers for the year 2012, which is less than forecast in the Master Plan Update. It can reasonably be assumed that site-wide emissions resulting from operations addressed in the Master Plan Update will be greater than that analyzed in the EIS.

The AEI in the EIS also concluded that the major contributor to air emissions at ABIA would be private vehicles accessing the Airport. Considering that forecast enplanements in the master plan are almost twice the amount analyzed in the EIS, and new access circulation patterns associated with the preferred development alternative of the Master Plan Update, private vehicular traffic and associated emissions may increase. This should be confirmed through further study.

An Emissions Inventory was also conducted for the Airport based on 1999 activity (which involved 192,998 annual aircraft operations). The results of the analysis indicated annual emissions as follows: carbon monoxide (CO) - 2,117 tons/year; hydrocarbons (HC) - 166 tons/year; and nitrogen oxides (NO_x) - 546 tons/year. As previously indicated, there are over 372,600 annual aircraft operations projected for the year 2020 in the Master Plan Update. A corresponding increase in emissions can be expected compared to the analysis of 1999 conditions.

The development of a south terminal will provide certain advantages such as improved aircraft arrival/departure and passenger pickup/drop-off times. Although the number of vehicles increases, the idling times should decrease due to enhanced ground access.

Requirements to Resolve Impacts

Because the anticipated aircraft and surface traffic at ABIA change as a result of forecasts of the Master Plan Update, and Master Plan recommendations such as the new south terminal, a new AEI and dispersion model analysis should be prepared for ABIA. The main goal of these studies should be to determine if the proposed development of ABIA would contribute to a violation of the NAAQS.

The AEI and dispersion analysis should consider using airfield computer simulation analysis to identify aircraft taxiing distances, queuing and delays. Likewise, the analysis of vehicle emissions should be based on the results of a traffic study to identify average daily trips and vehicle miles traveled by private vehicles, commercial vehicles, public transit, and shuttles. The analysis should also evaluate the effects of landside initiatives to construct an on-site alternative fuel station to reduce vehicle miles traveled and use alternative fuel in administrative and maintenance vehicles and equipment and shuttle busses; airside initiatives to use building-supplied power and pre-conditioned air for aircraft parked at the gate to eliminate the need to run on-board auxiliary power units and ground power units; and ozone season and ozone action day initiatives to limit mowing, landscaping, power washing, vehicle and engine tests to off-peak periods and non-ozone action days, and to

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monitor construction activities associated with the proposed airport development to ensure dust control measures are being implemented.

In addition to these studies, a new letter of certification to the Governor of Texas should be submitted. This letter establishes a “reasonable assurance” exists that the project will be located, designed, constructed, and operated in compliance with applicable federal and state air and water quality standards.

WATER QUALITY

Potential Impacts

Potential water quality impacts associated with airport development include impacts related to:

- Storm water discharges associated with construction and industrial activities
- New storm and sanitary sewer design
- Requirements for additional water supplies
- Requirements for increased waste treatment capacity
- Temporary and permanent erosion control
- Provisions for containing fuel spills and wastewater from aircraft washing
- Designs to preserve or improve existing drainage
- Location of proposed facilities with respect to sensitive water resources or ecological areas

Both surface water and groundwater have the potential for being impacted by future activities at ABIA due to increased impervious cover and vehicular activity associated with airport development, and increased chemical use associated with expanded airport operations.

Potential impacts to surface water include deterioration of water quality from contaminated stormwater runoff and uncontrolled chemical spills, and creek bank erosion from increased volume and velocity of surface runoff. Increased impervious cover, combined with increased use of industrial chemicals associated with aviation-related activities, heightens the potential for impacts from oil, grease, and other chemical substance spills. If uncontrolled, contaminated stormwater runoff and chemical spills pose a risk to the Colorado River, Onion Creek, and its tributaries.

Potential impacts to groundwater are similar to those for surface water, with the mitigating factor being that no sole-source or primary drinking-water aquifer lies beneath the site, and the site is underlain primarily by clay.

Qualitative Assessment of Impacts

As part of the ABIA Final EIS, water quality issues requiring compliance with several regulatory programs were addressed for the new airport. These programs and the related program requirements included:

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- 1982 Airport Act—required Governor’s letter of “reasonable assurance”
- National Pollutant Discharge Elimination System (NPDES)—required stormwater pollution prevention plans for discharges associated with construction and industrial activities
- U.S. Fish and Wildlife Coordination Act—required letters from U.S. Fish and Wildlife and Texas Department of Parks and Wildlife indicating only minimal impact to wildlife and biotic communities
- City of Austin Ordinances—required compliance with local watershed, stormwater, industrial discharge, and other water quality ordinances

To comply with local ordinances, the original development of ABIA included design and construction of structural water-quality controls to prevent direct stormwater runoff into Onion Creek and its tributaries.

The Master Plan Update includes the addition of several new facilities at the existing airport and parking areas to the north of SH 71. New facilities at the existing airport will be located primarily on the south end of the airport, which is the area closest to the Onion Creek outfall. New parking lots to the north of SH 71 will be located adjacent the Colorado River. These new facilities and parking lots will increase the area of impervious cover, which will increase the volume of stormwater runoff from airport development.

In March 1998, the Department of Aviation adopted environmental initiatives with respect sustainability. Two of the initiatives included measures to conserve water and to improve water quality. Water conservation initiatives were focused on three areas: plumbing fixtures, landscaping, and landscape irrigation. In addition to providing low-flow plumbing fixtures, all fixtures in public restrooms use automatic flow-control valves to conserve water. Landscaping consists of xeriscaping with drought-resistant native plants, and landscape irrigation is targeted for efficient use. Reclaimed wastewater is used to irrigate the golf course. Water quality improvements consist of sophisticated recovery equipment and separator systems, spill collection and containment systems, and capture of contaminated runoff for proper treatment and disposal via sanitary sewer and treatment plants or at a licensed disposal facility. The Department of Aviation currently tests potential runoff for several water quality parameters prior to discharge or disposal offsite.

Pursuant to the Texas Pollutant Discharge Elimination System (TPDES), which is administered by the Texas Natural Resource Conservation Commission, the Department of Aviation developed and implemented a stormwater pollution prevention plan (SWP3) to comply with the recent Multi-sector General Permit for stormwater discharges associated with aviation-related industries issued in August 2001. The SWP3 establishes a process and details procedures by which the Department of Aviation and airport tenants can facilitate effective management of storm water across the multi-use, multi-tenant airport facility. The SWP3 describes the airport property and setting, stormwater drainage and management systems, and identifies potential pollutant sources and best management practices (including structural and operational controls) to eliminate pollutant discharges.

Furthermore, an engineering study is currently being performed as part of the Drainage Master Plan to calculate the post-development volume of stormwater runoff that will be generated by the

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proposed airport development. The study includes an evaluation of existing water-quality control structures to determine adequate sizing and capacity to accommodate the post-development volume of stormwater runoff, including water-quality retention/detention ponds, oil-water separators, grease and grit traps, secondary chemical storage containment, and pumping stations, if any. The study also includes an assessment of capital improvements that might be needed to right-size structural controls.

Requirements to Resolve Impacts

Potential impacts associated with increased stormwater runoff should be addressed through design considerations, controls during construction, and other mitigation measures during the development of future projects recommended in the Master Plan Update. In this manner, the potential for exceeding water quality standards can be avoided or satisfactorily mitigated.

Prior to, during, and/or after development of the preferred alternative, new or modified permits and certifications will be required to comply with city, state, and federal regulatory programs. These programs and the related program requirements include:

- 1982 Airport Act—requires new Governor’s letter of “reasonable assurance”
- Texas Pollutant Discharge Elimination System (TPDES)—requires continual updating of existing stormwater pollution prevention plan for discharges associated with construction and industrial activities to comply with TNRCC Multi-sector General Permit
- Texas Pollutant Discharge Elimination System (TPDES)—requires development of a stormwater pollution prevention plan to comply with TNRCC General Permit for Stormwater Discharges Associated with Construction Activities (This permit is expected to become effective in March 2003.)
- U.S. Fish and Wildlife Coordination Act—requires letters from U.S. Fish and Wildlife and Texas Department of Parks and Wildlife indicating only minimal impact to wildlife and biotic communities
- City of Austin Ordinances— requires compliance with local watershed, stormwater, industrial discharge, and other water quality ordinances. (This includes updating the wastewater discharge permit).

DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(f)

Potential Impacts

Section 4(f) of the Department of Transportation Act permits the use of publicly owned land, such as a park, recreational area, wildlife or waterfowl refuge, or a significant historic site when the Secretary of Transportation has determined that:

- there is no feasible and prudent alternative to such use, and
- the project includes all possible planning to minimize harm to the property resulting from such use.

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Potential impacts applicable to Section 4(f) include the taking or use of parkland at Moya Park to improve or upgrade Burleson Road for the new south airport entrance, and the effect of increased noise levels associated with increased vehicular traffic and the addition of a third runway.

Qualitative Assessment of Impacts

The Final EIS identified and addressed only one publicly owned land in the vicinity of the Airport, Moya Park, which is located across and adjacent Burleson Road south of the Airport. The Final EIS determined the north terminal options that were evaluated posed no direct impact on Moya Park, but the south terminal options that were evaluated posed a direct impact to the park caused by taking of park land to improve roadways for a south entrance and altered transportation patterns.

The Master Plan Update proposes a new south terminal and a south airport entrance. The proposed development could involve the taking, or use of parkland, thus creating a potential for direct and indirect impacts on Moya Park. “Use” as defined for Section 4(f) evaluations, includes not only the actual taking of a Section 4(f) resource, but also adverse indirect impacts. When applied to transportation projects developed near a Section 4(f) resource, a “constructive use” may occur when impacts due to proximity of the project substantially impair the activities, features, or attributes of the resource. The addition of a south entrance may indirectly impact Moya Park via constructive use caused by noise associated with increased traffic on Burleson Road. Potential improvements to Burleson Road may have a direct impact on Moya Park if parkland is taken to widen Burleson Road.

Requirements to Resolve Impacts

In order to determine if Section 4(f) applies to the Master Plan Update, a new transportation study should be conducted to analyze future traffic patterns and requirements to accommodate traffic at a south airport entrance on Burleson Road.

If a taking or use of parkland at Moya Park is deemed necessary to improve or upgrade Burleson Road for the new south airport entrance, and there is no feasible and prudent alternative, then a study to describe in detail the effect on the parkland will be required. The study should address measures needed to minimize harm. Measures should include evaluation of engineering designs, such as planting or screening, to mitigate any adverse effects.

As part of the next FAR Part 150 Update, the potential impacts on Moya Park should be determined based on the updated noise contours.

HISTORIC, ARCHEOLOGICAL AND CULTURAL RESOURCES

Potential Impacts

Potential impacts to historic, architectural, archeological, and cultural resources include airport development of property in or eligible for inclusion in the National Register of Historic Places. The

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Final EIS identified a total of 47 cultural resource sites within the boundaries of the Airport. Nineteen of these sites were regarded as eligible, potentially eligible, or pending eligibility for inclusion in the National Register of Historic Places. The Final EIS did not address the land north of SH 71 proposed for development of parking areas.

Qualitative Assessment of Impacts

Section 4.8 of the Final EIS discusses the sites potentially affected by the original airport development. Some sites that are protected under the National Historic Preservation Act and the Texas Antiquities Code, were addressed by Memorandum of Agreement (MOA) between the FAA and the State Historical Preservation Officer (SHPO) for investigation and survey. Of these sites, five cultural resource sites were proposed for archeological testing. One site, the historic hog farm located on F.M. 973, was to be restored. Although the MOA was executed, not all of the proposed actions were implemented, including the restoration of the historic hog farm.

The Final EIS did not precisely locate the sites, so it cannot be determined for the purpose of this environmental screening which sites are still in existence, or which of these sites, if any, are within the impact area of the Master Plan Update. The location of the historic hog farm, however, is known. The only potential impact to this farm is that it is proximate to a runway protection zone.

A qualitative assessment of the land north of SH 71 proposed for development of parking areas cannot be performed because the Final EIS did not address this potential impact area.

Requirements to Resolve Impacts

The precise locations of the nineteen sites identified in the Final EIS must be determined in order to evaluate the proposed airport development's environmental impact on these resources. Once identified, the sites identified within the area of the proposed airport development will require investigation and a possible survey.

In addition to the assessment of the nineteen sites located within the boundaries of the existing airport, an initial resource review must be made of the area north of SH 71 proposed for development of parking lots. This land will likely require a resource investigation to establish the presence or absence of resources because its location on the banks of the Colorado River is a prime location for significant Native American resources. If the investigation discloses protected resources, then this land will likely require a survey.

At the conclusion of the resource investigations and/or surveys, a determination of no adverse effect will be required by the SHPO. If an adverse effect is indicated, then a preliminary case report prepared in accordance with 36 CFR 800.13(b) must be submitted to the Federal Aviation Administration for the Advisory Council's consultation process.

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BIOTIC COMMUNITIES

Potential Impacts

Potential biotic communities impacts, including potential impacts to both flora and fauna, include the taking or development of property 1) within a publicly owned wildlife or waterfowl refuge of local, state, or national significance; 2) that supports habitat for endangered or threatened species; or 3) that would affect water resources (i.e., wetlands; groundwater; impoundment, diversion, deepening, controlling, modifying, polluting, dredging, or filling of any stream or other body of water.

The existing airport and the area north of SH 71 proposed for development of parking lots are not within publicly owned wildlife or waterfowl refuge, nor do they support habitat for endangered or threatened species. There are, however, many wetlands and several drainage channels (or streams) within or proximate to the proposed area of the Master Plan Update airport development. Any disturbance of drainage areas can potentially impact biotic communities.

The area north of SH 71 proposed for development of new parking lots has been a man-dominated area for many years. This area was previously disturbed for development of school district facilities. Its re-development is assumed to have no potential for significant impact on biotic communities.

Qualitative Assessment of Impacts

The Final EIS concluded impacts to vegetation and wildlife could be mitigated by the conservation of riparian woodlands. These woodlands comprised less than 10 percent of land within the boundaries of the existing airport. The Final EIS also concluded protection of aquatic resources could be achieved through compliance with water quality standards established for the Airport by local, state, and federal authorities.

The addition of new facilities within the existing airport creates the greatest potential for impact to biotic communities. Several areas, the largest of which is the area proposed for development of new air cargo facilities on the south end of the Airport, may indirectly impact jurisdictional wetland, which would impact biotic communities. The potential taking of wetlands is discussed in greater detail later in this evaluation.

Potential impacts to aquatic resources are dependent on mitigation measures to protect water quality. Conformance to water quality standards established for the Airport should be sufficient to protect biotic communities downstream of the Airport.

Requirements to Resolve Impacts

A new biological study should be conducted to determine potential impacts to biotic communities of the proposed Master Plan Update for airport development. This study should also determine the need for landscape restoration to reconstitute existing habitat or create new habitat.

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ENDANGERED AND THREATENED SPECIES

Potential Impacts

Potential impacts to endangered and threatened species are typically the result of destruction or adverse modification of habitat of the species. The areas proposed in the Master Plan Update for airport development do not support habitat for any endangered or threatened species.

Qualitative Assessment of Impacts

The Final EIS confirmed the absence of endangered species habitat within the boundaries of the existing airport. There is no mapped habitat in the surrounding areas.

Requirements to Resolve Impacts

Because endangered species habitat is not located at or around the Airport, neither an investigation nor a survey is needed.

WETLANDS

Potential Impacts

Potential impacts to wetlands can occur as the result of indirect or direct activities resulting in the loss of wetland service functions including disruption of biotic communities, loss of stormwater storage and filtration capacity, and recharge of groundwater resources. Indirect impacts to wetlands may be caused by construction or maintenance activities within wetlands water supply contributing zones causing a degradation of the quality or quantity of water feeding the wetland. Direct impacts to wetlands may be caused by placement of fill or impervious cover onto wetland areas.

There are many wetlands within or proximate to the proposed area of the development. Any disturbance of these areas or their contributing zones can potentially impact wetlands.

The area north of SH 71 proposed for development of new parking lots has been developed for many years. This area was previously disturbed for development of school district facilities. Its re-development is assumed to have no potential for significant impact on wetlands.

Qualitative Assessment of Impacts

Previous wetland studies of the existing airport and surrounding properties identified 17 wetland sites (see Figure 6-3). Sixteen of these sites were located within the boundaries of the existing airport. A field investigation of these documented wetland sites was conducted in connection with this updated Master Plan as an update to the Final EIS. Refer to Appendix B for additional information. The investigation concluded that seven sites could still be considered jurisdictional wetlands. These sites

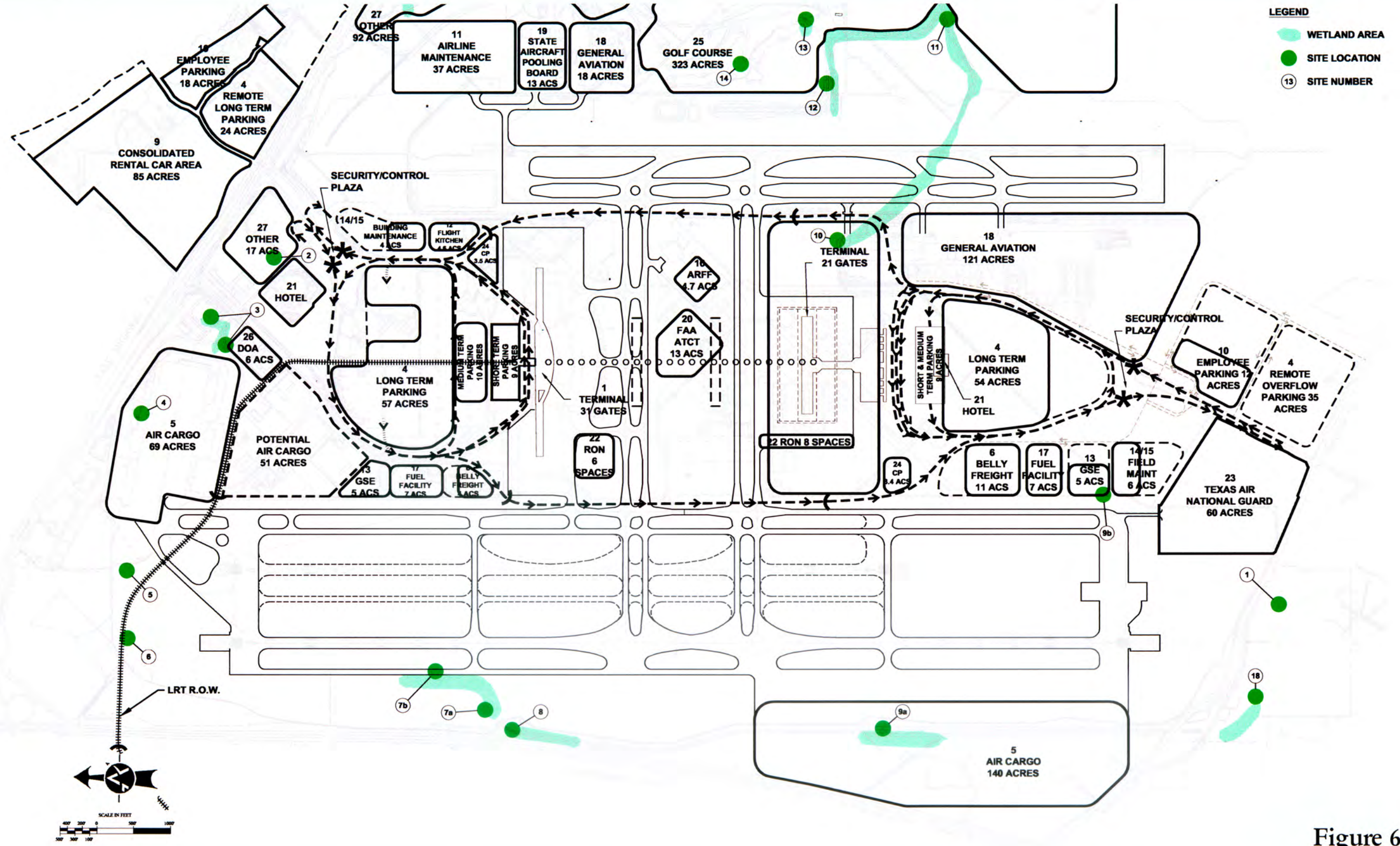


Figure 6-3
Wetlands

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are identified as Site 6, Site 8 West, Site 9a, Site 11, Site 15, Site 16, and Site 17. Site 17 is an off-site wetland.

When these sites are compared to the proposed improvements of the preferred development alternative, Site 9a appears to be located coincident with the proposed location of the West Side Air Cargo Area, west of Runway 17R-35L. The Site 9a wetland area is approximately 1.4 acres, and has a high potential for impacts caused by construction of the proposed Air Cargo facility.

Other wetland sites that may be indirectly impacted by the proposed airport development are Site 11, Site 15, Site 16, and Site 17. These wetland sites are located downstream of proposed improvements and, as such, are potentially vulnerable to degraded recharge water from construction and maintenance activities.

Requirements to Resolve Impacts

To address the potential direct impact to Site 9a, the wetland site will be delineated and the boundaries of the wetland staked. The wetlands boundary will be surveyed to determine the exact overlay of the proposed development on the wetland site. If the footprint of the air cargo facility, as proposed, overlays wetland Site 9a, and there is no practicable reorientation of the facility to avoid the wetland, an Environmental Assessment will be performed. The Environmental Assessment should include an evaluation of the service value of the wetland. The assessment should incorporate an evaluation of practicable mitigation measures to minimize harm to the wetlands, and should identify any permits that will be required if wetland loss is deemed unavoidable.

If, based upon the findings of the Environmental Assessment, there are no feasible or prudent alternatives to construction of the air cargo facility, then the loss of the wetland will be mitigated by compensation measures. Mitigation measures may include construction of artificial wetlands at another location, enhancement of existing wetlands not impacted by development or purchase of “credits” from an approved mitigation bank. Individual or nationwide permit(s) may be required from the U.S. Army Corps of Engineers, and other agencies.

To address potential indirect impacts to Site 11, Site 15, Site 16, and Site 17, construction activities in upstream areas will incorporate best management practices into a construction storm water pollution prevention plan to preclude entrainment of construction-related pollutants in storm water runoff. Maintenance activities and ongoing “housekeeping” of impervious cover will be governed by best management practices incorporated into the storm water pollution prevention plan as required by the Airport’s Multisector General Permit. Together, these storm water pollution prevention plans ensure storm water and groundwater recharges to down gradient wetland areas will not be adversely impacted.

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FLOODPLAINS

Potential Impacts

Potential floodplain impacts can occur as the result of indirect or direct activities. Indirect impacts to floodplains are typically caused by the addition of impervious cover outside the floodplain, which increases the volume and velocity of stormwater runoff from impermeable surfaces. Other indirect impacts to floodplains include the potential effects of water pollution, alteration of hydrologic patterns, and induced secondary development within a base floodplain. Direct impacts to floodplains are typically caused by floodplain encroachment from construction within an established floodplain zone, which limits natural moderation of floods, water quality maintenance, groundwater recharge, and other natural and beneficial uses.

The two major waterways in close proximity to the existing airport and proposed airport development are the Colorado River to the north, and Onion Creek to the south. Floodplains from both of these fluvial systems have the potential to be impacted, either directly or indirectly, by activities attributable to the proposed airport development. The recommended Master Plan Update alternative will result in increased impervious surfaces from construction of improvements such as runways and other airfield pavements, buildings, and roads that could potentially impact floodplains indirectly.

Qualitative Assessment of Impacts

The Final EIS included a floodplain study of the proposed options for the original airport development. The Final EIS floodplain study determined that 30 percent more floodplain area would be affected by the south terminal options that were investigated than by the north terminal options that were investigated. The Final EIS indicated the potentially impacted floodplain areas were associated primarily with the Onion Creek fluvial system.

Figure 6-4 presents the existing floodplain. A comparison of the preferred alternative of the Master Plan Update with FEMA floodplain maps indicates several proposed areas will directly impact floodplains. These impacted floodplains are:

- The floodplain associated with the western drainage channel along US 183 will be directly impacted by the proposed Air Cargo facility from the cargo area to a point just west of Runway 17R-35L.
- The Onion Creek floodplain will be directly impacted by the proposed TANG and southern remote overflow parking areas.
- The floodplain associated with the tributary crossing General Aviation Drive will be impacted by the southern GSE Maintenance and Field/Building Maintenance Areas.

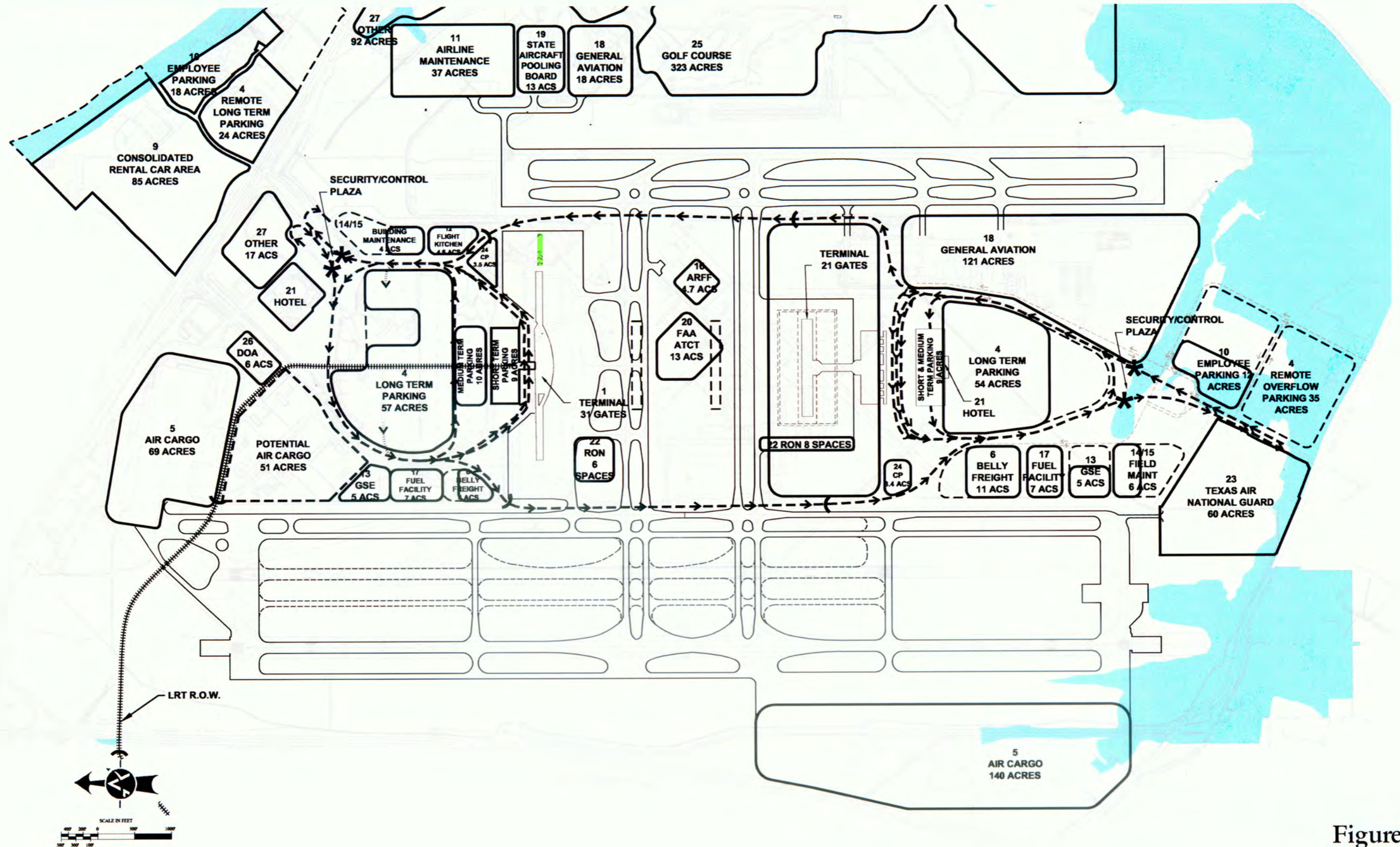


Figure 6-4
Floodplains

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The increased impervious cover created by the addition of new facilities will increase the contribution of stormwater runoff to the fluvial systems draining the Airport, resulting in a potential indirect impact to the floodplains associated with this system. This additional stormwater runoff could expand the floodplain areas on, and downstream of, the Airport if stormwater controls such as detention and retention structures are not sized to control the increase in volume of runoff. Without adequate controls to manage the additional runoff, areas with the greatest potential to be indirectly impacted are the Onion Creek tributaries draining the south end of the Airport.

An engineering study is currently being performed as part of the Master Drainage Plan to calculate the post-development volume of stormwater runoff that will be generated by the proposed airport development. The study includes modeling the effects of increased stormwater runoff on existing structural controls to determine whether the existing controls are adequately sized to accommodate the increased volume, to control the potential for flooding, and to evaluate the effectiveness of water quality ponds to meet water quality standards established for ABIA. The study also includes an assessment of capital improvements that might be needed to right-size existing structural controls or construct new controls, including stormwater retention/detention ponds, channel improvements, pumping stations, if any, and the cost versus benefits of enhanced maintenance.

Requirements to Resolve Impacts

The results of the engineering study should be incorporated into the final design of airport development projects with a potential to impact floodplains. Potential floodplain impacts associated with increased impervious cover and subsequent stormwater runoff should be addressed through design considerations, controls during construction, and other mitigation measures during the development of future projects recommended in the Master Plan Update. In this manner, the potential for limiting the natural and beneficial values served by existing floodplains as well as the potential for expanding floodplain areas on, and downstream of, the Airport can be avoided or satisfactorily mitigated.

COASTAL ZONE MANAGEMENT PROGRAM AND COASTAL BARRIERS

The proposed airport development is not located in a coastal zone management area or in the vicinity of coastal barriers. Therefore, there are no potential impacts to coastal zone management programs and coastal barriers.

WILD AND SCENIC RIVERS

The proposed airport development does not encompass any listed wild and scenic rivers. Therefore, there are no potential impacts to listed wild and scenic rivers.

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FARMLAND

The proposed airport development does not include any farmland protected by the Farmland Protection Act, nor does it require the acquisition of farmland that will be converted to nonagricultural use. Therefore, there are no potential impacts to protected farmland.

ENERGY SUPPLY AND NATURAL RESOURCES

Potential Impacts

Potential impacts to energy supply include those which relate to changed demands for stationary facilities (such as airfield lighting and terminal building heating) or those which involve the movement of air and ground vehicles that add appreciably to access time or substantially change movement patterns for on airport services or other vehicles.

Potential impacts to natural resources used for fuel need to be examined only if the proposed airport development has a need for unusual materials or those in short supply. The proposed airport development does not include a need for unusual materials or materials in short supply. Therefore, there are no potential impacts to natural resources associated with the proposed airport development.

Qualitative Assessment of Impacts

Several factors may increase the demand on energy supplies currently being used by the existing airport facilities and operations. Proposed major changes in stationary facilities that might have a measurable effect on local supplies include:

- Increased demand for electricity caused by the addition of new facilities
- Increased demand for natural gas caused by the addition of facilities
- Increased demand for fuel by ground vehicles caused by appreciable increase in access time or substantial change in movement

The Final EIS concluded there were no potential impacts to non-fuel resources created by development of the existing airport. The Final EIS also determined the City of Austin's electric utility department, Austin Energy, would be fully capable of handling the additional load placed on it by airport operations. The electric utility satisfied electrical requirements with two existing substations located near the airport.

In Technical Report 3, Austin Energy indicated an upgrade in electrical capacity would be required if a future facility with a demand equal to or greater than the electrical demand of the existing passenger terminal is developed. When an upgrade is needed, Austin Energy will either upgrade the capacity of the two existing feeders or add an additional feeder from the electrical substation located immediately adjacent the northwest corner of the Airport, depending upon the nature of the future development.

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Austin Energy currently provides electrical service to the south side of the Airport by overhead transmission lines. These lines are adequate for the full development of general aviation facilities, but may not be adequate for the full development of the future Texas National Guard, new south passenger terminal and air cargo facilities planned for this area.

The on-site central power plant has not been evaluated by the Department of Aviation to determine whether it has sufficient capacity to meet energy demands that will occur as a result of new stationary facilities on the airport, such as airfield, building, and support facilities lighting. The Department of Aviation's goal for energy efficiency in the existing terminal building is to exceed the lighting and thermal envelope standards of the energy code by more than 15 percent and 10 percent, respectively. Additional energy efficiency and peak demand reduction techniques currently include:

- Terminal building orientation and shading devices
- Thermally-efficient glass and ceramic frit
- Efficient building insulation

The Department of Aviation will no doubt place similar sustainable airport development goals on the proposed south terminal and other new facilities.

The current gas-distribution system for the ABIA site was designed to accommodate the needs at the Airport through the year 2012, according to the 1993 Master Plan. Southern Union Gas (SUG) designed the ABIA internal system to accommodate an anticipated load of 61,639 MCF/yr. and an expected growth of 15 percent by the year 2012. However, actual growth has exceeded the original projections; therefore, distribution system improvements will be required sooner than the originally anticipated date of 2012. (SUG reported that the annual gas consumption for the year August 1999 through July 2000 was 54,902 MCF/yr.). SUG has indicated that a projection of future improvements needed to the gas distribution system cannot be made without an accurate listing of all current facilities and their gas consumption.

SUG has indicated there are no known deficiencies in the current system, which operates between 30 and 55 pounds per square foot. However, new development in currently undeveloped areas will require system extensions and upgrades. The Department of Aviation is currently planning a Capital Improvement Project (CIP) for fiscal year 2001-2002 to upgrade the natural gas supply to the south side of ABIA in anticipation of the future Texas National Guard facilities. No new gas supply lines were constructed to support the State Aircraft Pooling Board facilities.

The Master Plan Update includes additional fuel storage facilities to accommodate increased demand as the amount of air traffic continues to increase. This increase in demand in aviation fuel will place a greater demand on the fuel suppliers and their facilities, but the increased demand should not create a fuel shortage. Furthermore, the airline fuel consortium has plans to build a pipeline from the gasoline transmission main located west and adjacent ABIA, which should reduce fuel demands by decreasing transportation and traffic to and from the existing fuel facility.

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Average ground movement or runup times for aircraft are not expected to increase substantially due to offsetting efficiencies in operational procedures, and changes in flight patterns are not expected to add noticeably to flight times due to proposed runway improvements. The increased demand for gasoline used by aircraft support vehicles in the terminal area should not impact existing gasoline supplies significantly. Therefore, there is no significant impact associated with increased consumption of fuel by aircraft or aircraft support vehicles.

Requirements to Resolve Impacts

The electrical capacity of the passenger terminal was designed to accommodate the expansions associated with the original terminal design. Prior to an additional expansion of the existing terminal or development of the proposed south passenger terminal facilities, Austin Energy should be consulted to plan for the necessary electrical supply system upgrades.

Full development of the future Texas National Guard, air cargo, and other facilities west of the west runway system, as well as full development of areas north of the State Aircraft Pooling Board, will necessitate additional electrical service. During the programming phase of the air cargo facilities, or other development of comparable size in this area, a study should be performed to determine electric demand and capacity of the central plant, and to investigate the relocation of overhead power lines into an underground ductbank along General Aviation Avenue. Austin Energy should be consulted on options to establish new utility corridors for underground electrical power supply.

Prior to any expansion of the existing passenger terminal, Southern Union Gas should be consulted to determine whether gas system upgrades are needed. Since a new passenger terminal and air cargo area is planned for the south end of the Airport, gas system improvements will be required in that area. The DOA should begin compiling a list of all current facilities and their natural gas consumption, and should begin coordination with SUG so that an accurate assessment of current and future needs can be made. The 2001-2002 CIP improvements to upgrade the natural gas supply lines to the south side of ABIA should be investigated and designed to accommodate the potential full development of other south side facilities, if possible. Finally, system improvements in the State Aircraft Pooling Board area should be considered for this facility and for any future development.

During the programming phase of airport expansion and development related to the recommendations of the Master Plan Update, a survey should be conducted of the local fuel suppliers to exchange information regarding fuel supply and demand. The DOA should be prepared to provide local suppliers with pertinent information about the Airport's fuel system master plan and projected fuel consumption growth rate for the 20-year Master Plan.

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LIGHT EMISSIONS

Potential Impacts

Potential light emissions impacts include the extent to which any lighting associated with the proposed airport development will annoy area residents and businesses in the vicinity of the installation.

Only in the event of an unusual circumstance that creates a nuisance situation for area residents and businesses is the potential for impacts from light emissions considered for closer evaluation. The facilities proposed in the Master Plan Update for the preferred alternative will result in additional lighting at the Airport. Most of the light emissions will come from high-mast lighting around the terminals. These will be contained on airport property with no impact to residents.

Qualitative Assessment of Impacts

The addition of new facilities proposed in the Master Plan Update should not impact properties adjacent the Airport because the locations of the proposed south terminal and other proposed facilities are considerable distances from any residences. Lights from Moya Park do impact departures and taxiing operations on the West Runway and can be a distraction to pilots.

Requirements to Resolve Impacts

Because light emissions are not expected to impact the surrounding community, there are no anticipated issues to be resolved for this impact category. This finding is consistent with the findings of the Final EIS for the existing airport development. Screening and shielding of Moya Park lights may be required to reduce impacts on the West Runway.

SOLID WASTE IMPACTS

Potential Impacts

Potential solid waste impacts attributable to the proposed airport development include:

- The temporary generation of solid waste due to construction activities
- The long-term generation of solid wastes as a result of operations at new facilities
- The proximity and capacity of current and future public-waste disposal facilities in the area and the availability of local transfer services
- The potential for runways to be operated near active landfills where a bird-strike hazard may exist

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Qualitative Assessment of Impacts

Generation of solid waste from construction activities would occur throughout the construction phase. The volume of solid waste associated with construction activities would gradually diminish as development progresses. The types of waste generated by construction-related activities would consist of construction and demolition rubble, such as concrete, asphalt paving, and building materials. In March 1998, the Department of Aviation implemented environmental initiatives related to site construction. These initiatives include contractor environmental protection programs to minimize waste resulting from construction activities (e.g., recycling of demolished building materials), clean builder practices (e.g., relocation of trees rather than removal), and proper site planning and design to balance the amount of cuts and fills to maximize reuse of materials existing onsite and to minimize the quantities requiring disposal.

The projected quantity and type of waste generated from construction activities associated with the proposed airport development will be appreciably different than would be the cases if no airport development were to occur. The potential construction-related solid waste impacts are insignificant, however, because the generation of construction-related wastes is temporary and there is ample capacity of available disposal facilities permitted to accept construction and demolition rubble. Two permitted construction and demolition landfill facilities are located within approximately one mile south of the Airport.

The Final EIS estimated the volume of solid waste that would be generated by existing airport operations through the year 2012. For the year 2012, the solid waste generation rate was estimated to be 4.81 tons per day. This estimate was calculated using a projected number of 460,000 peak month enplanements, with 14,839 average day peak month enplanements.

Environmental initiatives implemented in March 1998 also include operational initiatives to reduce solid waste. The Department of Aviation reuses and/or recycles wherever possible. The current recycling program includes the airport terminal and certain maintenance items. The terminal is equipped with dual trash chutes—one for recyclable waste and one for all other waste. Reuse of paint solvents, recycling waste oil from vehicle engines and oil filters, and reclamation of jet fuel from the airport fueling facility are some of the maintenance items included in the initiative. The following are average waste and recycling figures for ABIA in a recent one-year period:

- Solid waste: 24,000 cubic yards (for the Department of Aviation)
- White paper: 650 cubic yards (recycled)
- Cardboard: 2,000 cubic yards (recycled)
- Aluminum/Plastic: 100 cubic yards (recycled)

Additionally, most airlines recycle their own aluminum to generate income for employee functions.

Based on the forecast of the Master Plan Update, the solid waste generation rate is estimated to be 8.9 tons per day in the year 2020. This estimate is calculated using a projected number of 850,762 peak month enplanements, which translates into 27,444 average day peak month enplanements.

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An extrapolated comparison of the original 2012 forecast in the Final EIS with the current 2020 forecast in the Master Plan Update shows an appreciable difference in the projected quantity of solid waste generation. The type of solid waste generation and the method of solid waste collection and disposal are not expected to differ from the original 2012 forecast.

When the projected quantities of waste generated is appreciably different than would be the case if no airport development were to occur, consultation with local officials to determine if there is any potential problem with either capacity of available disposal facilities or location is usually recommended. In this case, however, the City of Austin funded a study in the year 2000 to determine the capacity of available disposal facilities and their locations with respect to the City's solid waste service area. The study included other parameters such as environmental compliance, suitability of landfill construction, life expectancy, and hauling/disposal costs.

The City of Austin has three available landfills, one of which has a life expectancy of over 30 years. This landfill is located a short-haul distance south of the Airport and has excellent access and hauling routes via major thoroughfares. Therefore, potential solid waste impacts attributable to the appreciably larger projected quantity of solid waste generation from the proposed airport development are insignificant because they are offset by ample capacity of available disposal facilities located within a short-haul distance.

The potential for a bird-strike hazard to exist was evaluated prior to the original airport development. At the time there were three operating landfills within approximately one mile of the Airport runways. One of these landfills, a municipal solid waste landfill, was closed to mitigate the potential for a bird-strike hazard because the type of waste this landfill accepted was attractive to birds.

Although there are two landfills within approximately one mile of the existing airport runways, the potential for a bird-strike hazard to exist is insignificant. These two landfills are construction and demolition landfills. As such, the type of construction-related wastes these landfills accepts is not attractive to birds.

Requirements to Resolve Impacts

Because potential solid waste impacts are not expected to result from the proposed airport development, there are no anticipated issues to be resolved for this impact category. This finding is consistent with the findings of the Final EIS for the existing airport development. However, the Department of Aviation should investigate expanding its terminal recycling program (i.e., use of dual chutes) to all other facilities in order to implement a site-wide recycling program.

CONSTRUCTION IMPACTS

Potential Impacts

Potential impacts from construction activities include:

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- Temporary noise impacts from increased ambient sound levels caused by construction-related equipment and activities (such as delivery of materials through residential streets and demolition)
- Temporary air quality impacts from fugitive dust caused by delivery of materials through residential streets and excavation activities, and construction equipment emissions
- Temporary water pollution from uncontrolled erosion and sedimentation
- Temporary impacts to biotic communities from construction-related noise and air pollution, and creation of borrow pits and spoil piles
- Temporary generation of construction and demolition rubble (such as concrete, asphalt paving, and building materials) from construction-related activities
- Temporary increase in traffic levels from construction-related vehicles

Qualitative Assessment of Impacts

Typically, construction-related impacts are temporary and a lesser part of the cumulative impacts from airport development projects. The Final EIS determined that all construction-related impacts would be minimal and could be mitigated through proper design and planning. A similar conclusion can be drawn for the Master Plan Update.

Requirements to Resolve Impacts

At a minimum, the following mitigation measures should be employed during the construction phase of the proposed Master Plan Update projects to minimize adverse effects of construction impacts:

- Use of mufflers and noise barriers, if applicable, and delivery routes via major thoroughfares to abate noise from construction equipment and activities
- Use of dust suppression methods (such as water spraying, street sweeping, and construction scheduling to minimize use of equipment on ozone action days) to control fugitive dust caused by delivery of materials through residential streets and excavation activities, and construction equipment emissions
- Use of appropriate temporary water pollution abatement methods (such as temporary erosion/sedimentation controls, secondary containment for chemical storage and transfer) to minimize the risk of contaminated stormwater runoff and uncontrolled chemical spills
- Use of incentives that encourage labor force car-pooling, inventory tracking to schedule fewer delivery trips, construction scheduling to minimize detours during the peak traffic hours, and development of a traffic control plan for construction activities.

SUMMARY OF FINDINGS

The environmental evaluation of the preferred alternative is summarized in Table 6-2. The summary table indicates for each environmental impact category the potential cause of impacts, potential impacts and actions to resolve potential impacts.

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**Table 6-2
SUMMARY OF ENVIRONMENTAL EVALUATION**

Impact Category	Potential Cause of Impacts	Potential Impacts	Resolution of Potential Impacts
Noise	Increased forecast of aircraft operations associated with High Growth scenario and changes in runway utilization.	Increased noise exposure (expanded noise contours).	Update FAR Part 150 study and prepare noise contours reflecting forecast operations, runway configuration and utilization of Master Plan Update. Based on updated noise contours: 1. Determine need to modify airport overlay zones. 2. Determine need to modify airport zoning.
Compatible Land Use	Potential causes as described above.	Increased incompatible land uses in the vicinity of the Airport.	Update FAR Part 150 study and: 1. Determine need for new land use and compatibility planning strategies. 2. Determine need for new noise abatement procedures.
Social Impacts	1. Airport expansion. 2. Increased passenger traffic and development of new facilities (including new south airport entrance).	1a. Relocation of residents and businesses. 1b. Division of disruption of established communities. 1c. Disruption of orderly, planned development. 2a. Alteration of surface transportation patterns. 2b. Creation of appreciable change of employment.	1a. Comply with provisions of Uniform Relocation Assistance and Real Property Act. 1b. Airport expansion, per se, is not expected to result in significant disruption of established communities; however, alteration of surface transportation may result in such an impact. (See 2a. below) 1c. Airport expansion, per se, is not expected to result in significant disruption of orderly, planned development; however, alteration of surface transportation may result in such an impact. (See 2a. below) 2a. Conduct new transportation study based on forecast passenger traffic and development of new south entrance. If the study predicts a consequent relocation of residents and business, disruption of established communities, and disruption of orderly, planned development, then prepare an Environmental Assessment to assess adverse social impacts. 2b. Temporary and permanent changes in employment from construction and new facility development are anticipated to be positive impacts.
Induced Socioeconomic Impacts	1. Noise impacts. 2. Airport expansion.	1. Shifts in patterns of population movement and growth. 2. Public service demands. 3. Business and economic activity.	1. Conduct additional analysis of the potential for induced or secondary socioeconomic impacts based on noise contours prepared for the High Growth 2020 forecast. 2. The direct socioeconomic impacts of the airport expansion are expected to be positive, including in job opportunities for people in the community, and corresponding economic growth and tax revenue for City of Austin, Del Valle ISD and Travis County.
Air Quality	1. Forecast increase in aircraft operations. 2. Changes in ground access circulation patterns. 3. Terminal building layout.	1. Increased emissions of criteria pollutants from increased air traffic, supporting ground vehicles and ancillary equipment (fuel storage and transfer equipment), and attendant increase in ground transportation. 2. Decreased emissions from reduced taxi and idling time for aircraft. 3a. Decreased emissions from increased efficiency of ground transportation. 3b. Increased emissions from increased ground transportation attributable to new south terminal and new south entrance.	Prepare updated air emissions inventory and air dispersion analysis taking into account projected increase in aircraft operations as well as improvements to air traffic taxiing distances and queuing. Remodeling of emissions from ground transportation will consider increased vehicle traffic associated with increased future aircraft operations, as well as improvements from streamlined traffic circulation.
Water Quality	1. Increased impervious cover. 2. Increased vehicular traffic. 3. Increased chemical use associated with airport operations.	1a. Surface and groundwater quality deterioration from contaminated storm water runoff. 1b. Creek bank erosion from increased volume and velocity of storm water runoff. 2. Surface and groundwater quality deterioration from contaminated storm water runoff. 3. Surface and groundwater quality deterioration from contaminated storm water runoff.	1. Conduct engineering study of post development storm water runoff that will be generated by the proposed airport expansion. Based on the results of this study, design and implement upgrades to storm water pollution control structures. 2. Update facility Storm Water Pollution Prevention Plan to incorporate Best Management Practices reflecting increased impervious cover, vehicular traffic and chemical use associated with airport expansion and increased airport operations.
DOT Act, Section 4(f)	1. Improvements to Burlinson Road to accommodate the new south entrance and increased traffic. 2. Future noise exposure.	1. Roadway expansion/encroachment into the north side of Moya Park. 2. Deterioration of recreational utility of park due to noise increase.	1. Conduct new transportation study based on forecast passenger traffic and development of new south entrance. If the study shows there is no feasible or prudent alternative to encroachment on Moya Park property, a study to detail and minimize the impacts on the park should be conducted. 2. Conduct an impact analysis on Moya Park recreational utility using noise contours prepared in FAR Part 150 Update. Based on impacts determined from this analysis evaluate and implement noise abatement, if appropriate.

**Table 6-2 (continued)
SUMMARY OF ENVIRONMENTAL EVALUATION**

Impact Category	Potential Cause of Impacts	Potential Impacts	Resolution of Potential Impacts
Historic, Archeological and Cultural Resources	<ol style="list-style-type: none"> 1. Construction of improvements on existing airport property. 2. Construction of parking areas on land located north of SH71. 	<ol style="list-style-type: none"> 1. Potential impacts to one or more cultural resource features identified in Final EIS. 2. Potential impacts to historical or archeological resources along banks of Colorado River. 	<ol style="list-style-type: none"> 1. Compare locations of cultural resource features identified in Final EIS against the footprint of proposed improvements on existing airport property. If potential impacts are identified by this analysis, a preliminary case report will be prepared and submitted to FAA for resolution via the Advisory Council's consultation process. 2. An initial resource review, and if necessary, a cultural resource survey, will be conducted of the area of potential effects corresponding to the proposed SH71 parking area. If potential impacts are identified by this analysis, a preliminary case report will be prepared and submitted to FAA for resolution via the Advisory Council's consultation process.
Biotic Communities	Airport expansion, including new air cargo facilities on south end of the Airport may indirectly impact jurisdictional wetland by degrading the quality of water feeding the wetland.	Potential impacts to biotic communities associated with loss or damage to wetlands.	Perform updated biological study by comparing locations of wetland features identified in Final EIS against the footprint of proposed improvements on existing airport property. If potential impacts to wetlands are identified by this analysis, avoidance, minimization or mitigation measures will be implemented. The biological study will also evaluate landscaping measures to reconstitute or create biotic habitat.
Endangered and Threatened Species	Not applicable.	The proposed airport development does not encompass any endangered species habitat; therefore there are no potential impacts to this environmental impact category.	Not applicable.
Wetlands	<ol style="list-style-type: none"> 1. Construction within wetlands areas at the air cargo facility. 2. Construction and maintenance activities within wetlands surface water contributing zones. 	<ol style="list-style-type: none"> 1. Loss or deterioration of wetland service function due to placement of fill and impervious cover directly in wetland. 2. Loss or deterioration of wetland service function resulting from erosion and entrainment of silt and chemical contaminants. 	<ol style="list-style-type: none"> 1. A wetland delineation will be conducted in the area of the air cargo facility. The boundary of the wetland will be staked and surveyed. The footprint of the proposed air cargo facility will be superimposed to determine if any wetland will be directly lost as a result of construction. If so, an Environmental Assessment will be conducted. If, based on the findings of the EA, there is no feasible or prudent alternative, mitigation measures will be implemented. 2. Conduct construction activities in accordance with Best Management Practices set forth in Construction Storm Water Pollution Prevention Plan to avoid or minimize entrainment of pollutants in storm water runoff. Conduct maintenance activities in accordance with Best Management Practices set forth in Multisector General Permit Storm Water Pollution Prevention Plan to avoid or minimize entrainment of pollutants in storm water runoff.
Floodplains	<ol style="list-style-type: none"> 1. Construction within established floodplains: <ol style="list-style-type: none"> 1a. Western drainage channel along US183 will be impacted by construction of air cargo facility. 1b. Onion Creek floodplain will be impacted by construction of TANG and southern Remote Overflow Parking area. 1c. Tributary crossing of General Aviation Avenue will be impacted by the construction of the southern GSE Maintenance Field/Building Maintenance areas. 2. Addition of impervious cover within contributing zone of floodplain will indirectly impact Onion creek and Colorado River floodplains. 	<ol style="list-style-type: none"> 1. Decrease capacity for the natural moderation of floods, water quality maintenance, groundwater recharge. 2. Increase in volume and velocity of storm water runoff from impervious surfaces. 	<ol style="list-style-type: none"> 1. Update the facility drainage study to account for construction within established floodplains; based on the results of this study, design and implement upgrades to storm water control structures. 2. Update the facility drainage study to account for addition of impervious cover within contributing zones of floodplains; based on the results of this study, design and implement upgrades to storm water control structures.
Coastal Zone Management Program	Not applicable.	The proposed airport development is not located in a coastal zone management area or in area of potential effect of coastal barriers; therefore there are no potential impacts to these impact categories.	Not applicable.
Wild and Scenic Rivers	Not applicable.	The proposed airport development does not encompass any listed wild and scenic rivers; therefore there are no potential impacts to this impact category.	Not applicable.
Farmland	Not applicable.	The proposed airport development does not encompass any areas listed with Farmland Protection Act, nor does it require the involve conversion of farmland to nonagricultural use; therefore there are no potential impacts to this environmental impact category.	Not applicable.

**Table 6-2 (continued)
SUMMARY OF ENVIRONMENTAL EVALUATION**

Impact Category	Potential Cause of Impacts	Potential Impacts	Resolution of Potential Impacts
Energy Supply and Natural Resources	<ol style="list-style-type: none"> 1. Increased demand for electricity caused by the addition of new facilities. 2. Increased demand for natural gas caused by the addition of new facilities. 3. Increased travel times and distances for fueling operations due to forecast aircraft operations. 	<ol style="list-style-type: none"> 1. Requirement to upgrade electrical capacity and, potentially, electric transmission lines to south side of airport. 2. Requirement to upgrade gas distribution system. 3. Increased consumption of fuel and safety concerns due to increased travel time and distance for fuel transport vehicles. 	<ol style="list-style-type: none"> 1. Conduct a study to determine electrical associated with proposed new facilities and to evaluate the relocation of overhead power lines into an underground ductbank along General Aviation Avenue. 2. Contact Southern Union Gas to determine evaluate and implement gas system upgrades for service to the new south terminal. 3. Evaluate and implement, if feasible, a fuel pipeline to avoid or minimize the impact of increased travel time for fuel transport vehicles.
Light Emissions	Lighting associated with proposed facilities including terminal area lighting.	Potential impacts are unlikely as proposed facilities are considerable distances from adjacent properties. There is a potential impact of lights from Moya Park on airport (aircraft) operations.	Screening and shielding of Moya Park lights should be evaluated.
Solid Waste Impacts	Not applicable.	The proposed airport development will result in a temporary increase of construction-related waste. The forecasts increase in aircraft operations will result in a permanent increase in solid waste generation. The City of Austin has three available landfills, one of which is located a short haul distance south of the airport. The airport has excellent access and hauling routes via major thoroughfares. Therefore solid waste impacts are not anticipated to result from the proposed airport expansion and increased aircraft operations.	Not applicable.
Construction Impacts	<ol style="list-style-type: none"> 1. Noise from construction machinery. 2. Evolution of dust from movement of construction vehicles and emissions from equipment engines and construction worker's private vehicles. 3. Construction storm water runoff. 4. Construction vehicle and worker's private vehicle impacts on local traffic. 	<ol style="list-style-type: none"> 1. Noise impacts to vicinity businesses, residents and biota. 2. Dust impacts to vicinity businesses, residents and biota; ambient air quality impacts from construction equipment and worker's private vehicles. 3. Temporary erosion and siltation impacts. 4. Temporary increase in vicinity traffic levels. 	<ol style="list-style-type: none"> 1. Use of mufflers and noise barriers, if applicable. 2a. Use of dust suppression methods. 2b. Scheduling of construction to minimize use of equipment on ozone action days. 3. Use of a Storm Water Pollution Prevention Plan to minimize and abate construction storm water pollution. 4a. Use of incentives that encourage labor force car pooling. 4b. Inventory tracking to schedule fewer deliveries. 4c. Development of a traffic control plan to minimize impacts to the traveling public.