Final
Environmental Assessment for
Phoenix Sky Harbor International Airport
Sky Train Stage 2

Prepared for:
City of Phoenix Aviation Department
and U.S. Department of Transportation Federal Aviation Administration

Prepared by:
HNTB Corporation

January 2018

This environmental assessment becomes a Federal document when evaluated,
signed, and dated by the Responsible FAA Official.

Responsible FAA Official

Date
GENERAL INFORMATION ABOUT THIS DOCUMENT

WHAT’S IN THIS DOCUMENT? This document contains a Final Environmental Assessment (EA) for the Phoenix Sky Harbor International Airport (PHX) proposed Sky Train Stage 2 (Proposed Action). The Proposed Action includes an extension of the existing Sky Train at PHX from Terminal 3 (T3) to the Rental Car Center (RCC), and associated improvements and ancillary actions. This document discloses the analysis and findings of the potential impacts associated with the City of Phoenix’s Proposed Action Alternative and the No Action Alternative.

BACKGROUND. The City of Phoenix proposes to implement Sky Train Stage 2, a previously approved (2006 FEIS) extension of the existing Sky Train. The proposed extension of the Sky Train from T3 to the planned West Ground Transportation Center (WGTC), and terminating at the existing RCC would provide more reliable and efficient access between the RCC and Airport facilities, and reduce on-airport roadway congestion.

The Draft EA was released for public and agency review on December 18, 2017. The notice of availability of the Draft EA was advertised in local newspapers, the Arizona Republic, the Arizona Business Gazette, and La Voz, to inform the general public and other interested parties. No comments related to the Draft EA were received by the FAA or the City of Phoenix Aviation Department. The document presented herein represents the Final EA for the federal decision-making process, in fulfillment of the FAA’s policies and procedures relative to NEPA and other related federal requirements.

WHAT SHOULD YOU DO? Read this Final EA to understand the actions that the City of Phoenix Aviation Department and the FAA intend to take relative to the Sky Train Stage 2 project at PHX.

WHAT HAPPENS AFTER THIS? Following review of the Final EA, the FAA will either issue a Finding of No Significant Impact (FONSI) or decide to prepare an Environmental Impact Statement (EIS).
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Chapter One:
Purpose and Need

1.1 Introduction

The City of Phoenix (City) Aviation Department, the owner/operator of Phoenix Sky Harbor International Airport (PHX), proposes to implement Sky Train Stage 2, a previously approved (2006 FEIS\(^1\)) extension of the existing Automated People Mover System (APM).\(^2\) The proposed extension of the Sky Train from Terminal 3 (T3) to the planned West Ground Transportation Center (WGTC), and terminating at the existing Rental Car Center (RCC) would provide more reliable and efficient access between the RCC and Airport facilities, and reduce on-airport roadway congestion. This Environmental Assessment (EA) has been prepared pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA); the Council on Environmental Quality (CEQ) implementing regulations 40 Code of Federal Regulations (CFR) 1500-1508; Federal Aviation Administration (FAA) Order 1050.1F, Policies and Procedures for Considering Environmental Impacts; and FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions. This EA is intended to identify and consider potential environmental impacts associated with the proposed Sky Train Stage 2. The FAA is the lead federal agency to ensure compliance with NEPA for airport development actions.

1.2 Background

PHX is located in the City of Phoenix, Maricopa County, Arizona, approximately five (5) miles east of the central business district as shown in Figure 1.2-1. PHX is a publicly-owned airport accommodating air carrier, commuter, air taxi, air cargo, general aviation, and military aircraft operations. PHX is among the Top-12 busiest airports in the United States. Currently, the Airport encompasses approximately 3,200 acres of land, and includes three runways (Runways 7L/25R, 7R/25L, and 8/26) and three passenger terminals (Terminals 2, 3, and 4).

The Airport is generally bound by State Route 143 on the east, the Salt River and Interstate 10 (I-10) on the south, 16th Street on the west, and the Union Pacific Railroad on the north. The City also owns airport land just north of the Airport where the 44th Street PHX Sky Train Station is located, between the Union Pacific Railroad and Washington Street.

The existing PHX Sky Train is a free, automated train that transports airport passengers between the Valley Metro Rail station at 44th Street / Washington Street, the East Economy Parking Garage and the Airport terminals.

The potential environmental impacts for the Sky Train Stage 2 were evaluated as part of the overall Proposed Airport Development Program (ADP) at PHX Final Environmental Impact Statement (FEIS) completed in 2006. The FEIS was completed over 10 years ago; the Aviation
Figure 1.2-1
Vicinity and Location Map

Sources: ESRI
Department and the FAA are conducting this EA to ensure that the evaluation of environmental impacts remains current and that all updates to FAA policy and guidance, including NEPA guidance, is applied. Additional studies have been completed since the 2006 FEIS which document updated alignments and concepts for Sky Train Stage 2 facilities. The alternative concepts from these studies are the basis of discussion in Chapter 2, Alternatives.

1.3 Description of the Proposed Action

As shown on Figure 1.3-1a, the City proposes to extend the Sky Train from T3, where it currently ends, westward to the RCC. Figure 1.3-1b illustrates two areas east of the proposed Sky Train extension, which include proposed power options to support the Sky Train. Figure 1.3-2 identifies the locations where the Sky Train would be both elevated and below-grade. The Sky Train is elevated as it continues west from the T3 Station. At 27th Street the Sky Train transitions to below-grade, and then transitions to be elevated before entering the proposed WGTC. Past the WGTC, the Sky Train curves south (running parallel to I-10) where it transitions to an at-grade section as it turns west to run under I-10. The Sky Train continues west along Sky Harbor Circle where it transitions to be elevated as it reaches the RCC.

The Proposed Action consists of the following elements and connected actions:

**Proposed Action:**
- Construct the Sky Train from T3 westward approximately 2.2 miles to the RCC;
- Construct a platform on the third level of the RCC for the Sky Train to enter;
- Construct a WGTC Sky Train Station, including platform;
- Construct surface parking to the south and northwest of the WGTC Station to support parking needs;
- Construct a parking facility or mixed-use parking facility with potential retail, office or hospitality secondary users (up to 7 stories), to the northwest of the WGTC Station (when justified by demand);
- Construct surface roads to accommodate the WGTC Station and parking facility;
- Relocate the Ground Transportation (GT) Staging Area to the existing parking lot area north of Buckeye Road, between I-10 and 24th Street;
- Construct a Central Utility Plant for the WGTC, west of 24th Street;
- Expand the Sky Train Maintenance Facility and construct Sky Train wash facility east of 44th Street, as shown in Figure 1.3-1b;
- Construct three propulsion facilities required to support the Sky Train; small enclosed single-story buildings (800 to 1,000 Square Feet (SF)) that house electrical switchgear and transformers to assist with voltage drops along the train’s alignment;
- Construct a switchyard facility adjacent to the alignment along the I-10 corridor (Option A); or Construct an electrical Arizona Public Service (APS) microgrid generator site to tie into the existing 44th Street switchboard (Option B), required to support the Sky Train to accommodate voltage drops and feed power to the train; and
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Phoenix Sky Harbor International Airport Sky Train Stage 2 Environmental Assessment

**Figure 1.3-1a** Proposed Action

1. Construct Sky Train
2. Construct Third-Level Platform for Sky Train Entrance
3. Construct West Ground Transportation Center (WGTC) with Surface Parking
4. Construct Parking Facility or Mixed-Use Facility
5. Roadway Improvements
6. Relocate Ground Transportation (GT) Staging Area
7. Construct Central Utility Plant for WGTC
8. Sky Train Maintenance Facility Expansion and Wash Facility
9. Construct Three Propulsion Facilities along Sky Train Alignment
10. Power Options (A and B)
11. Transfer of ROW for Utility Needs (See Appendix B for ROW Transfer Map)

**Connected Actions**

9. Adjust Roadway Lane Markings
10. Bridge 25th Place
11. Demo Parking Offices
12. Demo Bus Maintenance Facility
13. Demo Sky Chefs Building
14. Demo GT Rest Area
15. Demo C&D Gate Areas of Terminal 2
16. Construct Stormwater Management Basins
17. New APS Line
18. Modify 44th Street Drainage

**Sources:** USDA NAIP Aerial (2015), City of Phoenix

**Legend**

- Proposed Action
- Connected Action
- Airport Property Boundary
- Sky Train Alignment
- Demolition
- Construction Staging Area
- Roadway Improvements
- Existing Cargo Buildings
- Terminal 2 Demolition*
- WGTC Facilities and Parking
- GT Staging Area
- Existing APS Line Demolition
- Proposed APS Line

*Note: *Reviewed under separate EA.
Proposed Action

1. Construct Sky Train
2. Construct Third-Level Platform for Sky Train Entrance
3. Construct West Ground Transportation Center (WGTC) with Surface Parking
4. Construct Parking Facility or Mixed-Use Facility
5. Roadway Improvements
6. Relocate Ground Transportation (GT) Staging Area
7. Construct Central Utility Plant for WGTC
8. Sky Train Maintenance Facility Expansion and Wash Facility
9. Construct Three Propulsion Facilities along Sky Train Alignment
10. Power Options (A and B)
11. Transfer of ROW for Utility Needs (See Appendix B for ROW Transfer Map)

Connected Actions

9. Adjust Roadway Lane Markings
10. Bridge 25th Place
11. Demo Parking Offices
12. Demo Bus Maintenance Facility
13. Demo Sky Chefs Building
14. Demo GT Rest Area
15. Demo C&D Gate Areas of Terminal 2
16. Construct Stormwater Management Basins
17. New APS Line
18. Modify 44th Street Drainage

See Figure 1.3-1a for details.
Phoenix Sky Harbor International Airport Sky Train Stage 2 Environmental Assessment

Sky Train Stage 2 Elevation

Legend:
- Sky Train Alignment
- Sky Train Elevation Transition Point
- WGTC Facilities and Parking
- Terminal 2 Demolition*
- Airport Property Boundary

Notes:
*Reviewed under separate EA.

Sources: USDA NAIP Aerial (2015), City of Phoenix

Figure 1.3-2
Sky Train Stage 2 Elevation
Transfer approximately 33.2 acres of right-of-way (ROW) to public use easements from the Arizona Department of Transportation (ADOT) and the Phoenix Street Department to the City Aviation Department to accommodate local utility needs. See Appendix B, Right-of-Way Transfers and Power Options Comparison, for the preliminary ROW Transfer Map.

Connected Actions:

- Adjust the roadway lane markings under I-10 where the Sky Train would pass under the Interstate;
- Bridge 25th Place to allow access to cargo facilities (Buildings A, B and C) as the Sky Train would be below-grade in this area;
- Demolish the following to accommodate the Sky Train alignment: Parking Offices, Bus Maintenance Facility, Sky Chefs Building, GT Staging Area, and C and D gate areas of Terminal 2 (T2);
- Construct two stormwater management basins south of the WGTC south surface parking lot;
- Demolish the existing APS line and equipment (powering the FAA RT3 Antennae Site, Sky Chefs buildings, and surrounding facilities) and install a new APS “loop feed” line utilizing updated equipment; and
- Modify the stormwater drainage adjacent to the proposed 44th Street microgrid generator site.

The existing T2 Concourse (not the processor building) will be demolished in advance of the Proposed Action. The T2 Concourse has independent utility from the PHX Sky Train project and was evaluated as part of the Terminal 3 South Concourse Reconstruction EA, completed in December 2016.

1.4 Purpose and Need

1.4.1 Sponsor’s Purpose and Need

The purpose of the proposed project is to provide more reliable access and decrease travel time for passengers from the RCC to Airport facilities, reduce or eliminate vehicle idling time at the RCC and terminal curbfrects, and to reduce on-airport roadway congestion.

The need for the Proposed Action is to address the deficiencies in access between the RCC and Airport facilities, and the increasing congestion on on-airport roadways. Currently, travelers rely on bus shuttles to travel between the RCC and the terminals, which use Sky Harbor Boulevard, Buckeye Road, 24th Street and Sky Harbor Circle. As travel demand grows at PHX, the on-airport roadway congestion from RCC buses, passenger vehicles, and offsite shuttles (parking, hotels, etc.) has increased, resulting in increased travel time for passengers. During peak arrival periods, especially at Terminal 4, large numbers of pedestrians must cross the inner curbfrect roadway to reach the outer curbfrect island where RCC buses pick up passengers. This further increases vehicular congestion as vehicles stop and await pedestrian crossings, and creates unsafe conditions for pedestrians. Additionally, current roadway congestion during peak times accounts for avoidable increases in greenhouse gas emissions.
1.4.2 FAA Purpose and Need

The FAA’s statutory mission is to ensure the safe and efficient use of navigable airspace in the United States pursuant to 49 USC 47101(a)(1). In issuing grants to Airport operators to achieve this mission, sponsors must accomplish the improvement in accordance with an FAA-approved Airport Layout Plan (ALP) and grant-in-aid assurances, including Passenger Facility Charge (PFC) Assurance No. 9, “Standards and Specifications.” The Sky Train Stage 2 project also aligns with 49 USC 47101 (a)(5) “to encourage the development of intermodal connections on airport property between aeronautical and other transportation modes and systems to serve air transportation passengers and cargo efficiently and promote economic development.”

1.5 Requested Federal Action

The requested federal actions include:

- Unconditional approval of the ALP to depict the Proposed Action pursuant to 49 USC §§ 40103(b) and 47107(a)(16).
- Determination under 49 USC § 44502(b) that the airport development is reasonably necessary for use in air commerce or in the interests of national defense.
- Approval to impose and use of PFC funds.

1.6 Timeframe for Implementation

Implementation of the Proposed Action would only occur after the FAA has issued a NEPA finding. The City anticipates that the PHX Sky Train Stage 2 Improvements will take approximately 38 months to construct. Construction is expected to begin in early 2018 and the Sky Train is expected to open by 2021 after necessary system testing.

1.7 Document Organization

- Chapter One Purpose and Need: Provides a brief description of the Airport and the Proposed Action, its purpose, and why it is needed.
- Chapter Two Alternatives: Provides an overview of the identification and screening of alternatives considered as part of the environmental evaluation process.
- Chapter Three Affected Environment, Environmental Consequences, and Mitigation: Describes existing environmental conditions within the project study area, and discusses and compares the environmental impacts associated with the Proposed Action Alternative and the No Action Alternative and mitigation options considered.
- Chapter Four Coordination and Public Involvement: Discusses the coordination and public involvement associated with the EA process.
- Chapter Five List of Preparers.
- Chapter Six List of Abbreviations and Acronyms.
- Appendices: Contain various reference material, including technical information and record of coordination activities.
Endnotes


2 The Automated People Mover System (APM) was the name used in the 2006 FEIS to describe what is now known as the Sky Train System.

3 FAA Order 1050.1F, paragraph 9-1.d., p. 9-1.

4 The passenger processor portion of the terminal building is that portion where passenger ticketing, baggage claim, and security screening occur. The concourse is the portion of the terminal that contains the aircraft gates.

5 FAA Airports, Passenger Facility Charge (PFC) Program Assurances, 9. Standards and specifications: “It will carry out the project in accordance with FAA airport design, construction and equipment standards and specifications contained in advisory circulars current on the date of project approval.”
Chapter Two: Alternatives

2.1 Introduction

2.1.1 Scope of the Alternatives Analysis

This chapter summarizes the alternatives that were identified for meeting the project purpose and need discussed in Chapter One, Purpose and Need. A Preferred Alternative for the Sky Train Stage 2 was already identified and evaluated for potential environmental impacts as part of the PHX ADP FEIS completed in 2006.¹

The information provided in this chapter includes the following:

- A summary of the 2006 FEIS alternatives analysis used to arrive at the Preferred Alternative;
- Refinement of the Preferred Alternative based on recent planning studies; and
- A description of the alternatives carried forward, including the Preferred Alternative and the No Action Alternative.

2.1.2 Requirements of the National Environmental Policy Act

CEQ regulations (40 CFR 1502.14) for implementing NEPA requires that federal agencies perform the following tasks for analysis of alternatives:

- Rigorously explore and objectively evaluate all reasonable alternatives and, for alternatives which were eliminated from detailed study, briefly discuss the reasons for their elimination;
- Devote substantial treatment to each alternative considered in detail, including the Proposed Action, so that reviewers may evaluate their comparative merits;
- Include reasonable alternatives not within the jurisdiction of the lead agency; and
- Include the No Action alternative.

2.2 Factors Affecting Alternatives Analysis

The FEIS completed in April 2006 identified factors that affect the selection of the Preferred Alternative, including meeting the purpose and need; meeting site acceptability criteria; and constructability and environmental considerations. The following summarize the criteria used in the FEIS, with a focus on the Sky Train Stage 2 project.
2.2.1 Meet the Purpose and Need

An efficient ground transportation system is critical to the operation of the Airport and determines the level of service experienced by travelers at PHX. Extending the Sky Train would provide more reliable access and decrease travel time for passengers from the RCC and Airport facilities, reduce or eliminate vehicle idling time at the RCC and terminal curbfronts, and reduce on-airport roadway congestion.

Providing a western connection from T3 to the RCC would address deficiencies in access between the RCC and Airport facilities, and the increasing congestion on Airport roadways. The proposed project would better accommodate passenger traffic by decreasing travel time between the RCC and Airport facilities. The elimination of the RCC bus fleet would eliminate vehicle idling at the RCC and terminal curbfronts, and reduce on-airport roadway congestion. Only those alternatives which meet the purpose and need for the Proposed Action were carried forward.

2.2.2 Site Acceptability

A site review was performed to determine if areas adjacent to the Airport could effectively and efficiently accommodate terminal facilities with capacity to meet projected future demand. Considerations were given to runway configuration and layout; ability to meet aircraft fleet mix requirements; interstate and regional surface access; proximity to airfield and runway ends; and reasonableness of facility locations.

2.2.3 Constructability and Environmental Considerations

The performance of the Sky Train alignment and proposed facilities were considered as they relate to: the connectivity to the existing and planned terminals, airfields and roadways; and potential limiting environmental impacts. Goals related to constructability include minimizing impacts to existing facilities; ensuring proposed alignments allow for future development; minimizing disruption of airport operations; and minimizing impacts related to land acquisition and relocations. Environmental considerations include potential land acquisition, relocations, and impacts to natural and historic resources.

2.3 Overview of the Screening Process

The evaluation of alternatives considered the factors discussed in Section 2.2, Factors Affecting Alternatives Analysis. The three-step screening process was progressive. For example, if an alternative did not meet the question asked in Step 1, it was not carried forward to Step 2 or 3. Alternatives that passed the three-step screening process, along with the No Action Alternative, were then evaluated for their potential environmental effects in Chapter Three, Affected Environment, Environmental Consequences, and Mitigation of this EA. Figure 2.3-1 illustrates the alternatives screening process used in this EA.
**Figure 2.3-1**
Alternatives Screening Process

**STEP 1:**
Does the alternative meet the purpose and need — improves ground access to the Airport, improves efficiency of the on-airport roadway system through reduced congestion, and addresses deficiencies in access between the PCC and Airport facilities?
- No: Eliminate from further consideration.
- Yes:

**STEP 2:**
Does the alternative effectively and efficiently accommodate terminal facilities with capacity to meet projected future demand? - with considerations of:
- Runway configuration and layout
- Ability to meet aircraft traffic fleet mix requirements
- Interstate and regional surface access
- Proximity to airfield and runway ends
- Reasonableness of facility locations
- No: Eliminate from further consideration.
- Yes:

**STEP 3:**
Does the alternative consider constructability and potential limiting environmental impacts as it relates to the following:
- Minimizing impacts to existing facilities and disruption of airport operations
- Ensuring proposed alignments allow for future development
- Minimizing impacts related to land acquisition, relocations, and impacts to natural and historic resources
- No: Eliminate from further consideration.
- Yes:

Further detailed analysis of environmental impacts.
2.4 Evaluation of Alternatives Considered in 2006 FEIS

The 2006 FEIS identified eight alternatives for the City’s proposed projects: two off-airport, five on-airport, and the no action alternative. The alternatives evaluated primarily reviewed different locations for terminal and airfield development, but included construction of the Sky Train Stage 2.

The proposed projects evaluated in the 2006 FEIS included the following:

- Demolition of T2 and Ancillary Facilities;
- West Terminal Development (33-Gate Terminal), Garage and Terminal Roadways;
- Modifications to Terminal 4, Concourse N4 International Gates;
- Construction of Crossfield Taxiways U and V;
- Sky Harbor Boulevard Modifications; and
- Construction of Stage 2 of the Automated People Mover System (APM). ²

Table 2.4.1 summarizes the alternatives screening process for the eight alternatives identified in the 2006 FEIS. After careful screening of the alternatives, one build alternative, the ADP Alternative, and the No-Action Alternative were retained for detailed analysis in the FEIS, and for further evaluation in this EA.

The ADP Alternative was the Sponsor’s Preferred Alternative in the 2006 FEIS. It included replacing the existing T2 with a new terminal west of T3 and construction of Stage 2 of the Sky Train west to the RCC. This alternative also includes modifications to Sky Harbor Boulevard. This alternative is consistent with the City’s long-range plans for the Airport and aligns with more recent planning studies completed for the Sky Train Stage 2.

Table 2.4.1

<table>
<thead>
<tr>
<th>Summary of Alternative Screening of 2006 FEIS Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the Alternative Pass to the Next Step?</td>
</tr>
<tr>
<td>Step 1</td>
</tr>
<tr>
<td>Alt 1 – New Airport</td>
</tr>
<tr>
<td>Alt 2 – Use of Existing Airports</td>
</tr>
<tr>
<td>Alt 3 – No Action Alternative</td>
</tr>
<tr>
<td>Alt 4 – South Airport Site</td>
</tr>
<tr>
<td>Alt 5 – West Airport Site</td>
</tr>
<tr>
<td>Alt 6 – Airport Development Program</td>
</tr>
<tr>
<td>Alt 7 – Expansion of Existing Facilities</td>
</tr>
<tr>
<td>Alt 8 – North Airport Site</td>
</tr>
</tbody>
</table>

Notes:
¹ The No Action Alternative was retained for analysis of environmental consequences per CEQ regulations (40 CFR § 1502.14(d)).
2.5 Preferred Action Refinement

Since the completion of the 2006 FEIS, additional studies to document updated concepts for the ADP Sky Train Stage 2 alignment and facilities have been completed. The following section summarizes the refinement of the 2006 Sponsor’s Preferred Alternative to reach the Preferred Action Alternative carried forward in this EA.

2.5.1 2010 ADP Phase III Findings

The 2010 ADP Phase III Findings Report analyzed potential Sky Train Stage 2 alignments by “refining the interface between potential terminal station location options, west side crossfield taxiway options, WGTC site options, and future roadway options.”3 The ADP Report evaluated potential Sky Train alignments relative to existing facilities and future West Terminal development.

The 2010 ADP Report presented two alternatives for the Sky Train alignment: the Central and South alignments. Immediately following the Phase III Findings report, a third alignment was developed: the Hybrid alignment. The three alignments are depicted in Figure 2.5-1. Table 2.5.1 summarizes the three Sky Train alignments.

<table>
<thead>
<tr>
<th>2010 Alignment</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
</table>
| **Central Alignment** | - Maximizes West Terminal development  
                      - Minimizes impacts to Cargo Buildings               | - Relocation of Commercial Vehicle Staging Area  
                      - High guideway construction cost to span T2 processor  
                      - Some roadway layout challenges                     |
| **South Alignment** | - Accommodates 2 of 3 West Terminal concepts              | - Relocation of all three Cargo Buildings  
                      - Closure of T2                                        |
| **Hybrid Alignment** | - Allows T2 to remain functional                          | - Impacts Cargo Buildings                             |

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Figure 2.5-1
2010 ADP Sky Train Alignments

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2.5.2 2014 Stage 2 Program Update

The 2014 Stage 2 Program Update further analyzed the three Sky Train Stage 2 alignment options developed in 2010 and defined a preferred alignment and alternate alignments that would accommodate the West Terminal concepts. The alignments were developed to meet the goals listed in Section 2.3, Overview of the Screening Process.

After establishing the preferred alignment, the Stage 2 Program Update considered key design and phasing concepts and established a set of program level alternatives. The alternatives consider differences in cost and operational characteristics. Figure 2.5-2 illustrates the program level alternatives. Figure 2.5-3 illustrates the alternative alignments considered. Table 2.5.2 summarizes the Stage 2 Program Update alignments.

Table 2.5.2
2014 Stage 2 Program Update

<table>
<thead>
<tr>
<th>2014 Alignment</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
</table>
| Preferred Alignment | - Minimizes impacts to Cargo Buildings  
- Allows T2 to remain functional  
- Accommodates T3 Modernization Project  
- Accommodates 2 of 3 West Terminal concepts | - West Terminal North Linear Concept not accommodated (North Linear Concept not recommended) |
| Program Level Alternatives | | |
| Alt 1 – Full Build Cost: $731.4M | - Capital investment not spread over time. |
| Alt 2 – Full APM with Interim West GTC Cost: $746.1M ($15M more than full build) | - Savings associated with Interim WGTC would not be realized as its projected service life would be limited. |
| Alt 3 – Partial APM with Ultimate West GTC Cost: $746.1M ($15M more than full build) | - Still requires bus service from RCC to WGTC. |
| Alt 4 – Partial APM with Interim West GTC Cost: $731.4M (same as full build) | - Same performance limitations as Alt 2 and 3 until the full build is constructed. |
| At Grade Alignment | - Cost savings of approximately $9 million as compared to elevated structure  
- Minimized impacts to Cargo Buildings | - Limits flexibility for future West Terminal development. |
| West Terminal North Linear Concept Alignment | - Accommodates third West Terminal concept (North Linear scheme)  
- Minimized impacts to Cargo Buildings | - Balance of gates in North Linear scheme are weighted heavily on the north side where only one runway exists.  
- Poor integrating with existing runway system. |

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Preferred Alignment Alternatives

1. Full Build

2. Full APM w/ Interim West GTC

3. Partial APM w/ Interim West GTC

4. Partial APM w/ Ultimate West GTC

Sources: Stage 2 Planning Update PowerPoint Presentation, June 22, 2016.
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Figure 2.5-3

2014 Stage 2 Program Update Alternate Alignments

Sources: 2014 Stage 2 Planning Update, Appendix C.
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2.5.3 Sky Train Stage 2 Power Options

The current Sky Train system has a peak power consumption of 2.8 megawatts (MW), and is powered from a 12.47 kilovolt (kV) switchyard near the 44th Street Sky Train Station to the northeast of the Airport. The current system’s power supply retains sufficient capacity for Stage 2 development, however the proposed Stage 2 facilities would increase required peak power to approximately 6 MW. During preliminary planning stages, multiple options for powering the Sky Train Stage 2 were considered. Appendix B, Right-of-Way Transfers and Power Options Comparison, includes additional details on the power options considered. The most feasible options included:

- **Option 1: West Arizona Public Service (APS) Substation**
  - Constructing a switchyard adjacent to the Sky Train alignment along the I-10 corridor with an APS service line running west along Buckeye Road to an APS substation (location to be determined).

- **Option 2: East APS Substation**
  - Constructing a substation and switchyard adjacent to the Sky Train alignment along the I-10 corridor with an APS service line running west along Buckeye Road to connect with lines at 16th Street.

- **Option 3: Hohokam Switchyard**
  - Constructing an APS microgrid generator site and switchyard east of the Sky Train maintenance facility to tie into the existing APS Hohokam substation and the existing duct bank along 44th Street.

- **Option 4: 44th Street Existing Switchyard**
  - Constructing an APS microgrid generator site adjacent to the existing switchyard at the 44th Street station.

Through further planning and initial designs, the City selected the West APS Substation and the 44th Street Existing Switchyard as viable power solutions. These two options are carried forward for environmental consideration.

For the West APS Substation power option, the proposed switchyard (included in this EA) would connect to the proposed substation (not part of this EA – future APS project). The switchyard facility is proposed in case a west substation is constructed by APS in the future, at which time a connection for redundant power source for the Airport and Sky Train system would be pursued.

2.6 Sponsor’s Preferred Alternative

The City Aviation Department has identified a Preferred Alternative for the construction of the Sky Train Stage 2. The Preferred Alternative follows the Preferred Alignment - Alternative 1 – Full Build alternative evaluated under the 2014 Stage 2 Program Update.

**Proposed Action:**

- Construct the Sky Train from T3 westward approximately 2.2 miles to the RCC (as shown in Figure 1.3-1a);
- Construct a platform on the third level of the RCC for Sky Train to enter;
- Construct a WGTC Sky Train Station, including platform;
- Construct surface parking to the south and northwest of the WGTC Station to support parking needs;
- Construct a parking facility or mixed-use parking facility with potential retail, office or hospitality secondary users (up to 7 stories), to the northwest of the WGTC Station (when justified by demand);
- Construct surface roads to accommodate the WGTC Station and parking facility;
- Relocate the GT Staging Area to the existing parking lot area north of Buckeye Road, between I-10 and 24\textsuperscript{th} Street;
- Construct a Central Utility Plant for the WGTC, west of 24\textsuperscript{th} Street;
- Expand the Sky Train Maintenance Facility and construct Sky Train wash facility east of 44\textsuperscript{th} Street, as shown in Figure 1.3-1b;
- Construct three propulsion facilities required to support the Sky Train; small enclosed single-story buildings (800 to 1,000 SF) that house electrical switchgear and transformers to assist with voltage drops along the train’s alignment;
- Construct a switchyard facility adjacent to the alignment along the I-10 corridor (Option A); or Construct an electrical APS microgrid generator site to tie into the existing 44\textsuperscript{th} Street switchboard (Option B), required to support the Sky Train to accommodate voltage drops and feed power to the train; and
- Transfer approximately 33.2 acres of ROW to public use easements from ADOT and the Phoenix Street Department to the City Aviation Department to accommodate local utility needs. See Appendix B, Right-of-Way Transfers and Power Options Comparison, for the preliminary ROW Transfer Map.

Connected Actions:

- Adjust the roadway lane markings under I-10 where the Sky Train would pass under the Interstate;
- Bridge 25\textsuperscript{th} Place to allow access to cargo facilities (Buildings A, B and C) as the Sky Train would be depressed in this area;
- Demolish the following to accommodate the Sky Train alignment: Parking Offices, Bus Maintenance Facility, Sky Chefs Building, GT Staging Area, and C and D gate areas of T2;
- Construct two stormwater management basins south of the WGTC south surface parking lot;
- Demolish the existing APS line and equipment (powering the FAA RT3 Antennae Site, Sky Chefs buildings, and surrounding facilities) and install a new APS “loop feed” line utilizing updated equipment; and
- Modify the stormwater drainage adjacent to the proposed 44\textsuperscript{th} Street microgrid generator site.
The existing T2 Concourse (not the processor building⁹) will be demolished in advance of the Proposed Action. The T2 Concourse has independent utility from the PHX Sky Train project and was evaluated as part of the Terminal 3 South Concourse Reconstruction EA, completed in December 2016.

2.7 No Action Alternative

The CEQ’s implementing regulations for NEPA, 40 CFR § 1502.14(d), requires consideration of the “no action” alternative. In the No Action Alternative, only development that has already been approved by federal and state agencies would be implemented in the future. The No Action Alternative would not extend the Sky Train from T3 to the RCC and would not construct the associated facilities. The consequence of this alternative is that the growing passenger traffic would not be satisfied by the low capacity transit in place; on-airport roadway congestion would increase; and passenger frustrations would rise. Additionally, Airport revenue from WGTC parking areas would continue to be missed.

The No Action Alternative would not meet the needs of airport employees and travelers for improved, more efficient access to the Airport. Travelers would continue to utilize the inefficient shuttle buses between the RCC and Airport terminals, likely resulting in an increase to on-airport roadway congestion. In accordance with CEQ and NEPA guidance, and FAA Orders 1050.1F and 5050.4B requirements, the No Action Alternative was carried forward for detailed analysis.

2.8 Required Permits

Per Chapter 6-1, paragraph a(4) of FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, a preliminary list of potential permits required for implementation of the Proposed Action is provided in Table 2.8.1.

Table 2.8.1

<table>
<thead>
<tr>
<th>Issuing Agency</th>
<th>Permit Name/Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona Department of Environmental Quality</td>
<td>Water Discharge Requirements Application</td>
</tr>
<tr>
<td></td>
<td>Arizona Pollutant Discharge Elimination System (AZPDES) Stormwater Construction General Permit and Stormwater Pollution Prevention Plan (SWPPP) under Section 402 of the Clean Water Act (CWA) for construction activities</td>
</tr>
<tr>
<td></td>
<td>Compliance with AZPDES Multi-Sector General (MSG) Permit under Section 402 of the CWA for industrial activities</td>
</tr>
<tr>
<td>Maricopa County</td>
<td>Dust Control Permit for construction activities</td>
</tr>
<tr>
<td>U.S. Fish and Wildlife Services</td>
<td>Migratory Bird Treaty Act Special Purpose-Relocate Permit for the relocation of burrowing owls by a permitted rehabilitator, if needed</td>
</tr>
</tbody>
</table>

Endnotes


2 The Automated People Mover System (APM) was the name previously used to describe the Sky Train System. Reference to the APM is used when describing the 2006 EIS alternatives.


4 PHX Sky Train Stage 2 Program Update, Gannett Fleming, Inc., September 2014


6 A switchyard delivers generated power to power grid; voltage level is maintained.

7 A substation is a transformer which can step-up or step-down the voltage depending on the requirement.

8 A microgrid generator provides incremental peaking power to the electric grid during high-demand periods. Microgrid Knowledge, https://microgridknowledge.com/what-is-a-reciprocating-engine-generator/

9 The passenger processor portion of the terminal building is that portion where passenger ticketing, baggage claim, and security screening occur. The concourse is the portion of the terminal that contains the aircraft gates.
Chapter Three:
Affected Environment, Environmental Consequences, and Mitigation

3.1 Introduction

The potential for environmental effects resulting from implementation of the Proposed Action and No Action Alternatives are presented in this chapter. The analysis of potential effects on environmental resources includes a description of the regulatory background, analysis methodology, thresholds of significance, affected environment, potential construction and operational impacts, and mitigation measures (where applicable).

Environmental consequences were analyzed within the geographic area where the Alternatives would potentially cause impacts. This area is known as the Study Area. In this case, the Study Area is determined by the extent of the Proposed Action Alternative’s ground disturbance area and the immediate surroundings of this area. As illustrated in Figure 3.1-1, the Study Area encompasses the three non-contiguous Ground Disturbance Areas where the Proposed Action Alternative is located.

Analysis years were established for the existing conditions and forecast years to be used for applicable environmental analysis, including air quality, climate, and surface vehicular traffic analyses. The existing conditions (base year) for this EA is 2016. The forecast year is the first year of implementation (2021).

In accordance with guidance provided in FAA Orders 5050.4B, National Environmental Policy Act Implementing Instructions for Airport Actions, and 1050.1F, Environmental Impacts: Policies and Procedures, environmental resources not present within the Study Area would not be affected by the alternatives, and therefore are not discussed within this chapter. Table 3.1.1 presents the environmental resource categories that would not be affected by the No Action and Proposed Action Alternatives as well as the rationale for no further review of these categories.
### Table 3.1.1

#### Environmental Resources Categories Not Affected

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Resources</td>
<td>PHX is not located in a coastal zone nor is it in a state with an approved Coastal Zone Management Program (16 U.S.C. 1451-1464).</td>
</tr>
<tr>
<td>Farmlands</td>
<td>There are no prime or unique farmlands present in the Study Area.</td>
</tr>
<tr>
<td>Noise and Noise-Compatible Land Use</td>
<td>The Proposed Action would not affect the number or type of aircraft using PHX and there are no noise sensitive receptors in vicinity of the Proposed Action. The closest residential areas are over 0.5 miles north or west of Proposed Action sites, and are separated from any project area by high noise environments. Construction noise would be temporary and not expected to affect residential or other noise-sensitive areas, as it would be masked from noise generated from aircraft operations and the surrounding transportation corridors.</td>
</tr>
<tr>
<td>Wetlands (of Water Resources)</td>
<td>There are no known wetlands within the Study Area, nor are there areas of washes or other drainages where a jurisdictional delineation may be needed. The National Wetlands Inventory (NWI) Mapper includes two “wetlands” bordering the Airport, the Salt River to the south, and the Grand Canal to the northeast of the Airport, but both are outside of the Study Area (see Figure 3.12-1). The Proposed Action would include stormwater management to prevent indirect impacts to any downstream wetlands.</td>
</tr>
<tr>
<td>Floodplains (of Water Resources)</td>
<td>The Proposed Action Alternative is outside of the 100-year floodplain and is not on land adjacent to a floodplain. FEMA Flood Insurance Rate Maps (FIRM) (Panels 04013C2220L, 0413C2230L, and 0413C2240L) indicate the Salt River and an area northeast of the Grand Canal are within a 100-year floodplain, but both are located outside of the Study Area (see Figure 3.12-1).</td>
</tr>
<tr>
<td>Wild and Scenic Rivers (of Water Resources)</td>
<td>There are no Wild and Scenic Rivers in the Study Area.</td>
</tr>
</tbody>
</table>


The following environmental resources are assessed in this EA based on requirements in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*:

- Air Quality
- Biological Resources
- Climate
- Department of Transportation Act, Section 4(f)
- Hazardous Materials, Pollution Prevention, and Solid Waste
- Historical, Architectural, Archaeological, and Cultural Resources
- Land Use
- Natural Resources and Energy Supply
- Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks
- Visual Impacts (including Light Emissions)
- Water Resources
- Cumulative Impacts
3.2 Air Quality

Two sets of federal guidelines, or requirements, determine the need for, define the type(s) of, and establish the extent of an air quality assessment required for airport-related actions and projects. These include FAA Orders 1050.1F and 5050.4B, and the federal Clean Air Act (CAA) General Conformity Rule (40 CFR Parts 51 and 93).

Federal, state, and local governments all share responsibility for air quality management. The CAA is the primary statute that establishes national ambient air quality standards (NAAQS). It also establishes regulatory authorities to design and enforce air quality regulations.

NAAQS are established for a group of “criteria air pollutants” to protect public health, the environment, and the quality of life from the detrimental effects of air pollution. These NAAQS have been set for the following six pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM₂.₅), and sulfur dioxide (SO₂). The NAAQS primary standards are designed to protect human health while the secondary standards are designed to protect human welfare. O₃ a secondary pollutant, meaning that it forms in the atmosphere from reactions of precursor compounds under certain conditions. Primary precursor compounds that lead to formation of O₃ are volatile organic compounds (VOC) and nitrogen oxides (NOₓ).

Areas within the U.S. are designated with respect to the NAAQS as attainment, non-attainment, maintenance, or unclassifiable. An area with air quality better than the NAAQS is designated as attainment; an area with air quality worse than the NAAQS is designated as non-attainment. Non-attainment areas are further classified as extreme, severe, serious, moderate, and marginal by the degree of non-compliance with the NAAQS. Finally, areas that are reclassified from non-attainment to attainment are designated as maintenance. Appendix C, Air Quality, includes history on the attainment status for criteria pollutants in Maricopa County.

The CAA requires states with nonattainment or maintenance areas to develop, update and maintain a State Implementation Plan (SIP). Common features of a SIP include attainment timeframes or milestones, area-wide emissions inventories and budgets and control/mitigation strategies that are to be employed to achieve attainment. SIPs may be revised by the state with EPA approval.

The General Conformity Rule of the CAA prohibits federal agencies (including the FAA) from permitting or funding projects that do not conform to an applicable SIP. The General Conformity Rule applies only to areas that are designated “non-attainment” or “maintenance”. As a means of demonstrating conformity with the SIP, project-related emissions of the applicable “non-attainment/maintenance” pollutants are compared to de minimis level thresholds. If the emissions exceed the thresholds, a formal Conformity Determination is required to demonstrate that the action conforms to the applicable SIP. Conversely, if project-related emissions are below the de minimis levels the project is automatically assumed to conform to the SIP.
3.2.1 Methodology

An air quality assessment was conducted to estimate criteria pollutant emissions that would occur from the construction and operation of the Proposed Action Alternative. Annual emissions estimates were calculated using current EPA guidance for construction activities (AP-42) and EPA emissions models. Assumptions were based on information provided by the City, AP-42, or from the California Emissions Estimator Model (CalEEMod) default parameters. CalEEMod is a land use emissions computer model that estimates construction and operational emissions from a variety of land use projects in California.

Construction of the Proposed Action Alternative is anticipated to start in early 2018 and last for approximately 38 months. Default information from CalEEMod version 2016.3.1 was used to estimate the number of haul trips, and construction equipment types was based on information provided by Gannett Fleming in 2017. Construction equipment emissions were calculated using emission factors derived from the EPA Motor Vehicle Emission Simulator (MOVES2014a) released on October 7, 2014 (EPA, 2014).

Operational emissions were calculated based on traffic data provided by Kimley-Horn and Associates in 2017 based on outputs from their proprietary multimodal simulation platform, Advanced Land Transportation Performance Simulation (ALPS™), at PHX.

The difference between the Proposed Action Alternative and the No Action Alternative for each pollutant was used to determine applicability of general conformity. For more detailed information regarding the methodology used for the air quality conformity analysis, refer to Appendix C, Air Quality.

3.2.2 Thresholds of Significance

General conformity de minimis levels apply to the combined operational and construction annual emissions. If construction and operation occur in the same year, the emissions must be totaled before comparing to the de minimis threshold. For the purposes of this EA, the project would create an adverse effect if construction and/or operational emissions exceed the general conformity de minimis thresholds for pollutants in which the region is designated as nonattainment or maintenance. Table 3.2.1 summarizes the thresholds that are applicable to this project, along with the federal attainment status for each criteria pollutant in Maricopa County.

3.2.3 Affected Environment

PHX is in the Maricopa County portion of the Phoenix metropolitan area. The Maricopa County Air Quality Department monitors the ambient air, issues permits, and helps enforce compliance with the federal, state, and county rules and regulations.

Appendix C, Air Quality, includes additional information on air quality regulations and management in Maricopa County, including a summary of pollutant monitoring data (2014 through 2016) near PHX.
Table 3.2.1  
General Conformity *de minimis* Thresholds for Maricopa County

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Federal Attainment Status</th>
<th>De Minimis Threshold (tons per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>Attainment/Maintenance</td>
<td>100</td>
</tr>
<tr>
<td>O₃ (NOₓ)</td>
<td>Nonattainment, Marginal 8-hour O₃</td>
<td>100</td>
</tr>
<tr>
<td>O₃ (VOC)</td>
<td>Nonattainment, Marginal 8-hour O₃</td>
<td>100</td>
</tr>
<tr>
<td>Pb</td>
<td>Attainment</td>
<td>N/A</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>Nonattainment, Serious</td>
<td>70</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>Attainment</td>
<td>N/A</td>
</tr>
<tr>
<td>SO₂</td>
<td>Attainment</td>
<td>N/A</td>
</tr>
</tbody>
</table>


3.2.4 Environmental Consequences

3.2.4.1 No Action Alternative

Under the No Action Alternative, construction activities would not occur and therefore, there would be no impacts to air quality. As compared to the Proposed Action Alternative, the No Action Alternative is expected to result in greater operational emissions because there would be no reduction in shuttle activity, rental car buses and private automobiles using the roadways.

3.2.4.2 Proposed Action Alternative

Estimated annual emissions from construction and operation of the Proposed Action Alternative are presented below. If projected emissions resulting from the Proposed Action Alternative are below the general conformity *de minimis* levels, the project is assumed to conform to the SIP and would not result in adverse effects to the local air quality.

Operational emissions are the estimated change in vehicle operation, aircraft operation, electricity usage, and other fuel use because of the Proposed Action Alternative. The Proposed Action Alternative is expected to reduce vehicle miles traveled (VMT) due to the removal of courtesy shuttle activity, rental car buses, and a mode shift in private autos that would normally go to the terminal parking garages and to the terminal curb fronts, but now have the option of the WGTC and Sky Train. Furthermore, an increase in electricity demand is expected to operate the extended Sky Train. Aircraft operation and employee commute are not anticipated to change due to the Proposed Action Alternative.

Emission sources from construction include exhaust emissions from off-road construction equipment, haul and water trucks and construction worker vehicles; fugitive VOC emissions from paving and architectural coating; and fugitive dust emissions from grading, materials handling, bulldozing and vehicles traveling on paved and unpaved areas.

Table 3.2.2 summarizes the 2017, 2018, 2019 and 2020 construction emissions and 2021 operational emissions, compared to the *de minimis* thresholds. The 2021 operational emissions represent operational emissions of the Proposed Action Alternative minus operational emissions of the No Action Alternative. The negative emissions reflect the reduction in VMT of the future
Proposed Action Alternative compared to the future No Action. Emissions for all pollutants would be less than the general conformity \textit{de minimis} thresholds. Thus, a general conformity determination is not required. Therefore, no significant air quality impacts are expected from the Proposed Action Alternative and no mitigation would be required.

To minimize air quality effects, all construction activities must follow local rules and obtain any necessary permits. All construction equipment and vehicles should be properly maintained to reduce emissions. A Dust Control Plan may include measures to water unpaved areas being disturbed, broom cleaning, installation of a vehicle tracking pad to reduce track out, and wetting or application of a dust palliative to stockpiles of soil for dust control.

Table 3.2.2

<table>
<thead>
<tr>
<th>Year</th>
<th>CO</th>
<th>NO\textsubscript{x}</th>
<th>VOC</th>
<th>SO\textsubscript{2}</th>
<th>\textit{PM}\textsubscript{10}</th>
<th>\textit{PM}\textsubscript{2.5}</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018 – Construction</td>
<td>22.6</td>
<td>50.9</td>
<td>12.1</td>
<td>&lt;0.1</td>
<td>4.6</td>
<td>3.3</td>
</tr>
<tr>
<td>2019 – Construction</td>
<td>6.6</td>
<td>14.5</td>
<td>4.9</td>
<td>&lt;0.1</td>
<td>1.70</td>
<td>0.9</td>
</tr>
<tr>
<td>2020 – Construction</td>
<td>2.2</td>
<td>4.4</td>
<td>5.8</td>
<td>&lt;0.1</td>
<td>0.8</td>
<td>0.3</td>
</tr>
<tr>
<td>2021 – Operations\textsuperscript{2}</td>
<td>-12.2</td>
<td>-2.2</td>
<td>-0.8</td>
<td>-0.9</td>
<td>-4.4</td>
<td>-3.3</td>
</tr>
<tr>
<td>\textit{de minimis} Threshold</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>n/a</td>
<td>70</td>
<td>n/a</td>
</tr>
<tr>
<td>Exceed Threshold?</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>n/a</td>
<td>No</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Notes:
\textsuperscript{1} Although lead is a criteria pollutant, it was not evaluated because the proposed project would have no impacts on lead emissions. The only source of lead emissions from the PHX is from aviation gasoline; however, as the proposed project would not affect aircraft operations, aviation gasoline quantities would not be affected by the proposed project.

\textsuperscript{2} Emissions from 2021 represent operational emissions of the Proposed Action Alternative minus operational emissions of the No Action Alternative. Negative emissions reflect the reduction in VMT of the future Proposed Action Alternative compared to the future No Action Alternative.


3.3 Biological Resources

Federally-protected species include endangered, threatened, proposed, and candidate species protected by the Endangered Species Act of 1973 (16 United States Code [U.S.C.] 1531 et seq.). Under Section 7(a) of the Endangered Species Act, federal agencies are required to consult with the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (as appropriate) regarding federally-listed threatened or endangered species or their habitats in the proposed project area. Other federally protected species/habitat include migratory birds, protected by the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703–712), and bald eagles (\textit{Haliaeetus leucocephalus}) protected by the MBTA and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). At a state level, the Arizona Game and Fish Department (AZGFD) manages the protection of federally listed species and state species of concern, as protected under Arizona state law (ARS Title 17, Game and Fish).
3.3.1 Methodology

The City Aviation Department sent scoping letters to AZGFD and USFWS on November 2, 2016. No responses were received from either agency. An AZGFD Environmental Online Review Tool Report and a USFWS Information, Planning, and Conservation (IPaC) Report were generated to document the presence of any state or federally-listed threatened or endangered species as well as the presence of any critical habitats designated for those species.

3.3.2 Thresholds of Significance

Per FAA’s 1050.1F Exhibit 4-1, a significant impact to biological resources would occur when: “The U.S. Fish and Wildlife Service or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a Federally-listed threatened or endangered species, or would result in the destruction or adverse modification of federally-designated critical habitat.”

Additional factors for consideration listed in FAA’s 1050.1F Exhibit 4-1 when determining impacts to biological resources include (but are not limited to) situations in which the proposed action or alternative(s) would have the potential for:

- “A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport);
- Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats;
- Substantial loss, reduction, degradation, disturbance, or fragmentation of native species’ habitats or their populations; or
- Adverse impacts on a species’ reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.”

3.3.3 Affected Environment

The Study Area is entirely developed. A review of regulatory agency databases was conducted to determine the biological resources present in the Study Area. No biological survey was conducted as part of this EA.

The USFWS was consulted via their IPaC online system in April 2017. Through the IPaC, the USFWS provides a list of threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundaries of the Study Area. The report indicated a list of seven endangered and threatened species, and 30 migratory birds that may occur in the area. No critical habitats were identified in the Study Area. Table 3.3.1 lists the endangered and threatened species that may occur in the Study Area. Appendix D, Biological Resources, includes the IPaC Report.

An AZGFD Environmental Online Review Tool Report was also generated for the Study Area on April 12, 2017. The report indicated three “Special Status Species and Special Areas” are within three miles of the Study Area: bat colony, wintering Bald Eagle (*Haliaeetus leucocephalus*), and
the Common Chuckwalla (*Sauromalus ater*). Bald eagles are protected by the federal Bald and Golden Eagle Protection Act and under Arizona Revised Statutes (ARS) Title 17, which protects all of Arizona’s native wildlife. Bald eagles are known to use the Salt River near the Airport for foraging. The AZGFD Report also identified 57 “Species of Greatest Conservation Need” and three “Species of Economic and Recreational Importance” as potentially occurring within the vicinity of the Study Area. Appendix D, Biological Resources, includes the AZGFD Report.

Migratory bird species may be attracted to nearby sites such as the Rio Salado Habitat Restoration Area southwest of the Airport and the Tempe Town Lake east of the Airport. The City Aviation Department is required to address wildlife hazards to aircraft operations. The Aviation Department maintains a Wildlife Hazard Management Plan (WHMP) and deters wildlife from the Airport area.

The burrowing owl (*Athene cunicularia*) is listed by the USFWS as a National Bird of Conservation Concern, is protected under the MBTA and was listed in the IPaC report as a migratory bird that may occur in the Study Area year-round, and is listed by AZGFD as a “Species of Greatest Conservation Need” within the vicinity of the Study Area. The western burrowing owl has been observed at PHX in the past and has known habitat in the area of the RCC.

### Table 3.3.1

<table>
<thead>
<tr>
<th>Species</th>
<th>Scientific name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California Least Tern</td>
<td><em>Sterna antillarum browni</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>Southwestern Willow Flycatcher</td>
<td><em>Empidonax traillii extimus</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>Yellow-billed Cuckoo</td>
<td><em>Coccyzus americanus</em></td>
<td>Threatened</td>
</tr>
<tr>
<td>Yuma Clapper Rail</td>
<td><em>Rallus longirostris yumanensis</em></td>
<td>Endangered</td>
</tr>
<tr>
<td><strong>Fish</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roundtail Chub</td>
<td><em>Gila robusta</em></td>
<td>Proposed threatened</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesser Long-nosed Bat</td>
<td><em>Leptonycteris curasoae yerbabuenae</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>Sonoran Pronghorn</td>
<td><em>Antilocapra americana sonoriensis</em></td>
<td>Endangered</td>
</tr>
</tbody>
</table>


### 3.3.4 Environmental Consequences

#### 3.3.4.1 No Action Alternative

Under the No Action Alternative, construction activities would not occur and therefore, there would be no impacts to biological resources.

#### 3.3.4.2 Proposed Action Alternative

The Proposed Action Alternative is entirely within the developed Airport property and adjacent roadways. The USFWS IPaC Report and AZGFD Report identified potential protected species within the Study Area, but did not indicate any area of known critical habitat. No suitable habitat
for threatened and endangered species is known to occur in the Study Area, and no threatened and endangered species are known to be present. Therefore, threatened and endangered species would not be impacted by the Proposed Action Alternative. Additionally, the Proposed Action Alternative would not introduce new wildlife habitat. Proposed structures could potentially provide habitat for migratory birds. However, design would utilize measures to minimize wildlife attractants as identified in the Airport’s *Wildlife Hazard Management Plan*.

All construction areas would be inspected prior to construction of the Proposed Action Alternative to assure the absence of wildlife, particularly of protected species or active birds' nests, that could be impacted by construction activities. The western burrowing owl is protected under the MBTA and is listed by the USFWS as a National Bird of Conservation Concern and by AZGFD as a “Species of Greatest Conservation Need.” The burrowing owl has known habitat near the RCC, and therefore the Proposed Action Alternative has the potential to impact the burrowing owl during construction of the proposed RCC Sky Train Station. In coordination with AZGFD, a burrowing owl survey would be conducted in the vicinity of the RCC prior to the Sky Train construction. If the survey identifies the presence of burrowing owls, they would be relocated prior to construction of the RCC Sky Train Station.

The City maintains an MBTA Special Purpose-Relocate permit (MB93891A-0), which permits the City to use an approved wildlife rehabilitator to relocate burrowing owls that would otherwise be impacted by City construction activities. Wild At Heart, the wildlife rehabilitator specified in the City’s permit, would relocate all owls and collapse all active and inactive burrows within 100 feet of the construction zone prior to the start of construction. All activities would be conducted pursuant to the City’s Special Purpose permit. If an active burrowing owl burrow is discovered within 100 feet of the construction zone during construction, a 100-foot buffer zone would be established around the active burrow within which all heavy machinery and foot traffic would be excluded until the owls could be relocated by Wild At Heart.

Indirect impacts to biological resources could result from proposed lighting, noise, air emissions or changes to surface water caused by construction or operations. Construction measures would be implemented to limit indirect impacts to biological resources, including a Dust Control Plan, a construction stormwater pollution prevention plan (SWPPP), and best management practices (BMPs). Operational changes in lighting, noise and air emissions would be consistent with the Airport environment and would not indirectly impact biological resources.

### 3.4 Climate

Greenhouse gases (GHGs) are those that trap heat in the earth's atmosphere. Both naturally occurring and anthropogenic (man-made) GHGs include water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and O₃. All GHG inventories measure CO₂ emissions, but different GHGs may be included in some inventories. Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also GHGs but they are, for the most part, a product of industrial activities.

There are currently no federal standards for aviation-related GHG emissions.
3.4.1 Methodology

GHG emissions estimates that would occur from the construction and operation of the Proposed Action Alternative were included in the air quality conformity analysis. GHG emissions were estimated in conjunction with the criteria pollutant inventories using the same models and methods described in Section 3.2.1, Methodology. For more detailed information regarding the methodology used for the GHG emissions analysis, refer to Appendix C, Air Quality.

Non-CO₂ GHGs have global warming potential (GWP) factors that reflect the degree to which these pollutants affect climate change, as compared to CO₂. The product of each GHG emissions and its GWP is known as “carbon dioxide equivalent” (CO₂e). The value of GWPs is periodically modified by the Intergovernmental Panel on Climate Change (IPCC) as climate change science is refined. Although the IPCC has completed the Fifth Assessment Report, most mandatory and voluntary reporting registries require the use of the GWPs published in the Fourth Assessment Report (Forster et al., 2007); therefore, the GWPs from the Fourth Assessment Report (i.e. 25 for CH₄ and 298 for N₂O) were used in this analysis to maintain consistency with the international convention.

3.4.2 Thresholds of Significance

The FAA has not established a significance threshold for climate. Although there are no federal standards for aviation-related GHG emissions, it is well-established that GHG emissions can affect climate.³

3.4.3 Affected Environment

In 2006, the Arizona Climate Change Advisory Group completed the Arizona Climate Change Action Plan. The statewide GHG emissions inventory showed that the two largest sources of GHG in Arizona were transportation (39 percent) and electricity production (38 percent). The goal of the Climate Change Action Plan is to reduce statewide GHG emissions to 2000 levels by 2020 and 50 percent below 2000 levels by 2040. The plan identifies 49 actions to reduce GHG emissions from all sectors. Recommended actions for the transportation sector include promoting transit-oriented development and multi-modal transit and increasing the use of biodiesel fuel.

The City published a Climate Action Plan for government operations in October 2009. The City estimated that GHG emissions would increase 14 percent between 2005 and 2015. The City’s goal was to reduce GHG emissions from City operations to 5 percent below the 2005 levels by 2015. By 2012, the City achieved its goal with a 7.2 percent decrease from 2005 GHG emissions. In January 2014, City Council adopted a new goal to reduce GHG by 15 percent by 2015 compared to 2005 emission levels for City operations, which was met in 2015.⁴ Reduction measures developed by the City include energy efficiency projects, increasing renewable energy, use of alternative transportation fuels, travel reduction programs, the PHX Sky Train, improved methane recovery at landfills, and mulching and recycling programs. In 2015, PHX set a new goal to reduce greenhouse gas emissions from Airport facilities and fleet operations by 30 percent by 2030.⁵
In 2016, PHX was recognized as an accredited airport in the Airports Council International (ACI) Airport Carbon Accreditation program.\(^6\) PHX is certified at the “Reduction” level (Level 2) by program. The ‘Reduction’ certification acknowledges that an airport develops carbon footprint reports, provides evidence of effective carbon management procedures, and shows that reductions in targets have been achieved.\(^7\)

Additionally, the Aviation Department developed the Carbon Reduction Policy and Strategy in 2016, setting a goal of carbon neutrality in direct and indirect emissions under the control of the Airport by 2050.\(^8\) See Appendix C, Air Quality, for the Carbon Reduction Policy and Strategy.

### 3.4.4 Environmental Consequences

#### 3.4.4.1 No Action Alternative

Under the No Action Alternative, there would be no GHG emissions due to construction activities. As compared to the Proposed Action Alternative, the No Action Alternative is expected to result in greater operational emissions because there would be no reduction in shuttle activity, rental car buses and private automobiles using the roadways.

#### 3.4.4.2 Proposed Action Alternative

The Proposed Action Alternative would not affect the number or type of aircraft using PHX, which is the main contributor to GHG emissions. GHG emissions from the Proposed Action Alternative (construction and operational) are presented in Table 3.4.1. GHG construction emissions from the Proposed Action Alternative are estimated to be the highest in 2018. The 2018 construction emissions would comprise less than 0.00011 percent of U.S.-based GHG emissions and less than 0.00002 percent of global GHG emissions. The 2021 operational emissions represent a 0.0045 percent reduction of US-based GHG emissions as a result of the reduction in VMT of the Proposed Action Alternative compared to the No Action Alternative. This reduction in GHG emissions would be expected to occur on an annual basis.

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual GHG Emissions (MT CO(_2)e/year)(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CO(_2)</td>
</tr>
<tr>
<td>2018 – Construction</td>
<td>9,000</td>
</tr>
<tr>
<td>2019 – Construction</td>
<td>2,586</td>
</tr>
<tr>
<td>2020 – Construction</td>
<td>793</td>
</tr>
<tr>
<td>2021 – Operations(^1)</td>
<td>-69,052</td>
</tr>
</tbody>
</table>

**Notes:**

\(^1\) Emissions from 2021 represent operational emissions (passenger vehicles plus electricity) of the Proposed Action Alternative minus operational emissions of the No Action Alternative. Negative emissions reflect the reduction in VMT of the future Proposed Action Alternative compared to the future No Action Alternative.

**Source:** CDM analysis, 2017.
Because this project represents such a small amount of U.S. GHG emissions, and given the related uncertainties involving the assessment of such emissions regionally and globally, the incremental contribution of the Proposed Action Alternative to U.S. and global GHG emissions cannot be adequately assessed given the current state of the science and assessment methodology.

3.5  Department of Transportation Act, Section 4(f)

Section 303(c), Title 49 USC, commonly referred to as Section 4(f) of the Department of Transportation Act of 1966, states that the “…Secretary of Transportation will not approve a project that requires the use of any publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land from a historic site of national, state, or local significance as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land…and [unless] the project includes all possible planning to minimize harm resulting from the use.”

3.5.1 Methodology

The potential for the Proposed Action Alternative to result in a physical use, constructive use, visual impact or temporary occupancy of Section 4(f) properties was accessed. A physical use would result from a permanent or temporary taking of a Section 4(f) property, such as through purchase of land or alteration of property. A constructive use would result from an action that does not physically take a property, but impairs the attributes of a property that qualify it for protection under Section 4(f), such as impacts related to noise, air pollution or access restrictions.

3.5.2 Thresholds of Significance

FAA Order 1050.1F provides the FAA’s significance threshold for Section 4(f) properties as the following: “A significant impact would occur when: The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a “constructive use” based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource.”

3.5.3 Affected Environment

Public parks and recreation areas owned by the National Park Service (NPS), the City, or the County were identified within the Study Area through database searches, including NPS, City, and County GIS data. Historic resources were identified by reviewing the National Register of Historic Places (NHRP), Arizona Register of Historic Places, and the City Register of Historic Places. Field inventories were conducted in consultation with the Phoenix City Historic Preservation Officer, Phoenix City Archaeologist, and State Historic Preservation Officer (SHPO) in order to evaluate unrecorded historic-age buildings, structures, and objects.

Section 4(f) properties located within the Study Area, but outside the Ground Disturbance Area, include the following, as shown in Figure 3.5-1:

- *The Phoenix*, a three-panel mural by Paul Coze, is located in the T2 passenger processor building; and
The Sacred Heart Church, listed on the Phoenix Historic Property Register, is located west of the Airport between 16th Street and Sky Harbor Circle.

As described in further detail in Section 3.7.3.2, Archaeological Resources, the APE falls within the limits of six archaeological sites which have been previously determined eligible for inclusion in the NRHP under Criterion D: “Resources that have yielded, or may be likely to yield, information important in prehistory or history.” Much of the Airport property inside these archaeological NHRP-eligible sites within the APE has been cleared or mitigated by previous archaeological monitoring, testing, and/or data recovery projects.

There is potential to encounter archaeological features associated with AZ T:12:62 (ASM)/ Dutch Canal Ruin and AZ T:12:131 (ASM)/ Canal Patricio System during construction of the proposed GT staging area. In accordance with the Addendum Archaeological Treatment Plan (ATP), archaeological monitoring would be conducted for ground-disturbing activities within the proposed GT staging area. In accordance with the Addendum Archaeological Treatment Plan (ATP), archaeological monitoring would be conducted for ground-disturbing activities within the proposed GT staging area (see Appendix A, Cultural Resources and Section 106 Consultation). Archaeological testing was previously conducted in this area as part of a larger project, and any potential encounter of additional archaeological features would be important chiefly because of what can be learned by data recovery and thus does not warrant preservation in place. Therefore, Section 4(f) does not apply to AZ T:12:62 (ASM)/ Dutch Canal Ruin and AZ T:12:131 (ASM)/ Canal Patricio System.

A Phase I archaeological investigation in the uninvestigated areas of the APE resulted in the discovery of significant archaeological features (prehistoric canals) associated with AZ T:12:389 (ASM)/ Canal Salado System. Due to proposed demolition/construction activities associated with the Sky Chefs facility within the area where the canal features were discovered, the FAA, in consultation with the SHPO, has made a finding of “adverse effect” and determined that Phase II data recovery would be conducted to resolve adverse effect on AZ T:12:389 (ASM)/ Canal Salado System (see Appendix A, Cultural Resources and Section 106 Consultation). The determination to conduct data recovery to resolve adverse effect indicates that the archaeological site is important chiefly because of what can be learned by data recovery and thus does not warrant preservation in place. Therefore, Section 4(f) does not apply to AZ T:12:389 (ASM)/ Canal Salado System.
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3.5.4 Environmental Consequences

3.5.4.1 No Action Alternative

Under the No Action Alternative, construction activities would not occur and therefore, there would be no impacts to Section 4(f) properties.

3.5.4.2 Proposed Action Alternative

While the Proposed Action Alternative includes the demolition of the C and D gate areas of T2, *The Phoenix* mural located in the T2 processor building is outside the Ground Disturbance Area and would not be impacted by the Proposed Action Alternative. The T2 processor building will be demolished under a separate action and treatment of this Section 4(f) property as a result of that action was addressed in the 2006 FEIS and Memorandum of Agreement (MOA). As part of the 2006 FEIS, a MOA was executed by the FAA, Arizona SHPO, Bureau of Reclamation, Salt River Project, and the City regarding the ADP at PHX. The MOA specifies specific analysis and steps for stakeholder review and decision-making relative to the mural’s relocation. Prior to demolition of the T2 processor building, another NEPA review would be completed. The City will adhere to the in-place MOA stipulations regarding the mural relocation. The 2006 MOA is included in Appendix A, Cultural Resources and Section 106 Consultation. Additionally, the Proposed Action Alternative would not indirectly impact *The Phoenix* mural in a manner that impairs the features, activities or attributes of this Section 4(f) property. *The Phoenix* mural is contained within the T2 processor building and would be shielded from any potential noise and vibration impacts associated with the Proposed Action Alternative. The Proposed Action Alternative would not restrict access nor views to *The Phoenix* mural. Therefore, the Proposed Action Alternative would not result in a direct use or constructive use of *The Phoenix* mural.

The Sacred Heart Church is located within the Study Area, but outside the Ground Disturbance Area. There would be no land disturbance to the Sacred Heart Church. Access to the Sacred Heart Church would remain the same during and after construction of the Proposed Action Alternative. The Sacred Heart Church exists within an urban setting in the approach and departure path to Runway 8/26 and therefore no additional noise or vibrational changes are expected from the Proposed Action Alternative. The Proposed Action Alternative would blend into the urban skyline that includes I-10 and airfield activities that are presently part of the view from the Sacred Heart Church and the existing visual character of the Study Area. Therefore, the Proposed Action Alternative would not result in a direct use or constructive use of the Sacred Heart Church.

3.6 Hazardous Materials, Pollution Prevention, and Solid Waste

Federal legislation, enforced by the EPA, jointly regulates the release, handling and remediation of hazardous materials. The Resource Conservation and Recovery Act (RCRA) sets standards and practices regarding the generation and management of hazardous materials. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, or Superfund) allocates government funds and resources to ensure timely remediation of accidental or unintentional release of hazardous material and environmental contaminants.
At the state level, Arizona Administrative Code (A.A.C.) Title 18, *Hazardous Waste Management*, regulates hazardous waste in Arizona. ADEQ Waste Programs Division implements the federal and state hazardous waste regulations, and is responsible for permitting and inspecting solid waste facilities.

### 3.6.1 Methodology

The potential for the Proposed Action Alternative to impact known contaminated sites was accessed. The potential for the project to result in impacts related to the generation or disposal of solid wastes was evaluated. Pollution prevention measures are also identified. Refer to *Appendix E, Hazardous Materials*, for hazardous materials documentation on file with the FAA and the City.

### 3.6.2 Thresholds of Significance

The FAA has not established significance thresholds for hazardous materials, solid waste or pollution prevention. Instead, the FAA has identified factors to consider when evaluating impacts. These factors include assessing whether a project has the potential to:

- Violate applicable Federal, state, tribal or local laws or regulations regarding hazardous materials and/or solid waste management;
- Involve a contaminated site (including, but not limited to, a site listed on the NPL);
- Produce an appreciably different quantity or type of hazardous waste;
- Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal; or
- Adversely affect human health and the environment.

### 3.6.3 Affected Environment

There are no sites on the Airport property that are on or eligible for the National Priorities List (NPL), however the Study Area has a history of past contamination, discussed in *Section 3.6.3.1, Hazardous Materials*.

#### 3.6.3.1 Hazardous Materials

The Aviation Department maintains data on groundwater contamination associated with nearby CERCLA sites and tracks fuel plumes on Airport property. There are three CERCLA sites located within one mile of the Study Area, however no sites are within the Ground Disturbance Area. There are two active and two historic (closed) petroleum fuel plumes located on Airport property; all are within the Study Area and two (one active, one closed) are within the Ground Disturbance Area. **Figure 3.6-1** indicates the locations of the fuel plumes. **Table 3.6.1** summarizes the CERCLA sites and fuel plumes within and near the Study Area.
Phoenix Sky Harbor International Airport Sky Train Stage 2 Environmental Assessment

Figure 3.6-1 Hazardous Materials Sites

LEGEND
- Historic Free Product - Maximum Extent
- AFFC Plume Groundwater Wells
- Underground Storage Tank (UST) - Within or Adjacent to Ground Disturbance Area

Sources: USDA NAIP Aerial (2015), City of Phoenix
Final Environmental Assessment for PHX Sky Train Stage 2

Table 3.6.1
Hazardous Material Sites

<table>
<thead>
<tr>
<th>Site</th>
<th>Status</th>
<th>Proximity to Study Area / Ground Disturbance Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CERCLA Sites</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honeywell portion of the Motorola 52nd Street Site</td>
<td>Groundwater treatment began in the mid-1990s. In 1997, site remediation was placed under CERCLA with ADEQ as the lead agency. Chemical plume is approximately 80-100 feet below ground in the vicinity of the Airport. Honeywell to install two CERCLA monitor wells by September 2017 on the north side of PHX.</td>
<td>Within Study Area, north of Ground Disturbance Area.</td>
</tr>
<tr>
<td>161st Air National Guard Sky Harbor Airport Site¹</td>
<td>Installation Restoration Program site. June 2014 – the Air National Guard issued a decision of No Further Action (NFA) necessary at site.</td>
<td>Adjacent to Study Area, south of Runway 7R-25L.</td>
</tr>
<tr>
<td>Estes Landfill Site</td>
<td>ADEQ Superfund Water Quality Assurance Revolving Fund site, owned by the City. ADEQ issued a ROD in April 2017. The selected remedy is continued monitored natural attenuation, managed by ADEQ.</td>
<td>Southeast of Study Area, along Salt River.</td>
</tr>
<tr>
<td><strong>Fuel Plumes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honeywell 34th Street LUST Site</td>
<td>Honeywell has met requirements of a revised Corrective Action Plan and has requested closure from ADEQ. Remediation system still in place with the City to address the fuel plume which is 80-100 feet below ground.</td>
<td>Within Study Area, north of Ground Disturbance Area.</td>
</tr>
<tr>
<td>Arizona Fueling Facilities Corporation (AFFC) Plume</td>
<td>Jet-A liquid-phase hydrocarbon plume. Groundwater monitoring wells were closed by ADEQ in 2015 after receiving a No Further Action (NFA) finding. Vapor monitoring will continue.</td>
<td>AFFC wells and small portion of plume within Ground Disturbance Area.</td>
</tr>
<tr>
<td>West Sky Harbor Fuel Remediation Plume¹</td>
<td>Remediation was completed and ADEQ granted closure of the site in March 2015, and monitoring wells were decommissioned by June 2016.</td>
<td>Within Ground Disturbance Area along alignment</td>
</tr>
<tr>
<td>161st Air National Guard Plume¹</td>
<td>Remediation was completed and ADEQ signed the ROD in June 2014.</td>
<td>Adjacent to Study Area, south of Runway 7R-25L.</td>
</tr>
</tbody>
</table>

Note: ¹ Site is closed.

Source: Final Environmental Assessment, PHX Terminal 3 South Concourse Reconstruction, December 2016, and City of Phoenix, 2017.

The only sites located within the Ground Disturbance Area are the West Sky Harbor fuel remediation plume and the Arizona Fueling Facilities Corporation (AFFC) plume. The Sky Train alignment runs along the southern border of the historic West Sky Harbor fuel plume. This plume was remediated in March of 2015 and the monitoring wells in the vicinity were decommissioned in June 2016. Specifically, the soil boring data indicates no contamination is present at concentrations greater than Residential Soil Remediation Levels. Minor fuel vapors were observed within the former free-product footprint during the Summer 2017 geotechnical drilling at guideway locations. However, no concentrations greater than safety action levels were reported. Additionally, the soil vapor survey and modeling indicates no risk from any remaining West Sky Harbor contaminants in the soil.
The AFFC plume is located just north of the proposed Sky Train alignment. The AFFC plume has been closed under ADEQ regulations, however AFFC has not completed the requirements of the consent decree with the City. The remediation of the AFFC plume is currently in extended shutdown testing mode. No shallow vapor concentrations were greater than Vapor Action Levels during Summer 2017 monitoring. There are two AFFC groundwater monitoring wells present (AFFC-41 and AFFC-42) within the Ground Disturbance Area. Appendix E, Hazardous Materials, includes details on which AFFC monitoring wells were abandoned in 2016.

There are USTs and ASTs at the Airport. Within the Ground Disturbance Study Area, there are three active 10,000-gallon USTs located in the Facilities and Services Yard just north of the proposed Sky Train guideway alignment at 25th Place. These USTs are in compliance and are monitored by a real-time tank monitoring system and vapor monitor wells. While there are many USTs near the RCC, Hertz currently has a diesel fuel UST that was not properly closed, near Sky Harbor Circle between the RCC and Buckeye Road. ADEQ issued a notice of violation (NOV) for failure to correctly provide notice and follow requirements for a Temporary UST Closure. Hertz is evaluating options for Permanent UST Closure to be conducted in 2017.

The existing detention basin adjacent to the proposed 44th Street Microgrid Generator (Power Option B) contains registered dry wells to meet vector control and drainage requirements.

Additionally, the former Southwest Cooperative Wholesale facility, adjacent to the west of the proposed 44th Street Microgrid Generator (Power Option B), had a history of past contamination. The facility operated at the property from the mid-1950s to the late 1990s. Historical facility operations consisted of the storage and distribution of livestock feed and the blending and repackaging of bulk pesticides for area farming operations, although cattle dipping was reportedly not conducted at the property. The site has since been remediated with a Declaration of Environmental Use Restriction (DEUR) placed on the northwest portion of the property. This area cannot be disturbed without approval from ADEQ. In 2015, the 44th Street PHX Sky Train Parking Lot Expansion was constructed within the DEUR area. The DEUR area is outside of the Ground Disturbance Area of the proposed 44th Street Microgrid Generator (Power Option B) and retention pond modifications.

3.6.3.2 Solid Waste

In FY 2016/2017, the Airport generated 12,480 tons of municipal solid waste, including 4,607 tons of recyclables. The City’s Public Works Department collects or transports mixed recycling, glass, plastics, paper, tins, cardboard and some airline recycling, metal, green waste and pallets. Carpet, batteries, tires, oils and fuels are picked up and recycled by multiple vendors.

Solid waste from the Airport is transferred to the Butterfield Landfill in Mobile, Arizona, approximately 28 miles southeast of the Airport. The Butterfield Landfill is a Waste Management landfill, and is not owned by the City.

PHX established a Sustainability Management Plan which sets goals relative to various resources, including waste management and recycling. In 2014, the Airport set a goal of 40 percent landfill diversion by 2020. Primarily through recycling, the Airport was diverting
approximately 28.7 percent of waste from the landfill by Spring 2015. Additional near-term recommendations have been identified to further reduce waste and increase recycling.

### 3.6.3.3 Pollution Prevention

EPA is responsible for the enforcement of Spill Prevention Control and Countermeasures (SPCC) Plan requirements, which are intended to prevent oil spills from reaching navigable waters. The Airport maintains a SPCC Plan to address potential releases of oil, including prevention, controls and mitigation measures.

Stormwater from the Airport discharges south into the Salt River. The Airport established Rule and Regulation 01-02 Stormwater Pollution Prevention and Enforcement, which is intended to reduce, to the maximum extent practicable, the addition of pollutants to storm waters. These regulations and the Airport’s SWPPP are designed to prevent violations of the City's Arizona Pollutant Discharge Elimination System (AZPDES) Municipal Separate Storm Sewer System (MS4) permit and the AZPDES Multi-Sector General (MSG) permit. The MS4 permit requires the use of BMPs to meet water quality standards. The Airport has coverage under, and complies with, the AZPDES MSG permit for stormwater discharges associated with Sector S - Air Transportation industrial activity. Additionally, an AZPDES Construction Permit for stormwater discharges from construction sites is required by ADEQ for projects disturbing one or more acres of land.

### 3.6.4 Environmental Consequences

#### 3.6.4.1 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed. The use of hazardous materials and production of solid waste associated with construction activities would not occur. Any increase in use of hazardous materials or production in solid waste would be proportional to the growth in aircraft operations and would be the same as the Proposed Action Alternative. Therefore, there would be no significant impacts to hazardous materials or solid waste as a result of the No Action Alternative.

#### 3.6.4.2 Proposed Action Alternative

**Hazardous Materials**

Construction of the Proposed Action Alternative must consider impacts to existing contaminated sites. The three CERCLA sites located within the vicinity of the project area are not located within the Ground Disturbance Area. Therefore, the Proposed Action Alternative would have no impact on CERCLA sites.

The Sky Train alignment is located over the West Sky Harbor fuel plume; however this plume has been remediated. The monitoring wells in the vicinity were decommissioned in June 2016. Additionally, methane monitoring conducted 15 months after remediation system shutdown indicated the following:

- No measurable methane observations in shallow depths.
• Only a few locations had measurable methane observations at depths of 60-88 feet below land surface.

The AFFC plume is located just north of the Ground Disturbance Area. While the groundwater monitoring wells were closed in 2015, vapor monitoring of the site continues. Two AFFC groundwater monitoring wells that remain open are located within the Ground Disturbance Area near T2 (AFFC-41 and AFFC-42). The Proposed Action Alternative is not expected to impact the historic fuel plumes and any monitoring wells that have not been abandoned would be protected during construction activities.

Under the Proposed Action Alternative there would be no planned uses of any hazardous materials that would not comply with applicable state and federal regulations. Contractors would be required to store, label and dispose of hazardous substances in accordance with established regulations, and would be responsible for reporting any release of hazardous substances. The Aviation Department’s Hazardous Building Material Guide would be followed to avoid exposure to hazardous building materials such as asbestos and lead. Therefore, the Proposed Action Alternative would have no significant short or long-term, secondary, or cumulative impacts with regard to hazardous materials.

Construction of the 44th Street Microgrid Generator (Power Option B) would impact the existing 44th Street Sky Train Parking Lot retention pond, which contains registered drywells to meet vector control and drainage requirements to drain within 36 hours. If drywells would be removed, they would need to be sampled and a report of clean closure and drywell abandonment be provided to ADEQ to close to registration. If new drywells would need to be installed, they would need to be designed with an elevated inlet collar and registered with ADEQ. Additionally, the proposed 44th Street Microgrid Generator (Power Option B) would include ultra-low-sulfur diesel (ULSD) and engine oil tanks, and generators utilizing lead acid batteries and a lithium ion energy storage system. Steps must be taken to protect the existing drywells from impacts related to the storage of hazardous substances. ADEQ’s Aquifer Protection Permit (APP) is required for drywells that drain areas where hazardous substances are used, stored, loaded, or treated. The APP requires the use of BMPs, including proper engineering design, physical barriers, and procedural controls, to prevent hazardous substances from entering drywells. All ULSD tanks would be double walled, and generators would be placed on a containment pad. An APP Determination of Applicability can be requested from ADEQ to determine regulatory requirements for existing drywells.

The Aviation Department Planning and Environmental Division recommends that any occupied building projects associated with the Proposed Action Alternative install a chemical vapor barrier. This is recommended for the following reasons:

• The nearby ongoing MI52 CERCLA plume could move and cause vapor intrusion.

• Cost to conduct a Vapor Intrusion Study is more than the cost to install the chemical vapor barrier.

• Cost to install a vapor control system after construction is more than the cost to install the chemical vapor barrier at the time of construction.
Solid Waste

Users of the Proposed Action Alternative would likely generate solid waste in addition to waste that would be generated during the construction process. However, such waste would be small in comparison to the overall waste generated by airport activity. This waste can be accommodated in the Airport’s waste stream that goes to the Butterfield landfill. Solid waste would continue to be recycled to the extent practicable. Therefore, the Proposed Action Alternative would have no significant short or long-term, secondary, or cumulative impacts with regard to solid waste.

Pollution Prevention

While the Proposed Action Alternative would not substantially impact the fuel usage at PHX, as compared to the No Action Alternative, the fueling system would continue to be inspected and maintained in compliance with federal, state, and local laws and regulations. The Airports SPCC plan would be updated to include any new or relocated generators or changes to BMPs. The Airport SWPPP would also be updated to reflect operational changes in response to the Proposed Action Alternative. Stormwater management would be implemented and managed in accordance with the existing AZPDES MS4 Permit and MSG Permit Authorization to Discharge.

The Proposed Action Alternative would include installing dewatering wells. Contractors would obtain dewatering permits and file a Notice of Intent to drill with the Arizona Department of Water Resources (ADWR). If groundwater would be encountered during installation of wells or of guideway foundations, a well permit must be obtained from ADWR. An AZPDES De Minimis General Permit (DMGP) would be required to discharge groundwater to the storm drain system. Additionally, a construction SWPPP would be prepared to prevent contamination due to surface water runoff.

3.7 Historical, Architectural, Archaeological, and Cultural Resources

Standards for evaluating potential effects on historic resources are derived from the National Historic Preservation Act of 1966 (NHPA), as amended. These regulations define “effect” as “alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National register” (36 CFR 800.16). An “adverse effect” occurs “when an undertaking may alter, directly or indirectly, any of the characteristics of the historic property that qualify it for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association” (36 CFR 800.10).

The Advisory Council on Historic Preservation (ACHP), established by the NHPA in 1966, is an independent federal agency that “promotes the preservation, enhancement, and sustainable use of our nation’s historic resources.” ACHP regulations outline the Section 106 process in 36 CFR Part 800, Protection of Historic Properties, which requires Federal agencies to consider the effects of their actions on historic properties.
3.7.1 Methodology

As a means to identify potential impacts to historic, architectural, archaeological, and cultural resources, a number of activities were undertaken, including a literature review and record search, and review of reports from prior archaeological investigations within the Area of Potential Effects (APE). Additionally, as part of the identification of historic properties, the FAA sent letters to six local Native American Tribes in November and December 2016, as listed below. No responses were received from the Tribes.

- Tohono O'odham Nation
- Fort McDowell Yavapai Nation
- Yavapai-Prescott Indian Tribe
- Salt River Pima-Maricopa Indian Community
- Ak-Chin Indian Community
- Gila River Indian Community

In accordance with the 2006 MOA, an Archaeological Treatment Plan (ATP) was prepared to investigate areas within the APE that have not been previously investigated. The ATP was completed by Desert Archaeology, Inc. for the City in June 2017. The ATP proposed phased data recovery, including demolition monitoring, in areas of archaeological sites that have not previously been investigated. Arizona SHPO and Arizona State Museum (ASM) reviewed the ATP and provided their concurrence prior to the Phase I investigation. The Phase I archaeological investigation was conducted by Desert Archaeology, Inc. beginning on August 28, 2017 and ending on September 27, 2017. A Phase I end-of-fieldwork report was completed on October 6, 2017. The MOA, ATP and Phase I Report are included in Appendix A, Cultural Resources and Section 106 Consultation.

3.7.2 Thresholds of Significance

The FAA has not established a significance threshold for historical, architectural, archaeological, and cultural resources. However, FAA Order 1050.1F Exhibit 4-1 lists the following factor to consider when determining impacts: "The action would result in a finding of Adverse Effect through the Section 106 process. However, an adverse effect finding does not automatically trigger preparation of the EIS (i.e., a significant impact)."

3.7.3 Affected Environment

3.7.3.1 Area of Potential Effects

The characterization of cultural resources within the APE was conducted in early 2017. The APE encompasses approximately 299 acres, which includes the Sky Train alignment, proposed facilities and a buffer around the proposed locations, as shown in Figures 3.7-1 and 3.7-2. Figure 3.7-1 depicts the western APE, encompassing the proposed Sky Train extension and associated facilities. Figure 3.7-2 depicts the eastern APE, encompassing the proposed Sky Train maintenance facility expansion to the south, and the proposed APS microgrid generator site to
It should be noted that the APE includes two areas associated with power options that are no longer evaluated in the EA. The first area, within the western APE, extends west along Buckeye Road to 16th Street and north of the RCC to Buckeye Road. Initial planning included a power option to construct a regional APS substation near 16th Street that the Sky Train would tie into via Buckeye Road. In the long term, APS may still construct a 16th Street substation that the Airport would tie into, however the option has been ruled out as part of Sky Train Stage 2 Improvements, and is not evaluated in the EA. The second area, within the eastern APE, extends east from the proposed Sky Train maintenance facility expansion to the existing APS Hohokam substation. Initial planning included carrying forward a power option to construct a generator site and switchyard to tie into the existing Hohokam substation. This power option has since been eliminated from consideration and is not evaluated in the EA. See *Chapter 2, Section 2.5.3, Sky Train Stage 2 Power Options* for further details on the evaluation of power options.

### 3.7.3.2 Archaeological Resources

The APE falls within the limits of six archaeological sites: two sites are located within the eastern APE and four sites are located within the western APE.

The southern portion of the eastern APE falls outside the limits of any archaeological site, and therefore would have no effect on archaeological resources.

The northern portion of the eastern APE falls within the presently known limits of two archaeological sites: AZ U:9:28 (ASM), and AZ U:9:2 (ASM)/ Park of Four Water Canals. Both sites have been previously determined eligible for inclusion in the NRHP under Criterion D. However, the Airport property inside these NHRP-eligible sites has been previously mitigated through intensive data recovery efforts as part of past projects, and therefore this portion of the APE would have no effect on archaeological resources.

The western Sky Train Stage 2 APE extends across the presently known limits of four archaeological sites: AZ T:12:62 (ASM)/ Dutch Canal Ruin, AZ T:12:131 (ASM)/ Canal Patricio System, AZ T:12:47 (ASM)/ Pueblo Salado, and AZ T:12:389 (ASM)/ Canal Salado System. All four of the sites have been previously determined eligible for inclusion in the NRHP under Criterion D. Much of the Airport property inside these NHRP-eligible sites within the western APE has been cleared or mitigated by previous archaeological monitoring, testing, and/or data recovery projects; only two connected areas within Pueblo Salado remain uninvestigated. One area extends south from the northern boundary and buffer zone of Pueblo Salado to S. Sky Harbor Circle between I-10 and S. 24th Street; the other area is roughly circumscribed by the parking lot of the Sky Chefs facility on the western side of Copperhead Drive. Previous research indicates there is high potential for archaeological features to be present in these two uninvestigated portions of the APE. For this reason, the City developed an ATP and conducted a Phase I archaeological investigation in these portions of the APE in accordance with the in-place 2006 MOA.

The Phase I archaeological investigation involved trenching in the two areas of the APE that remain uninvestigated. No archaeological features were identified in trenches within the existing
Parking Office Lot, Fed Ex Lot or North Lot areas (between I-10 and 24th Street), or within the Materials Lot area (between old 23rd Street and 24th Street, west of the Sky Chefs Lot). However, significant archeological features (prehistoric canals) associated with the Canal Salado System were identified in the Sky Chefs Lot area. The Canal Salado System, AZ T:12:389 (ASM), is a site eligible for inclusion in the NRHP under Criterion D. See Appendix A, Cultural Resources and Section 106 Consultation, for additional information on the Phase I archeological investigation.

3.7.3.3 Historic/Architectural Resources

The Phoenix, a three-panel mural by Paul Coze, is located in the T2 passenger processor building. The mural was previously deemed as eligible for the NRHP under Criterion C: “Resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.” The mural is not part of the Proposed Action Alternative. The mural will be relocated as part of a future action and prior to the demolition of the T2 processor building, as a separate undertaking. The 2006 MOA addresses relocation of the mural in Stipulation 2. Paul Coze Mural, The Phoenix. Additionally, there are no historic-age buildings within the APE.
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Figure 3.7-1
Area of Potential Effects - West

Sources: USDA NAIP Aerial (2015), City of Phoenix

Proposed Action
1. Construct Sky Train
2. Construct Third-Level Platform for Sky Train Entrance
3. Construct West Ground Transportation Center (WGTC) with Surface Parking
4. Construct Parking Facility or Mixed-Use Facility
5. Roadway Improvements
6. Relocate Ground Transportation (GT) Staging Area
7. Construct Central Utility Plant for WGTC
8. Sky Train Maintenance Facility Expansion and Wash Facility
9. Construct Three Propulsion Facilities along Sky Train Alignment
10. Power Options (A and B)
11. Transfer of ROW for Utility Needs (See Appendix B for ROW Transfer Map)

Connected Actions
9. Adjust Roadway Lane Markings
10. Bridge 25th Place
11. Demo Parking Offices
12. Demo Bus Maintenance Facility
13. Demo Sky Chefs Building
14. Demo GT Rest Area
15. Demo C&D Gate Areas of Terminal 2
16. Construct Stormwater Management Basins
17. New APS Line
18. Modify 44th Street Drainage

Note: *Reviewed under separate EA.
Figure 3.7-2
Area of Potential Effects - East

Source: USDA NAIP Aerial (2015), City of Phoenix

Legend:
- Proposed Action
- Connected Action
- Airport Property Boundary
- Area of Potential Effects

Proposed Action
1. Construct Sky Train
2. Construct Third-Level Platform for Sky Train Entrance
3. Construct West Ground Transportation Center (WGTC) with Surface Parking
4. Construct Parking Facility or Mixed-Use Facility
5. Roadway Improvements
6. Relocate Ground Transportation (GT) Staging Area
7. Construct Central Utility Plant for WGTC
8. Sky Train Maintenance Facility Expansion and Wash Facility
9. Construct Three Propulsion Facilities along Sky Train Alignment
10. Power Options (A and B)
11. Transfer of ROW for Utility Needs (See Appendix B for ROW Transfer Map)

Connected Actions
9. Adjust Roadway Lane Markings
10. Bridge 25th Place
11. Demo Parking Offices
12. Demo Bus Maintenance Facility
13. Demo Sky Chefs Building
14. Demo GT Rest Area
15. Demo C&D Gate Areas of Terminal 2
16. Construct Stormwater Management Basins
17. New APS Line
18. Modify 44th Street Drainage

See Figure 3.7-1 for details.
3.7.4 Environmental Consequences

3.7.4.1 No Action Alternative

There would be no construction or ground disturbing activities under the No Action Alternative. Therefore, the No Action Alternative would not affect any historic properties.

3.7.4.2 Proposed Action Alternative

The proposed GT staging area is located within the limits of AZ T:12:62 (ASM)/ Dutch Canal Ruin, and portions of AZ T:12:131 (ASM)/ Canal Patricio System. While archaeological testing was previously conducted in this area as part of a larger project, there is potential for encountering additional archaeological features. Therefore, archaeological monitoring would be conducted for ground-disturbing activities within the proposed GT staging area.\(^\text{17}\)

The Phase I archaeological investigation resulted in the discovery of significant archaeological features (prehistoric canals) in the Sky Chefs Lot, associated with AZ T:12:389 (ASM)/ Canal Salado System, as described in Section 3.7.3.2, Archaeological Resources. The Proposed Action Alternative includes multiple project components within the site where canal features were discovered during the Phase I investigation. Project activities that would occur within AZ T:12:389 (ASM)/ Canal Salado System include the demolition of the Sky Chefs facility to accommodate the construction of a new surface parking lot, and associated drainage improvements.\(^\text{18}\)

As a result, the FAA made a finding of “adverse effect” for the Proposed Action Alternative in accordance with (36 CFR§ 800.5). The SHPO concurred with this finding on October 12, 2017 and concurred with the amended APE and effects on October 25, 2017 (see Appendix A, Cultural Resources and Section 106 Consultation). On October 13, 2017, FAA provided notification of adverse effect and requested the ACHP to participate in the Section 106 consultation. In a letter to the FAA on October 30, 2017, ACHP declined to participate in the Section 106 consultation (see Appendix A, Cultural Resources and Section 106 Consultation). To resolve adverse effect on AZ T:12:389 (ASM)/ Canal Salado System, prior to the implementation of the Proposed Action Alternative, the City would conduct Phase II data recovery associated with the Salado System in the Sky Chefs Lot in accordance with the prepared ATP. Therefore, the Proposed Action Alternative would not result in significant impact on historic properties.

3.7.4.3 Mitigation

Prior to the implementation of the Proposed Action Alternative, the City would conduct Phase II data recovery for AZ T:12:389 (ASM)/ Canal Salado System in the Sky Chefs Lot within the APE. Due to the potential for encountering additional archaeological features within AZ T:12:62 (ASM)/ Dutch Canal Ruin and portions of AZ T:12:131 (ASM)/ Canal Patricio System, the City would conduct archaeological monitoring for ground-disturbing activities within the proposed GT Staging Area. The Phase II data recovery and archaeological monitoring would be conducted in accordance with the ATP prepared for this undertaking.
3.8 Land Use

State and local land use plans, comprehensive plans, and zoning laws provide context for land use compatibility. Section 1506.2(b) of CEQ Regulations requires that NEPA documents discuss any inconsistency with approved state and/or local plan(s) and law(s) (whether or not Federally-sanctioned). Advisory Circular 150/5200-33, *Hazardous Wildlife Attractants on or Near Airports*, is also relevant to the evaluation of land use impacts.

3.8.1 Methodology

The Proposed Action Alternative was reviewed to determine its consistency with existing and future land use plans. Additionally, potential impacts in other resource categories were analyzed as they relate to land use, such as impacts related to socioeconomics, and the potential for the project to create habitat or increase wildlife attractants. The Proposed Action Alternative would not result in any changes to the number and type of aircraft using PHX, therefore there would be no land use impacts related to aircraft noise and aircraft noise is not analyzed.

3.8.2 Thresholds of Significance

There is no established threshold of significance for land use. While the proposed project should be consistent with land use plans, the determination of significance is typically related to the impact of other resource categories on land use.

3.8.3 Affected Environment

PHX is located within Maricopa County in the City, and Scottsdale and Tempe border the Airport to the east. The cities of Phoenix, Scottsdale, and Tempe and Maricopa County share zoning and planning authority over land use within their jurisdictions in the Airport environs. The zoning regulations and ordinances established in these communities provide guidelines to control land use in the respective jurisdictions.

3.8.3.1 Existing Land Use

*Figure 3.8-1* illustrates land use in the vicinity of the Study Area as included in the City’s *General Plan*. The majority of the Study Area is located within the Airport’s boundary, which is identified as Public/Quasi-Public or Industrial land use. The proposed Sky Train maintenance facility expansion is located on Airport property identified as Park/Open Space land use. Land use in the vicinity of the Study Area is mostly Industrial and Parks/Open Space.

3.8.3.2 Zoning

*Figure 3.8-2* illustrates zoning in the vicinity of the Study Area. The majority of the Study Area and adjacent areas are zoned Industrial. Areas zoned Commercial and Multi-Family Residential are located north and west of the Study Area. An area along the Runway 26 end, within Airport property, is zoned Multi-Family Residential and Commercial.
Figure 3.8-1
Existing Land Use

Sources: City of Phoenix GIS, City of Tempe GIS, Google Earth.
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Sky Train Stage 2 Environmental Assessment

Figure 3.8-2
Existing Zoning

LEGEND
- Study Area
- Ground Disturbance Area
- Airport Property Boundary
- City Boundary

CITY OF PHOENIX ZONING
- Commercial
- Downtown Code
- Industrial
- Multi-Family Residential
- Planned Unit Development
- Single Family Residential

CITY OF TEMPE ZONING
- Commercial Shopping and Services
- General Industrial District
- Multi-Family Residential General
- Multi-Family Residential Limited
- Multi-Family Residential Restricted
- Single Family Residential

Sources: City of Phoenix GIS, City of Tempe GIS, Google Earth
3.8.4 Environmental Consequences

3.8.4.1 No Action Alternative

Under the No Action Alternative, the Sky Train Stage 2 and associated facilities would not be constructed. The No Action Alternative would not involve construction activities that would result in noise or other direct impacts to adjacent and nearby land uses.

3.8.4.2 Proposed Action Alternative

The Proposed Action Alternative would occur almost entirely on Airport property, with the exception of the Sky Train crossing under I-10. The surrounding land uses and zoning are typically associated with airport operations and are primarily industrial or commercial in nature and there are no noise sensitive receptors in or proximate to the Study Area. Noise generated by construction equipment and vehicles would be temporary and localized in nature and would cease upon project completion. A copy of a land use assurance letter in compliance with 49 USC Section 47107(a)(10) of the Airport and Airway Improvement Act of 1982, as amended, is included in Appendix F, Sponsor's Land Use Assurance Letter.

Due to proximity to an airfield, the proposed improvements are subject to wildlife hazard restrictions. Additionally, the placement and type of stormwater management is restricted due to wildlife hazard considerations, discussed further in Section 3.12, Water Resources. The proposed improvements would not be located near or create a wildlife hazard as defined in FAA Advisory Circular (AC) 150/5200-33B, "Wildlife Hazards On and Near Airports." PHX’s WHMP was accepted by the FAA in February 2017.

The proposed stormwater detention facility for the south WGTC parking area would be located within the Runway 7L Runway Protection Zone (RPZ). FAA Memorandum, Interim Guidance on Land Uses Within A Runway Protection Zone, does not prohibit locating stormwater basins within the RPZ, provided that land use is designed in accordance with AC 150/5200-33B, Hazardous Wildlife Attractants On or Near Airports, and the Airports WHMP.

The Proposed Action Alternative includes the transfer of approximately 33.2 acres of ROW to public use easements from ADOT and the Phoenix Street Department to the City Aviation Department to accommodate local utility needs. See Appendix B, Right-of-Way Transfers and Power Options Comparison, for the preliminary ROW Transfer Map.

Therefore, no significant impacts related to land use are expected with the Proposed Action Alternative.

3.9 Natural Resources and Energy Supply

EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management, “instructs Federal agencies to advance the nation’s energy security and environmental performance by achieving specific goals."

The Energy Independence and Security Act (EISA) of 2007, “requires Federal agencies to take actions to move the United States toward greater energy independence and security, to increase
the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings, and vehicles, to promote research on and deploy greenhouse gas (GHG) capture and storage options, and to improve the energy performance of the Federal government.”


### 3.9.1 Methodology

When analyzing the potential impacts to natural resources and energy supply the following was considered: impacts to utilities servicing the area; capacity of water resources to support projects; fuel consumption; impacts to consumable materials, especially scarce or unusual materials; and state or local regulations.

### 3.9.2 Thresholds of Significance

There is no established threshold of significance for natural resource and energy supply impacts. However, FAA Order 1050.1F identifies a factor to consider when evaluating potential impacts: “situations in which the proposed action or alternative(s) would have the potential to cause demand to exceed available or future supplies of these resources.”

### 3.9.3 Affected Environment

#### 3.9.3.1 Natural Resources

Aerial photographs, a U.S. Geological Survey (USGS) map, and land use maps were used to determine if any natural sources of mineral or energy resources are located within the Study Area. Mining activities for sand, gravel, and crushed stone occur along the Salt River, located south of the Study Area; however, there are no known natural sources of mineral or energy resources within the Study Area.

Water resources, provided by the City Water Service, are used for airport related activities, irrigation, and potable water use. In 2016, water use at the City airport-owned and operated buildings and infrastructure totaled 387.1 million gallons.²⁰

#### 3.9.3.2 Energy Supply

The Airport’s electrical energy is supplied by APS. During 2016, electric use to support the City airport-owned and operated buildings and infrastructure totaled approximately 161 million kilowatt hours (kWh).²¹ The existing Sky Train system is powered by a 12.47kV switchyard near the 44th Street Sky Train Station, with a peak power consumption of 2.8MW.²²

PHX utilizes renewable and energy efficient technologies to reduce energy consumption and costs. The City has set a goal of 20 percent reduction in energy use at City facilities by 2020, as compared to 2009 usage.²³

There are no changes to the airfield or aircraft operations included in the Proposed Action Alternative, therefore there are no impacts associated with future aircraft fuel utilization.
3.9.4 Environmental Consequences

3.9.4.1 No Action Alternative

Under the No Action Alternative, construction activities would not occur. Therefore, the No Action Alternative would not use or impact natural resources and minerals that are unusual in nature or are in short supply.

3.9.4.2 Proposed Action Alternative

The Proposed Action Alternative would require the consumption of natural resources and energy to construct and operate. Energy in the form of electricity, gasoline, and diesel fuel would be consumed during construction of the Proposed Action Alternative. In addition, the City would use water, sand, and gravel in the construction process.

Although the current Sky Train system’s power supply retains sufficient capacity for Stage 2 development, the proposed Stage 2 facilities would increase required peak power from 2.8 MW to approximately 6 MW. The Proposed Action Alternative includes power options to provide redundant power to the Sky Train and for future Airport development. Power options include constructing a switchyard facility adjacent to the alignment along the I-10 corridor (Power Option A) or constructing an APS microgrid generator site to tie into the existing 44th Street switchyard (Power Option B). Both power options would be beneficial in accommodating voltage drops and feeding power to the Sky Train, in addition to providing power for future development.

In addition to these power options, the Proposed Action Alternative includes replacing the existing APS line which powers the FAA RT3 Antennae Site, Sky Chefs buildings, and surrounding facilities. The existing APS line would be demolished and a new APS line would be installed which utilizes updated equipment to maintain power and provide a “loop feed” for the FAA RT3 Antennae Site, Command Center/AEOC, Sky Chefs buildings and the AVN COB. The “loop feed” would be beneficial in the event of an outage, as it has the ability to provide for a manual switch to an alternative power source.

The Proposed Action Alternative would require the consumption of natural resources and energy supply during construction and operation. However, sufficient supply exists to meet the project demands and the use of natural resources in short supply is not anticipated. Therefore, the Proposed Action Alternative would not have a significant impact on natural resources or energy supply.

3.10 Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, requires federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations with the goal of achieving environmental protection for all communities.
Final Environmental Assessment for PHX Sky Train Stage 2

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, direct Federal agencies to analyze their policies, programs, activities, and standards for any environmental health or safety risks that may disproportionately affect children.

3.10.1 Methodology

3.10.1.1 Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks

The socioeconomic data gathered for the Study Area was evaluated to determine socioeconomic impacts; environmental justice impacts; and children’s environmental health and safety impacts. The demographics of the affected area were examined to establish a baseline of comparison for whether minority or low-income populations are present in the area and could be impacted by the Proposed Action Alternative. The potential for the Proposed Action Alternative to result in the relocation of residences or businesses, division of established communities, disruption of orderly planned development, or changes in employment was evaluated. Additionally, any actions resulting from the alternatives that could result in high or adverse human health or environmental impacts that would disproportionately impact minority or low-income population, or children’s health and safety, were also evaluated. See Appendix G, Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks, for the socioeconomic data gathered for the Study Area, including analysis of potential impacts related to environmental justice and children’s environmental health and safety risks.

3.10.1.2 Surface Transportation and Traffic

A traffic analysis was conducted to assess the impacts of the Proposed Action Alternative on the surrounding transportation system. The existing (2016) roadway geometric conditions and two future configurations at the Airport were modeled: 1) the RCC bus fleet remains in service (No Action Alternative); and 2) the PHX Sky Train is extended to the RCC with the bus fleet removed (Proposed Action Alternative). These comparative analyses were performed at forecasted future levels of passenger activity, in terms of Million Annual Passengers (MAP). See Appendix H, Traffic Impact Evaluation Memorandum for details on the assumptions and methodologies used in the traffic analysis model.

3.10.2 Thresholds of Significance

FAA Order 1050.1F provides factors to consider in determining whether the threshold of significance for socioeconomic impacts would be exceeded, including:

- Inducing substantial economic growth in an area;
- Disrupting or dividing an established community;
- Causing extensive relocation of residential or community business;
- Causing disproportionately high and adverse effects on minority and/or low-income populations;
- Disrupting local traffic patterns, including reducing the level of service of roads; and
- Producing a substantial change in the community tax base.
3.10.3 Affected Environment

3.10.3.1 Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks

PHX is located in the City which is part of Maricopa County, Arizona. Maricopa County is home to more than half of the state’s population in cities such as Phoenix, Mesa, Glendale, and Scottsdale. The Study Area falls within four Census tracts (CT): 1138.01, 1138.02, 1139, and 1172, as shown on Figure 3.10-1. See Appendix G, Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks, for U.S. Census data of the population, ethnic makeup, housing and income characteristics of the Study Area CTs, the City, Maricopa County and Arizona.

The populations reported in the CTs within the Study Area are not representative of the overall demographics of the City and Maricopa County. The U.S. census data shows a higher percent of minority persons and persons below the poverty level, and lower levels of per capita and median household income in the Census tracts, as compared to the City and County. Taking into account the relatively small populations in the Census tracts as compared to the City and County, there is a much larger margin of error for the income data in the Census tracts. Therefore, a comparison cannot accurately be made between the data sets.

There are no residential land uses, daycare centers, preschools or schools within the Study Area where children would be located. There are no known children’s environmental health and safety risks associated with the Proposed Action Alternative.

3.10.3.2 Surface Transportation and Traffic

The primary surface transportation access to PHX is from the east and west on Sky Harbor Boulevard. Major highways in the immediate vicinity of the Airport that feed Sky Harbor Boulevard include I-10 (to the west), I-17/US60 (to the South) and SR 143 (to the east).

Currently, air passengers that use a rental vehicle either pick up or drop off their rental vehicles at the RCC, located west of PHX. A bus fleet provides transportation to and from the terminal curbfronts to the RCC curbfront via a route that utilizes Sky Harbor Boulevard, Buckeye Road, 24th Street, and Sky Harbor Circle. See Figure 1 in Appendix H, Traffic Impact Evaluation Memorandum, for an illustration of the RCC bus routes.

During peak arrival periods, especially at Terminal 4, large numbers of pedestrians must cross the inner curbfront roadway to reach the outer curbfront island where the RCC bus picks up passengers. This heavy pedestrian activity results in significant vehicular congestion on the inner curbfront roadways while vehicles stop and await pedestrian crossings.

Additionally, ground transportation vehicles such as hotel shuttles, offsite parking shuttles, charter buses, and van service vehicles utilize Sky Harbor Boulevard to pick up and drop off passengers at each individual terminal. T2, T3, and Terminal 4 each have designated drop off and pick up areas for ground transportation vehicles.
3.10.4 Environmental Consequences

3.10.4.1 No Action Alternative

Under the No Action Alternative, the Sky Train Stage 2 construction would not occur and therefore there would be no impacts to existing socioeconomic, traffic, or public services, or minority and low-income populations. The RCC bus fleet would remain in service and continue to add to the vehicular congestion experienced at the terminal today.

3.10.4.2 Proposed Action Alternative

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

The Proposed Action Alternative is located almost entirely on Airport property and would not require the acquisition or displacement or residents or businesses, and therefore would have no direct effect on minority and low-income populations. There would be no disruptions to the adjacent communities resulting from the Proposed Action Alternative. There are no residential land uses, daycare centers, preschools or schools within the Study Area where children would be located. The nearest residential communities are located approximately 0.3 miles west of the RCC, and are surrounding by industrial and mixed-use land uses. The Proposed Action Alternative does not impact aircraft operations and would not result in an increase in noise over nearby neighborhoods or locations where children would be located. Therefore, the Proposed Action Alternative would not impact environmental justice communities or children’s environmental health and safety. The only direct effect associated with the Proposed Action Alternative would be temporary construction employment and expenditure in the local community. These impacts are expected to be beneficial, and the economic activity generated by the temporary construction activity can be absorbed within the existing community infrastructure.

Indirect impacts of the Proposed Action Alternative on minority and low-income populations were also considered relative to emissions, water, and surface transportation which are discussed in separate sections of the EA. The conclusions of the analyses indicate that there would not be any significant impacts on emissions, water, or surface transportation.

**Surface Transportation and Traffic**

The extension of the Sky Train to the RCC and the construction of the WGTC is expected to result in impact reductions as compared to the No Action Alternative. For the Proposed Action Alternative analysis, the future passenger level of activity is assumed to be 48 MAP, which corresponds with a future forecast year of 2021.24

With the Sky Train providing service to the RCC, the presence of the bus fleet on the roadway system and terminal curbfronts would be eliminated. This would include elimination of roundtrip travel between the terminals and the RCC, as well as elimination of vehicle idling at both the RCC and the terminals. **Table 3.10.1** summarizes the modeled daily RCC bus traffic counts of the No Action and Proposed Action Alternative. The need for pedestrians to cross the inner curbfront roadway to reach the RCC bus fleet is also eliminated, improving curbfront level of service during peak periods and reducing extended vehicular idling.
Figure 3.10-1
Census Tracts

LEGEND

Study Area
Ground Disturbance Area
Airport Property Boundary
Census Tract

Sources: U.S. Census Bureau GIS, Google Earth, ESRI
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Table 3.10.1
Modeled Daily RCC Bus Traffic Counts

<table>
<thead>
<tr>
<th>Bus Route</th>
<th>Daily RCC Bus Counts (48 MAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Action Alternative</td>
</tr>
<tr>
<td>Westbound on Sky Harbor Blvd to RCC</td>
<td>1,437</td>
</tr>
<tr>
<td>Eastbound on Sky Harbor to Terminals</td>
<td>1,421</td>
</tr>
</tbody>
</table>

Source: Memorandum: Traffic Impact Evaluation for PHX Sky Train Extension Air Quality Analysis, Kimley Horn, February 24, 2017 (See Appendix H of this EA).

With the construction of the WGTC, it is anticipated that the majority of ground transportation vehicles would be removed from direct terminal access and would instead pick up and drop off passengers at the new centralized WGTC that would be directly connected to the Sky Train platform. This would eliminate the need for vehicles to travel to each individual terminal, reducing travel distances and the need for recirculation around the terminals.

The Proposed Action Alternative would not have a significant impact on socioeconomic conditions, or minority or low-income populations, and would result in a beneficial impact to surface transportation and traffic.

3.11 Visual Impacts (including Light Emissions)

There are no Federal regulations for airport related light emissions or visual effects. However, there are special purpose laws and regulations which protect resources from visual impacts, including Section 106 of the National Historic Preservation Act, and Department of Transportation Act, Section 4(f), as discussed in the relevant sections of this EA.

3.11.1 Methodology

The potential light emissions and visual impacts of the Proposed Action Alternative were determined by evaluating the existing land uses in the vicinity of the Study Area to determine current airport light sources (i.e., parking lots, roadways, etc.), and assess future light sources from the Proposed Action Alternative.

3.11.2 Thresholds of Significance

There is no established threshold of significance for visual effects. However, FAA Order 1050.1F provides factors to consider in determining whether the threshold of significance for visual effects would be exceeded.

3.11.2.1 Light Emissions

An action may be considered significant if light emissions would create significant annoyance or interference with normal activities; or if light emissions affect the visual character of an area (i.e. importance, uniqueness, aesthetic value).
3.11.2.2 Visual Resources and Visual Character

An action may be considered significant if it would affect the nature of the visual character of an area; contrast with visual resources or character in the study area; or block or obstruct the views of visual resources.

3.11.3 Affected Environment

The Study Area is entirely developed and is surrounded by urban landscape. Light emission sources in the Study Area include those generated from airport facilities, including terminals, support buildings, parking structures and airfield lighting. In addition, the Study Area is encircled by major highways, interstates, and other local roads illuminated by streetlights. There are no light sensitive areas located within the Study Area.

3.11.4 Environmental Consequences

3.11.4.1 No Action Alternative

Under the No Action Alternative, no proposed construction would occur and therefore there would be no changes to light emissions or the visual character of the Study Area.

3.11.4.2 Proposed Action Alternative

Light Emissions

Light emissions in the Study Area come from airport facilities, including terminals, support buildings, parking structures and airfield lighting, from street lights, and from lights associated with the 44th Street PHX Sky Train Station. Light emissions in the Study Area are expected to remain similar to current conditions.

The Proposed Action Alternative would include additional lighting around proposed structures, roadways and along the Sky Train alignment. As the adjacent land uses are commercial and industrial in nature, there would be no significant light emission impacts associated with the Proposed Action Alternative.

Visual Resources and Visual Character

The immediate vicinity of PHX and the Study Area consists of commercial and industrial land uses. Park/open space is located south and east of the Study Area, but is within Airport property. Design of the Proposed Action Alternative would be consistent with the design of the existing Sky Train, and structures and parking areas at the Airport. The Proposed Action Alternative would be visually consistent and compatible with the Airport environment and with the land uses in the immediate vicinity. Therefore, the Proposed Action Alternative would not create significant visual impacts.

As described in Section 3.5.4.2, the Proposed Action Alternative would not change the existing visual character of the Study Area and therefore would not result in a visual impact to Section 4(f) resources or historic resources within the Study Area, including The Phoenix mural (located within the T2 processor building) and the Sacred Heart Church.
There would be temporary views of construction equipment and personnel around the Proposed Action Alternative project sites, however, these views would be of relatively short duration and upon completion of construction the equipment and personnel would be removed from the site. Therefore, construction of the Proposed Action Alternative would not create significant visual impacts.

3.12 Water Resources

For purposes of this EA, water quality standards include adherence to provisions of the federal Clean Water Act (CWA). The CWA promulgates the establishment of water quality standards, the control of discharges, the development of waste treatment management plans and practices, and the prevention or minimization of the loss of wetlands.

Section 401 of the CWA authorizes states to issue State Water Quality Certification for projects requiring federal permits that may result in discharges to waters of the US. By issuing 401 Certification, ADEQ ensures that projects meet state water quality standards and comply with applicable water quality improvement plans. Section 404 of the CWA (33 U.S.C. 1344) regulates proposed discharges of dredged or fill materials into waters of the US, including jurisdictional wetlands.

3.12.1 Methodology

3.12.1.1 Surface Waters

Federal and state regulations on water resources were reviewed for the analysis of potential water quality impacts. The applicable statutes establish water quality standards, control discharges and pollution sources, protect drinking water systems, and protect aquifers and other sensitive ecological areas.

3.12.1.2 Groundwater

Impacts to groundwater at airports are largely associated with fuel spills/leaks and the potential vertical migration or exfiltration of aircraft deicing fluids. Because the Proposed Action Alternative would not involve changes in aircraft operations, the Proposed Action Alternative was reviewed regarding its potential to impact known hazardous material and/or soil contamination sites.

3.12.2 Thresholds of Significance

FAA Order 1050.1F defines thresholds of significance for the following water resource impact categories.

3.12.2.1 Surface Waters

A significant impact would occur to surface waters if an action would “exceed water quality standards established by Federal, state, local, and tribal regulatory agencies; or contaminate public drinking water supply such that public health may be adversely affected.”
3.12.2.2 Groundwater

A significant impact would occur to groundwater if an action would “exceed groundwater quality standards established by Federal, state, local, and tribal regulatory agencies; or contaminate an aquifer used for public water supply such that public health may be adversely affected.”

3.12.3 Affected Environment

3.12.3.1 Surface Waters

The Airport lies within the watershed of the intermittent lower Salt River, which is itself within the larger Gila River watershed. The Salt River is primarily dry in the vicinity of the Airport, and mainly flows in response to large precipitation events and flow-through from Tempe Town Lake approximately 3 miles upstream. All surface water runoff and ground to surface water discharge associated with Airport operations, as well as adjacent properties, drain to the Salt River except where detention basins are in place. Figure 3.12-1 illustrates surface waters, wetlands and 100-year floodplains in the vicinity of the Airport. See Appendix I, Water Resources, for wetland and floodplain mapping.

The Phoenix City Council has adopted stormwater management regulations that apply to all public storm drain systems as defined in Chapter 32C of the Phoenix City Code. The Airport also has Rule and Regulation 01-02 Stormwater Pollution Prevention and Enforcement rules. These regulations are intended to reduce, to the maximum extent practicable, the addition of pollutants to storm waters. These regulations and the Airport’s SWPPP are designed to prevent violations of the City’s AZPDES MS4 Permit and AZPDES MSG Permit.

3.12.3.2 Groundwater

PHX is located in the southeastern portion of the West Salt River Valley area of the Phoenix metropolitan area. The West Salt River Valley Area contains crystalline rocks of mountain ranges and basement beneath alluvial-filled basins. The basement forms a relatively impermeable barrier to groundwater flow. The primary sources of ground water are the Middle Unit and the upper interval of the Lower Unit. Groundwater is present in the Upper Unit in areas near the margins of the West Salt River Valley area. The Upper Unit is an important interval for the transmittal of water from major surface drainages to the level of ground water during periods of flood flow.

The regional aquifer near the Airport has been reported to be approximately 70 to 95 feet below ground surface (bgs). Ground water wells at the Airport identified the depth of the ground water was about 90 feet bgs, with flow to the west. During periods of flow in the Salt River, the ground water flow direction trends to the northwest. When the Salt River is dry, the ground water flow direction trends more to the west.
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3.12.4 Environmental Consequences

3.12.4.1 No Action Alternative

Under the No Action Alternative, the Sky Train Stage 2 would not be constructed. The No Action Alternative would not involve any activities that would result in impacts to water resources in the Study Area.

3.12.4.2 Proposed Action Alternative

Surface Waters

Any additional impervious surface would generate stormwater runoff that would require detention subject to the City stormwater detention requirements. Because the Proposed Action Alternative has not been subject to engineering and design, a detailed detention plan is not available. However, stormwater management basins are included as part of the Proposed Action Alternative to treat the WGTC south surface parking lot area.

Construction of the 44th Street Microgrid Generator (Power Option B) would impact the existing 44th Street Sky Train Parking Lot retention pond. The pond is located east of the existing parking lot and Aviation switchboard. The construction of the proposed generator site would result in a smaller footprint for the existing stormwater retention pond. Additional stormwater controls would have to be designed to meet City requirements. The existing retention pond also contains registered dry wells to meet vector control and drainage requirements to drain within 36 hours. If new drywells would need to be installed, they would need to be designed with an elevated inlet collar and registered with ADEQ. Additionally, an APP Determination of Applicability may be required given the proximity of the proposed microgrid generator, and fuel storage and delivery.

The Airport operates under the City’s stormwater discharge permit in accordance with the AZPDES MSG Permit. Best Management Practices (BMPs) would be used to ensure compliance with the AZPDES MS4 Permit. Because project activities are expected to exceed 1 acre, an AZPDES Construction General Permit would be required and an associated construction SWPPP would be developed for the Proposed Action Alternative that would describe the measures to be implemented during construction to prevent the discharge of sediments and other pollutants to the storm drain system or surface waters.

The proposed improvements, including proposed stormwater detention facilities, would not be located near or create a wildlife hazard as defined in FAA AC 150/5200-33B, "Wildlife Hazards On and Near Airports." The AC warns against the creation of any open water within 10,000 feet of aircraft movement areas or within five miles of approach or departure surfaces. In accordance with the AC, “Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48-hour detention period after the design storm and remain completely dry between storms.”

Groundwater

While the majority of the Proposed Action Alternative is located on previously developed land, the Proposed Action Alternative would likely result in an increase of impervious surfaces.
addition of impervious surface would decrease the amount of rainfall infiltrating the soil and increase stormwater runoff flow rates and volumes, subject to stormwater detention requirements. BMPs would be utilized during construction of the Proposed Action Alternative to prevent the introduction of contaminants to the groundwater supply.

Project designs would adhere to ADEQ and City requirements for stormwater treatment and control, and all necessary permits would be acquired. Therefore, the Proposed Action Alternative would not result in significant impacts to water resources.

3.13 Cumulative Impacts

The regulations implementing NEPA require an assessment of cumulative impacts in the decision-making process. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7).

Cumulative impacts were determined by combining the impacts of the Proposed Action Alternative with other past, present, and reasonably foreseeable future actions.

3.13.1 Past, Present, and Future Projects

When considering cumulative impacts, it is important to identify the major forces that affect the consideration of past and present conditions as well as future projects. For purposes of this EA, the past, present and future actions/projects that are being considered are included in Table 3.13.1, which presents the potential cumulative impacts of these projects when combined with the Proposed Action Alternative. These projects include any past, present or reasonably foreseeable future actions which have occurred or may occur within or in the vicinity of the Study Area. The Study Area for cumulative impacts varies based on the environmental resource analyzed, and is proportionate with the potential for significant impacts to that resource. Past actions include any projects that have occurred within the past five years (2011-2016) and future actions include projects that may occur in the next five years (2018-2023).
### Table 3.13.1

**Past, Present and Reasonably Foreseeable Future Actions**

<table>
<thead>
<tr>
<th>Project</th>
<th>Timeframe</th>
<th>Past 2011-2016</th>
<th>Present 2017</th>
<th>Future 2018-2023</th>
<th>Potential Environmental Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound insulation mitigation services, and voluntary acquisition and relocation services</td>
<td>2002-2016</td>
<td>X</td>
<td></td>
<td></td>
<td>Reduction in noise impacts</td>
</tr>
<tr>
<td>Continued voluntary land acquisition to increase the Airport land buffer.</td>
<td>2012-ongoing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Establishment of a buffer along the north side of the Airport; reduction in existing small businesses and increase in other business activities; environmental effects of future development would depend on future development</td>
</tr>
<tr>
<td>Acquisition of the former Southwest Cooperative Wholesale Property and subsequent clean-up of hazardous materials</td>
<td>2013</td>
<td>X</td>
<td></td>
<td></td>
<td>Reduction in hazardous materials in the Airport environs</td>
</tr>
<tr>
<td>PHX Sky Train, Phase 1 – Complete PHX Sky Train System from 44th Street and Washington Street to Terminal 4</td>
<td>2013</td>
<td>X</td>
<td></td>
<td></td>
<td>Reduced vehicular travel, archaeological sites identified</td>
</tr>
<tr>
<td>Non-residential sound insulation and mitigation services (community centers and schools)</td>
<td>2013-2014</td>
<td>X</td>
<td></td>
<td></td>
<td>Enhanced compatible land use</td>
</tr>
<tr>
<td>PHX International Facility Improvements in Terminal 4</td>
<td>2013-2018</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Construction impacts, reduced Airport congestion</td>
</tr>
<tr>
<td>PHX Sky Train, Stage 1A – construct segment form Terminal 4 to Terminal 3</td>
<td>2014</td>
<td>X</td>
<td></td>
<td></td>
<td>Reduced vehicular traffic</td>
</tr>
<tr>
<td>44th Street Employee Parking Lot</td>
<td>2014</td>
<td>X</td>
<td></td>
<td></td>
<td>Reduced vehicular travel</td>
</tr>
<tr>
<td>Relocated Aviation Department offices in a new office campus</td>
<td>2015-2016</td>
<td>X</td>
<td></td>
<td></td>
<td>Construction impacts</td>
</tr>
</tbody>
</table>
### Table 3.13.1

**Past, Present and Reasonably Foreseeable Future Actions**

<table>
<thead>
<tr>
<th>Project</th>
<th>Timeframe</th>
<th>Past 2011-2016</th>
<th>Present 2017</th>
<th>Future 2018-2023</th>
<th>Potential Environmental Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvements to I-10 (corridor improvements)</td>
<td>2015-future</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Additional impervious surface; reductions in surface vehicle congestion</td>
</tr>
<tr>
<td>PHX Command Center at Copperhead Drive and old 24th Street alignment</td>
<td>2016</td>
<td></td>
<td>X</td>
<td></td>
<td>Construction impacts, Additional impervious surface</td>
</tr>
<tr>
<td>Salt River Path Project – pathway from 32nd to 44th Street along south bank of the River</td>
<td>2016-2017</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Additional impervious surface, beneficial land use and pedestrian connectivity</td>
</tr>
<tr>
<td>Terminal 3 Modernization Project (T3 Processor Enhancements, South Concourse Reconstruction, and North Concourse Enhancements)</td>
<td>2017</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Construction impacts, reduced Airport congestion</td>
</tr>
<tr>
<td>8-Gate Concourse Expansion to Terminal 4</td>
<td>TBD</td>
<td></td>
<td>X</td>
<td></td>
<td>Reduced Airport congestion</td>
</tr>
<tr>
<td>Terminal 2 Processor Demolition</td>
<td>2020</td>
<td></td>
<td>X</td>
<td></td>
<td>Construction impacts, historic/Section 4(f) impacts</td>
</tr>
<tr>
<td>Terminal 4 North Apron Rehabilitation</td>
<td>ongoing - 2022</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Construction impacts</td>
</tr>
<tr>
<td>Runway 8/26 Rehabilitation</td>
<td>ongoing - 2018</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Construction impacts</td>
</tr>
<tr>
<td>T3 South Apron Rehabilitation</td>
<td>ongoing - 2019</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Construction impacts</td>
</tr>
</tbody>
</table>

Source: City of Phoenix Aviation Department, and City of Phoenix Capital Improvement Program, 2016-2021.
3.13.2 Resource Categories

Environmental resource categories appropriate for analysis for cumulative impacts are addressed in this section. The categories included were identified for cumulative impact analysis because of potential impacts identified under the Proposed Action Alternative that are discussed individually within this chapter.

There are no anticipated operational impacts associated with the Proposed Action Alternative, with the exception of the beneficial impacts related to the extension of the Sky Train. Therefore, cumulative impacts are generally associated with construction-related impacts from other projects occurring within the Proposed Action Alternative construction period (2018-2020).

Airport and regional projects that might occur in this timeframe include the following:

- T4 International Facility Improvements;
- T3 Modernization;
- I-10 Corridor Improvements;
- T2 Processor Demolition;
- T4 Expansion;
- T4 North Apron Rehabilitation;
- Runway 8/26 Rehabilitation;
- T3 South Apron Rehabilitation; and
- Other general regional urbanization.

**Air Quality:** A significant impact to air quality could occur if the Proposed Action Alternative, when considered in combination with other past, present, or reasonably foreseeable actions, would exceed a NAAQS or would not conform to the State Implementation Plan. As discussed in Section 3.2, Air Quality, the Proposed Action Alternative is expected to result in construction emissions associated with the use of heavy equipment and heavy trucks required to haul materials to the site. Peak-year construction emissions for each pollutant would be less than the *de minimis* threshold. No significant regional projects are known to exist that, in combination with the construction emissions from the Proposed Action Alternative, would generate emissions above the *de minimis* threshold for the individual pollutants discussed in Section 3.2, Air Quality. Therefore, significant cumulative construction emissions are not anticipated. See the Air Quality Analysis in Appendix C for a discussion of cumulative air quality effects.

Once the Proposed Action Alternative is constructed, vehicular trips from the RCC to the Terminal curbf fronts are expected to decrease and thus emissions away from the Airport area would not produce significant impacts in combination with other regional activity. See the Air Quality Analysis in Appendix C for a discussion of cumulative air quality effects.

**Biological Resources:** As discussed in Section 3.3.4, the Proposed Action Alternative is almost entirely within developed Airport property and would not impact any known area of critical habitat. Additionally, the Airport utilizes measures to minimize wildlife attractants and BMPs would be
utilized during construction to limit indirect impacts to biological resources. Therefore, the Proposed Action Alternative would not cumulatively contribute to a significant impact on biological resources.

**Department of Transportation Act, Section 4(f):** The Phoenix mural is located within T2 in the Study Area; however the Proposed Action Alternative would not impact this Section 4(f) property. T2 is proposed to be demolished as part of a future project, and the mural would be relocated in accordance with the MOA, discussed in Section 3.5.4. Archaeological monitoring would be conducted for ground-disturbing activities in the proposed GT staging area associated with AZ T:12:62 (ASM)/ Dutch Canal Ruin and AZ T:12:131 (ASM)/ Canal Patricio System. Adverse effects on archaeological resources associated with AZ T:12:389 (ASM)/ Canal Salado System in the Sky Chefs Lot would be mitigated through Phase II data recovery prior to construction. The determination to conduct archaeological monitoring and data recovery to resolve adverse effect indicates that the archaeological sites are important chiefly because of what can be learned by data recovery and thus do not warrant preservation in place. Therefore, Section 4(f) does not apply, and there would be no significant cumulative impacts to Section 4(f) properties.

**Hazardous Materials, Pollution Prevention, and Solid Waste:** The Proposed Action Alternative and all other past, present and future projects would be constructed and operated in accordance with all federal and state hazardous laws and regulations. The operation of the Proposed Action Alternative would not result in an increase in the generation of solid waste as compared to the No Action. Pollution prevention techniques would be utilized to address all construction and operational activities of the Proposed Action Alternative. Therefore, the Proposed Action Alternative would not cumulatively contribute to a significant impact to hazardous materials or solid waste.

**Historic, Architectural, Archaeological and Cultural Resources:** Proposed Action Alternative project activities located with the uninvestigated area of the Canal Salado System would not be constructed until Phase II data recovery has been completed to mitigate any adverse effects. Additionally, the City would conduct archaeological monitoring for ground-disturbing activities within the proposed GT Staging Area. In adhering to the 2006 MOA, there would be no significant cumulative impacts to archaeological resources.

**Land Use:** The Proposed Action Alternative and all other past, present, and future projects are in compliance with the City and adjacent cities designations of land use, and therefore no cumulative impacts on land use would occur.

**Natural Resources and Energy Supply:** Significant cumulative impacts to natural resources or energy would occur if there were not adequate supply available to meet all regional needs. As noted in Section 4.8, **Natural Resources and Energy Supply** the Proposed Action Alternative would result in demand for natural resources to construct the Proposed Action Alternative, as well as in operation. However, the demand when considered in combination with other projects can be met with the available supply. Therefore, there would be no significant cumulative impacts to natural resources and energy supply.
**Noise:** The Proposed Action Alternative would include temporary construction-related noise impacts associated with an assortment of construction equipment including the use of heavy trucks required to haul materials to the site. As used in FHWA's Roadway Construction Noise Model, Table 3.13.2 indicates noise levels at 50 feet from various types of construction equipment likely to be used for the Proposed Action Alternative. The closest noise sensitive receptors include the Pueblo Grande Museum, located approximately 1,100-feet east of the proposed 44th Street drainage basin modifications, and residential properties, located approximately 2,400-feet west of the proposed RCC Sky Train Station. Given that the closest noise sensitive receptor is located over 1,000 feet from proposed construction sites, construction noise would not generate a significant noise impact at these locations. During construction, various noise levels would combine with aircraft noise and surface transportation noise. These levels would be limited to the duration of the construction period (approximately 38 months, including 12 months of operational testing). Further, construction noise is permitted by City ordinance during daytime hours. However, it is anticipated that night construction may sometimes be required to minimize traffic impacts and to improve safety. Construction noise levels would be expected to be individually and cumulatively insignificant, and in accordance with City requirements. For these reasons, the Proposed Action Alternative construction noise would not generate a significant cumulative noise impact.

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>$L_{\text{max}}$ Noise Limit at 50 feet (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auger Drill Rig</td>
<td>85</td>
</tr>
<tr>
<td>Backhoe</td>
<td>80</td>
</tr>
<tr>
<td>Concrete Pump</td>
<td>82</td>
</tr>
<tr>
<td>Crane (Mobile or stationary)</td>
<td>85</td>
</tr>
<tr>
<td>Dozer</td>
<td>85</td>
</tr>
<tr>
<td>Dump Truck</td>
<td>84</td>
</tr>
<tr>
<td>Excavators</td>
<td>85</td>
</tr>
<tr>
<td>Grader</td>
<td>85</td>
</tr>
<tr>
<td>Front End Loader</td>
<td>80</td>
</tr>
<tr>
<td>Paver</td>
<td>85</td>
</tr>
<tr>
<td>Scraper</td>
<td>85</td>
</tr>
</tbody>
</table>

Source: FHWA Roadway Construction Noise Model User’s Guide, Table 1. CA/T equipment noise emissions and acoustical usage factors database, p. 3, January 2006..

**Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks:** Construction of the Proposed Action Alternative would add short-term construction employment to the area, which would be a beneficial effect. The Proposed Action Alternative would not affect minority and low-income populations or children. Therefore, the impacts would not combine to create cumulative impacts and no significant adverse cumulative social impacts would occur.
Surface Transportation and Traffic: As described in Section 3.10.4, the Proposed Action Alternative would result in beneficial impacts to surface transportation and traffic. The RCC bus fleet would be eliminated and the construction of the WGTC would eliminate the need for vehicles to travel to each individual terminal, thus reducing congestion along the terminal curbfronts. Combined with past, present and future projects, there would be no significant cumulative impacts to surface transportation and traffic.

Visual Impacts (including Light Emissions): The Proposed Action Alternative would be consistent with the general visual characteristics of the Airport and surrounding industrial areas. Therefore, the Proposed Action Alternative would not cumulatively contribute to a significant impact on lighting or visual resources.

Water Resources: Stormwater from the Proposed Action Alternative would be treated in accordance with City stormwater detention requirements. Temporary increases in stormwater runoff, erosion and sedimentation would be generated during construction activities. As the project would be undertaken in accordance with all federal, state, and local water quality requirements, there would be no significant cumulative impacts to groundwater or surface water quality. Therefore, the Proposed Action Alternative would not cumulatively contribute to a significant impact on water resources.

For these reasons, the Proposed Action Alternative would not produce significant cumulative construction impacts.
Endnotes


2 City of Phoenix Aviation Department, Phoenix Sky Harbor International Airport (PHX) Wildlife Hazard Management Plan, April 2016.


10 FAA, Final Environmental Impact Statement, Phoenix Sky Harbor International Airport, February 2006..


19 City of Phoenix General Plan, Land Use Map, Updated 2016.

20 Cynthia Parker, Environmental Coordinator, City of Phoenix Aviation Department.

21 Cynthia Parker, Environmental Coordinator, City of Phoenix Aviation Department.

22 Peter Syntax, P.E., LEED AP, Kimley Horn, Sky Train Stage II Power Options, PowerPoint Presentation.


24 Aviation Activity Demand Forecast – Phoenix Sky Harbor International Airport – March 2015.

25 AC 150/5200-33B, Hazardous Wildlife Attractants On Or Near Airports, page 6,

Chapter Four:
Coordination and Public Involvement

4.1 Introduction

Agency coordination and public involvement needed to meet federal review requirements under NEPA and related federal regulations applicable to the Proposed Action include the following:

- Distribution of correspondence seeking early consultation regarding the project with agencies, local communities, and stakeholder groups (parties consulted);
- Distribution of a Draft EA for agency and public review; and
- Preparation of a Final EA, after completion of the prior elements, that includes responses to comments received on the Draft EA.

Appropriate notification to ensure that information was provided to the general public and regulatory agencies is documented in this chapter and includes comments received from interested parties that were reviewed as part of the NEPA EA process.

4.2 Scoping

The City Aviation Department sent scoping letters to public agencies and City officials on November 2, 2016. The scoping letters included information about the Proposed Action, including the purpose and need, three Proposed Action graphics, and a request for comments or concerns by December 5, 2016. One scoping response was received from the City of Tempe, Deputy Public Works Director expressing their full support of the Sky Train Stage 2 project. Appendix J, Coordination and Public Involvement, contains a sample scoping letter and the comment received from the City of Tempe. Table 4.2.1 lists the staff and officials at agencies who were sent scoping letters.

Table 4.2.1
Agency Scoping Letter Recipients

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>City of Phoenix</strong></td>
<td></td>
</tr>
<tr>
<td>Vice Mayor Kate Gallego</td>
<td>City Council District 8</td>
</tr>
<tr>
<td>Alan Stephenson</td>
<td>Planning &amp; Development Director</td>
</tr>
<tr>
<td>Maria Hyatt</td>
<td>Public Transit Director</td>
</tr>
<tr>
<td>Christine Mackay</td>
<td>Community &amp; Economic Development Director</td>
</tr>
<tr>
<td>John Trujillo</td>
<td>Public Works Director</td>
</tr>
<tr>
<td>Ray Dovalina</td>
<td>Street Transportation Department Director</td>
</tr>
<tr>
<td>Kathryn Sorenson</td>
<td>Water Services Department Director</td>
</tr>
<tr>
<td>Gail Browne</td>
<td>Executive Director Office Arts &amp; Culture</td>
</tr>
</tbody>
</table>
Table 4.2.1
Agency Scoping Letter Recipients

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maricopa Association of Governments</td>
<td></td>
</tr>
<tr>
<td>Lindy Bauer</td>
<td>Environmental Director</td>
</tr>
<tr>
<td>Eric Anderson</td>
<td>Transportation Director</td>
</tr>
<tr>
<td>Maricopa County</td>
<td></td>
</tr>
<tr>
<td>Philip McNeely</td>
<td>Air Quality Director</td>
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<tr>
<td>Arizona Department of Environmental Quality</td>
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</tr>
<tr>
<td>Thomas Buschatzke</td>
<td>Director</td>
</tr>
<tr>
<td>Eric Massey</td>
<td>Air Quality Division Director</td>
</tr>
<tr>
<td>Laura Malone</td>
<td>Waste Programs Division Director</td>
</tr>
<tr>
<td>Trevor Baggio</td>
<td>Water Quality Division Director</td>
</tr>
<tr>
<td>Arizona Department of Transportation</td>
<td></td>
</tr>
<tr>
<td>Michael Klein</td>
<td>Aeronautics Group Manager</td>
</tr>
<tr>
<td>Arizona Game and Fish Department</td>
<td></td>
</tr>
<tr>
<td>Sabra Tonn</td>
<td>HDMS Program Coordinator</td>
</tr>
<tr>
<td>U.S. Fish and Wildlife Service</td>
<td></td>
</tr>
<tr>
<td>Steve Spangle</td>
<td>Field Supervisor, Phoenix Main Office</td>
</tr>
<tr>
<td>City of Tempe</td>
<td></td>
</tr>
<tr>
<td>Jeff Tamulevich</td>
<td>Interim Community Development Director</td>
</tr>
<tr>
<td>Andy Goh</td>
<td>Deputy Public Works Director, City Engineer</td>
</tr>
</tbody>
</table>

4.3 Draft EA Availability for Review

The Draft EA was made available for review and comment by the general public and agencies for 30 days beginning on December 18, 2017. The Draft EA was distributed to federal, state, and local agencies and organizations having an interest and/or jurisdictional responsibility for the Proposed Action.

A Notice of Availability for the Draft EA was published in the Arizona Business Gazette on December 14, 2017, in La Voz, a Spanish language newspaper on December 15, 2017, and in the Arizona Republic on December 18, 2017. Comments on the Draft EA were due to the City of Phoenix by 5:00 PM on January 19, 2018. The proofs of publication on the Notice of Availability of the Draft EA from each of the newspapers is provided in Appendix J, Coordination and Public Involvement.

The Draft EA was available for public review at: https://www.skyharbor.com/About/Development

Printed copies of the Draft EA were available for public review at the following locations:

- Harmon Branch Library, 1325 South 5th Avenue, Phoenix, Arizona 85003;
• Saguaro Branch Library, 2808 North 46th Street, Phoenix, Arizona, 85008;
• Federal Aviation Administration, Western-Pacific Region, Phoenix Airports District Office 3800 N Central Ave, Suite 1025, 10th Floor, Phoenix, Arizona, 85012;
• City of Phoenix, Aviation Department, 2485 East Buckeye Road, Phoenix, AZ 85034; and
• United States Post Office, 1441 East Buckeye Road, Phoenix, AZ, 85034.

No comments related to the Draft EA were received during the public review period.
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Chapter Five:
List of Preparers

5.1 List of Preparers

This environmental document was prepared under the direction of the City, with oversight by the FAA. Table 5.1.1 lists the individuals who contributed to the preparation of the EA.

Table 5.1.1
List of Preparers

<table>
<thead>
<tr>
<th>Name/Organization</th>
<th>Responsibilities</th>
<th>Professional Expertise/Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dee Phan/ FAA Environmental Protection Specialist</td>
<td>FAA Principal Reviewer</td>
<td>12 years of experience in detailed evaluation of NEPA documents, as well as coordination with various federal and state agencies in Arizona and Nevada for FAA airport projects.</td>
</tr>
<tr>
<td>Jordan Feld/ City of Phoenix Aviation Department</td>
<td>NEPA Processing</td>
<td>18 years of experience with airport planning and environmental processing and review.</td>
</tr>
<tr>
<td>Sarah Carter/ City of Phoenix Aviation Department</td>
<td>NEPA Processing</td>
<td>8 years of experience with airport planning and environmental processing and review.</td>
</tr>
<tr>
<td>Rebecca Godley, PE, AAE/ City of Phoenix Aviation Department</td>
<td>Hazardous Waste, Pollution Prevention, Environmental Remediation</td>
<td>33 years of experience with hazardous waste remediation and storm water management in Phoenix.</td>
</tr>
<tr>
<td>Tricia Balluff/ City of Phoenix Office of Environmental Programs</td>
<td>WOTUS and Wildlife Compliance</td>
<td>16 years of experience with environmental compliance, including the Clean Water Act and wildlife regulations.</td>
</tr>
<tr>
<td>Laurene Montero/ City of Phoenix Parks &amp; Recreation Department</td>
<td>Archaeological Resources Coordination</td>
<td>28 years of experience as an archaeologist; 6 years of experience with City of Phoenix archaeology.</td>
</tr>
<tr>
<td>T. Kathleen Henderson, Ph.D./ Desert Archaeology, Inc.</td>
<td>Historical and Archaeological Properties</td>
<td>40 years of experience directing archaeological cultural resources studies, including preparation of treatment and mitigation plans.</td>
</tr>
<tr>
<td>Gwen Pelletier/ CDM Smith</td>
<td>Air Quality Analysis</td>
<td>17 years of experience in air quality and greenhouse gas environmental analyses for aviation and other industries.</td>
</tr>
<tr>
<td>Christopher Campbell/ CDM Smith</td>
<td>Air Quality Analysis</td>
<td>6 years of experience in air quality permitting and compliance, emission inventories, and dispersion modeling.</td>
</tr>
<tr>
<td>Jacob Bowers/ Kimley-Horn</td>
<td>Traffic Analysis</td>
<td>12 years of experience in transportation, traffic and airport design projects.</td>
</tr>
</tbody>
</table>
## Table 5.1.1
### List of Preparers

<table>
<thead>
<tr>
<th>Name/Organization</th>
<th>Responsibilities</th>
<th>Professional Expertise/Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nate Walnum, PE/ Kimley-Horn</td>
<td>Traffic Analysis</td>
<td>21 years of experience in transportation, traffic and airport design projects.</td>
</tr>
<tr>
<td>Mark Pilwallis, PE, SE/ Gannett Fleming</td>
<td>Project Design Coordination</td>
<td>28 years of experience in planning and design of transportation systems.</td>
</tr>
<tr>
<td>Kimberly C. Hughes, PE/ HNTB</td>
<td>Program Manager; NEPA Documentation; Quality Assurance, Quality Control</td>
<td>30 years of experience in stormwater management, air quality and noise analysis, and NEPA documentation.</td>
</tr>
<tr>
<td>Ryan Lombardi, PE/ HNTB</td>
<td>NEPA Documentation</td>
<td>6 years of experience with stormwater management analysis and NEPA documentation.</td>
</tr>
<tr>
<td>Rob Bolich, AICP/ HNTB</td>
<td>Quality Assurance, Quality Control</td>
<td>30 years of experience in NEPA documentation.</td>
</tr>
<tr>
<td>Caroline E. Pinegar, AICP, ENV SP/ HNTB</td>
<td>NEPA Documentation</td>
<td>13 years of experience in land use and economic development planning and NEPA documentation.</td>
</tr>
<tr>
<td>Kent Miller/ HNTB</td>
<td>GIS Analysis and Graphics</td>
<td>20 years of experience in GIS analysis and graphical illustration.</td>
</tr>
</tbody>
</table>
## Chapter Six:
### Abbreviations and Acronyms

#### 6.1 List of Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACHP</td>
<td>Advisory Council on Historic Preservation</td>
</tr>
<tr>
<td>ADEQ</td>
<td>Arizona Department of Environmental Quality</td>
</tr>
<tr>
<td>ADOT</td>
<td>Arizona Department of Transportation</td>
</tr>
<tr>
<td>ADP</td>
<td>Airport Development Program</td>
</tr>
<tr>
<td>ALP</td>
<td>Airport Layout Plan</td>
</tr>
<tr>
<td>ALPS™</td>
<td>Advanced Land Transportation Performance Simulation</td>
</tr>
<tr>
<td>APE</td>
<td>Area of Potential Effect</td>
</tr>
<tr>
<td>APM</td>
<td>Automated People Mover System</td>
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<tr>
<td>APP</td>
<td>Aquifer Protection Permit</td>
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<td>APS</td>
<td>Arizona Public Service</td>
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<tr>
<td>ARS</td>
<td>Arizona Revised Statutes</td>
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<tr>
<td>ASM</td>
<td>Arizona State Museum</td>
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<tr>
<td>ATP</td>
<td>Archaeological Treatment Plan</td>
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<tr>
<td>AVI</td>
<td>Automated Vehicle Identification</td>
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<td>AZGFD</td>
<td>Arizona Game and Fish Department</td>
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<td>AZPDES</td>
<td>Arizona Pollution Discharge Elimination System</td>
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<tr>
<td>bgs</td>
<td>Below ground surface</td>
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<tr>
<td>BMPs</td>
<td>Best Management Practices</td>
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<td>CAA</td>
<td>Clean Air Act</td>
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<td>CalEEMod</td>
<td>California Emissions Estimator Model</td>
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<tr>
<td>City</td>
<td>City of Phoenix</td>
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<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
</tr>
<tr>
<td>CEQ Regulations</td>
<td>Council on Environmental Quality Regulations Implementing the National Environment Policy Act</td>
</tr>
<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CH₄</td>
<td>Methane</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>CO₂</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>CO₂e</td>
<td>Carbon dioxide equivalent</td>
</tr>
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<td>CT</td>
<td>Census Tract</td>
</tr>
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<td>CWA</td>
<td>Clean Water Act</td>
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<td>DOT</td>
<td>U.S. Department of Transportation</td>
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<tr>
<td>Abbreviation</td>
<td>Definition</td>
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<td>--------------</td>
<td>------------</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Assessment</td>
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<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
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<td>EISA</td>
<td>Energy Independence and Security Act</td>
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<td>EO</td>
<td>Executive Order</td>
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<td>FAA</td>
<td>Federal Aviation Administration</td>
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<td>FEIS</td>
<td>Final Environmental Impact Statement</td>
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<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
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<td>FIRM</td>
<td>Flood Insurance Rate Map</td>
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<td>FONSI</td>
<td>Finding of No Significant Impact</td>
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<tr>
<td>FR</td>
<td>Federal Register</td>
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<td>GHGs</td>
<td>Greenhouse Gases</td>
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<td>GT</td>
<td>Ground Transportation</td>
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<td>GWP</td>
<td>Global Warming Potential</td>
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<tr>
<td>IPaC</td>
<td>Information, Planning, and Conservation</td>
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<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
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<tr>
<td>kV</td>
<td>kilovolt</td>
</tr>
<tr>
<td>kWh</td>
<td>kilowatt hours</td>
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<tr>
<td>MAP</td>
<td>Million Annual Passengers – the sum of enplaned and deplaned passengers</td>
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<tr>
<td>MBTA</td>
<td>Migratory Bird Treaty Act</td>
</tr>
<tr>
<td>mgd</td>
<td>Million gallons per day</td>
</tr>
<tr>
<td>MOA</td>
<td>Memorandum of Agreement</td>
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<tr>
<td>MOVES2014a</td>
<td>EPA Motor Vehicle Emission Simulator</td>
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<tr>
<td>MS4</td>
<td>Municipal Separate Storm Sewer System</td>
</tr>
<tr>
<td>MSG</td>
<td>Multi-Sector General Permit</td>
</tr>
<tr>
<td>MT</td>
<td>Metric ton</td>
</tr>
<tr>
<td>MW</td>
<td>megawatts</td>
</tr>
<tr>
<td>N₂O</td>
<td>Nitrous oxide</td>
</tr>
<tr>
<td>N/A or n/a</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
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<td>NEPA</td>
<td>National Environmental Policy Act</td>
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<tr>
<td>NFA</td>
<td>No Further Action</td>
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<td>NHPA</td>
<td>National Historic Preservation Act</td>
</tr>
<tr>
<td>NOₓ</td>
<td>Nitrogen oxides</td>
</tr>
<tr>
<td>NO₂</td>
<td>Nitrogen dioxide</td>
</tr>
<tr>
<td>NPL</td>
<td>National Priorities List</td>
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<td>NPS</td>
<td>National Park Service</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>NRHP</td>
<td>National Register of Historic Places</td>
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<td>NWI</td>
<td>National Wetlands Inventory</td>
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<td>O₃</td>
<td>Ozone</td>
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<td>Order 1050.1F</td>
<td>Environmental Impacts: Policies and Procedures</td>
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<td>Order 5050.4B</td>
<td>National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects</td>
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<td>Pb</td>
<td>Lead</td>
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<td>PHX</td>
<td>Phoenix Sky Harbor International Airport</td>
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<td>PM₁₀</td>
<td>Course particle matter</td>
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<tr>
<td>PM₂.₅</td>
<td>Fine particle matter</td>
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<tr>
<td>RCC</td>
<td>Rental Car Center</td>
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<td>RPZ</td>
<td>Runway Protection Zone</td>
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<td>SF</td>
<td>Square Feet</td>
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<td>SHPO</td>
<td>State Historic Preservation Officer</td>
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<td>SIP</td>
<td>Stage Implementation Plan</td>
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<td>SO₂</td>
<td>Sulfur dioxide</td>
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<td>SPCC</td>
<td>Spill Prevention Control and Countermeasures</td>
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<td>Standard Urban Stormwater Mitigation Plan</td>
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<td>Stormwater Pollution Prevention Plan</td>
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<td>U.S. Army Corps of Engineers</td>
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<td>USC</td>
<td>U.S. Code</td>
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<td>USEPA</td>
<td>U.S. Environmental protection Agency</td>
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<td>U.S. Fish and Wildlife Service</td>
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<td>U.S. Geological Survey</td>
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<td>VMT</td>
<td>Vehicle Miles Traveled</td>
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<td>VOC</td>
<td>Volatile organic compound</td>
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<td>West Ground Transportation Center</td>
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<td>Waters of the U.S.</td>
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<td>WWTP</td>
<td>Wastewater Treatment Plant</td>
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