

## 7.0 Implementation Plan

### 7.1 Implementation and Phasing Plan

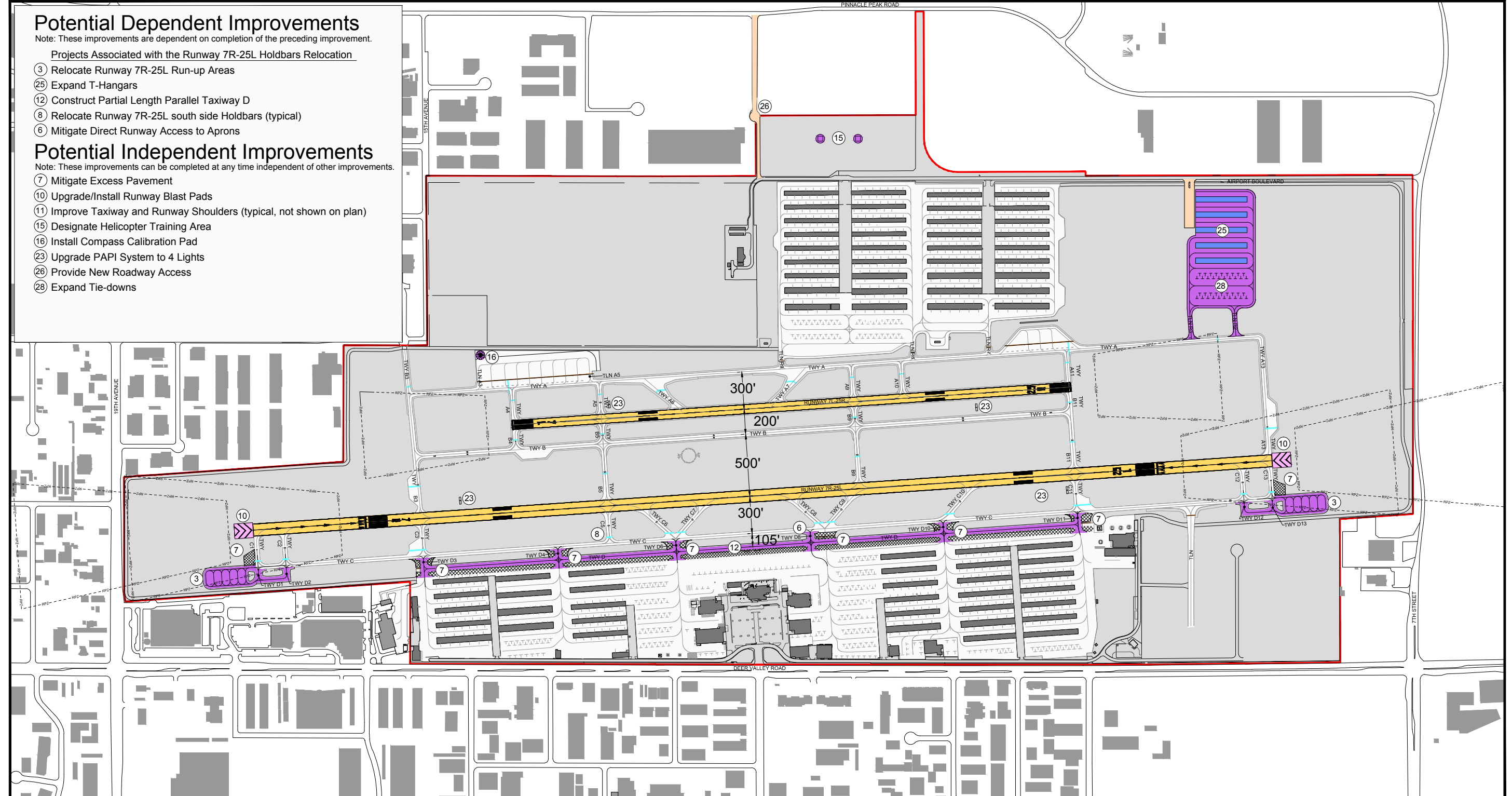
The potential phasing of individual projects proposed in the Master Plan Recommended Alternative are separated into five-year increments through the planning horizon representing projects that are likely to be developed during each time period. The projects are presented as dependent, which are projects that must be completed in order to implement other improvements, and independent, which are improvements that can be made without association to any other projects. The project identification numbers in the phasing plans correspond to the Master Plan Recommended Alternative projects described in Section 6.4.1 and on **Figure 6-2**. If funding or facility needs arise sooner or later than projected in the phasing plan, projects can be shifted between phases, but dependent projects would need to be completed in the same time period. The proposed project phasing is presented on **Figure 7-1** through **Figure 7-4**.

#### 7.1.1 Phase 1 (2015 - 2018)

Phase 1 projects, anticipated for the 2015-2018 Calendar Year timeframe, are depicted on **Figure 7-1**. The proposed dependent improvements in Phase 1 consist of the relocation of the Runway 7R-25L south side holdbars (MP Project 8). In order to implement this project, the Runway 7R-25L run-up areas must be relocated (MP Project 3) and partial-length parallel Taxiway D must be constructed (MP Project 12). The initial portion of Taxiway D constructed during Phase 1 would be primarily developed on existing apron pavement between Taxiways C3 and C11. This pavement would need to be analyzed to determine if the strength and condition meet requirements for a taxiway, or if pavement upgrades will be required. To allow for the construction of Taxiway D, the airplanes housed in the northern-most row of t-hangars facing Taxiway C along the southwest end of Taxiway C must be relocated and are proposed to be accommodated in new t-hangars on the north (MP Project 25) and direct access from the south apron to Runway 7R-25L should be mitigated (MP Project 6). Additional t-hangars would be developed to accommodate growth in demand (MP Project 25).

The proposed independent improvements for Phase 1 include mitigation of excess taxiway pavement (MP Project 7), upgrade of blast pads on both ends of Runway 7R-25L (MP Project 10), improvements to taxiway and runway shoulders (MP Project 11), designation of the helicopter training area (MP Project 15), installation of the compass calibration pad (MP Project 16), upgrade of the PAPI system to four light systems (MP Project 23), new roadway access on the north side of the airfield connecting Pinnacle Peak Road to Airport Boulevard by expanding and extending 7<sup>th</sup> Avenue (MP Project 26) and expansion of tie-downs on the northeast near the t-hangar expansion area (MP Project 28).

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**Potential Dependent Improvements**

Note: These improvements are dependent on completion of the preceding improvement.

Projects Associated with the Runway 7R-25L Holdbars Relocation

- ③ Relocate Runway 7R-25L Run-up Areas
- ②⑤ Expand T-Hangars
- ⑫ Construct Partial Length Parallel Taxiway D
- ⑧ Relocate Runway 7R-25L south side Holdbars (typical)
- ⑥ Mitigate Direct Runway Access to Aprons

**Potential Independent Improvements**

Note: These improvements can be completed at any time independent of other improvements.

- ⑦ Mitigate Excess Pavement
- ⑩ Upgrade/Install Runway Blast Pads
- ⑪ Improve Taxiway and Runway Shoulders (typical, not shown on plan)
- ⑮ Designate Helicopter Training Area
- ⑯ Install Compass Calibration Pad
- ⑲ Upgrade PAPI System to 4 Lights
- ⑳ Provide New Roadway Access
- ㉘ Expand Tie-downs

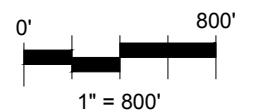
PHASE 1 (2015-2018)

Figure 7-1



LEGEND

- Airport Property Boundary
- Airfield Ramp, Taxiway & Shoulders
- Existing Runway Pavement
- Existing on-Airport Building
- Holding Position
- Runway Protection Zone
- Proposed Removal
- Proposed Airfield Pavement
- Proposed Building
- Proposed Roadway/Parking



### 7.1.2 Phase 2 (2019 - 2023)

Phase 2 projects, anticipated for the 2019-2023 timeframe, are depicted on **Figure 7-2**. The proposed dependent improvements in Phase 2 consist of three primary projects: the construction of full length Taxiway D, the resolution of Hot Spots, and the relocation of one flight school to the north. The extension of Taxiway D to full length matching Runway 7R-25L (MP Project 12) will require the relocation of the Police Air Support Unit (MP Project 17). Currently the apron for the Air Support Unit falls within proposed Taxiway D's OFA and use of the hangar would conflict with operations on Taxiway D. As a result, construction of the taxiway adjacent to the Runway 25L end will require the relocation of the Police Air Support Unit facility. The facility is proposed to be relocated closer to Deer Valley Road in order to support the integration of a landside fire station, at such time that City of Phoenix Fire Station 36 requires replacement.

The second dependent improvement involves the resolution of Hot Spots. The mitigation of FAA-identified Hot Spots 1 and 2 (MP Project 4), located at Taxiways B5/C5 and B9/C9, involves shifting the taxiways along Taxiway B to require aircraft to make a turn onto Taxiway B in order to cross to the north or south. While reconstructing those Taxiways, Taxiway B should be relocated from 200-feet to 300-feet from the Runway 7L-25R centerline (MP Project 1) which will require the relocation of the segmented circle (MP Project 27) to accommodate the relocated taxiway, construction of new taxiway connectors (MP Project 9) and mitigation of direct runway access to ramps by shifting Taxiway B11/C11 (MP Project 6).

The third dependent improvement is the relocation of one flight school to the north along Airport Boulevard which would require construction of new tie-downs (MP Project 28) and new classroom buildings (MP Project 21).

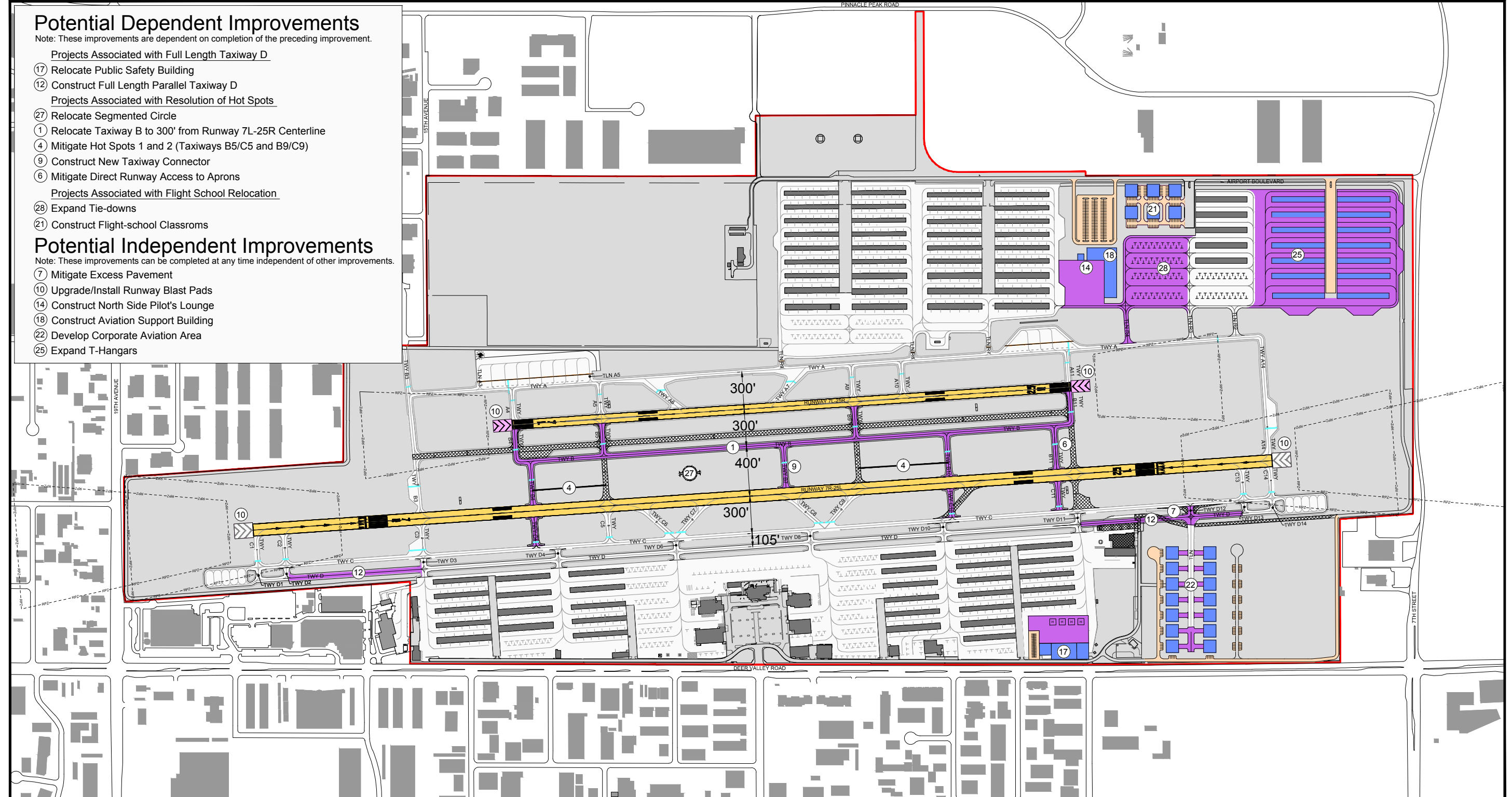
Proposed independent improvements include installation of runway blast pads on Runway 7L-25R (MP Project 10), construction of a pilot's lounge (MP Project 14) and aviation support building (MP Project 18) on the north, development of the corporate aviation area on the south (MP Project 22), and expansion of t-hangars on the north (MP Project 25) to accommodate continued growth in demand.

### 7.1.3 Phase 3 (2024 - 2028)

Phase 3 projects, anticipated for the 2024-2028 timeframe, are depicted in **Figure 7-3**. The proposed dependent improvements in Phase 3 consist of the relocation of the second flight school to the north within the northwest parcel. Relocation to this site would require new north-side access (MP Project 26) from Pinnacle Peak Road and the west side of DVT. The flight school would also require construction of new tie-downs (MP Project 28) and new classrooms (MP Project 21).

Proposed independent improvements include relocation of Taxiway B3/C3 outside of the Runway 7L-25R RPZ (MP Project 2), construction of acute angle taxiways (MP Project 5) and a new taxiway connector connecting Taxiway C and Runway 7R-25L (MP Project 9), continued development of the corporate aviation area on the south (MP Project 22) and expansion of t-hangars on the north (MP Project 25).

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**Potential Dependent Improvements**

Note: These improvements are dependent on completion of the preceding improvement.

Projects Associated with Full Length Taxiway D

17 Relocate Public Safety Building

12 Construct Full Length Parallel Taxiway D

Projects Associated with Resolution of Hot Spots

27 Relocate Segmented Circle

1 Relocate Taxiway B to 300' from Runway 7L-25R Centerline

4 Mitigate Hot Spots 1 and 2 (Taxiways B5/C5 and B9/C9)

9 Construct New Taxiway Connector

6 Mitigate Direct Runway Access to Aprons

Projects Associated with Flight School Relocation

28 Expand Tie-downs

21 Construct Flight-school Classrooms

**Potential Independent Improvements**

Note: These improvements can be completed at any time independent of other improvements.

7 Mitigate Excess Pavement

10 Upgrade/Install Runway Blast Pads

14 Construct North Side Pilot's Lounge

18 Construct Aviation Support Building

22 Develop Corporate Aviation Area

25 Expand T-Hangars

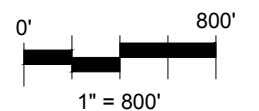
PHASE 2 (2019-2023)

Figure 7-2



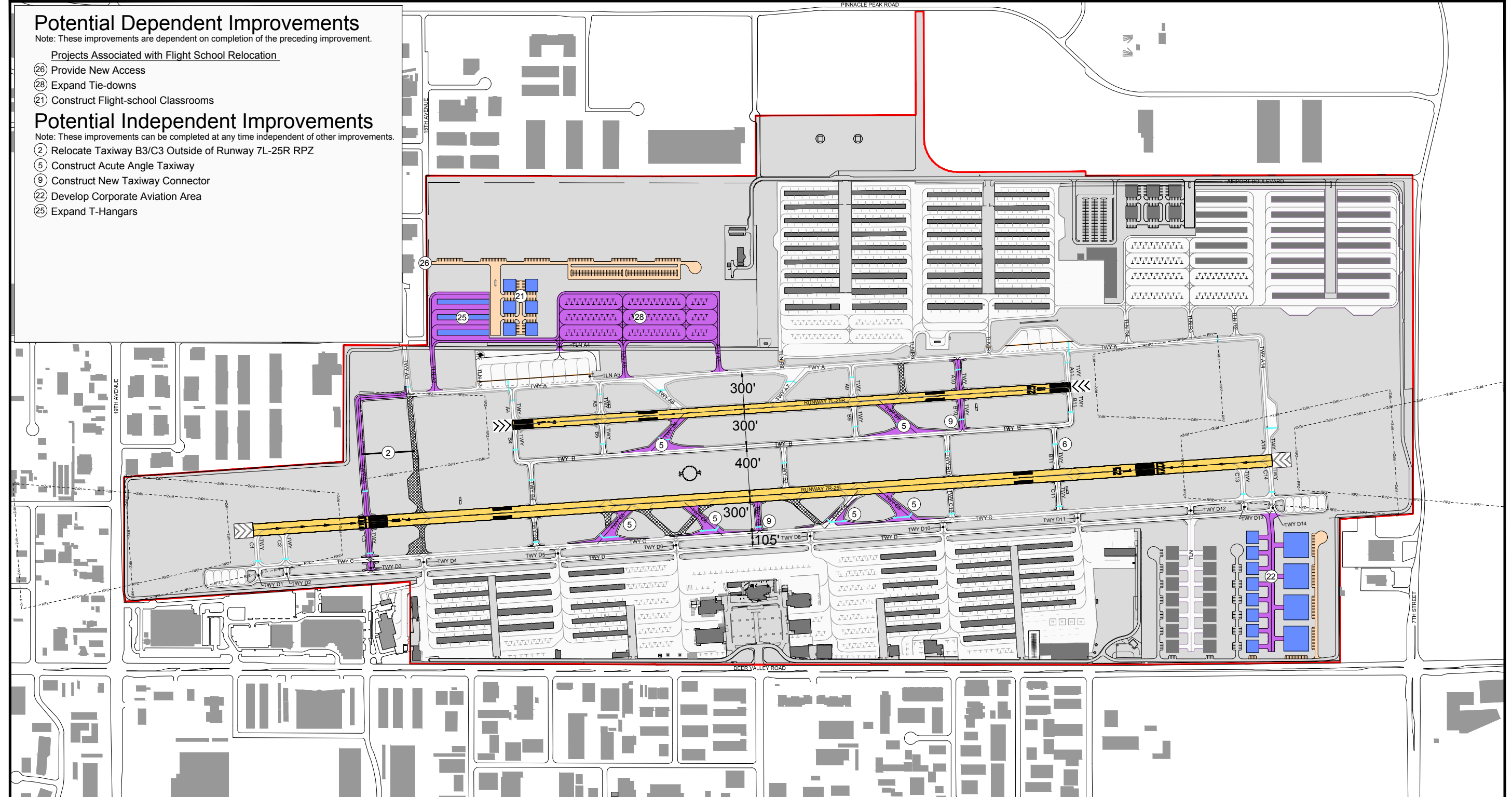
LEGEND

- Airport Property Boundary
- Airfield Ramp, Taxiway & Shoulders
- Existing Runway Pavement
- Existing on-Airport Building
- Holding Position
- Runway Protection Zone
- Proposed Removal
- Proposed Airfield Pavement
- Proposed Building
- Proposed Roadway/Parking





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**Potential Dependent Improvements**

Note: These improvements are dependent on completion of the preceding improvement.

Projects Associated with Flight School Relocation

- 26 Provide New Access
- 28 Expand Tie-downs
- 21 Construct Flight-school Classrooms

**Potential Independent Improvements**

Note: These improvements can be completed at any time independent of other improvements.

- 2 Relocate Taxiway B3/C3 Outside of Runway 7L-25R RPZ
- 5 Construct Acute Angle Taxiway
- 9 Construct New Taxiway Connector
- 22 Develop Corporate Aviation Area
- 25 Expand T-Hangars

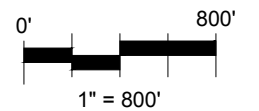
PHASE 3 (2024-2028)

Figure 7-3



LEGEND

- Airport Property Boundary
- Airfield Ramp, Taxiway & Shoulders
- Existing Runway Pavement
- Existing on-Airport Building
- Holding Position
- RPZ Runway Protection Zone
- Proposed Removal
- Proposed Airfield Pavement
- Proposed Building
- Proposed Roadway/Parking



#### 7.1.4 Phase 4 (2029 – 2033)

Phase 4 projects, anticipated for the 2029-2033 timeframe, are depicted in **Figure 7-4**. The proposed dependent improvements in Phase 4 consist of two projects. The first is the 800 foot extension of Runway 7L-25R to the east (MP Project 13) which requires a new taxiway connector between Taxiway A and Taxiway C (MP Project 9). The second is the development of the aviation business park (MP Project 24) which requires new roadway access on the north from 15<sup>th</sup> Avenue and Pinnacle Peak Road (MP Project 26) to segregate it from the dedicated airport access point, segregating airport and non-airport traffic.

Proposed independent improvements include installation of a runway blast pad on Runway 25R (MP Project 10), expansion of the existing Cutter Aviation and Atlantic Aviation facilities in their existing locations (MP Projects 19 and 20), and new north-side access from Pinnacle Peak Road along 3<sup>rd</sup> Avenue (MP Project 26).

## 7.2 Environmental Considerations

The environmental considerations identify environmental factors that could affect the feasibility of the Master Plan Recommended Alternative and confirm that potential environmental impacts will not constrain development. This analysis is intended to summarize the environmental factors surrounding the recommended development and potential follow on environmental studies that may be required; however, it does not constitute a National Environmental Policy Act (NEPA) analysis.

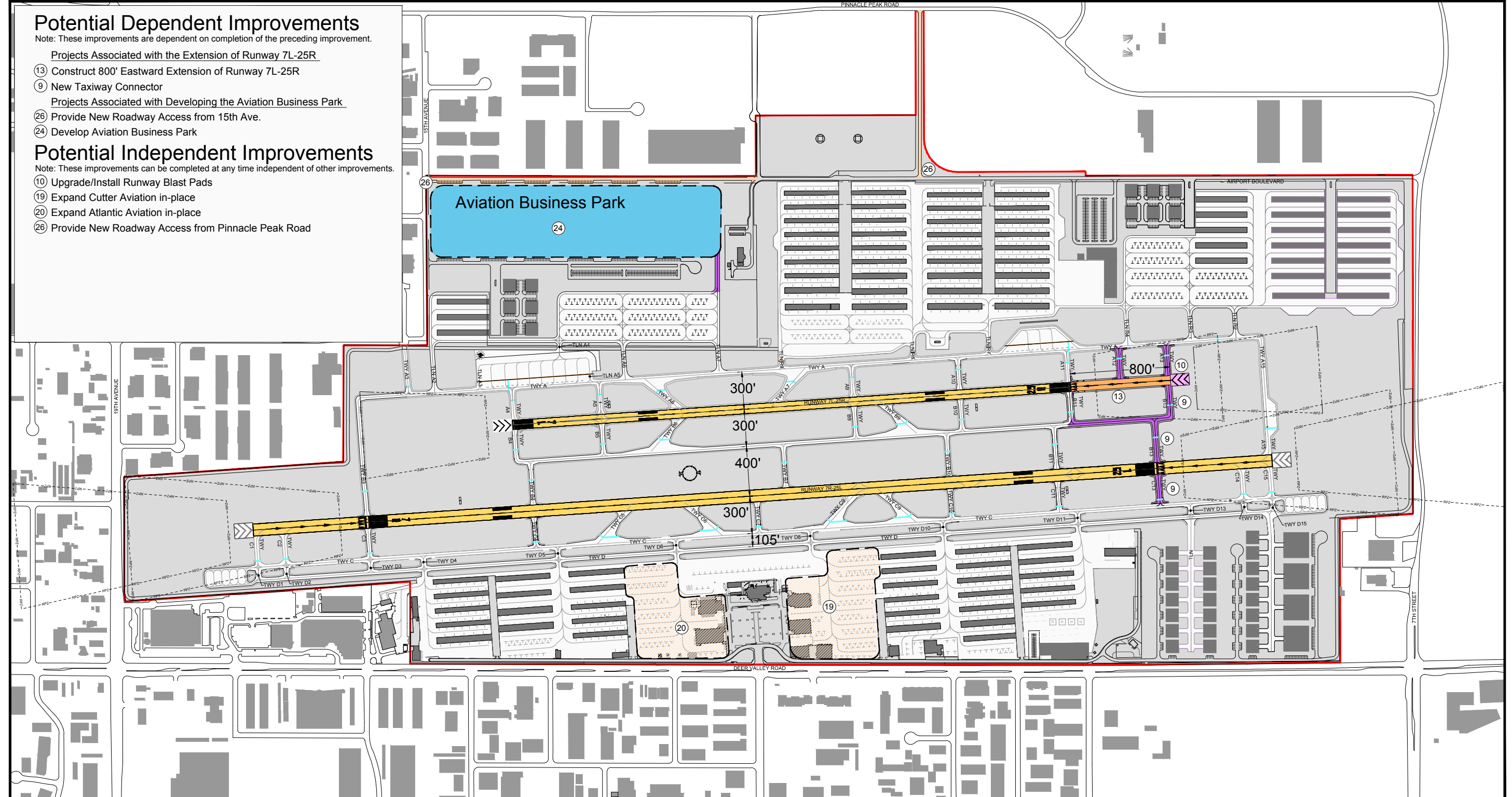
### 7.2.1 NEPA Levels of Documentation

The implementation of projects in the Master Plan Recommended Alternative is expected to constitute Federal actions, which will require NEPA analysis and documentation. As a Federal agency, the FAA must ensure that the requirements of NEPA are met prior to taking any action that has the potential to affect the environment.

There are three levels of environmental documentation typically used to satisfy NEPA requirements prior to development of individual projects:

**Categorical Exclusion:** A categorical exclusion addresses actions which the FAA and the Council on Environmental Quality (CEQ) have determined do not normally have the potential to generate significant environmental impacts. A wide range of actions have been identified as categorical exclusions. These actions are generally related to repair and maintenance of existing facilities, minor development which is not likely to result in significant impacts, landscaping, equipment acquisition, projects to carry out noise compatibility programs, property acquisition for these purposes, and Federal release of airport land. In addition, the construction and expansion of passenger handling facilities is categorically excluded. If a normally excluded action might generate significant impacts, an Environmental Assessment (EA) is required. This requirement also applies to actions which are likely to be highly controversial on environmental grounds. A Categorical Exclusion typically takes 3 to 9 months to complete.

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**Potential Dependent Improvements**

Note: These improvements are dependent on completion of the preceding improvement.

Projects Associated with the Extension of Runway 7L-25R

- ⑬ Construct 800' Eastward Extension of Runway 7L-25R
- ⑨ New Taxiway Connector

Projects Associated with Developing the Aviation Business Park

- ⑲ Provide New Roadway Access from 15th Ave.
- ⑳ Develop Aviation Business Park

**Potential Independent Improvements**

Note: These improvements can be completed at any time independent of other improvements.

- ⑩ Upgrade/Install Runway Blast Pads
- ⑱ Expand Cutter Aviation in-place
- ⑳ Expand Atlantic Aviation in-place
- ㉑ Provide New Roadway Access from Pinnacle Peak Road

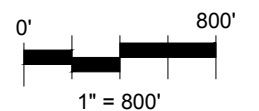
PHASE 4 (2029-2033)

Figure 7-4



LEGEND

- Airport Property Boundary
- Airfield Ramp, Taxiway & Shoulders
- Existing Runway Pavement
- Existing on-Airport Building
- Holding Position
- Runway Protection Zone
- Proposed Removal
- Proposed Airfield Pavement
- Proposed Building
- Proposed Roadway/Parking
- Proposed Runway Pavement



**Environmental Assessment:** An EA is conducted to determine if the action under consideration could generate significant impacts requiring preparation of an Environmental Impact Statement (EIS). If no significant impacts are identified in the EA, a Finding of No Significant Impact (FONSI) would be issued. An EA typically takes 9 months to 2 years to complete. In accordance with FAA Order 5050.4B, the following types of airport actions normally require preparation of an EA.

- A normally categorically excluded action involving extraordinary circumstances
- Helicopter facilities or operations (if the project has the potential to generate significant noise or other impacts)
- New airport serving general aviation (not in MSA)
- New runway (not in MSA)
- Major runway strengthening or major runway extension (major runway extension has the potential to generate significant noise or other impacts)
- Conversion of prime and unique farmland
- Dredging or filling of a waterway or wetland under certain circumstances
- Land acquisition associated with the above actions or highly controversial actions
- Other circumstance, particularly when controversy exists because a special purpose law is involved

**Environmental Impact Statement:** An EIS addresses projects having the potential to create significant environmental impact and, unlike other environmental documentation which is led by the airport sponsor, an EIS is led by the FAA. An EIS documents the need for the action, alternatives to the proposed action which would entail less environmental impact, and mitigation measures to offset or reduce impacts. An EIS may be required after an EA if the EA indicates that proposed mitigation would not reduce the action's environmental impacts below significant impact thresholds, or it may be triggered without an EA if there is an expectation for significant environmental impact or extensive public controversy. An EIS typically takes 3 to 5 years to complete. In accordance with FAA Order 5050.4B, the following airport actions normally require an EIS:

- A new commercial service airport in an MSA - initial ALP approval or airport location approval
- A new runway in an MSA - financial participation in and/or ALP approval

### 7.2.2 Summary of Environmental Documentation for Recommended Improvements

**Table 7-1** outlines the proposed improvements in the Master Plan Recommended Alternative and normal environmental documentation. The determination for environmental documentation is based on FAA Order 1050.1E (Change 1) sections 309, 310 and 401. Once a project horizon approaches, the Aviation Department and FAA NEPA staff will discuss and confirm the appropriate level of NEPA documentation required.



**Table 7-1: Potential Environmental Documentation for Recommended Improvements**

<b>Project</b>	<b>Improvement</b>	<b>Environmental Documentation*</b>	<b>Reference (FAA Order 1050.1E, Change 1)</b>
<b>Runway Improvements</b>			
13	Construct 800' Extension of Runway 7L-25R	EA	401k.
3	Relocate Runway 7R-25L Run-up Areas	Categorical Exclusion <sup>1</sup>	310e.
6	Mitigate Direct Runway Access to Aprons	Categorical Exclusion <sup>1</sup>	310e.
8	Relocate Runway 7R-25L South Side Holdbars	Categorical Exclusion <sup>1</sup>	310e.
10	Upgrade/Install Runway Blast Pads	Categorical Exclusion <sup>1,2</sup>	310e.
23	Upgrade PAPI system to 4 lights	Categorical Exclusion <sup>1</sup>	309c.
<b>Taxiway Improvements</b>			
1	Relocate Taxiway B to 300' from Runway 7L-25R centerline	Categorical Exclusion <sup>1</sup>	310e.
2	Relocate Taxiway B3/C3 outside of Runway 7L-25R RPZ	Categorical Exclusion <sup>1</sup>	310e.
12	Construct Full Length Parallel Taxiway D	Categorical Exclusion <sup>1</sup>	310e.
4	Mitigate Hot Spots 1 and 2 (Taxiways B5/C5 and B9/C9)	Categorical Exclusion <sup>1</sup>	310e.
5	Construct Acute Angle Taxiway	Categorical Exclusion <sup>1,2</sup>	310e.
9	Construct New Taxiway Connectors	Categorical Exclusion <sup>1</sup>	310e.
11	Improve Taxiway and Runway Shoulders	Categorical Exclusion <sup>1</sup>	310e.
7	Mitigate Excess Pavement	Categorical Exclusion <sup>1</sup>	310e.
27	Relocate Segmented Circle	Categorical Exclusion <sup>1</sup>	309e.
<b>Parking and Roadway Improvements</b>			
19	Expand Cutter Aviation in-place	Categorical Exclusion <sup>1</sup>	310f.
20	Expand Atlantic Aviation in-place	Categorical Exclusion <sup>1</sup>	310f.
26	Provide New Roadway Access	Categorical Exclusion <sup>1,3</sup>	310a.

<b>Project</b>	<b>Improvement</b>	<b>Environmental Documentation*</b>	<b>Reference (FAA Order 1050.1E, Change 1)</b>
<b>Aprons and Aircraft Parking</b>			
25	Expand T-Hangars	EA (unpaved area) <sup>5</sup>	401. (Not identified as a Categorically Excluded Action)
28	Expand Tie-downs	EA (unpaved area) <sup>5</sup>	401. (Not identified as a Categorically Excluded Action)
<b>General Aviation Facilities</b>			
18	Construct Aviation Support Building	EA <sup>5</sup>	401. (Not identified as a Categorically Excluded Action)
21	Construct Flight-school Classrooms	Categorical Exclusion <sup>1</sup>	310h.
22	Develop Corporate Aviation	EA	401. (Not identified as a Categorically Excluded Action)
24	Develop Aviation Business Park	EA	401. (Not identified as a Categorically Excluded Action)
14	Construct North Side Pilot's Lounge	Categorical Exclusion <sup>1</sup>	310h.
15	Designate Helicopter Training Area	Categorical Exclusion <sup>1,4</sup>	310t.
<b>Support Facilities</b>			
16	Install Compass Calibration Pad	Categorical Exclusion	309d.
17	Relocate Public Safety Building	EA	401. (Not identified as a Categorically Excluded Action)

**Notes:**

\* Multiple projects may be combined into one NEPA document, dependent upon project implementation schedules.

<sup>1</sup> Assumes no extraordinary circumstances.

<sup>2</sup> Potential EA associated with Runway 7L-25R extension and Taxiway B relocation.

<sup>3</sup> Assumes no reduction to Level of Service on local traffic systems below acceptable levels, as determined by ADOT. May require input from ADOT and/or Maricopa County relative to environmental requirements.

<sup>4</sup> Assumes that facility would not significantly increase noise over noise sensitive areas.

<sup>5</sup> The use of a Categorical Exclusion may be possible for this improvement, discussion with the FAA should be held to verify appropriate environmental documentation. An EA is identified herein as the most conservative level of documentation without benefit of coordination with the FAA.

### 7.2.3 Environmental Factors

The following sections include an inventory of environmental factors which may be impacted by future airport development, based on existing data. The Recommended Master Plan Alternative projects are evaluated in accordance with guidelines specified in the FAA's Order 1050.1E (Change 1) *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B *National Environmental Policy Act (NEPA Implementing Instructions for Airport Actions)*. Only categories in which potential environmental impacts have been identified are discussed in detail.

The following resources are not found within the DVT airport environs, and therefore are not discussed in detail:

- Coastal Resources
- Department of Transportation Act Section 4(f) Properties
- Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health Risks
- Farmlands
- Floodplains
- Wild and Scenic Rivers

The impact categories, as defined by FAA in Order 1050.1E, are reviewed for the Recommended Master Plan Alternative in the sections that follow. For this review, noise and compatible land use have been combined.

#### 7.2.3.1 Air Quality

The Clean Air Act is the primary Federal legislation addressing ambient air quality, which required the establishment of NAAQS. NAAQS apply to six criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), particulate matter (PM<sub>10</sub>), and sulfur dioxide (SO<sub>2</sub>). Areas that exceed the applicable standards for a criteria pollutant are designated non-attainment for that pollutant. The Clean Air Act requires any state that has a designated non-attainment area to develop a State Implementation Plan (SIP). The SIP is the plan developed by the State to bring non-attainment areas into conformance with NAAQS in accordance with applicable deadlines.

DVT is located within the Phoenix area. The Phoenix area is designated as a non-attainment area for particulate matter (PM<sub>10</sub>) and ozone (8-hour), and is designated as a maintenance area for carbon monoxide. Recommended improvements including extending Runway 7L-25R to the east by 800 feet, taxiway relocations and improvements, expansion of parking lots, construction of several aviation support facilities and buildings, new roadway access and upgrades to the navigation system do not change the airport capacity or operational conditions and are consistent with the current airport functions. It should be noted that with the extension of Runway 7L-25R, there may be changes to runway use, however these changes would be expected to have minimal impact on overall taxi-time and therefore minimal impact on overall air pollutant emissions.

In accordance with Federal Register (FRN)/Vol. 72, No. 145, the FAA has developed a list of Presumed to Conform actions based on a survey of airport projects and project findings. Presumed to Conform actions have been proven to be “reliably and consistently *de minimis*” and as a result do not require air quality analysis. Presumed to Conform Actions generally involve maintenance, navigation, construction, safety, and security activities, along with new technology and vehicle systems. Of the projects included in the Master Plan Recommended Alternative, “non-runway pavement work” such as the expanded tie-down areas, t-hangar areas, relocated run-up areas, mitigation of excess pavement and improvement of taxiway and runway shoulders that do not exceed the square footage required in FRN/vol. 72, No. 145, *Table III-1: Presumed to Conform Limits for Selected Projects* for PM<sub>10</sub> and ozone, are not anticipated to require an air quality assessment, however a construction emissions inventory may still be required.

To determine the significance of potential air quality impacts for the remaining recommended improvement projects, including the Runway 25R extension, construction of full length parallel Taxiway D and the construction of new aviation support buildings, an emissions inventory would be needed to determine if the project meets General Conformity outlined within the SIP. Additionally, mandatory lead monitoring is conducted at DVT. In conjunction with strengthening the lead NAAQS in 2008, EPA improved the lead monitoring network by requiring monitors be placed in areas with sources such as industrial facilities or airports that emit one ton or more per year (TPY) of lead. Since Federal emissions inventories indicated that the DVT area emits more than one TPY of lead, monitoring sites are in place. The lead monitoring data collected to date indicates that DVT area levels are significantly lower than the NAAQS standard<sup>7</sup>. Sources of lead emitted into the air typically originate from sources such as ore and metal processing and aircraft that use leaded aviation gasoline. The Master Plan Recommended Alternative proposed improvements do not induce aircraft operations and are not anticipated to emit lead; however, Potential to Emit (PTE) should be further considered during environmental documentation to determine if the projects individually, or cumulatively, have the potential to contribute to ambient lead concentrations that approach or exceed NAAQS.

In addition, projects over 1/10 of an acre require a Dust Control Permit from the Maricopa County Air Quality Department. A Dust Control Plan would be required to describe the measures that must be implemented by the contractor at the site to prevent dust particle emissions.

### 7.2.3.2 Construction Impacts

Construction impacts typically relate to the effects on specific impact categories, such as air quality or noise, during construction. Most of the improvements in the Master Plan Recommended Alternative will result in some temporary impact during

<sup>7</sup> EPA Office of Transportation and Air Quality, “Airport Lead Monitoring,” June 2013, <http://www.epa.gov/otag/regs/nonroad/aviation/420f13032.pdf> and Maricopa County Air Quality Department, “Air Monitoring,” <http://www.pagnet.org/documents/Air/AQForum2010/am-3-AirMonitoring.pdf>, both accessed 5/21/15.



construction to ambient noise levels, air quality, and potentially localized water quality if runoff occurs. Noise impacts during construction are expected, however, noise impacts would be localized in the vicinity of the specific construction sites. Construction equipment and vehicles would create localized increases in noise levels, but these temporary noise impacts would not result in significant impacts to any residential development.

Although the majority of construction-related emissions associated with the recommended improvements would likely be presumed to conform and are temporary in duration, these emissions could be further reduced by employing the best management practices (BMPs) such as reduction of equipment idling times, use of covered haul trucks and conveyors during materials transportation, and daily watering of exposed surfaces and demolition activities. As part of the NEPA review, construction-related air emissions inventory will need to be estimated to determine any air quality impacts for any improvements that are not presumed to conform.

If uncontrolled, construction activities have the potential to cause erosion and sedimentation which can impact water quality. Short-term construction impacts would be minimized by strict adherence to erosion and sediment control procedures.

Construction impacts related to noise, air quality and water quality would be short-term in nature, lasting for the duration of construction activities, and would be mitigated by BMPs. Temporary contractor staging areas would be required throughout construction to store construction equipment and materials. An AZPDES Construction General Permit is required when the total construction area is greater than 1 acre and permit requirements would be adhered to and would minimize or mitigate any potential temporary impacts due to construction. Specific requirements to ensure compliance with the permit would be addressed as part of mitigation in the NEPA document(s) specific to each project.

#### 7.2.3.3 Fish, Wildlife and Plants

DVT is located in the Sonoran Desert which is home to numerous threatened and endangered plant and animal species along with special status species. **Table 1-14** depicts the 21 federally-registered threatened and endangered species and species of special concern listed for Maricopa County. Based on two biological evaluations completed in 1999 for parcels adjacent to DVT and the Arizona Game and Fish Department's HabiMap tool, threatened and endangered species, special status species, and the habitats required of these species are not known to exist on DVT property; however, it should be noted that federally listed transient species may occur in the project area. Such appearances would be expected to be infrequent, as the habitat which supports most of the species identified consists of treed areas or locations near rivers, streams, or marshes. However, field surveys would be needed to verify this determination.

The improvements in the Master Plan Recommended Alternative do not involve alteration of vast land areas since much of DVT's property is disturbed by airport

development as well as commercial and industrial development. However, ground-disturbing activity in several areas of undisturbed airport land is anticipated as a result of the Master Plan Recommended Alternative projects. Development is planned in the northeast part of the airport property for airside support facilities, including the expansion of t-Hangars, tie-downs, a new pilot's lounge and flight-school classrooms. Corporate aviation development is planned for the southeast corner of the airport property, and an aviation business park, additional tie-downs, t-hangars and classrooms are proposed in the northwest corner. Biological surveys for threatened and endangered species, and special status species, would likely be required in these undisturbed areas for any suspected transient species or habitat. Coordination with the Arizona Game and Fish Department, U.S. Department of Agriculture Wildlife Services (USDA WS), and U.S. Fish and Wildlife Service (USFWS) would be necessary to confirm that no endangered or threatened species or special status species exist in these areas. Additionally, coordination with the City of Phoenix Section 404 Program Coordinator will be necessary to confirm that no special status species exist in the project vicinity. If special status species are found to occur, DVT would work with the City's Section 404 Program Coordinator, USDA WS, USFWS and the Arizona Game and Fish Department to determine the most appropriate method to avoid or minimize impacts to species.

As shown previously in **Table 1-15**, sixteen birds are on the Migratory birds of concern list for the DVT vicinity. While no burrowing owls have been witnessed at DVT, suitable habitat for burrowing owls exists on DVT property and an owl survey is recommended prior to conducting any new ground-disturbing activity including construction haul routes, construction staging areas, and the placement of millings and rock for dust control purposes.

#### 7.2.3.4 Hazardous Materials, Pollution Prevention, and Solid Waste

DVT is listed as a Small Quantity Generator of hazardous waste. As identified in Section 1.7.6, the most recent review of agency databases (2008) reported ten underground storage tanks (USTs) were formerly operated on DVT property; and two leaking UST (LUST) cases were on DVT property but remediated in 1997. The nearby Lone Cactus Landfill did not receive hazardous waste, hazardous spills, or illegally dumped materials. Small amounts of regulated materials are stored on DVT's property in the Aviation Department's maintenance yard, and at each of the larger tenant sites.

The Master Plan Recommended Alternative improvements would pose no known threat related to hazards or hazardous materials on or around Airport property. Prior to construction of the recommended improvements, any undisturbed areas should be surveyed for prior land uses that may have used oils or chemicals, including potential USTs or Above Ground Storage Tanks (ASTs) that may contain petroleum products. If any new construction is proposed in the vicinity of land that previously had chemicals or oil use, removal and remediation may be required.

Any solid waste resulting from pavement removal or building demolition would be recycled when possible or discarded in an approved construction materials accepted landfill where capacity exists. Asphalt would be milled and recycled for use on roadway rehabilitation projects or taxiway shoulders.

#### 7.2.3.5 Historical, Architectural, Archaeological, and Cultural Resources

As Federal undertakings, the Master Plan Recommended Alternative projects would be subject to Section 106 of the National Historic Preservation Act of 1966, as amended, and the Archaeological and Historic Preservation Act of 1974. Both of these Federal laws require consultation with the State Historic Preservation Officer (SHPO). No significant archaeological resources have been found during previous surveys at DVT; however, because of the potential for significant resources given the area's rich prehistory, an archaeological survey would likely be required during NEPA analysis for any areas not previously surveyed.

An Archaeology Assessment Request would be submitted to the City Archaeologist for any of the projects that would require subsurface excavation. The recommended improvement projects that would likely require additional field investigation and study include the expansion of t-Hangars, tie-downs, the new Pilot's Lounge and flight-school classrooms (undeveloped area in the northeast part of airport property); the corporate aviation development planned for the southeast corner, and the aviation business park, additional tie-downs, t-hangars and classrooms proposed in the undeveloped northwest corner. As documented in the previous Master Plan Update, a summary of the previous studies completed for DVT is provided in **Table 7-2**.

No historic structures currently exist on DVT property; however, if the existing City of Phoenix Police Support Unit building and associated aircraft/helicopter apron is nearing 50 years old, an architectural historian may be required to determine the eligibility of the existing structures as historic, depending on the SHPO's determination. Eligibility is based on the structure's historic context (e.g., why the property is historic and why the property is of exceptional importance). Because the majority of the recommended improvements occur on land that has been significantly altered over the last 50 years, the potential for impacts under this category would be minimal.

#### 7.2.3.6 Light Emissions and Visual Impacts

Consideration must be given to the impact that additional lighting requirements for DVT could have on the surrounding community, and also to the visual effects in terms of the projects' consistency with the existing environment, architecture, and land use. The proposed projects in the Master Plan Recommended Alternative would not alter the nature of current airport lighting. The conversion of the current PAPI system from a 2-light system to a 4-light system, the positioning of runway and taxiway lighting, and runway end identifier lights in conjunction with the proposed Runway 25R extension is not anticipated to disrupt or shine into residential areas or other light sensitive facilities in the surrounding area.

**Table 7-2: Previous Cultural, Architectural and Archaeological Studies - Phoenix Deer Valley Airport**

<b>Quad</b>	<b>Township, Range and Section</b>	<b>Report Reference</b>	<b>Project Type</b>	<b>Results</b>	<b>PGM Number</b>
Union Hills	T4N R3E Section 17	Schmidt, Cara and Douglas Mitchell, 2004, Cultural resources Survey of 40-Acres at the Deer Valley Airport in Phoenix, Maricopa County, Arizona. SWCA Cultural Resources Report No. 04-256.	Survey	9 isolated occurrences	2004-19
Union Hills	T4N R3E Sections 17 and 18	Cable, John, 1985, Archaeological Survey of the Phoenix-Deer Valley Airport, Phoenix, Arizona, Letter report, Ms. on file, City of Phoenix Archaeology Office.	Survey	Nothing encountered	1985-05
Union Hills	T4N R3E Section 18	Schmidt, Cara and John M. Lindly, 2004, Cultural Resources Survey of 80-Acres at the Deer Valley Airport in Phoenix, Maricopa County, Arizona. SWCA Cultural Resources Report No. 04-287.	Survey	4 isolated occurrences	2004-22
Union Hills	T4N R3E Section 9	Doyel, David, 1985, An Archaeological Survey for a Signal Beacon Tower for Deer Valley Airport on Fort Mountain, Maricopa County, Arizona, Letter report, Ms. on file, City of Phoenix Archaeology Office.	Survey	Fort Mountain Site, AZT:8:34(ASU), Re-evaluated.	1985-01

Source: 2007 Master Plan Update, Appendix B (Table B2).



The new roadway access to DVT from Pinnacle Peak Road may require additional lighting; however, Pinnacle Peak Road near DVT is surrounded by industrial and vacant land uses, therefore any additional lighting for this new roadway access would not be expected to adversely affect any light-sensitive uses.

The additional hangar space, corporate aviation development, pilot's lounge and other aviation support facilities recommended as part of the Master Plan Recommended Alternative are aviation-related and are consistent with current airport operations. Additional lighting for these facilities would be minimal and would not impact the surrounding area. The land use surrounding DVT is urbanized with commercial and industrial development; therefore any changes to light emissions at DVT are not expected to create an annoyance among light-sensitive land uses or result in adverse impacts.

The airfield improvements with the modifications to Runway 25R and other taxiway improvements are not expected to result in change in the visual quality of the airport area. The design of the recommended additional airside and landside support facilities would be visually consistent with the existing airport environment so as to ensure compatibility with existing structures and airport appearance. Therefore, no significant impact from a visual perspective is anticipated due to implementation of the Master Plan Recommended Alternative improvements.

#### 7.2.3.7 Natural Resources and Energy Supply

Natural resource and energy supply impacts focus on actions that have the potential to change energy requirements or use consumable natural resources. There would be additional energy used by DVT due to the Master Plan Recommended Alternative improvements but the changes would not be considered major on a regional level.

The proposed runway extension, modifications to the taxiways and expansion/construction of new parking facilities and support buildings would not change the quantity of fuel consumption by a measurable amount, nor is it expected that the proposed projects would cause an increase in the number of aircraft operations or motor vehicle operations at DVT. Any increase in fuel consumption associated with changes to taxiing distances of aircraft to/from the runways, new t-Hangars, or other airside facilities is not expected to be significant.

No scarce or unusual materials would be expected for use during construction. Construction materials would be acquired through local suppliers and contractors. Based on these factors, it is not expected that there would be significant impacts to the energy supply or to natural resources due to implementation of the Master Plan Recommended Alternative improvements.

#### 7.2.3.8 Noise/Compatible Land Use

Airport noise is often the most significant environmental issue that the FAA considers when evaluating proposed airport actions. Airport development actions that change airport runway configurations, aircraft operations and/or movements,

aircraft types using the airport, or aircraft flight characteristics may affect existing and future noise levels. The primary consideration when analyzing noise is how an action would change the cumulative noise exposure of individuals to aircraft noise in areas surrounding the airport. Land use compatibility with aircraft noise is typically determined on the basis of the annual average Day-Night Average Sound Level. DNL is measured in decibels (dBs) and is normally illustrated by lines, or contours, joining equal noise values drawn over a base map of an airport and surrounding area. FAA has established land use compatibility guidelines relative to certain DNL noise levels in 14 Code of Federal Regulations (CFR) Part 150.

DVT is located in the Deer Valley Village which is comprised of industrial zoned land along with residential and park/open space such as the Adobe Recreation Area. The Master Plan Recommended Alternative improvements are consistent with on-airport land use and the adjacent surrounding industrial and commercial land uses.

The DNL 65<sup>+</sup> dB noise contour is the Federal noise level at which residential and noise-sensitive land uses are considered non-compatible. The most recent noise contours at DVT were developed in 2007. The 2007 existing DNL 65 dB extends approximately 1,300 feet beyond 7<sup>th</sup> Street to the east and 900 feet beyond 19<sup>th</sup> Street to the west. In the long term, the DNL 65 dB is projected to extend approximately 2,700 feet beyond 7<sup>th</sup> Street to the east and 1,600 feet beyond 19<sup>th</sup> Street to the west. The long term (20 year) noise contour developed in 2007 only affects compatible industrial and commercial uses and does not extend into residential areas. As discussed in Section 4.5 and shown on **Figure 4-5**, the DVT Public Airport Disclosure Map also depicts the DNL 65<sup>+</sup> dB noise contour and is intended to ensure that the owners and potential purchasers of property are notified that the property is located in or outside of a territory in the vicinity of a public airport.

As part of an EA for the extension of Runway 7L-25R, a noise analysis would be required to ensure that land use compatibility to the east of DVT is not significantly impacted by the proposed 800-foot runway extension. Currently, the land to the east of DVT, a potential Section 4(f) property, is undeveloped and owned by the Arizona State Land Trust. The nearest schools include Woodbridge Private School, approximately 0.32 miles north of DVT, the Adams Traditional Academy and Valley Academy Public Charter School, both approximately ½-mile south of DVT, and Esperanza Elementary School, just under one mile south of DVT. It is unlikely that the DNL 65<sup>+</sup> dB noise contour would expand to areas of incompatible land uses such as residential development, Section 4(f) properties, or other noise-sensitive facilities due to the runway extension, however, the City should continue to monitor rezoning and the potential development of the areas to the east of DVT in particular to ensure that only compatible land uses are introduced.

The other Master Plan Recommended Alternative improvements would not be expected to impact airport noise beyond the temporary period of construction. The slight modifications to the airfield, including the relocation of the helicopter training area and the Runway 7R-25L run-up areas, would not be expected to significantly impact noise exposure levels in the airport environs. The relocation and expansion

of the Runway 7R-25L run-up areas would move these facilities slightly closer to the edge of airport property. The existing land uses near this area are industrial in nature, and therefore impacts due to the slight relocation are not expected to be significant.

#### 7.2.3.9 Secondary (Induced) Impacts

The evaluation of secondary impacts is usually associated with major development and focuses on the potential shift in patterns of population movement and growth; public service demands (typically, level of service for roadways), and changes in business and economic activity to the extent influenced by airport development. The implementation of Master Plan Recommended Alternative improvements would not involve the need to relocate any residence or business, disrupt or divide established communities, or change any planned community development.

The proposed additional roadway access to the north side of DVT would slightly alter surface transportation patterns but would not disrupt the surrounding community nor reduce level of service along any of the affected roadways.

#### 7.2.3.10 Water Quality

The Master Plan Recommended Alternative improvements include additional impervious surface area due to the recommended development of corporate aviation, an aviation business park, additional hangars, tie-down areas, and additional support facilities and buildings. Modifications to the airfield, including taxiway changes, additional runway and run-up areas may also result in additional impervious area. The primary water quality issues associated with additional impervious area is related to stormwater discharges. Potential stormwater-related water quality impacts include the following:

- Discharge of sediments and other pollutants in runoff from construction sites.
- Discharge of fuels, oils, or other pollutants as a result of spills.
- Increased pollutant loadings as a result of runoff from new impervious surfaces which are subject to vehicle or aircraft operations, parking, and maintenance.
- More erosion and sediment transport as a result of higher stormwater discharge rates.

Construction activities associated with the implementation of the Master Plan Recommended Alternative improvements could promote erosion and sedimentation. Construction activities are regulated under AZPDES Construction General Permit (CGP)-2008, through a Notice of Intent to Discharge, and a Construction SWPPP. DVT and all applicable contractors would need to obtain and comply with the requirements and procedures of the construction-related CPG-2008, including the preparation of a *Notice of Intent* and a modification to DVT's SWPPP, prior to the initiation of project construction activities. The Construction SWPPP is only in effect during construction and once final stabilization is in effect, the contractor may enter a *Notice of Termination*.

Following construction of the proposed improvement(s), the Aviation Department will need to continue compliance with the MSGP-2010, effective February 1, 2011. The MSGP-2010 requires that the SWPPP be updated to reflect newly constructed areas and activities with chemicals or oils. Areas with a potential for significant soil erosion due to topography, land disturbance (e.g., construction) or other factors will be identified, and the structural, vegetative and/or stabilization control measures that will be implemented to limit erosion will be developed. The SWPPP must be amended whenever there is a change in design, construction, operation or maintenance that has a significant effect on the discharge or potential for discharge of pollutants from the facility. SWPPP modifications are documented, signed and dated on a SWPPP Modification Log.

Although the recommended improvements will include additional impervious area and grade alteration in some cases, adequate stormwater management and compliance and sediment and erosion control during construction would limit, if not eliminate, any significant disturbance to the natural environment. Accordingly, water quality impacts due to runoff from construction activities associated with the Master Plan Recommended Alternative are not anticipated to be significant.

Water Pressure Issues – As noted in the previous Master Plan Update, the southwest corner of airport property is at an elevation of 1,430 feet, while the northeast portion is at 1,490 feet. The elevation for the northeast corner is the upper limit of Pressure Zone 4A as defined by the City of Phoenix Water Service Department. The 60 feet of elevation change translates into approximately 26 psi of water pressure change. The City of Phoenix tries to maintain, at the top of any Pressure Zone, a minimum pressure of 50 psi. The City of Phoenix Water Service Department recommends that any water or pressure demanding facilities not be located in the northeast corner of airport property. The recommended projects include expansion of t-hangars and tie-down areas, as well as flight school classrooms, a pilot's lounge, and an aviation support building. Several of the proposed improvements proposed in this area may require water for emergencies, such as a fire sprinkler and/or fire suppression system for maintenance activities. Implementation of measures such as a water pressure boost pump may be needed to address such deficiencies and will be determined during follow on design studies.

#### 7.2.3.11 Wetlands

The ACOE previously determined there were no wetlands on DVT property. A review of NWI maps prepared by the U.S. Fish and Wildlife Service also indicate a lack of wetland resources within the DVT environs. Therefore it is expected that there would be no impact to wetlands due to the Master Plan Recommended Alternative improvements; however, this should be confirmed during development of necessary NEPA documentation.

### 7.3 Program Cost Estimates

A preliminary program cost estimate was prepared for the projects identified in the Master Plan Recommended Alternative. The costs for each project by development phase are shown on **Tables 7-3** through **7-6**. The costs are presented in 2014



dollars and represent a planning level estimate. The costs include hard construction cost for each project and an estimate of the total cost for each phase inclusive of soft costs and owner's contingency. The construction costs include a 25% planning contingency. As projects are further refined through the design process these numbers may be adjusted. The funding plan in Section 7.4 breaks out soft costs by project. All soft costs include design, permitting, environmental monitoring, program management, contract procurement, and direct staff costs, including testing and inspection by other City departments. Some soft costs differ depending on whether or not the project uses FAA or ADOT grant funding as described in Section 7.4. For example, project management costs were included for projects that were not eligible for grants. However, these costs were limited to construction administration for grant-eligible projects. As projects are further defined cost estimates may be further refined. The financial analysis in Section 7.4 addresses escalation of project costs as part of the financial plan. The quantities of material were estimated from the plan by performing detailed quantity take-offs. The unit prices used in the development of this estimate reflects recent construction bids in the Phoenix market for similar scopes of work.

**Table 7-3: Phase 1 – Construction Cost Estimate**

<b>Project</b>	<b>Improvement</b>	<b>2014 Hard Construction Cost</b>
3	Relocate Runway 7R-25L Run-up Areas	\$1,112,575
25	Expand T-Hangars	\$5,559,170
12	Construct Partial Length Parallel Taxiway D	\$438,066
8	Relocate Runway 7R-25L South Side Holdbars	\$603,750
6	Mitigate Direct Runway Access to Aprons	\$74,539
7	Mitigate Excess Pavement	\$848,475
10	Upgrade/Install Runway Blast Pads	\$210,416
11	Improve Taxiway and Runway Shoulders (South Runway & Taxiway Only)	\$426,229
15	Designate Helicopter Training Area	\$45,029
16	Install Compass Calibration Pad	\$12,500
23	Upgrade PAPI system to 4 lights	\$250,000
26	Provide New Roadway Access (On-Airport)	\$142,180
28	Expand Tie-downs	\$829,301
	<b>Total Construction Cost</b>	<b>\$10,552,230</b>
	<i>Soft Costs</i>	<i>\$2,894,561</i>
	<b>Total Phase 1 Program Cost</b>	<b>\$13,446,791</b>

Source: AZTEC Analysis based on comparable construction projects.

Note: All dollars are 2014 and do not include escalation. See Tables 7-7 through 7-10 for project cost breakdown.

**Table 7-4: Phase 2 - Construction Cost Estimate**

<b>Project</b>	<b>Improvement</b>	<b>2014 Construction Cost</b>
17	Relocate Public Safety Building with Fire Station	\$10,041,728 <sup>1</sup>
12	Construct Full Length Parallel Taxiway D	\$957,213
27	Relocate Segmented Circle	\$25,000
1	Relocate Taxiway B to 300' from Runway 7L-25R Centerline	\$2,795,474
4	Mitigate Hot Spots 1 and 2 (Taxiways B5/C5 and B9/C9)	\$633,269
9	Construct New Taxiway Connector	\$146,760
6	Mitigate Direct Runway Access to Aprons	\$353,285
28	Expand Tie-downs	\$1,328,108
21	Construct Flight-school Classrooms	\$7,871,763 <sup>2</sup>
7	Mitigate Excess Pavement	\$170,700
10	Upgrade/Install Runway Blast Pads	\$166,493
14	Construct North Side Pilot's Lounge	\$415,843
18	Construct Aviation Support Building	\$7,980,709 <sup>2</sup>
22	Develop Corporate Aviation Area	\$1,103,419 <sup>2</sup>
25	Expand T-Hangars	\$16,657,829 <sup>2</sup>
<b>Total Construction Cost</b>		<b>\$50,647,620</b>
<i>Soft Costs</i>		<i>\$14,866,634</i>
<b>Total Phase 2 Program Cost</b>		<b>\$65,514,254</b>

Source: AZTEC Analysis based on comparable construction projects.

Note: All dollars are 2014 and do not include escalation. See Tables 7-7 through 7-10 for project cost breakdown.

<sup>1</sup>. Costs for the public safety building may be shared among City departments (Aviation, Police, Fire).

<sup>2</sup>. Third-party funding may be utilized to develop facilities see Section 7.4 for more discussion.

**Table 7-5: Phase 3 - Construction Cost Estimate**

<b>Project</b>	<b>Improvement</b>	<b>2014 Construction Cost</b>
26	Provide New Roadway Access	\$1,179,375
28	Expand Tie-downs	\$2,371,623
25	Expand T-Hangars	\$4,209,200 <sup>1</sup>
21	Construct Flight-school Classrooms	\$7,573,295 <sup>1</sup>
2	Relocate Taxiway B3/C3 outside of Runway 7L-25R RPZ	\$877,350
5	Construct Acute Angle Taxiway	\$1,913,588
9	Construct New Taxiway Connector	\$356,349
22	Develop Corporate Aviation Area	\$1,295,855 <sup>1</sup>
<b>Total Construction Cost</b>		<b>\$19,776,635</b>
<i>Soft Costs</i>		<i>\$5,759,814</i>
<b>Total Phase 2 Program Cost</b>		<b>\$25,536,449</b>

Source: AZTEC Analysis based on comparable construction projects.

Note: All dollars are 2014 and do not include escalation. See Tables 7-7 through 7-10 for project cost breakdown.

<sup>1</sup>. Third-party funding may be utilized to develop facilities see Section 7.4 for more discussion.

**Table 7-6: Phase 4 - Construction Cost Estimate**

<b>Project</b>	<b>Improvement</b>	<b>2014 Construction Cost</b>
13	Construct 800' Eastward Extension of Runway 7L-25R	\$734,231
9	Construct New Taxiway Connector	\$908,706
26	Provide New Roadway Access	\$543,861
24	Develop Aviation Business Park	\$320,360 <sup>1</sup>
10	Upgrade/Install Runway Blast Pads	\$83,273
19	Expand Cutter Aviation in-place	N/A
20	Expand Atlantic Aviation in-place	N/A
<b>Total Construction Cost</b>		<b>\$2,590,431</b>
<i>Soft Costs</i>		<i>\$700,310</i>
<b>Total Phase 2 Program Cost</b>		<b>\$3,290,741</b>

Source: AZTEC Analysis based on comparable construction projects.

Note: All dollars are 2014 and do not include escalation. See Tables 7-7 through 7-10 for project cost breakdown.

<sup>1</sup> Third-party funding may be utilized to develop facilities see Section 7.4 for more discussion.

NA = Not applicable. Expansion cost funded by FBOs.

## 7.4 Funding Plan

This section discusses the funding plan for the Master Plan Recommended Alternative program at DVT, including an assessment of potential funding sources, key assumptions, project funding eligibility, a description of the proposed capital program, and an assessment of financial risk.

### 7.4.1 Potential Funding Sources

Financing capital improvements at DVT will not rely exclusively upon operating revenue or local financial resources. Capital improvements funding is available through various grant-in-aid programs on Federal levels. DVT has four potential sources of funding for capital projects at this time:

1. FAA AIP Funds
2. ADOT Grants
3. Third Party sources (private, etc.)
4. City sources

### AIP Funds

Funding is provided to airports through the AIP as awarded by the FAA. AIP funds are divided into two categories: entitlement funds and discretionary funds. As of this writing, U.S. Congress is discussing a renewal of FAA's long-term funding program, which may change the provisions of the AIP program. The current provisions are as follows:

### *Entitlement Funds*

Each primary airport is eligible for annual AIP entitlement grants to fund eligible projects based upon the number of passenger boardings at the airport. Non-primary airports, such as DVT, are currently eligible to receive annually the lesser of (a) 20% of the five-year cost of their current NPIAS value or (b) \$150,000.

Also, under current law in any fiscal year the total amount made available for AIP grant funding under Section 48103 of Title 49 U.S.C. must be \$3.2 billion or more. If the fiscal year appropriation is less than \$3.2 billion, no entitlement funds are dispersed to non-primary airports.

### *Discretionary Funds*

Discretionary funds are awarded at the discretion of the FAA for projects based on a national priority system. The highest weights are assigned to safety, reconstruction, and capacity projects. The airport sponsor cannot commence the work on projects funded using discretionary funds until the grant has been awarded and must be able to commence work during the same fiscal year as the grant agreement or within 6 months, whichever is later. As a non-primary airport in Arizona, DVT can fund up to 91.06% of eligible costs with grants; however, the portion covered by discretionary grants may be lower dependent on the amount of available discretionary funds allocated.

Future levels of AIP funding will be dependent on Congressional reauthorization. This analysis assumes that AIP funding will be maintained at current levels; however, with the national deficit, the long-term funding of AIP at these levels cannot be guaranteed.

### *Project Eligibility for AIP Funding*

Most airfield capital projects and some revenue-generating projects such as terminals, hangars and fuel farms are eligible for AIP funding. However, operating and maintenance (O&M) costs, salaries, supplies, landscaping, and vehicles are generally not eligible.

### **ADOT Grants**

ADOT has a program similar to the FAA's AIP which distributes grants to Arizona airports to:

- Assist in matching Federal grants;
- Fund projects that may not be funded by the FAA but still achieve the State system goals in safety, security, capacity, environmental, planning, or sustainability;
- Assist in airport pavement management;
- Assist statewide aviation planning; or
- Fund low-interest loans for airport projects.

The maximum amount of ADOT funds awarded to an airport in any fiscal year may not exceed 10% of the prior three fiscal years average revenue from all airports to the Arizona Aviation Fund. According to the ADOT draft 2014-2018 Airport Capital Improvement Program, this was approximately \$2.1 million in FY 2014.

### **Third-Party Sources**

Third-party sources, such as tenant-funded projects, may provide an alternative funding approach for new hangars, FBOs such as flight training facilities, aviation support or other revenue-generating facilities not operated by the airport.

### **Local Revenues**

DVT is operated by the City of Phoenix Aviation Department, and therefore is not an independent financial entity. Ideally, however, the revenues at DVT would be sufficient to cover O&M costs as well as the local share of capital improvements. Since DVT is owned by the City, local funding options such as direct City funding and bond financing are possible. Local revenues are typically used to match Federal or state grants or to fund projects that are not eligible for, or cannot obtain, funding from other sources.

#### **7.4.2 Key Financial Assumptions**

Funding projections are necessarily reliant on a set of assumptions about future conditions. These are set forth as follows.

### **Activity Forecast**

The FAA-approved DVT Master Plan Aviation Activity Forecast is the basis of the capacity-driven facility requirements analysis used to develop the proposed capital program. The phasing of projects such as the eastward extension of Runway 7L-25R, t-Hangar, tie-down, and FBO expansions, is dependent on the Forecast.

### **Cost Escalation**

Master Plan Recommended Alternative project costs have been calculated in 2014 dollars. Inflation and cost escalation will no doubt increase these costs in the future, especially for Phase 3 and Phase 4 projects. The cost escalation rate is assumed to be 2.0% per year for the purpose of this analysis, based on recent inflation levels.

### **AIP Funding Levels and Discretionary Funding**

AIP funding levels are assumed to remain unchanged through the forecast period. It is assumed that the national AIP funding level will remain at \$3.2 billion or higher, allowing AIP grant availability to be similar to levels in recent years.



## ADOT Funding

The ADOT funding program is assumed to continue in its present state. The maximum available funding is assumed to be \$2.1 million per year.

### 7.4.3 Proposed Capital Program

Tables **7-7**, **7-8**, **7-9**, and **7-10** describe the proposed capital program by phase, cost breakout, and funding eligibility. Each phase is defined by Federal Fiscal Year (FY) ending September 30<sup>th</sup>. Phase 1 projects are projected to be implemented between FY 2015 and FY 2018, Phase 2 projects between FY 2019 and FY 2023, Phase 3 projects between FY 2024 and FY 2028, and Phase 4 projects between FY 2029 and FY 2033. Projects in the current 2015 Capital Improvement Program (CIP), which include FAA Airports Capital Improvement Program (ACIP) projects and ADOT grant projects, are also listed. Each project is listed by its Master Plan Recommended Alternative project number (see Section 6.4.1) and ACIP or ADOT Project Identifier as appropriate. In some instances there is an overlap between Master Plan and ACIP or ADOT projects.

Several steps were taken to estimate the project costs. The base construction costs for the Master Plan Recommended Alternative projects were developed earlier in this study (see Section 7.3) and include a 25% planning contingency to account for the preliminary nature of master plan concepts compared to detailed designs. All soft cost estimates include design, permitting, environmental monitoring, program management, contract procurement, and direct staff costs, including testing and inspection by other City departments. Some soft costs differ depending on whether or not the project uses FAA or ADOT grant funding. For example, project management costs were included for projects that were not eligible for grants. However, these costs were limited to construction administration for grant-eligible projects.

Since the Master Plan Recommended Alternative project costs were estimated in 2014 dollars, an escalation factor was included for future projects to reflect the impact of inflation. This is fairly minor for Phase 1 projects (5.1%) but significant for Phase 4 projects (40%).

The ACIP and ADOT grant requests are for total project amounts. Therefore, it was assumed that soft costs and escalation were already included as appropriate for these projects.

The FAA has a Facilities & Equipment (F&E) program separate from AIP entitlement and discretionary grants that is used to modernize and improve ATC, air navigation, and aviation safety systems, including aircraft lighting. No local match is required and the projects remain under the control of the FAA. It was assumed that the PAPI system upgrade would be funded from the F&E program.

Table 7-7: Phase 1 Costs by Funding Eligibility (2015-2018)

MP/ACIP/ ADOT Project	Improvement	Hard Construction Costs <sup>1</sup>	Soft Costs <sup>2</sup>	Total Costs (2014 Prices) <sup>3</sup>	Escalation <sup>4</sup>	Total Costs (Including Escalation)	AIP Eligible <sup>5</sup>	F&E Eligible <sup>5</sup>	ADOT Eligible <sup>5</sup>	Third Party Funding	Local
<b>3, ACIP- 2015-2</b>	Relocate Runway 7R-25L Run-up Areas	\$1,112,575	\$285,487	\$1,398,062	5.1%	\$1,469,017	\$1,337,687	-	\$65,665	-	\$65,665
<b>26, ADOT 2015-1</b>	Provide New Roadway Access (On-Airport)	\$142,180	\$36,483	\$178,663	5.1%	\$187,731	\$170,948	-	\$8,392	-	\$8,392
<b>ADOT 2015-1</b>	Reconstruct Existing Perimeter Road - Phase I <sup>6</sup>					\$1,742,269	\$1,586,510	-	\$77,879	-	\$77,879
<b>ACIP- 2016-1</b>	Reconstruct North Ramp - Phase I					\$4,830,000	\$4,398,198	-	\$215,901	-	\$215,901
<b>ADOT 2016-1</b>	Reconstruct Existing Perimeter Road - Phase II					\$2,100,000	\$1,912,260	-	\$93,870	-	\$93,870
<b>ACIP- 2017-1</b>	Reconstruct North Ramp - Phase II					\$3,930,000	\$3,578,658	-	\$175,671	-	\$175,671
<b>ADOT 2017-1</b>	Reconstruct Existing Perimeter Road - Phase III					\$2,100,000	\$1,912,260	-	\$93,870	-	\$93,870
<b>ADOT 2018-1</b>	Reconstruct Southwest Ramp Pavement					\$1,500,000	\$1,365,900	-	\$67,050	-	\$67,050
<b>25</b>	Expand T-Hangars - Required by Taxiway D construction	\$1,853,057	\$475,494	\$2,328,551	5.1%	\$2,446,731	\$2,227,993	-	\$109,369	-	\$109,369
<b>25</b>	Expand T-Hangars - Required to Accommodate Growth	\$3,706,113	\$1,103,681	\$4,809,794	5.1%	\$5,053,903	-	-	-	\$5,053,903	-
<b>12</b>	Construct Partial Length Parallel Taxiway D	\$438,066	\$112,408	\$550,474	5.1%	\$578,412	\$526,702	-	\$25,855	-	\$25,855
<b>8</b>	Relocate Runway 7R-25L South Side Holdbars (typical)	\$603,750	\$154,922	\$758,672	5.1%	\$797,177	\$725,909	-	\$35,634	-	\$35,634
<b>6</b>	Mitigate Direct Runway Access to Aprons	\$74,539	\$19,127	\$93,666	5.1%	\$98,419	\$89,621	-	\$4,399	-	\$4,399
<b>7</b>	Mitigate Excess Pavement	\$848,475	\$217,719	\$1,066,194	5.1%	\$1,120,306	\$1,020,150	-	\$50,078	-	\$50,078
<b>10</b>	Upgrade/Install Runway Blast Pads	\$210,416	\$53,993	\$264,409	5.1%	\$277,828	\$252,990	-	\$12,419	-	\$12,419
<b>11</b>	Improve Taxiway and Runway Shoulders (South Runway & Taxiway Only)	\$426,229	\$109,370	\$535,599	5.1%	\$562,782	\$512,470	-	\$25,156	-	\$25,156
<b>15</b>	Designate Helicopter Training Area	\$45,029	\$11,554	\$56,583	5.1%	\$59,455	\$54,140	-	\$2,658	-	\$2,658
<b>16</b>	Install Compass Calibration Pad	\$12,500	\$3,208	\$15,708	5.1%	\$16,505	\$15,029	-	\$738	-	\$738
<b>23</b>	Upgrade PAPI system to 4 lights	\$250,000	\$64,150	\$314,150	5.1%	\$330,094	-	\$330,094	-	-	-
<b>28</b>	Expand Tie-downs	\$829,301	\$246,966	\$1,076,267	5.1%	\$1,130,890	-	-	-	\$1,130,890	-
<b>Total</b>		<b>\$10,552,230</b>	<b>\$2,894,561</b>	<b>\$13,446,791</b>		<b>\$30,331,518</b>	<b>\$21,687,425</b>	<b>\$330,094</b>	<b>\$1,064,603</b>	<b>\$6,184,793</b>	<b>\$1,064,603</b>

Sources: As noted and HNTB analysis

<sup>1</sup>DVT Master Plan Recommended Alternative - Phase 1 Project Costs and Phoenix Deer Valley Airport 2015 Five-Year Capital Improvement Program Project Request Data Sheet.<sup>2</sup>Includes design, permits, environmental, program management, contract procurement, and direct staff for all projects. Includes construction administration for grant projects and project management for non-grant projects.<sup>3</sup>Total of hard and soft costs.<sup>4</sup>Assumes escalation of 2% per year to mid-point of Phase 1 for Master Plan projects. Escalation assumed to be imbedded in ACIP and ADOT project costs.<sup>5</sup>See text for details. Eligibility does not guarantee funding.<sup>6</sup>ACIP cost estimate less cost of new Access Roadway (MP 26)

Table 7-8: Phase 2 Costs by Funding Eligibility (2019-2023)

MP/ACIP/ ADOT Project	Improvement	Hard Construction Costs <sup>1</sup>	Soft Costs <sup>2</sup>	Total Costs (2014 Prices) <sup>3</sup>	Escalation <sup>4</sup>	Total Costs (Including Escalation)	AIP Eligible <sup>5</sup>	F&E Eligible <sup>5</sup>	ADOT Eligible <sup>5</sup>	Third Party Funding	Local
17	Relocate Public Safety Building with Fire Station	\$10,041,728	\$2,990,427	\$13,032,155	14.9%	\$14,969,849	-	-	-	\$14,969,849	-
12	Construct Full Length Parallel Taxiway D	\$957,213	\$245,621	\$1,202,834	14.9%	\$1,381,678	\$1,258,156	-	\$61,761	-	\$61,761
27	Relocate Segmented Circle	\$25,000	\$6,415	\$31,415	14.9%	\$36,086	\$32,860	-	\$1,613	-	\$1,613
1, ACIP 2018-1	Relocate Taxiway B to 300' from Runway 7L-25R Centerline	\$2,795,474	\$717,319	\$3,512,793	14.9%	\$4,035,095	\$3,674,357	-	\$180,369	-	\$180,369
ACIP 2019-1	Rehabilitate Runway 7R/25L					\$4,000,000	\$3,642,400	-	\$178,800	-	\$178,800
ADOT 2019-1	Reconstruct Southeast Ramp Pavement					\$1,500,000	\$1,365,900	-	\$67,050	-	\$67,050
ADOT 2019-2	Rehabilitate Taxiway C					\$1,200,000	\$1,092,720	-	\$53,640	-	\$53,640
4	Mitigate Hot Spots 1 and 2 (Taxiways B5/C5 and B9/C9)	\$633,269	\$162,497	\$795,766	14.9%	\$914,085	\$832,366	-	\$40,860	-	\$40,860
9	Construct New Taxiway Connector	\$146,790	\$37,666	\$184,456	14.9%	\$211,882	\$192,940	-	\$9,471	-	\$9,471
6	Mitigate Direct Runway Access to Aprons	\$353,285	\$90,653	\$443,938	14.9%	\$509,945	\$464,356	-	\$22,795	-	\$22,795
28	Expand Tie-downs	\$1,328,108	\$395,511	\$1,723,619	14.9%	\$1,979,896	-	-	-	\$1,979,896	-
21	Construct Flight-school Classrooms	\$7,871,763	\$2,344,211	\$10,215,974	14.9%	\$11,734,943	-	-	-	\$11,734,943	-
7	Mitigate Excess Pavement	\$170,700	\$43,802	\$214,502	14.9%	\$246,395	\$224,367	-	\$11,014	-	\$11,014
10	Upgrade/Install Runway Blast Pads	\$166,493	\$42,722	\$209,215	14.9%	\$240,322	\$218,838	-	\$10,742	-	\$10,742
14	Construct North Side Pilot's Lounge <sup>6</sup>	\$415,843	\$123,838	\$539,681	14.9%	\$619,924	\$564,503	-	\$27,711	-	\$27,711
18	Construct Aviation Support Building	\$7,980,709	\$2,376,655	\$10,357,364	14.9%	\$11,897,356	-	-	-	\$11,897,356	-
22	Develop Corporate Aviation Area	\$1,103,416	\$328,597	\$1,432,013	14.9%	\$1,644,933	-	-	-	\$1,644,933	-
25	Expand T-Hangars	\$16,657,829	\$4,960,701	\$21,618,530	14.9%	\$24,832,896	-	-	-	\$24,832,896	-
	<b>Total</b>	<b>\$50,647,620</b>	<b>\$14,866,634</b>	<b>\$65,514,254</b>		<b>\$81,955,285</b>	<b>\$13,563,762</b>	<b>-</b>	<b>\$665,825</b>	<b>\$67,059,873</b>	<b>\$665,826</b>

Sources: As noted and HNTB analysis

<sup>1</sup>DVT Master Plan Recommended Alternative - Phase 2 Project Costs and Phoenix Deer Valley Airport 2015 Five-Year Capital Improvement Program Project Request Data Sheet.<sup>2</sup>Includes design, permits, environmental, program management, contract procurement, and direct staff for all projects. Includes construction administration for grant projects and project management for non-grant projects.<sup>3</sup>Total of hard and soft costs.<sup>4</sup>Assumes escalation of 2% per year to mid-point of Phase 2 for Master Plan projects. Escalation assumed to be imbedded in ACIP and ADOT project costs.<sup>5</sup>See text for details. Eligibility does not guarantee funding.<sup>6</sup>Assumed to be Airport constructed. If an FBO develops facilities on the North Side, this may become a component and be funded by third party funding.

**Table 7-9: Phase 3 Costs by Funding Eligibility (2024-2028)**

MP/ACIP/ ADOT Project	Improvement	Hard Construction Costs <sup>1</sup>	Soft Costs <sup>2</sup>	Total Costs (2014 Prices) <sup>3</sup>	Escalation <sup>4</sup>	Total Costs (Including Escalation)	AIP Eligible <sup>5</sup>	F&E Eligible <sup>5</sup>	ADOT Eligible <sup>5</sup>	Third Party Funding	Local
26	Provide New Roadway Access	\$1,179,375	\$351,218	\$1,530,593	26.8%	\$1,941,162	-	-	-	\$1,941,162	-
28	Expand Tie-downs	\$2,371,623	\$706,269	\$3,077,892	26.8%	\$3,903,512	-	-	-	\$3,903,512	-
25	Expand T-Hangars	\$4,209,200	\$1,253,500	\$5,462,700	26.8%	\$6,928,024	-	-	-	\$6,928,024	-
21	Construct Flight-school Classrooms	\$7,573,295	\$2,255,327	\$9,828,622	26.8%	\$12,465,070	-	-	-	\$12,465,070	-
2	Relocate Taxiway B3/C3 outside of Runway 7L-25R RPZ	\$877,350	\$225,128	\$1,102,478	26.8%	\$1,398,209	\$1,273,209	-	\$62,500	-	\$62,500
5, ACIP 2018-2	Construct Acute Angle Taxiway	\$1,913,588	\$491,027	\$2,404,615	26.8%	\$3,049,633	\$2,776,996	-	\$136,319	-	\$136,319
9	Construct New Taxiway Connector	\$356,349	\$91,439	\$447,788	26.8%	\$567,904	\$517,133	-	\$25,385	-	\$25,385
22	Develop Corporate Aviation Area	\$1,295,855	\$385,906	\$1,681,761	26.8%	\$2,132,879	-	-	-	\$2,132,879	-
<b>Total</b>		<b>\$19,776,635</b>	<b>\$5,759,814</b>	<b>\$25,536,449</b>		<b>\$32,386,391</b>	<b>\$4,567,338</b>	<b>-</b>	<b>\$224,204</b>	<b>\$27,370,646</b>	<b>\$224,204</b>

Sources: As noted and HNTB analysis.

<sup>1</sup>DVT Master Plan Recommended Alternative - Phase 3 Project Costs and Phoenix Deer Valley Airport 2015 Five-Year Capital Improvement Program Project Request Data Sheet.

<sup>2</sup>Includes design, permits, environmental, program management, contract procurement, and direct staff for all projects. Includes construction administration for grant projects and project management for non-grant projects.

<sup>3</sup>Total of hard and soft costs.

<sup>4</sup>Assumes escalation of 2% per year to mid-point of Phase 3 for Master Plan projects. Escalation assumed to be imbedded in ACIP and ADOT project costs.

<sup>5</sup>See text for details. Eligibility does not guarantee funding.

**Table 7-10: Phase 4 Costs by Funding Eligibility (2029-2033)**

MP/ACIP/ ADOT Project	Improvement	Hard Construction Costs <sup>1</sup>	Soft Costs <sup>2</sup>	Total Costs (2014 Prices) <sup>3</sup>	Escalation <sup>4</sup>	Total Costs (Including Escalation)	AIP Eligible <sup>5</sup>	F&E Eligible <sup>5</sup>	ADOT Eligible <sup>5</sup>	Third Party Funding	Local
13	Construct 800' Eastward Extension of Runway 7L-25R	\$734,231	\$188,404	\$922,635	40.0%	\$1,291,911	\$1,176,414	-	\$57,748	-	\$57,748
9	Construct New Taxiway Connector	\$908,706	\$233,174	\$1,141,880	40.0%	\$1,598,908	\$1,455,965	-	\$71,471	-	\$71,471
26	Provide New Roadway Access	\$543,861	\$161,962	\$705,823	40.0%	\$988,322	-	-	-	\$988,322	-
24	Develop Aviation Business Park	\$320,360	\$95,403	\$415,763	40.0%	\$582,169	-	-	-	\$582,169	-
10	Upgrade/Install Runway Blast Pads	\$83,273	\$21,368	\$104,641	40.0%	\$146,522	\$133,423	-	\$6,550	-	\$6,550
19	Expand Cutter Aviation in-place	-	-	-	40.0%	-	-	-	-	-	-
20	Expand Atlantic Aviation in-place	-	-	-	40.0%	-	-	-	-	-	-
<b>Total</b>		<b>\$2,590,431</b>	<b>\$700,310</b>	<b>\$3,290,741</b>		<b>\$4,607,833</b>	<b>\$2,765,803</b>	<b>-</b>	<b>\$135,769</b>	<b>\$1,570,491</b>	<b>\$135,769</b>

Sources: As noted and HNTB analysis.

<sup>1</sup>DVT Master Plan Recommended Alternative - Phase 4 Project Costs and Phoenix Deer Valley Airport 2015 Five-Year Capital Improvement Program Project Request Data Sheet.

<sup>2</sup>Includes design, permits, environmental, program management, contract procurement, and direct staff for all projects. Includes construction administration for grant projects and project management for non-grant projects.

<sup>3</sup>Total of hard and soft costs.

<sup>4</sup>Assumes escalation of 2% per year to mid-point of Phase 4 for Master Plan projects. Escalation assumed to be imbedded in ACIP and ADOT project costs.

<sup>5</sup>See text for details. Eligibility does not guarantee funding.

Although some public-access revenue generating projects are eligible for AIP or ADOT grants, it is assumed that these projects would primarily be funded by third parties. These projects include most t-hangar and tie-down ramp expansion, flight school classrooms, aviation support buildings, corporate aviation areas, a new aviation business park and related roadways, and expansion of current FBOs. Some of the t-hangar expansion would be required by the proposed Taxiway D construction, and therefore it is expected that grant funding would be sought for those t-hangars.

**Table 7-11** summarizes the project costs by phase and eligibility. A little more than 50% of Master Plan costs are scheduled for Phase 2, but most of these are revenue-generating projects that are anticipated to attract third-party funding. The majority of grant-eligible projects are expected to occur in Phase 1, primarily because of the apron and perimeter road reconstruction projects expected to occur during that period.

#### 7.4.4 Funding Capacity and Risk Analysis

The ability to implement the Master Plan Recommended Alternative projects will in large part depend on the amount of grant funding obtained from the FAA and ADOT. **Table 7-12** presents the history of grant funding for DVT projects during the 2004-2013 period. As shown, DVT has been very successful in obtaining grants over that time, including a high of \$11.6 million in AIP funding in FY 2010 and a high of \$2.4 million in ADOT funding in 2007. The 2007 ADOT funding amount was close to the maximum allowable amount under ADOT rules.

DVT obtained an average of \$4.2 million per year in FAA grants and an average of \$0.9 million in ADOT grants during that time. Even taking the average of the five lowest years in that span results in an average of \$1.7 million per year in FAA grants and over \$300,000 per year in ADOT grants. As long as Congress appropriates at least \$3.2 billion in AIP funds, DVT would be eligible for at least \$150,000 in entitlement funds. However, DVT has significantly exceeded that amount in recent years.

As noted earlier, funding eligibility is not a guarantee of funding. Three alternative funding scenarios were prepared to evaluate the funding risk, as shown in **Table 7-13**. The three funding scenarios are as follows:

- **Baseline Scenario:** This scenario assumes that FAA and ADOT continue to provide funding at historical levels similar to the past nine years.
- **Aggressive Scenario:** This scenario assumes that eligible projects are funded at their full eligible amount.
- **Conservative Scenario:** This scenario assumes that FAA and ADOT grant levels are reduced to levels comparable to the average of the four lowest years of funding in **Table 7-12**.



**Table 7-11: Summary of Project Costs by Phase and Eligibility**

<b>Phase</b>	<b>Total Costs (Including Escalation)</b>	<b>AIP Eligible</b>	<b>F&amp;E Eligible</b>	<b>ADOT Eligible</b>	<b>Third Party Funding</b>	<b>Local</b>
<b>1</b>	\$30,331,518	\$21,687,425	\$330,094	\$1,064,603	\$6,184,793	\$1,064,603
<b>2</b>	\$81,955,285	\$13,563,762	-	\$665,825	\$67,059,873	\$665,826
<b>3</b>	\$32,386,391	\$4,567,338	-	\$224,204	\$27,370,646	\$224,204
<b>4</b>	\$4,607,833	\$2,765,803	-	\$135,769	\$1,570,491	\$135,769
<b>Total</b>	<b>\$149,281,028</b>	<b>\$42,584,327</b>	<b>\$330,094</b>	<b>\$2,090,401</b>	<b>\$102,185,804</b>	<b>\$2,090,402</b>

Sources: Tables 7-7 through 7-10

**Table 7-12: Recent FAA and ADOT Grant History at DVT**

<b>Federal Fiscal Year</b>	<b>FAA Grants</b>	<b>ADOT Grants</b>	<b>Total</b>
<b>2004</b>	\$1,821,000	\$550,000	\$2,371,000
<b>2005</b>	\$442,500	\$585,000	\$1,027,500
<b>2006</b>	\$3,000,000	\$1,305,000	\$4,305,000
<b>2007</b>	\$4,400,799	\$2,400,000	\$6,800,799
<b>2008</b>	\$1,093,316	\$990,000	\$2,083,316
<b>2009</b>	\$8,230,962	\$162,840	\$8,393,802
<b>2010</b>	\$11,590,000	-	\$11,590,000
<b>2011</b>	\$6,289,400	\$387,538	\$6,676,938
<b>2012</b>	\$3,239,299	\$411,311	\$3,650,610
<b>2013</b>	\$2,329,401	\$1,953,000	\$4,282,401
<b>Total</b>	<b>\$42,436,677</b>	<b>\$8,744,689</b>	<b>\$51,181,366</b>
<b><i>Average Annual</i></b>	<i>\$4,243,668</i>	<i>\$874,469</i>	<i>\$5,118,137</i>
<b><i>Average of Four Lowest Years</i></b>	<i>\$1,716,243</i>	<i>\$302,338</i>	<i>\$2,039,581</i>

Source: City of Phoenix Aviation Department

Under the baseline scenario, the FAA would fully fund the Master Plan Recommended Alternative projects during Phases 2, 3, and 4. In Phase 1, \$17.3 million of the \$21.7 million eligible amount would be funded. ADOT would be able to fund some of the shortfall, but the local share would rise from \$1.0 million under the aggressive scenario to \$3.4 million. Under the conservative scenario, there would be a significant shortfall in FAA and ADOT funding in Phase 1 and a more moderate shortfall in Phase 2. Projects in Phases 3 and Phase 4 could be funded to their full eligible amount even under the conservative scenario.

It should be noted that many of the Master Plan Recommended Alternative projects are safety-related projects and therefore should receive a high priority from FAA and ADOT. This, combined with DVT's past history of successfully obtaining grant funding, suggest that DVT should be able to meet or exceed the baseline funding scenario. If there is a shortfall, the Aviation Department has the option of delaying the phasing of some projects or committing additional local resources.

Ideally, the Aviation Department would be able to cover the local share of costs from net revenues collected at DVT. **Tables 7-14** and **7-15** present revenues and O&M costs at DVT from FY 2006 through 2014.

**Table 7-13: Potential Grant Funding Scenarios at DVT**

Phase	FAA Grants	ADOT Grants	Third Party Funding	Local	Total
<b>Baseline Funding Scenario<sup>1</sup></b>					
<b>1</b>	\$17,304,765	\$3,420,980	\$6,184,793	\$3,420,980	\$30,331,518
<b>2</b>	\$13,563,762	\$665,825	\$67,059,873	\$665,825	\$81,955,285
<b>3</b>	\$4,567,338	\$224,204	\$27,370,646	\$224,204	\$32,386,391
<b>4</b>	\$2,765,803	\$135,769	\$1,570,491	\$135,769	\$4,607,833
<b>Total</b>	<b>\$38,201,667</b>	<b>\$4,446,778</b>	<b>\$102,185,804</b>	<b>\$4,446,778</b>	<b>\$149,281,028</b>
<b>Aggressive Funding Scenario<sup>2</sup></b>					
<b>1</b>	\$22,017,519	\$1,064,603	\$6,184,793	\$1,064,603	\$30,331,518
<b>2</b>	\$13,563,762	\$665,825	\$67,059,873	\$665,825	\$81,955,285
<b>3</b>	\$4,567,338	\$224,204	\$27,370,646	\$224,204	\$32,386,391
<b>4</b>	\$2,765,803	\$135,769	\$1,570,491	\$135,769	\$4,607,833
<b>Total</b>	<b>\$42,914,421</b>	<b>\$2,090,401</b>	<b>\$102,185,804</b>	<b>\$2,090,401</b>	<b>\$149,281,028</b>
<b>Conservative Funding Scenario<sup>3</sup></b>					
<b>1</b>	\$7,279,067	\$1,209,351	\$6,184,793	\$15,658,307	\$30,331,518
<b>2</b>	\$8,686,217	\$1,511,689	\$67,059,873	\$4,697,506	\$81,955,285
<b>3</b>	\$4,567,338	\$224,204	\$27,370,646	\$224,204	\$32,386,391
<b>4</b>	\$2,765,803	\$135,769	\$1,570,491	\$135,769	\$4,607,833
<b>Total</b>	<b>\$23,298,425</b>	<b>\$3,081,013</b>	<b>\$102,185,804</b>	<b>\$20,715,786</b>	<b>\$149,281,028</b>

Sources: As noted and HNTB analysis

<sup>1</sup>Assumes FAA and ADOT provide grant funding at the same average annual rate as the last nine years.<sup>2</sup>Assumes FAA and ADOT fund projects to their full eligible amount.<sup>3</sup>Assumes FAA and ADOT provide grants at reduced levels, comparable to the four lowest funding years during the last nine years.

Table 7-14: Historical Operating Revenues at DVT

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
<b>Revenue Categories</b>									
Landing Fees	\$2,544	\$1,476	\$296	-	-	-	-	-	-
Commercial Tenant Office	-	-	-	-	-	-	-	-	-
Commercial Tenant Food & Bev	\$148,026	\$120,403	\$100,779	\$88,344	\$87,165	\$90,242	\$91,776	\$91,251	\$93,853
Commercial Tenant Retail	\$22,878	\$20,453	\$19,291	\$19,418	\$37,819	\$44,132	\$41,450	\$36,634	\$43,479
FBO Fees	\$104,911	\$263,146	\$92,698	\$172,257	\$143,174	\$129,690	\$128,971	\$130,997	\$128,150
SASO <sup>1</sup> Fees	-	-	-	\$47,344	\$148,180	\$162,021	\$162,076	\$169,219	\$161,796
Car Rental	\$38,741	\$35,015	\$42,760	\$29,267	\$31,067	\$20,154	\$9,503	\$11,346	\$16,392
Hangars	\$1,762,320	\$2,008,044	\$1,958,488	\$1,891,326	\$1,954,992	\$1,977,130	\$1,982,277	\$2,090,226	\$2,013,441
Tie Downs	\$259,643	\$287,247	\$277,916	\$246,074	\$225,812	\$196,134	\$172,195	\$160,393	\$156,152
Land Rental	\$21,968	\$188,918	\$31,786	\$42,077	\$34,532	\$33,004	\$34,092	\$34,395	\$34,331
Building Rental	\$108,022	\$23,861	\$7,793	\$7,793	\$113,893	\$117,297	\$120,536	\$123,880	\$127,210
Fuel Flowage	\$284,676	\$243,658	\$215,461	\$214,674	\$225,492	\$211,057	\$209,907	\$207,811	\$228,045
Other	\$18,988	\$5,358	\$(5,896)	\$(27,337)	\$13,314	\$244,885	\$7,008	\$6,203	\$9,773
<b>Total</b>	<b>\$2,772,717</b>	<b>\$3,197,579</b>	<b>\$2,741,373</b>	<b>\$2,731,236</b>	<b>\$3,015,439</b>	<b>\$3,225,744</b>	<b>\$2,959,791</b>	<b>\$3,062,356</b>	<b>\$3,012,622</b>

Source: City of Phoenix Aviation Enterprise Fund, Deer Valley Operating Fund - Revenues

<sup>1</sup>Specialized Aviation Service Operations.

Table 7-15: Historical Operating Expenditures at DVT

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
<b>Expenditure Categories</b>									
Runway/Taxiway	\$155,007	\$245,080	\$261,535	\$182,288	\$349,102	\$514,032	\$384,299	\$629,675	\$611,788
Commercial	\$28,034	\$17,740	\$21,534	\$50,292	\$45,654	\$36,972	\$18,215	\$28,539	\$194,271
FBOs	\$41	\$1,375	\$87	-	-	\$73	-	-	-
Executive Hangars	\$5,604	\$2,414	\$2,780	\$15,638	\$8,704	\$3,528	\$21,403	\$6,897	\$6,362
GA Terminal	\$44,007	\$53,241	\$59,049	\$43,203	\$63,892	\$197,727	\$94,830	\$80,917	\$58,446
GA Ramps	\$49,577	\$74,297	\$47,978	\$55,166	\$85,458	\$130,609	\$150,742	\$205,170	\$209,844
Terminal Hangars	\$108,446	\$102,964	\$100,415	\$88,615	\$139,556	\$172,959	\$131,031	\$171,927	\$166,635
Open Tie-Downs	\$4,125	\$2,905	\$1,930	\$1,791	\$5,664	\$1,073	\$2,182	\$26,702	\$4,944
Fuel	\$230	\$344	\$1,812	-	\$525	-	\$1,323	-	\$1,320
Transient Ramp	\$193	\$257	\$481	-	\$370	-	\$123	\$2,936	\$18,100
Covered Tie-Downs	\$1,124	\$892	\$1,222	\$348	\$853	\$218	\$368	\$526	\$2,589
Administration	\$488,282	\$563,546	\$603,364	\$621,777	\$661,919	\$674,693	\$613,914	\$693,405	\$627,515
Roadways	\$75,779	\$70,877	\$74,912	\$84,350	\$166,596	\$227,190	\$226,565	\$244,842	\$151,378
Vehicle Maintenance	\$5,284	\$3,493	\$6,509	\$3,941	\$7,319	\$12,318	\$18,640	\$15,336	\$50,997
Maintenance Supplies	\$203,345	\$224,450	\$258,781	\$245,763	\$420,853	\$524,570	\$398,187	\$452,206	\$480,986
GA Services	\$557,312	\$554,849	\$599,378	\$734,718	\$420,477	\$112,276	\$410,661	\$295,290	\$545,832
Other	\$320	\$4,900	\$4,924	\$60,668	-	\$510	\$355	-	-
<b>Total</b>	<b>\$1,726,710</b>	<b>1,923,623</b>	<b>\$2,046,691</b>	<b>\$2,188,558</b>	<b>\$2,376,941</b>	<b>\$2,608,747</b>	<b>\$2,472,835</b>	<b>\$2,854,367</b>	<b>\$3,131,007</b>

Source: City of Phoenix Aviation Enterprise Fund, Deer Valley Operating Fund - Expenditures

In FY 2006 and FY 2007, DVT revenues exceeded DVT O&M costs by a substantial amount, in excess of \$1.0 million. However, revenues have remained flat while O&M costs have been steadily increasing, especially in O&M related to runways, taxiways and apron. Typically these costs rise at the end of airfield reconstruction cycles and will presumably go down once the current runway and ramp rehabilitation and reconstruction projects are completed.

In addition, anticipated third-party development should generate new revenue opportunities for DVT. As an example, one upcoming corporate hangar project is anticipated to potentially generate \$650,000 in new revenue for the Aviation Department over a five year period.

The above analysis suggests that DVT should be able to obtain most of the required funding from FAA and ADOT grants or third-party developers. Although these sources will minimize the required local funding, it is unlikely that the Aviation Department will be able to fund the local share solely from DVT net revenues, at least during the short term. Thus, some infusions from elsewhere in the City's aviation system, such as PHX, may be required.

## 7.5 Five Year Capital Improvement Program

The recommended five year CIP for DVT represents a year-by-year phasing of DVT's priority projects from FY 2015 through FY 2019. The CIP includes all of the Phase 1 projects and the first year of the Phase 2 projects. **Table 7-16** presents the DVT 5-Year CIP including eligible funding sources.

The year-by-year phasing of the CIP projects was based on the phasing plan presented in Section 7.1. Specifically, the relocation of the Runway 7R-25L south side holdbars (MP Project 8) must be preceded by the relocation of the Runway 7R-25L run up areas (MP Project 3) and construction of partial-length parallel Taxiway D (MP Project 12). Taxiway D will displace the northern-most row of t-hangars which will need to be relocated to the north side of DVT (MP 25) and will require the mitigation of direct access between the south apron and Runway 7R-25L (MP Project 6). Finally, in 2019 the relocation of Taxiway B from 200-feet to 300-feet from the Runway 7L-25R centerline (MP Project 1) and the relocation of the segmented circle (MP Project 27) will be required to mitigate Hot Spots 1 and 2 (MP Project 4) in future years.

Other independent Master Plan Recommended Alternative projects were phased to spread AIP and ADOT funding requests as evenly as possible over the five year period.

The resulting CIP would require \$3.4 million in funding in FY 2015, \$11.8 million in FY 2016, \$6.6 million in FY 2017, \$8.5 million in FY 2018, and \$10.8 million in FY 2019.



Table 7-16: Proposed DVT 5-Year CIP

Project	Improvement	Total Escalated Costs	AIP Eligible	F&E Eligible	ADOT Eligible	Third Party Funding	Local
<b>FY 2015</b>							
<b>3, ACIP-2015-2</b>	Relocate Runway 7R-25L Run-up Areas	\$1,469,017	\$1,337,687	-	\$65,665	-	\$65,665
<b>26, ADOT-2015-1</b>	Provide New Roadway Access (On-Airport)	\$187,731	\$170,948	-	\$8,392	-	\$8,392
<b>ADOT 2015-1</b>	Reconstruct Existing Perimeter Road - Phase I (f)	\$1,742,269	\$1,586,510	-	\$77,879	-	\$77,879
<b>FY 2016</b>							
<b>ACIP-2016-1</b>	Reconstruct North Ramp - Phase I	\$4,830,000	\$4,398,198	-	\$215,901	-	\$215,901
<b>ADOT 2016-1</b>	Reconstruct Existing Perimeter Road - Phase II	\$2,100,000	\$1,912,260	-	\$93,870	-	\$93,870
<b>25</b>	Expand T-Hangars - Required by Taxiway D construction (g)	\$2,446,731	\$2,227,993	-	\$109,369	-	\$109,369
<b>28</b>	Expand Tie-downs	\$1,130,890	-	-	-	\$1,130,890	-
<b>8</b>	Relocate Runway 7R-25L South Side Holdbars	\$797,177	\$725,909	-	\$35,634	-	\$35,634
<b>6</b>	Mitigate Direct Runway Access to Aprons	\$98,419	\$89,621	-	\$4,399	-	\$4,399
<b>23</b>	Upgrade PAPI system to 4 lights	\$330,094	-	\$330,094	-	-	-
<b>15</b>	Designate Helicopter Training Area	\$59,455	\$54,140	-	\$2,658	-	\$2,658
<b>16</b>	Install Compass Calibration Pad	\$16,505	\$15,029	-	\$738	-	\$738
<b>FY 2017</b>							
<b>ACIP-2017-1</b>	Reconstruct North Ramp - Phase II	\$3,930,000	\$3,578,658	-	\$175,671	-	\$175,671
<b>ADOT 2017-1</b>	Reconstruct Existing Perimeter Road - Phase III	\$2,100,000	\$1,912,260	-	\$93,870	-	\$93,870
<b>12</b>	Construct Partial Length Parallel Taxiway D	\$578,412	\$526,702	-	\$25,855	-	\$25,855
<b>FY 2018</b>							
<b>ADOT 2018-1</b>	Reconstruct Southwest Ramp Pavement	\$1,500,000	\$1,365,900	-	\$67,050	-	\$67,050
<b>11</b>	Improve Taxiway and Runway Shoulders (South Runway & Taxiway Only)	\$562,782	\$512,470	-	\$25,156	-	\$25,156
<b>7</b>	Mitigate Excess Pavement	\$1,120,306	\$1,020,150	-	\$50,078	-	\$50,078
<b>10</b>	Upgrade/Install Runway Blast Pads	\$277,828	\$252,990	-	\$12,419	-	\$12,419
<b>25</b>	Expand T-Hangars - Required to Accommodate Growth (h)	\$5,053,903	-	-	-	\$5,053,903	-
<b>FY 2019</b>							
<b>27</b>	Relocate Segmented Circle	\$36,086	\$32,860	-	\$1,613	-	\$1,613
<b>1, ACIP 2018-1</b>	Relocate Taxiway B to 300' from Runway 7L-25R Centerline	\$4,035,095	\$3,674,357	-	\$180,369	-	\$180,369
<b>ACIP 2019-1</b>	Rehabilitate Runway 7R/25L	\$4,000,000	\$3,642,400	-	\$178,800	-	\$178,800
<b>ADOT 2019-1</b>	Reconstruct Southeast Ramp Pavement	\$1,500,000	\$1,365,900	-	\$67,050	-	\$67,050
<b>ADOT 2019-2</b>	Rehabilitate Taxiway C	\$1,200,000	\$1,092,720	-	\$53,640	-	\$53,640
<b>Totals by Fiscal Year</b>							
	<b>2015</b>	\$3,399,017	\$3,095,145	-	\$151,936	-	\$151,936
	<b>2016</b>	\$11,809,271	\$9,423,150	\$330,094	\$462,568	\$1,130,890	\$462,568
	<b>2017</b>	\$6,608,412	\$6,017,620	-	\$295,396	-	\$295,396
	<b>2018</b>	\$8,514,819	\$3,151,510	-	\$154,703	\$5,053,903	\$154,703
	<b>2019</b>	\$10,771,181	\$9,808,237	-	\$481,472	-	\$481,472
	<b>Total</b>	<b>\$41,102,699</b>	<b>\$31,495,662</b>	<b>\$330,094</b>	<b>\$1,546,075</b>	<b>\$6,184,793</b>	<b>\$1,546,075</b>

Sources: Table 7-7, Table 7-8, and HNTB analysis