



Chapter 4

Options

In the previous chapter, aviation facilities required to satisfy airside and landside demand through the long-term planning period of the master plan were identified. In addition, various Federal Aviation Administration (FAA) standards were discussed that apply to airfield design. The next step in the planning process is to evaluate reasonable ways in which these facilities can be provided, and the design standards can be met. The purpose of this chapter is to formulate and examine rational development options that address the short-, intermediate-, and long-term planning horizon levels. Because there are a multitude of possibilities and combinations, it is necessary to focus on those opportunities that have the greatest potential for success. Each option provides a differing approach to meet existing and future facility needs, and these layouts are presented for purposes of evaluation and discussion.

Some airports become constrained due to limited availability of space, while others may be constrained due to adjacent land use development. Careful consideration should be given to the layout of future facilities and impacts on potential airfield improvements at Powell Municipal Airport (POY). Proper planning at this time can ensure the long-term viability of the airport for aviation and economic growth.

The primary goal of this planning process is to develop a feasible plan for meeting applicable safety design standards and the needs that result from the projected market demand over the next 20 years. The plan of action should be developed in a manner that is consistent with the future goals and objectives of the City of Powell, airport users, the local community, and the surrounding region, all of which have a vested interest in the development and operation of POY.

The goal is to develop an underlying rationale that supports the final recommended concept. Through this process, an evaluation of the highest and best uses of airport property will be made, while also weighing local development goals, efficiency, physical factors, capacity, and appropriate safety design standards.

The options presented in this chapter have been formulated as potential means to meet the overall program objectives for the airport in a balanced manner. Through coordination with the City of Powell, airport management, the planning advisory committee (PAC), and the public, an option (or combination of options) will be refined and modified as necessary into a recommended development concept; therefore, the planning considerations and options presented in this chapter can be considered a beginning point in the evolution of a recommended concept for the future of POY.



PLANNING OBJECTIVES

A set of basic planning objectives has been established to guide the options development process. It is the goal of this master planning effort to produce a development plan for the airport that addresses forecast aviation demand and meets FAA design standards to the greatest degree possible. As owner and operator, the City of Powell provides the overall guidance for the operation and development of the airport. It is of primary concern that POY is marketed, developed, and operated for the betterment of the community and its users. The following basic planning principles and objectives will be utilized as general guidelines during this planning effort:

- Develop a safe, attractive, and efficient aviation facility in accordance with applicable federal, state, and local regulations
- Preserve and protect public and private investments in existing airport facilities
- Provide a means for the airport to grow, as dictated by demand
- Establish a plan to ensure the long-term viability of the airport and promote compatible land uses surrounding the airport
- Develop a facility that is responsive to the changing needs of all aviation users
- Reflect and support the long-term planning efforts that are currently applicable to the region
- Develop a facility with a focus on self-sufficiency in both operational and developmental cost recovery

REVIEW OF PREVIOUS AIRPORT PLANS

The Airport Layout Plan (ALP) currently on file for POY was completed in 2011 and includes the following primary recommendations:

- Extend primary Runway 13-31 by 1,150 feet, for an ultimate length of 7,350 feet
- Construction of a paved crosswind Runway 5-23 measuring 6,000 feet long by 60 feet wide
- Abandon turf/dirt Runways 17-35 and 3-21 following construction of Runway 5-23
- Construction of full-length parallel taxiways serving existing Runway 13-31 and proposed Runway 5-23
- Landside development (i.e., terminal building, additional hangars and aircraft parking apron)

Since the previous plan was finalized, the terminal building and several hangars have been constructed; however, none of the significant airfield changes that were recommended have been implemented. The analysis presented in this chapter will revisit some of the recommendations presented on the existing

ALP drawing, along with new development options to meet the existing/ultimate airport reference code (ARC) and runway design code (RDC) outlined in the previous chapters. Since the completion of the last plan, the FAA has made significant modifications to design standards, as outlined in the previous chapter. As such, some of the previous plan's elements may be carried over to this master plan and others may be changed or removed from further consideration.

NO ACTION/NON-DEVELOPMENT OPTIONS

The City of Powell is charged with managing the airport for the economic betterment of the community and region. In some cases, options may include a no action option; however, for POY, this would effectively reduce the quality of services being provided to the public, affect the aviation facility's ability to meet FAA design standards, and impact the region's ability to support aviation needs. The ramifications of a no action option extend into impacts on the economic well-being of the region. If facilities are not maintained and improved so the airport provides a pleasant experience for the visitor or business traveler, or if delays become unacceptable, then activity and business may shift elsewhere. The no action option is also inconsistent with the primary long-term goal of the FAA and WYDOT-Aeronautics, which is to enhance local and interstate commerce. Additionally, the acceptance and use of state and federal grants carries an obligation, called grant assurances, which requires the City of Powell to maintain and allow for the improvement of POY as needed to serve local and regional demand. Other significant considerations are previous investments and outstanding contractual agreements with all airport tenants and users. Not continuing active management and development of the airport would require the city to breach these obligations and could create associated legal actions; therefore, a no action option is not considered further in this master plan.

This study will not consider the relocation of services to another airport or development of a new airport site. The development of a new facility like POY is a very complex and expensive option. A new site would require greater land area, duplication of investment in facilities, installation of supporting infrastructure that is already available at the existing site, and greater potential for negative impacts to natural, biological, and cultural resources.

The purpose of this study is to examine aviation needs at POY over the course of the next 20 years; therefore, this master plan will examine the needs of the existing airport and will present a program of needed capital improvement projects to cover the scope of the plan. The airport is not only a transportation utility, but also an economic asset for the region. It can accommodate existing and future demand and should be developed accordingly to support the interests of local residents and businesses that rely upon it. Ultimately, the final decision regarding pursuing development rests with the City of Powell, the FAA, and WYDOT-Aeronautics on an individual project basis. The following analysis considers airside and landside development options that take into account an array of facility demands, including safety, capacity, access, and efficiency.

AIRSIDE OPTIONS

The development options are categorized into two functional areas: airside and landside. The airside relates to runways, taxiways, navigational aids, lighting and marking aids, etc., which require the greatest commitment of land area to meet the physical layout of an airport and the required airfield safety standards. The design of the airfield also defines minimum setback distances from the runway and object clearance standards; these criteria are defined first to ensure that the fundamental needs of POY are met. The landside includes terminal services, hangars, and aircraft parking aprons, as well as utilization of remaining property to provide revenue support for the airport and to benefit the economic development and well-being of the regional area.

Each functional area interrelates and affects the development potential of the others. As such, all areas must be examined individually and then coordinated holistically to ensure the final plan is functional, efficient, and cost-effective. The total impact of these factors must be evaluated to determine if the investment in POY will meet the needs of the surrounding area, both during and beyond the planning period of this study.

AIRSIDE CONSIDERATIONS

Airside planning considerations generally relate to airport elements that contribute to the safe and efficient transition of aircraft and passengers from air transportation to the landside facilities at the airport. Planning must factor and balance many airside items, including meeting FAA design parameters of the established design aircraft, instrument approach capability, airfield capacity, runway length, taxiway layouts, and pavement strengths. Each of these elements for POY was analyzed in the previous chapter. The options to follow will examine airside improvement opportunities to meet design standards and/or capacity constraints. A summary of the primary airside planning issues to be considered in this options analysis is included below.

Airside Planning Considerations
1. Continued maintenance of existing three-runway system
2. Meet ultimate design standards on all runways (RDC B-II-4000 on primary Runway 13-31 and RDC A-I(Small)-VIS on turf/dirt Runways 17-35 and 3-21)
3. Analyze extension options for primary runway
4. Mitigate non-standard conditions in safety areas associated with each runway
5. Improved instrument approach capability
6. Corrective measures for non-standard taxiway geometry
7. Upgraded/new visual approach aids to both runways
8. New/upgraded airfield lighting and marking

Consideration #1 – Continued Maintenance of Three-Runway System

The previous chapter evaluated the existing runway orientation at POY. Using data collected from the on-site automated weather observing system (AWOS), it was determined that primary Runway 13-31 provides less than 95 percent coverage during 10.5-knot and 13-knot crosswind conditions. As such, a crosswind runway is eligible. The combined coverage provided by the current three-runway system is greater than 98 percent during 10.5-knot and greater crosswind conditions. As outlined in Chapter Three, previous planning called for the construction of a new paved crosswind runway and abandonment of the existing turf/dirt runways; however, local support does not currently favor construction of a new runway. The wind coverage of each turf/dirt runway in relation to primary Runway 13-31 was also examined, with mixed results. Under visual flight rules (VFR) conditions, the combination of Runways 13-31 and 3-21 provided the best coverage, but under instrument flight rules (IFR) conditions, the combination of Runway 13-31 and Runway 17-35 provided the best coverage; therefore, prudent planning would suggest the continued maintenance of all three runways, with the dirt/turf runways maintained in their current conditions.

Consideration #2 – Meet Ultimate Design Standards

The critical aircraft analysis in Chapter Two concluded that primary Runway 13-31 should meet RDC B-II-4000 design standards in the ultimate condition. The runway is currently categorized as RDC B-II-5000, which is derived from the types of airplanes using the airport most frequently (ARC B-II aircraft) and the current instrument approach capability (RVR 5000, which corresponds to one-mile visibility minimums). In the future, the airport should be planned to accommodate an improved instrument approach, with visibility minimums below one-mile but not lower than $\frac{3}{4}$ -mile. The options to follow will illustrate options to protect both existing and ultimate safety areas.

Dirt/turf Runways 17-35 and 3-21 are currently classified as RDC A-I(Small)-VIS, meaning they support smaller aircraft and are visual runways, without published instrument approach procedures. Both runways are planned to meet the same standards in the ultimate condition.

Consideration #3 – Analyze Runway Extension Options

Primary Runway 13-31 is currently 6,200 feet long and 100 feet wide. The width exceeds existing/ultimate RDC B-II design standards, which call for a runway width of 75 feet. The additional width should be maintained, if feasible, with the understanding that the FAA may not participate in funding maintenance projects for the pavement that exceeds the standard. Regarding the potential for a runway extension, the runway length analysis in the previous chapter illustrated that some turbine operators are weight-restricted or unable to operate on the existing runway length, especially during hot weather. An extension is not currently justified via regular use by aircraft that need it; however, such a change could reasonably occur over the next 20 years. As such, extension options will be analyzed for the primary runway in the airside options to follow.

Turf/dirt Runway 17-35 is 2,709 feet long and 100 feet wide; turf/dirt Runway 3-21 is 2,623 feet long and 100 feet wide. This width exceeds the existing/ultimate standard, which calls for a 60-foot-wide runway.

Like primary Runway 13-31, the extra width provides an additional safety margin and should be maintained, if feasible, with the understanding that funding the additional width may be the sole responsibility of the City of Powell. As the airport sponsor wishes to maintain the dirt/turf runways at their current lengths, the options do not depict extension options for either runway.

Consideration #4 – Mitigate Non-standard Conditions in Safety Areas

The runway safety area (RSA), runway obstacle free zone (ROFZ), and runway object free area (ROFA) associated with primary Runway 13-31 meet existing and ultimate design standards. Portions of the RSA and ROFA associated with each dirt/turf runway extend beyond airport property and contain obstructions (i.e., perimeter fencing). The ROFZ associated with Runway 3-21 is also non-standard as it extends beyond airport property and is obstructed by perimeter fencing. The options each present options for correcting these non-standard conditions.

In terms of runway protection zone (RPZ) incompatibilities, portions of the Runway 31, 35, and 21 RPZs are uncontrolled by the airport. Additionally, the Runway 31 RPZ is traversed by an unnamed public road. While common for most airports, public roadways are considered an incompatible land use within an RPZ. The options will examine options for mitigating these potentially incompatible uses.

Consideration #5 – Instrument Approach Procedures

POY is currently equipped with two published instrument approach procedures. Each end of Runway 13-31 has a localizer performance with vertical guidance (LPV) via an area navigation (RNAV) global positioning system (GPS) approach. Currently, the visibility minimums for these approaches are not lower than one-mile for all civilian aircraft. There are no instrument approaches to dirt/turf Runways 17-35 and 3-21.

As described in Chapter Three, the approach visibility minimums serving a particular runway end help dictate the size of the RPZ. The RPZs associated with Runway 13 and 31 currently measure 1,000 feet (length) by 500 feet (inner width) by 700 feet (outer width) or 13.770 acres. If an instrument approach with visibility minimums below one-mile but not lower than $\frac{3}{4}$ -mile is implemented, the size of the RPZ will increase to dimensions measuring 1,700 feet (length) by 1,000 feet (inner width) by 1,510 feet (outer width)¹ or 48.978 acres. For long-term planning purposes, it is prudent to plan for the potential for this improved instrument approach capability, and the options will depict such options.

Consideration #6 – Corrective Measures for Non-standard Taxiway Features

Non-standard Holding Bay | The airport has one holding bay located at the Runway 13 end. This holding apron is a traditional design consisting of a wide, unmarked pavement area that allows aircraft to pull aside and perform pre-flight engine checks. New holding bay design standards incorporate clearly marked entrance/exits with independent parking areas that are either separated by islands or clearly marked with

¹ Refer to Exhibit 3D for a graphic comparison of the one-mile and $\frac{3}{4}$ -mile RPZs.



centerlines to allow aircraft to safely bypass each other; however, standard holding bays should only be provided when runway operations exceed the following criteria, as outlined by the FAA: 75,000 annual operations, 20,000 annual itinerant operations, or 30 design hour operations. POY is not forecast to meet or exceed these operational thresholds, so a standard holding bay as described above is not proposed; however, an expansion to the existing holding bay should be considered, as the depth of the current holding bay does not allow for an aircraft taxiing on Taxiway A to safely bypass an aircraft parked on the holding bay, based on ADG II taxiway object free area (TOFA) standards.

Angled Taxiway Connection | FAA taxiway geometry standards recommend that taxiways be positioned 90 degrees to intersecting taxiways and runways to reduce the risk of incursions. An angled intersection is present at POY on Taxiway A3 where it connects to Runway 13-31. Right-angle taxiways provide the best visual perspective to a pilot approaching an intersection, and the airside options provide a correction to this taxiway to meet the FAA standard.

Non-standard Taxiway Fillets | Taxiway fillets are sections of pavement on the inside of taxiway turns. They function to widen the taxiway turn and maintain the taxiway edge safety margin (TESM). At POY, Taxiways A1, A2, and A4 are not equipped with standard fillets. As such, the options depict an option to construct expanded taxiway fillets on each of the non-standard taxiway turns.

Consideration #7 – Visual Approach Aids

Both ends of primary Runway 13-31 are equipped with two-light precision approach path indicator (PAPI-2) systems. A four-light PAPI (PAPI-4) is recommended for airports serving turbine aircraft operations. As POY currently serves and is anticipated to be utilized more frequently by turboprops and jets, PAPI-4s are recommended for each runway end when the need arises. Runway end identifier lights (REILs) are available on Runway 31. These systems are recommended for runway ends not served by a more sophisticated approach light system (ALS). ALSs are only required for instrument approaches that provide lower than $\frac{3}{4}$ -mile visibility minimums. The FAA does, however, recommend ALSs for approaches with minimums below one mile. During IFR conditions, Runway 31 is favored, according to weather data collected from the onsite AWOS; however, an ALS is not recommended for this runway end due to constraining factors including terrain and installation cost. Additionally, visibility minimums below one mile can still be achieved without the addition of an ALS. As such, REILs are proposed on Runway 13.

Visual approach aids are not currently available, and none are planned, for dirt/turf Runways 17-35 and 3-21.

Consideration #8 – New/Upgraded Airfield Lighting

Primary Runway 13-31 is equipped with medium intensity runway lights (MIRL), which is planned to remain. Turf/dirt Runways 17-35 and 3-21 are equipped with retro-reflectors at each runway threshold, with the lateral limits defined by mowing; these are also planned to remain. Taxiway A and its associated connectors are equipped with edge reflectors. Each option will include the addition of medium intensity taxiway lighting (MITL) on existing and proposed taxiway pavement.

Currently, all airfield lighting and visual aids are lit by incandescent bulbs. LED lighting is proposed for each system at the time replacement or equipment upgrades is necessary.

In terms of runway markings, primary Runway 13-31 has non-precision markings, which is proposed to be maintained throughout the planning period. The hold lines on Taxiways A1 and A3 are not parallel to the runway centerline. The options will include options for correcting this non-standard condition.

AIRSIDE OPTION 1

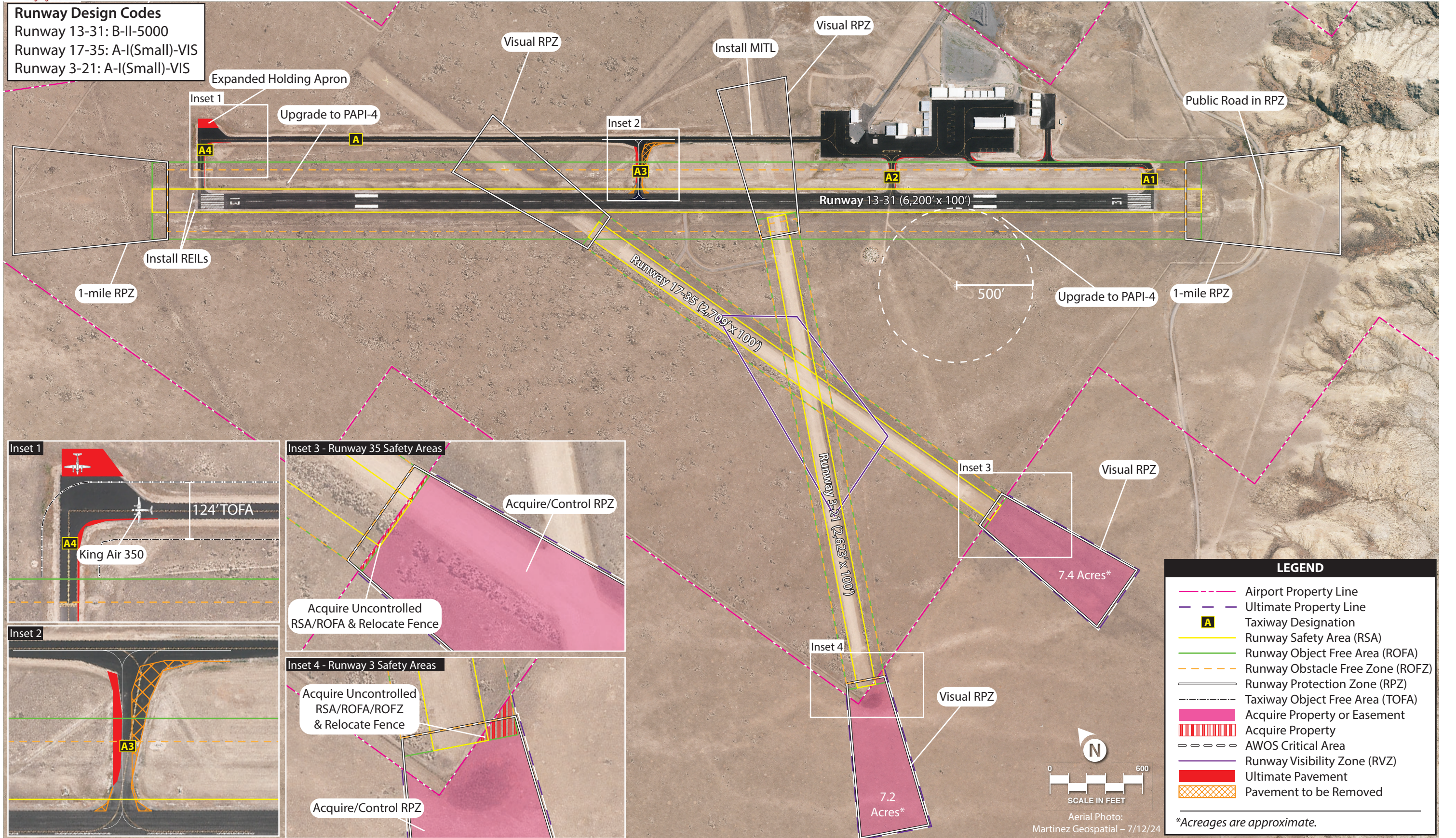
Airside Option 1, depicted on **Exhibit 4A**, considers several upgrades to the airfield. Primary Runway 13-31 is proposed to remain at its existing dimensions (6,200 feet long by 100 feet wide) and with its current instrument approach capability to each runway end (one-mile visibility minimums). While the Facility Requirements chapter identified a potential need for a longer runway, maintaining the existing length is an important scenario to consider because an extension to the runway is not a certainty. A runway extension requires justification to the FAA to be eligible for funding through the Airport Improvement Program (AIP). Justification typically involves documentation of at least 500 annual operations by aircraft and operators expressing a need for the additional runway. An environmental assessment (EA) process would also need to be completed, along with public outreach. If justification for a runway extension is not achieved for several years (or ever), a contingency airfield plan should be available.

Airside Options 1 does not include a change in instrument approach capability to primary Runway 13-31 and is reflective of RDC B-II-5000 design standards. Lower minimums and the implications in terms of RPZ dimensions will be shown in Options 2 and 3.

Other features of Airside Option 1 include:

1. Continued maintenance of turf/dirt Runways 17-35 and 3-21. Runways 17-35 and 3-21 are proposed to be maintained in their existing orientations and at their existing dimensions.
2. Proposed acquisition of property located within the safety areas associated with turf/dirt Runways 17-35 and 3-21. Approximately 0.1 acre of property located within the RSA and ROFA near the Runway 35 threshold, and approximately 0.1 acre of property located within the RSA, ROFA, and ROFZ near the Runway 3 threshold are outside of the airport's current property boundary. This option proposes fee simple acquisition of this land. Perimeter fencing located within these safety areas is also proposed to be relocated.
3. Fee simple acquisition or easement of property located within uncontrolled RPZs. Uncontrolled property within RPZs at POY includes approximately 7.4 acres of property within the Runway 35 RPZ and approximately 7.2 acres of property within the Runway 21 RPZ. The FAA prefers property inside an RPZ to be owned by the airport sponsor, or land use controls to be implemented via planning/zoning or through an aviation easement, and for the area to remain free of land uses that attract people (such as homes, businesses, roads, etc.); however, this is not a requirement. Recent guidance states that it is the airport sponsor's responsibility to allow or not allow a particular land use within an RPZ. Airside Option 1 does not consider any major upgrades to the runway environment or instrument approach capability, and therefore does not reflect any modifications to the surrounding road network. It does, however, propose aviation easements over the unowned portions of the RPZs to protect these areas from future development that could be incompatible with aeronautical activity.

Runway Design Codes
 Runway 13-31: B-II-5000
 Runway 17-35: A-I(Small)-VIS
 Runway 3-21: A-I(Small)-VIS



LEGEND

- Airport Property Line
- Ultimate Property Line
- A** Taxiway Designation
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- Taxiway Object Free Area (TOFA)
- Acquire Property or Easement
- Acquire Property
- AWOS Critical Area
- Runway Visibility Zone (RVZ)
- Ultimate Pavement
- Pavement to be Removed

*Acreages are approximate.

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4. Correction of non-standard taxiway conditions. Airside Option 1 proposes two modifications to taxiway design to meet design standards. The first is to adjust Taxiway A3 to create a 90-degree connection with the runway. Currently, A3 connects to Runway 13-31 at an acute angle. This option proposes removal of a portion of this taxiway pavement and construction of new pavement to bring this taxiway to a true 90-degree connection. The remaining connector taxiways are also proposed to be expanded at intersections to provide standard fillets, where needed, in accordance with TDG 2A design standards.
5. Expanded holding apron. The holding apron located near the Runway 13 threshold is proposed to be expanded. The TOFA associated with ADG II is 124 feet wide, as centered on the taxiway. For an aircraft within this family to safely bypass a similar parked aircraft, additional apron pavement should be constructed to allow for a clear TOFA.
6. Installation of MITL on Taxiway A and its associated connector taxiways. LED lighting is proposed for this system, with other lighting systems upgraded to LED when replacement bulbs are needed.
7. Upgraded/new visual approach aids. This option proposes an upgrade of the PAPI-2 systems serving Runway 13-31 to PAPI-4s when dictated by need (i.e., increased jet operations). REILs are also proposed to be installed on Runway 13.

AIRSIDE OPTION 2

Airside Option 2, depicted on **Exhibit 4B**, is similar to Airside Option 1 in terms of corrective actions to protect safety areas, taxiways, and visual approach and lighting upgrades; however, there are three primary differences.

The first is an extension to primary Runway 13-31 to accommodate a greater number of turbine operators and provide increased utility during hot weather. The previous chapter determined a potential need for a 1,400-foot runway extension to primary Runway 13-31. Option 2 proposes a 1,100-foot extension on the Runway 13 end for a total runway length of 7,300 feet, with a corresponding extension of Taxiway A and a new threshold connector. While not meeting the recommended runway length of 7,600 feet, the 1,100-foot extension proposed in this option still provides a benefit in accommodating additional turbine aircraft, while maintaining the RSA, ROFA, and ROFZ on existing airport property. Extension options were also examined for the east end but were ultimately rejected due to the presence of the public road near the Runway 31 end and potential impacts to the departure surface.

Other actions related to the proposed runway extension would include clearing/grading of the shifted safety area, installation of additional runway lighting and signage, and relocation of the PAPIs serving this runway end.

The second difference between Airside Option 2 and Option 1 is the inclusion of instrument approach procedures with lower visibility minimums on Runways 13 and 31. As previously stated, Runway 31 is the runway most commonly used during IFR conditions; however, for future planning purposes, RPZs reflective of visibility minimums lower than 1-mile but not lower than $\frac{3}{4}$ -mile are shown on both ends of primary Runway 13-31. While there would not be any ground-based equipment required to implement

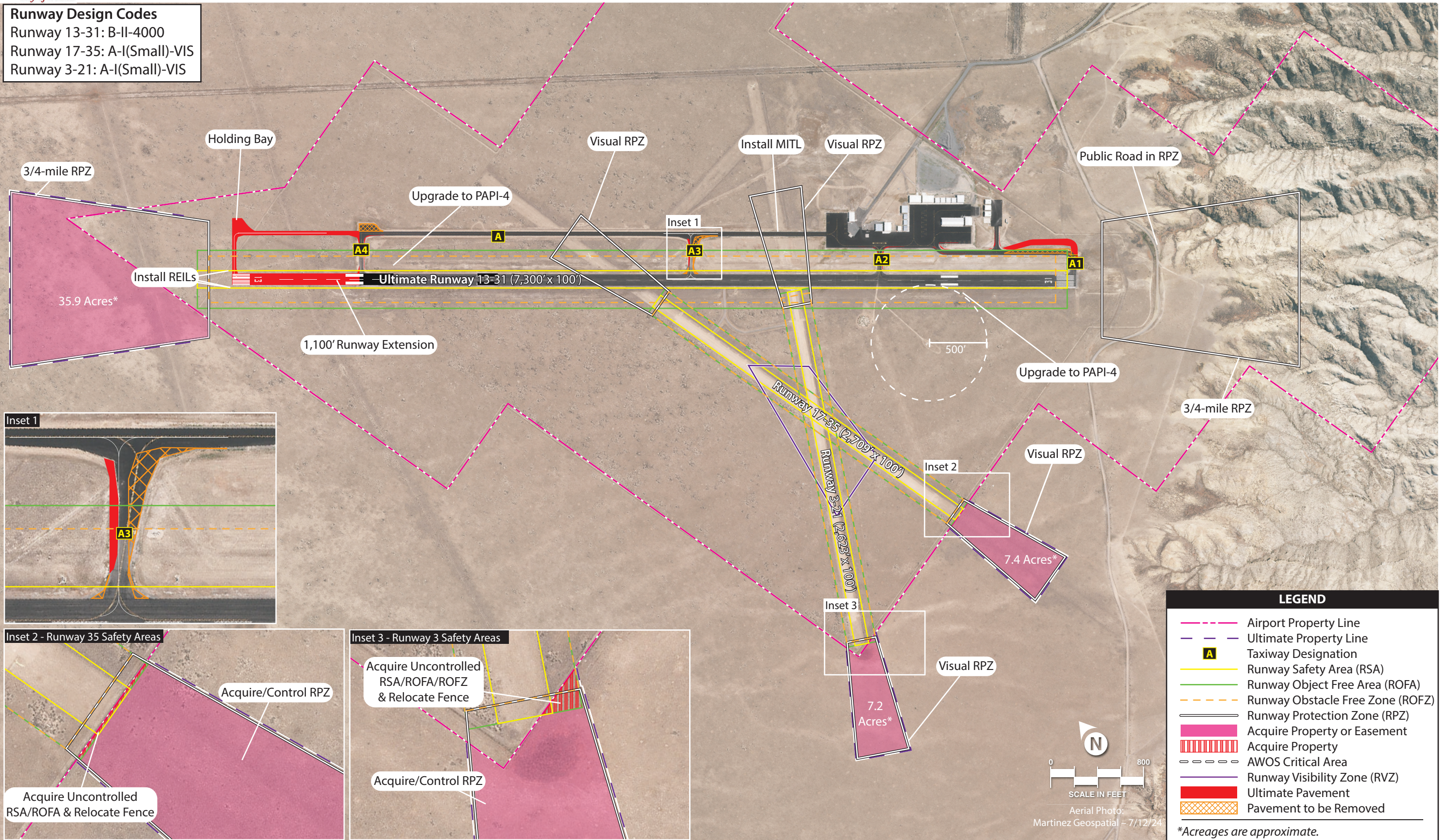
the lower approaches, there would be a larger area of uncontrolled property within the RPZs, as the RPZ dimensions increase with the lower visibility minimums. For Runway 13, this translates to approximately 35.9 acres of property that is beyond the current airport boundary. This property is proposed to be purchased fee simple or an avigation easement acquired over the uncontrolled portions of each RPZ. Both the runway extension and the larger RPZ associated with Runway 31 could negate the “grandfathered” condition of the public roadway that passes through the Runway 31 RPZ; however, at POY, the options to mitigate this incompatibility are minimal. Typically, public roads traversing RPZs are mitigated through either closure or a reroute of the road outside the RPZ. Neither option is considered reasonable or feasible due to the surrounding terrain and the infrequent usage of this road and will therefore not be evaluated further.

The final difference between Options 1 and 2 is the inclusion of an offset taxiway near the Runway 31 threshold. The intent of the offset taxiway is to allow for a standard hold line on Taxiway A1. The FAA design standard for RDC B-II-4000 calls for a 200-foot separation, with the hold line positioned parallel to the runway centerline. While the hold line on this taxiway meets the separation standard, it is marked at an angle in order to maintain the 200-foot separation. The offset taxiway functions to create adequate space to allow for both the standard separation and a parallel hold line.

The remaining proposed improvements include:

1. Continued maintenance of turf/dirt Runways 17-35 and 3-21 in their existing orientations and at their current dimensions.
2. Proposed acquisition of property located within the safety areas associated with turf/dirt Runways 17-35 and 3-21 and relocation of perimeter fencing outside the ROFAs.
3. Fee simple acquisition or easement of property located within uncontrolled RPZs.
4. Correction of non-standard taxiway conditions. This includes a realignment of Taxiway A3 and expansion of taxiway fillets where the TDG 2A design standard is not met.
5. Expanded holding apron at the west end of Taxiway A.
6. Offset taxiway near Runway 31 to provide a standard parallel holding position separated 200 feet from the Runway 13-31 centerline.
7. Installation of MITL on Taxiway A and its associated connector taxiways.
8. Upgraded/new visual approach aids. This includes an upgrade of the PAPI-2 systems serving Runway 13-31 to PAPI-4s when dictated by need, and the installation of REILs on Runway 13.

Runway Design Codes
 Runway 13-31: B-II-4000
 Runway 17-35: A-I(Small)-VIS
 Runway 3-21: A-I(Small)-VIS



Acquire Uncontrolled RSA/ROFA & Relocate Fence

Acquire Uncontrolled RSA/ROFA/ROFZ & Relocate Fence

Acquire/Control RPZ

LEGEND	
	Airport Property Line
	Ultimate Property Line
	Taxiway Designation
	Runway Safety Area (RSA)
	Runway Object Free Area (ROFA)
	Runway Obstacle Free Zone (ROFZ)
	Runway Protection Zone (RPZ)
	Acquire Property or Easement
	Acquire Property
	AWOS Critical Area
	Runway Visibility Zone (RVZ)
	Ultimate Pavement
	Pavement to be Removed

*Acreages are approximate.

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AIRSIDE OPTION 3

Airside Option 3 is presented on **Exhibit 4C**. Like the previous option, this option also evaluates an extension to primary Runway 13-31 but considers the full 1,400-foot extension as recommended in the previous chapter. This would bring the runway to an ultimate length of 7,600 feet, which is the recommended length to accommodate 60 percent of turbine aircraft at 75 percent useful load. Like the previous option, the extension is proposed for the Runway 13 end. This extension would result in a portion of the ROFA and ROFZ extending beyond airport property, and the perimeter fence obstructing these safety areas. Approximately 0.4 acres are proposed to be acquired fee simple to protect/control the ROFA and ROFZ, and the fence is proposed to be relocated outside these areas.

Taxiway A is also proposed to be extended, with a new threshold taxiway constructed to provide access to the extended runway end. The taxiway is proposed to be offset near the Runway 31 end to provide for a standard parallel hold line, like the previous option.

The remainder of Airside Option 3 proposes similar modifications to those shown previously on Options 1 and 2 and includes the following:

1. Continued maintenance of turf/dirt Runways 17-35 and 3-21 in their existing orientations and at their current dimensions
2. Proposed acquisition of property located within the safety areas associated with turf/dirt Runways 17-35 and 3-21 and relocation of perimeter fencing outside the ROFAs
3. Fee simple acquisition or easement of property located within uncontrolled RPZs
4. Correction of non-standard taxiway conditions; this includes a realignment of Taxiway A3 and expansion of taxiway fillets where the TDG 2A design standard is not met.
5. Expanded holding apron at the west end of Taxiway A.
6. Installation of MITL on Taxiway A and its associated connector taxiways.
7. Upgraded/new visual approach aids. This includes an upgrade of the PAPI-2 systems serving Runway 13-31 to PAPI-4s when dictated by need, and the installation of REILs on Runway 13.

AIRSIDE SUMMARY

The previous sections outline three planning considerations for the airfield at POY. The primary issues on the airside are evaluating runway extension options for the primary runway, addressing non-standard safety area conditions and taxiway geometry, and upgrading visual approach aids. The runway extension considerations will likely be the most impactful to both the public and the aviation community. For this reason, it is vital that the PAC, airport and city management, and the public offer feedback so that the best course of action is selected.

LANDSIDE CONSIDERATIONS

Generally, landside issues are related to those facilities necessary or desired for the safe and efficient parking and storage of aircraft, movement of pilots and passengers to and from aircraft, airport support facilities, and overall revenue support functions. To maximize airport efficiency, it is important to locate facilities together when they are intended to serve similar functions. The best approach to landside facility planning is to consider the development like a community, where land use planning is the guide. For airports, the land use guide in the terminal area should generally be dictated by aviation activity levels. Consideration should also be given to non-aviation uses that can provide additional revenue support to the airport and contribute to economic development for the region.

Landside planning considerations, summarized below, will focus on strategies following a philosophy of separating activity levels. Potential landside facility development at POY is focused on the north side of airport property where existing facilities (terminal, hangars, fuel, etc.) are already located. Property on the south side of Runway 13-31 also has development potential and has been reserved for future aviation development on each of the landside options.

Landside Planning Considerations
1. Consider the Building Restriction Line (BRL) when planning vertical infrastructure
2. Increase aircraft storage capacity
3. Consider appropriate aviation- and non-aviation-related uses for the future development of vacant property, or release of property

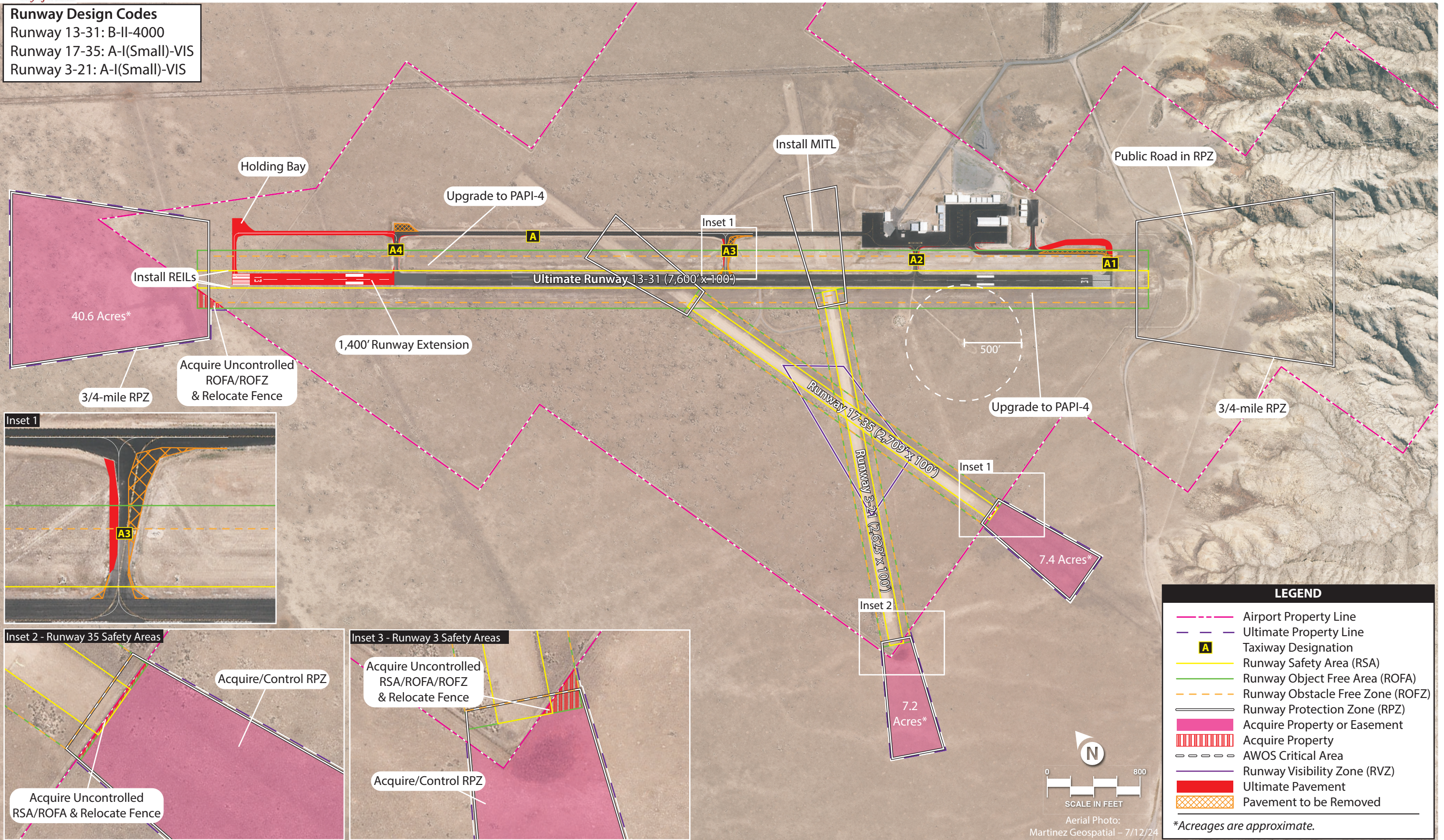
Consideration #1 – Building Restriction Line (BRL)

The BRL identifies suitable building area locations on the airport. It encompasses the RPZs, the object free area (OFA), navigational aid critical areas, areas required for terminal instrument procedures, and other areas necessary for meeting airport line-of-sight criteria. Two primary factors contribute to the determination of the BRL: type of runway (“utility” or “other-than-utility”) and the capability of the instrument approaches. The BRL is the product of Title 14 Code of Federal Regulations (CFR) Part 77 transitional surface clearance requirements, which stipulate that no object be located in the primary surface. Primary Runway 13-31 is considered an other-than-utility, non-precision instrument runway with visibility minimums greater than ¾-mile, while the turf/dirt runways are utility runways with visual approaches. The primary surface for all runways is currently 500 feet wide. From the primary surface, the transitional surface extends outward at a slope of one vertical foot to every seven horizontal feet.

At POY, the 35-foot BRL for each runway is currently set at 495 feet from the runway centerline, and the 25-foot BRL is set at 425 feet from the centerline. The nearest structures to the runway are the hangars on the central apron adjacent to the fueling facility, which are located approximately 425 feet from the runway centerline.

If primary Runway 13-31 is equipped with an instrument approach with visibility minimums down to ¾-mile, the width of the primary surface increases to 1,000 feet, centered on the runway. Consequently, the 35-foot BRL shifts from the existing 495 feet from runway centerline to 745 feet from runway centerline. This would result in existing structures penetrating the primary surface and others that are

Runway Design Codes
 Runway 13-31: B-II-4000
 Runway 17-35: A-I(Small)-VIS
 Runway 3-21: A-I(Small)-VIS



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set farther back potentially penetrating the Part 77 transitional surface. Before an instrument approach with visibility minimums down to $\frac{3}{4}$ -mile can be implemented, the FAA will evaluate whether existing structures will be allowed to remain in place. It should also be clearly stated that the BRL is not a standard, but rather a guideline to use when planning vertical infrastructure on the airport. The FAA may require structures inside the BRL to be equipped with obstruction lights.²

Consideration #2 – Hangar Capacity

Hangar occupancy at POY is at 100 percent; several people are on a waiting list for hangar space, as of spring 2024. With clear demand for additional hangar capacity at the airport, the landside options will consider areas for the development of various hangar styles, including small aircraft facilities, executive/conventional hangars, and service/maintenance hangars. These areas are further defined as follows.

- Small aircraft facilities typically consist of T-hangars/T-shades. These facilities often experience lower levels of activity and, as such, can be located away from the primary apron areas in more remote locations on the airport. Limited utility services are needed for these areas. The airport currently has approximately 10,000 square feet (sf) of T-hangar storage space, with an additional 16,700 sf projected to be needed by the end of the 20-year planning period.
- Executive/conventional hangars primarily consist of clear span hangars with no interior supporting structures. Executive hangars are typically less than 10,000 sf and can accommodate small aviation businesses, one larger aircraft, or multiple smaller aircraft, while conventional hangars can range in size from 10,000 sf to 20,000 sf or more. Both hangar types typically require all utilities and segregated roadway access. POY has approximately 50,800 sf of executive hangar space and no conventional hangar space. An additional 11,000 sf of executive/conventional hangar capacity is estimated to be needed by the end of the planning period.

Consideration #3 – Land Development

The landside options present development areas on the airport for aeronautical-related and non-aeronautical-related uses, considering highest and best use potential. Aviation-related uses are typically reserved for property with direct access to the airfield. For property that is segregated from the airfield, the airport could consider non-aeronautical-related development, following coordination with the FAA. The FAA stipulates that all land with reasonable airside access should be used or reserved for aeronautical purposes. Ordinarily, land on or in proximity to the flight line and airport operations area is needed for aeronautical purposes and should not be used or planned for non-aeronautical purposes. Any proceeds derived from the land use change must be used exclusively for the benefit of the airport. They may not be used for a non-airport purpose, and they cannot be diverted to the airport sponsor's general fund or used for general economic development unrelated to the airport.

² The FAA typically does not permit structures within Part 77 surfaces and is the final arbiter on whether an existing or proposed structure can be located in a particular area, pending airspace analysis.

Generally, airport property is subject to AIP grant assurances; therefore, if the sponsor wishes to pursue non-aeronautical development on airport property acquired with federal grants, they will need to coordinate with the FAA following new guidance outlined under Section 743 of the *FAA Reauthorization Act of 2024*. Section 743 replaces Section 163 of the *FAA Reauthorization Act of 2018* and is intended to clarify FAA jurisdiction over property as it relates to future development. Like Section 163, Section 743 generally states that FAA retains authority to regulate activities that (1) “materially impact the safe and efficient operation of aircraft at, to, or from the airport,” (2) “adversely affect the safety of people or property on the ground as a result of aircraft operations,” or (3) “adversely affect the value of prior Federal investments to a significant extent.” If an airport sponsor wishes to use any portion of airport property for a purpose other than aviation use, they must notify the FAA of their intent, and the FAA will determine if the agency has jurisdiction over the affected area. At the time of this writing (May 2024), the FAA has yet to publish specific guidance on how Section 743 will be implemented.

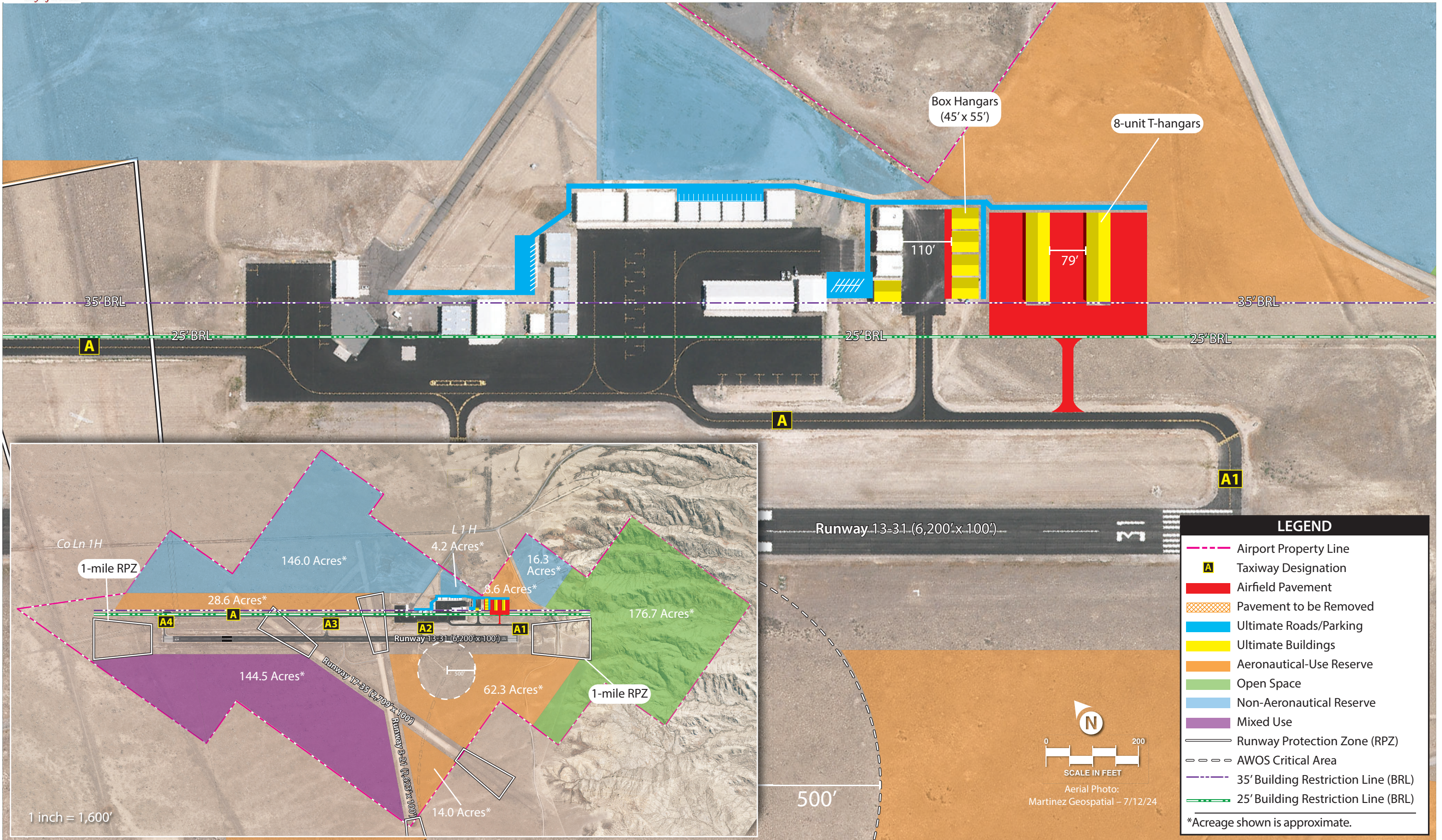
The following sections detail two landside options as they relate to the considerations detailed above. These have been prepared to illustrate other potential development plans aimed at meeting the needs of general aviation through the long-term planning period and beyond. It should be noted that the options presented are not the only reasonable options for development. In some cases, a portion of one option could be intermixed with another, or some development concepts could be replaced with others. The overall intent of this exercise is to outline basic development concepts to spur collaboration for a final recommended plan. The final recommended plan serves as a guide for the airport, which will aid the City of Powell in the strategic planning of airport property. Airport operators often change their plans to meet the needs of specific users. The goal in analyzing landside development options is to focus future development so that airport property can be maximized, and aviation activity can be protected.

LANDSIDE OPTION 1

Landside Option 1, depicted on **Exhibit 4D**, focuses primarily on expansion of small aircraft storage facilities. All proposed development is concentrated adjacent to existing hangar facilities, with other portions of airport property earmarked for aeronautical-use reserve, non-aeronautical reserve, mixed use, or open space. Consideration has also been given to the construction of a vehicle access road and dedicated parking for tenants in an effort to segregate vehicle and aircraft movements as much as possible. A 35-foot BRL based on the airport’s existing instrument approach capability (GPS approaches with visibility minimums not lower than one-mile) is also shown.

Landside Option 1 proposes the following:

1. Construction of new box hangars, depicted at 45 feet by 55 feet, on the south hangar apron
2. Construction of two eight-unit T-hangars (190 feet by 50 feet) east of the south hangar apron; new taxiway pavement extending from Taxiway A is also proposed.
3. Construction of a vehicle access road is proposed to extend east from the airport access road to existing and proposed hangar development, with dedicated parking areas at various locations. A security gate is also proposed to limit access to authorized personnel and airport users only.



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4. Airport property not planned for specific development is categorized by potential future use. Approximately 113.5 acres are proposed to be classified as aeronautical-use reserve, meaning these areas should be set aside for future aeronautical uses such as development supporting aviation-related businesses, new hangars or apron spaces, aeronautical services or navigational aids, etc. Non-aeronautical use areas are also proposed, encompassing approximately 166.5 acres and could be considered for future commercial/industrial revenue-generating uses following coordination with the FAA. Property on the southwest side of the airport (approximately 144.5 acres) is proposed for mixed use development, which includes both aeronautical and non-aeronautical potential. Lastly, approximately 176.7 acres of airport property are categorized as open space. This area is included within the airport's property boundary but has limited development potential due to the terrain.

LANDSIDE OPTION 2

Landside Option 2, depicted on **Exhibit 4E**, considers a different layout for hangar development at POY. This option considers a greater potential for facility development and, like the previous option, sets aside areas that could be reserved for specific land uses. Like Landside Option 1, a 35-foot BRL based on the airport's existing instrument approach capability (GPS approaches with visibility minimums not lower than one-mile) is shown.

Landside Option 2 proposes the following:

1. Construction of a 125-foot by 125-foot conventional hangar adjacent to the terminal building. This hangar is envisioned to accommodate a fixed base operator (FBO) or specialized aviation service operator (SASO), such as an aircraft maintenance provider.
2. Construction of two executive box hangars (60 feet by 60 feet) north of the terminal building.
3. Expansion of the terminal apron to the north to accommodate the proposed conventional and executive box hangars.
4. Construction of a T-hangar complex north of the primary existing box hangar area. As shown on **Exhibit 4E**, this includes two eight-unit T-hangars (190 feet by 50 feet) and one six-unit T-hangar (130 feet by 50 feet). This area is proposed to be accessed from the airside via an extension of the taxilane currently serving box hangars and the city-owned T-hangar in this area.
5. Construction of a 45-foot by 55-foot box hangar on the south hangar apron (west side) and construction of linear box hangars (195 feet by 50 feet) on the east side of the south hangar apron.
6. Construction of a new apron southeast of the proposed linear box hangars, intended to support three conventional hangars (depicted at 100 feet by 100 feet). A new taxilane is also proposed to extend from Taxiway A to provide access to this area.
7. Construction of a vehicle access road is proposed to extend east from the airport access road to existing and proposed hangar development, with dedicated parking areas at various locations. A security gate is also proposed to limit access to authorized personnel and airport users only.

As shown on the exhibit, this road would terminate at the proposed T-hangar complex. A second access road is proposed from the unnamed gravel road that traverses the southeast side of airport property. This road would provide access to proposed and existing hangars on the airport's southeast side.

8. Like the previous option, airport property not planned for specific development has been categorized by potential future use. Approximately 113.5 acres are proposed to be classified as aeronautical-use reserve, 166.5 acres are set aside for non-aeronautical use areas, 144.5 acres for mixed use development, and 176.7 acres are reserved for open space.

LANDSIDE SUMMARY

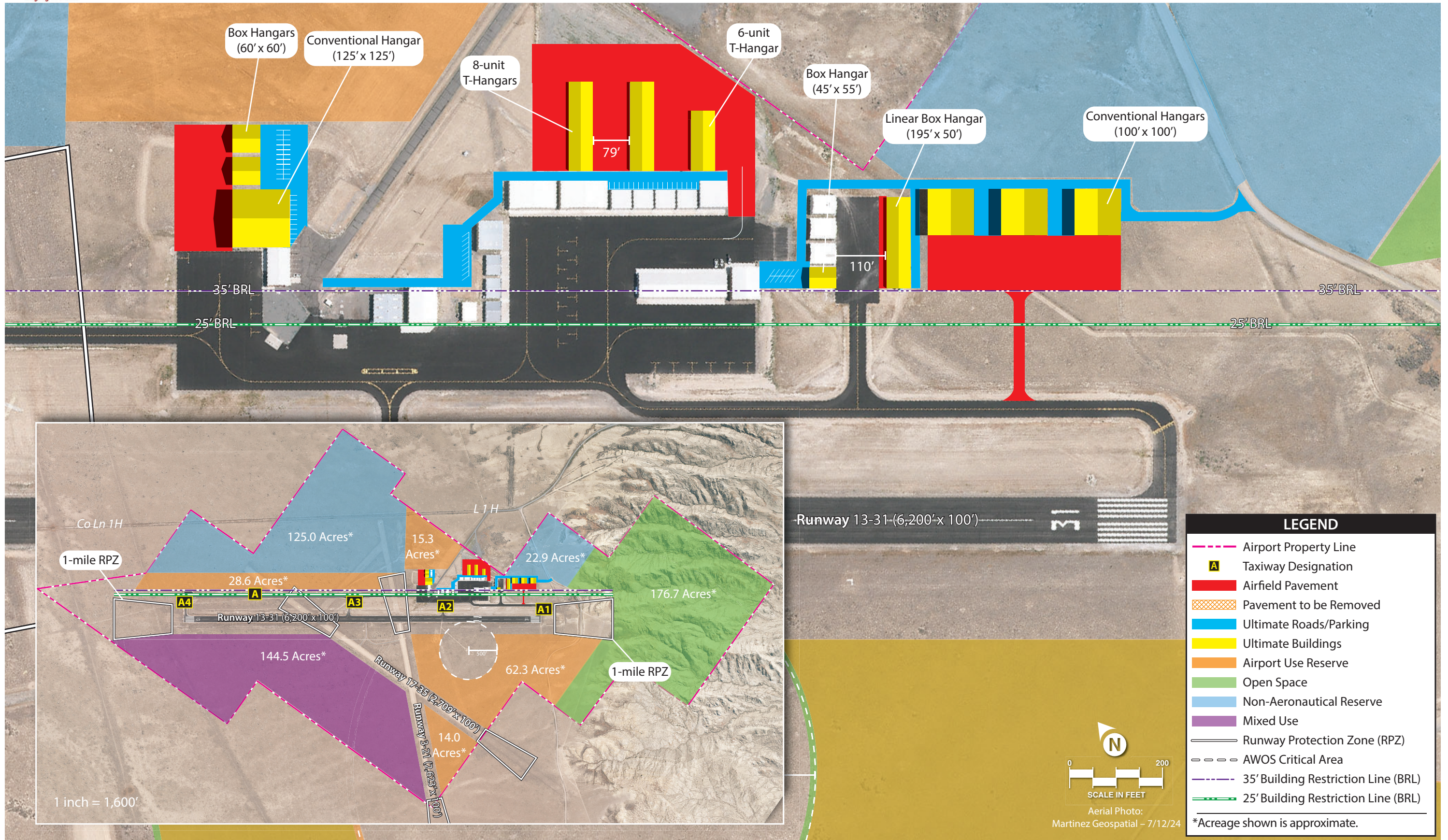
The landside options presented are intended to accommodate an array of aviation activities that either currently occur or could be expected to occur at POY in the future. There is current demand for new facilities at POY, and airport and city management will need to determine how to develop the property in an organized and thoughtful way. It is beneficial to provide a long-term vision for the airport for future generations, and each of the development options considers a long-term vision that would, in some cases, extend beyond the 20-year scope of this master plan.

SUMMARY

This chapter is intended to present an analysis of various options that may be considered for specific airport elements. The need for options is typically spurred by projections of aviation demand growth and/or by the need to resolve non-standard airport elements. FAA design standards are frequently updated with the intent of improving the safety and efficiency of aircraft movements on and around airports, which can lead to pavement geometries that previously qualified as standard becoming classified as non-standard.

Several development options related to both the airside and the landside have been presented. For the airside, the major considerations involve evaluating runway extension options for the primary runway and addressing non-standard safety areas and taxiway geometry. For the landside, options were presented to consider additional aviation development primarily in the form of new hangars.

The next step in the master plan development process is to arrive at a recommended development concept. The participation of the PAC and the public will be an important consideration. Additional consultation with the FAA and WYDOT-Aeronautics may also be required. Once a consolidated development plan is identified, a 20-year capital improvement program, including a list of prioritized projects tied to aviation demand and/or necessity, will be presented. Finally, a financial analysis will be presented to identify potential funding sources and show airport/city management what local funds will be necessary to implement the plan.



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