



Airport Master Plan

Montgomery-Gibbs Executive Airport Working Paper 5—
Alternatives
Development,
Evaluation and
Selection

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5.1 Introduction

An effective combination of airside (airfield) and landside planning is essential to the successful development of an airport. After the evaluation of existing conditions, determination and FAA approval of forecasts, and identifying facility requirements for an airport, the next step in the master plan process involves developing a series of alternative solutions to satisfy the existing and future demand as determined by the preceding steps. In this Working Paper, alternative plans for proposed development at Montgomery–Gibbs Executive Airport are presented and evaluated, ultimately producing a preferred alternative for both the airside and landside components of the airport.

Objective of the Analysis

The overall objective of the alternatives analysis is to evaluate the best ways to implement the necessary facility requirements to safely and effectively meet FAA safety, capacity, and design standards and to accommodate projected aviation demand over the planning period. In addition to fulfilling this primary objective, the following operational and economic objectives of the Airport were also considered in the development and evaluation of alternatives:

- Become financially self-sufficient
- Encourage airport business growth and opportunities
- Be customer focused both internally and externally
- Maximize the City's return on investment (ROI) for Airport property

Alternatives Approach

The runway and taxiway system and associated airspace and safety areas at the Airport encompass the greatest land and imaginary surface areas on the airfield. Thus, to ensure the FAA safety, capacity, and design standards would be met, development of the airfield alternatives occurred separately, but concurrently, from the landside alternatives. Four alternative scenarios were formed for both the airside and landside components of the Airport. These initial draft alternative scenarios were then presented to the PAC and the public for input and comment. Collection and interpretation of input gathered from the PAC and the public ultimately indicated that no single proposed alternative contained all of the preferred airside and landside components. As such, adjustments were made to each proposed alternative scenario. Next, evaluation criteria were created using guidance found in FAA's AC 150/5070-6B, *Airport Master Plans*, to rate each alternative, with the goal of identifying a recommended airside and landside alternative. Based on the outcome of the evaluation and ranking process, a preferred airside and landside alternative scenario emerged; the preferred airside and landside scenarios were then combined into one recommended preferred development alternative for the Airport. This recommended combined alternative was then presented to the City and PAC for final review and consensus.

5.2 Airfield Facility Priorities

Airfield facilities are, by their very nature, the focal point of an airport complex. They are the facilities that directly support operating aircraft such as runways, taxiways, and navigational aids. Because of their role, and the fact that they occupy a great deal of the airport's property, airfield facility needs are often the most critical factor in the determination of viable airport development alternatives. The runway system requires the greatest commitment of land area and is often the greatest influence on the identification and development of other airport facilities.

The potential need for physical expansion of an airport to accommodate airfield development is the primary factor that determines long-term development. The runway and taxiway system directly affects the efficiency of aircraft movements both on the ground and in the surrounding airspace. It also may limit the ability of the Airport to handle certain aircraft. In addition, the efficiency of aircraft movements is also affected by local approach and departure procedures, which can be influenced by local restrictions due to noise, airspace congestion, or other considerations.

Required Airfield Improvements

The airfield's existing configuration accommodates the existing and future aircraft fleet mix and traffic levels with the use of parallel runways 10R/28L and 10L/28R, and crosswind Runway 5/23. The following areas have been identified as FAA hotspots or current taxiway geometry concerns at MYF, and do not comply with the FAA recommended pavement geometry, per the FAA AC 150/5300-13A, *Airport Design.* These areas, which have an increased risk of incursions or a historically high number of incursions, are listed below. They are also depicted in **Figure 5.1**.

Hotspot 1

Hotspot 1 is at the intersection of Taxiways Echo and Mike. The existing geometry of Taxiway Echo is considered inadvisable due to the taxiway intersecting more than one runway at this location. Ideally, taxiways should not coincide with the intersection of two runways. Taxiway Mike is an acute-angled exit taxiway which allows aircraft to exit Runway 10L/28R at a higher speed than a perpendicular taxiway exit. This taxiway leads directly to Runway 10R/28L and creates an inadvisable runway crossing which does not provide the pilot with an effective view of Runway 10R/28L in both directions.

Hotspot 2

Hotspot 2 is located on Taxiway Foxtrot between Runways 10L and 10R. This area historically has a high level of runway incursions due to aircraft exiting Runway 28R and crossing the Runway 10L threshold without clearance. Reconfigurations should be considered in this area to mitigate this hotspot.

Hotspot 3

Hotspot 3 is at the intersection of Taxiway Bravo and Taxiway Hotel. Aircraft leaving the apron on Taxiway Bravo can currently taxi directly on to Runway 28L without making any turns, creating a direct runway access issue; reconfiguration of Taxiway Bravo for this area is necessary to eliminate direct access to Runway 28L, as well as to remove the nonstandard and insufficient run-up area off of Taxiway Bravo.

Taxiway Alpha – At Runway 28R End

While not formally recognized as an airfield hotspot, this location has been identified by the FAA in the Runway Incursion Management (RIM) Program study as an area of high incidence of runway incursions at MYF. This is due to the hold bay configuration and taxiway markings, as well as nonstandard taxiway geometry at the Runway 28R threshold. Modifications are proposed in this area to upgrade the taxiway geometry to current FAA design criteria and to increase hold bay capacity.

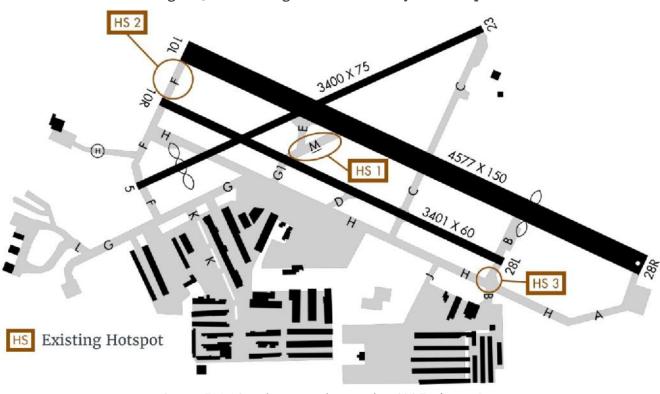


Figure 5.1 – Existing Airfield Geometry and Hotspots

Source: FAA AC 150/5300-13, Airport Design, C&S Engineers, Inc.

Proposed Airfield Improvement

Beyond the required improvements to the existing taxiway geometry described above, additional airfield facility modifications should be planned as part of the ultimate development goals of the Airport. While these ultimate airfield development initiatives may not be justified for immediate implementation, planning for their eventual implementation serves to preserve the required land area for such improvements and guides the creation of development concepts for the other functional areas of the airport property.

Runway 28R Threshold

The current Runway 28R threshold is displaced by 1,176 feet due to the City of San Diego Resolution R-280194 passed in 1992. This resolution was intended to limit the size of aircraft capable of operating at MYF, by reducing the amount of runway available when landing to the west. As part of the alternatives analysis process, the fleet mix at MYF was analyzed between January 2016 and January 2018; the analysis found that many of the types of aircraft with airframes that Resolution R-280194 aimed to limit are currently operating at MYF. These aircraft include the Citation Sovereign (30,775 pounds), the Citation III (22,000 pounds), and the Challenger 300 (38,850 pounds). In 2016, there were approximately 184 operations of airframes with a maximum take-off weight (MTOW) greater than 20,000 pounds. Research of this issue found these larger aircraft currently utilize a circling approach that is available for Runway 10L so they can use the full 4,577 feet of landing distance available. Relocating the Runway 28R threshold will have several critical impacts which are important to note:

 Runway Protection Zone Relocation – In 2012, the FAA issued Interim Guidance (IG) on Land Uses within a Runway Protection Zone (RPZ), which implemented significant evaluation standards for land uses within a RPZ. The proposed Runway 28R threshold relocation would be considered a modification of the existing RPZ configuration, and therefore must be evaluated by the FAA for any risks associated with the new configuration.

- Medium Intensity Approach Lighting System With Runway Alignment Indicator Lights (MALSR) The MALSR for Runway 28R will need to be relocated to accommodate the proposed threshold relocation. The FAA owns and maintains the MALSR, thus the relocation costs associated with moving the equipment and coordination will ultimately have to be agreed upon by the FAA. Furthermore, this equipment relocation will need to occur in areas that have a high potential for environmental impacts, including areas known for sensitive species such as the San Diego goldenstar and San Diego fairy shrimp.
- Glideslope Equipment The navigational aids which provide instrumented vertical guidance to pilots on approach will need to be relocated with the threshold. Relocation will occur in areas which may have environmental impacts.
- Precision Approach Path Indicator (PAPI) The PAPI is a navigational aid which provides visual guidance to pilots on approach. It will need to be relocated along with the threshold. Relocation will occur in areas which may have environmental impacts.

Runway 5/23

Runway 5/23 historically has low utilization rates and is not required to meet airport crosswind coverage. Consequently, various configurations of this runway were examined in the alternatives analysis to create opportunities to gain previously disturbed areas for landside development, as well as reduce runway incursion incidents.

Hold Bays

The current hold bays are not compliant with FAA design standards as outlined in AC 150/5300-13A. The lack of pavement and markings on the hold bay located at Taxiway Bravo and Taxiway Hotel is nonstandard. A hold bay located off of Taxiway Hotel prior to reaching Taxiway Bravo that meets standards is proposed. The proposed hold bay will improve the safety of the airfield by allowing aircraft to bypass other aircraft that are performing run-ups or waiting for clearance from air traffic control.

Proposed Instrument Approach Procedures

An evaluation of the primary runway system (Runway 10L-28R) was conducted as it relates to instrument approach procedures. The analysis evaluated two items - the feasibility of adding an instrument approach procedure (IAP) to Runway 10L and a review of the controlling obstacles for Runway 28R's published IAPs to determine the feasibility of reducing the existing approach minimums. A brief description of each evaluation is described below, with the full report analysis found in **Appendix B**.

Proposed Runway 10L Instrument Approach

An in-depth FAA Terminal Instrument Procedures (TERPS) evaluation determined that an area navigation (RNAV) GPS procedure with lateral navigation (LNAV) and localizer performance with vertical guidance (LPV) approaches can be achieved within the MYF airspace environment and yield effective approach minimums.¹ Thus, a request to add the non-precision IAP will be made to the FAA. The FAA's Flight Procedures Office will conduct further analysis, and ultimately will determine if the IAP will be published or not.

¹ The LNAV approach can achieve approach minimums of 840 feet above mean sea level (AMSL) with visibility minimum of one statute mile (s.m.). The LPV approach can achieve approach minimums of 673 feet AMSL with visibility minimums of ³/₄ s.m.



Runway 28R Controlling Obstacle Review

A review of the controlling obstacles associated with the existing precision instrument landing system (ILS), or LOC, and RNAV (GPS) LPV and LNAV/VNAV approach minimums to Runway 28R concluded that they are the lowest that can be authorized, or that can be considered reasonable given the obstacle environment at the Airport. Some inaccuracies associated with certain obstacles were observed as a result of the analysis; for example, the controlling obstacle of the circling minimums for both the ILS and RNAV approaches has been confirmed to longer exist, and this finding should be communicated to the FAA Flight Procedures Office. The FAA should be advised of these discrepancies so that they may be reassessed when the existing instrument approach procedures undergo their periodic review. Ultimately, an appropriate benefit/cost analyses that compare the economic value of increased runway end utilization and the cost to mitigate the controlling obstacle would likely be needed prior to making any changes to the published approach minimums.

5.3 Airside Alternatives Development

The City of San Diego has a defined vision for the future of the Airport. Based on this vision, input from the public, and the considerations described above, the potential locations of key airside components, emerged. Four separate airfield alternative concepts were developed based on identified airfield improvements. Similarities exist between the four airfield alternatives. Differences can be seen regarding the threshold relocations and a subsequent taxiway development. These alternatives are designated as described in the paragraphs that follow.

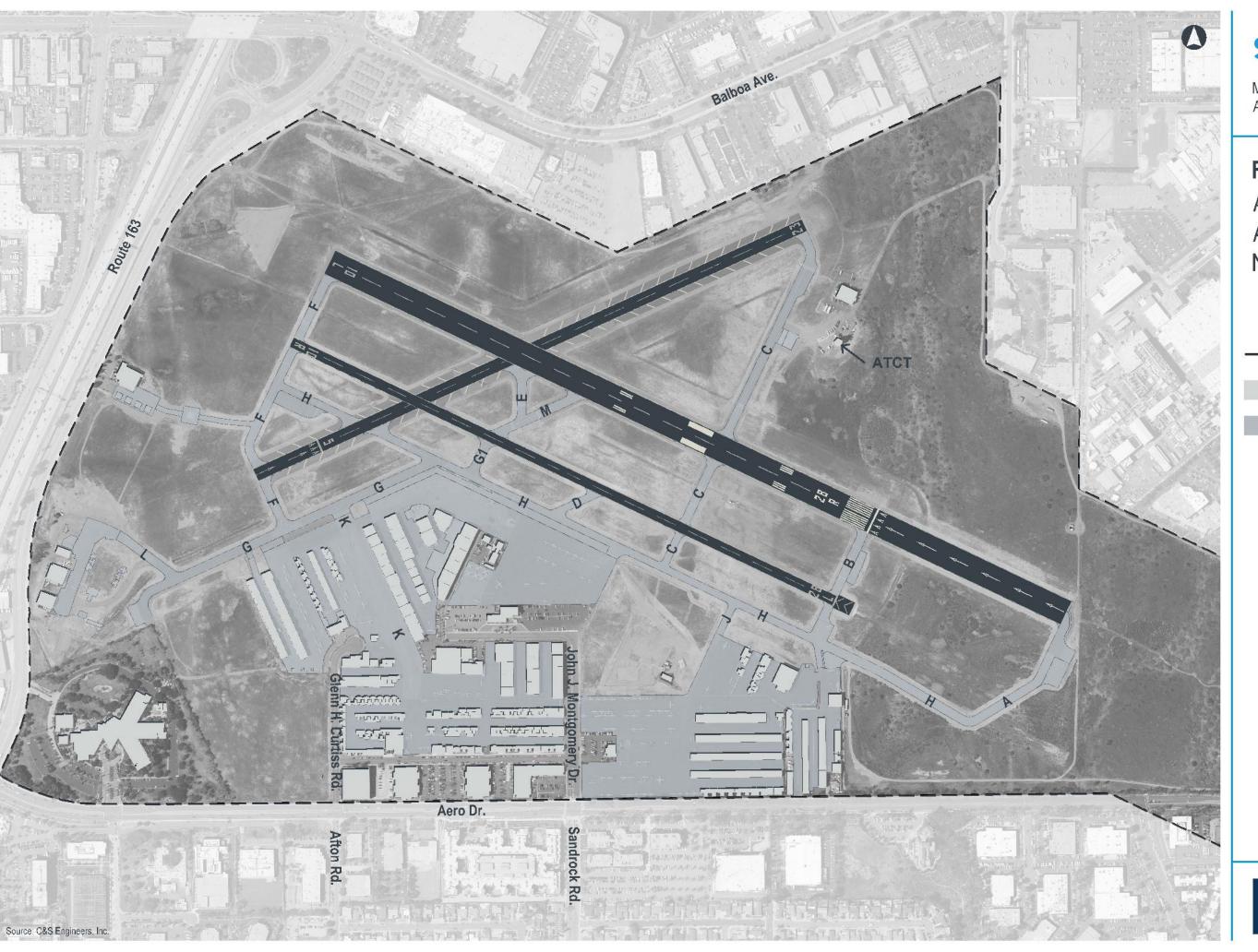
Airside Alternative 1 - No Action

This alternative involves maintaining the existing layout, size, and configuration of all associated airside facilities over the course of the planning period. **Figure 5.2** depicts the No Action airside alternative.

Airside Alternative 2 - Airfield Design Deficiencies

This alternative reflects the airport improvements required to mitigate existing airport design deficiencies. The mitigation of airfield hot spots is proposed to be completed through various measures such as pavement removal, reconfiguration, and replacement. These improvements are intended to address design deficiencies with the least amount of financial and environmental impact to the City. This includes minimizing the amount of undisturbed land or land already leased to tenants. New taxiway pavement geometry is designed according to FAA AC 150/5300–13A, Change 1, Airport Design. Components of this alternative are depicted in **Figure 5.3** and include the following:

- **Hot Spot 1** Removal of Taxiways Echo and Mike. The Taxiway Echo exit will be replaced further east as a 90-degree connection crossing to Runway 28L and connecting to Taxiway Hotel. Furthermore, runway guard lighting should be incorporated in addition to typical taxiway lighting and signage. This option will also require the relocation of the segmented circle.
- **Hot Spot 2** A new taxiway connection will be constructed east of Taxiway Foxtrot to add additional capacity for aircraft to hold-short of Runway 10R and Runway 10L. Runway guard lighting should be incorporated in addition to typical taxiway lighting and signage.
- **Hot Spot 3** Reconfiguring the apron connection to Taxiway Hotel will decouple the direct access from the apron area to the Runway 28L threshold, thus decreasing the potential for a runway incursion. Also proposed is the removal of excess pavement and nonstandard hold area on the east side of Taxiway Bravo.





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Figure 5.2 Airside/Landside Alternative 1 No Action



Property Line













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Figure 5.3 Airside Alternative 2 Airfield Design Deficiencies

Legend













Proposed Segmented Circle





Airside Alternative 3 - Threshold Reconfiguration

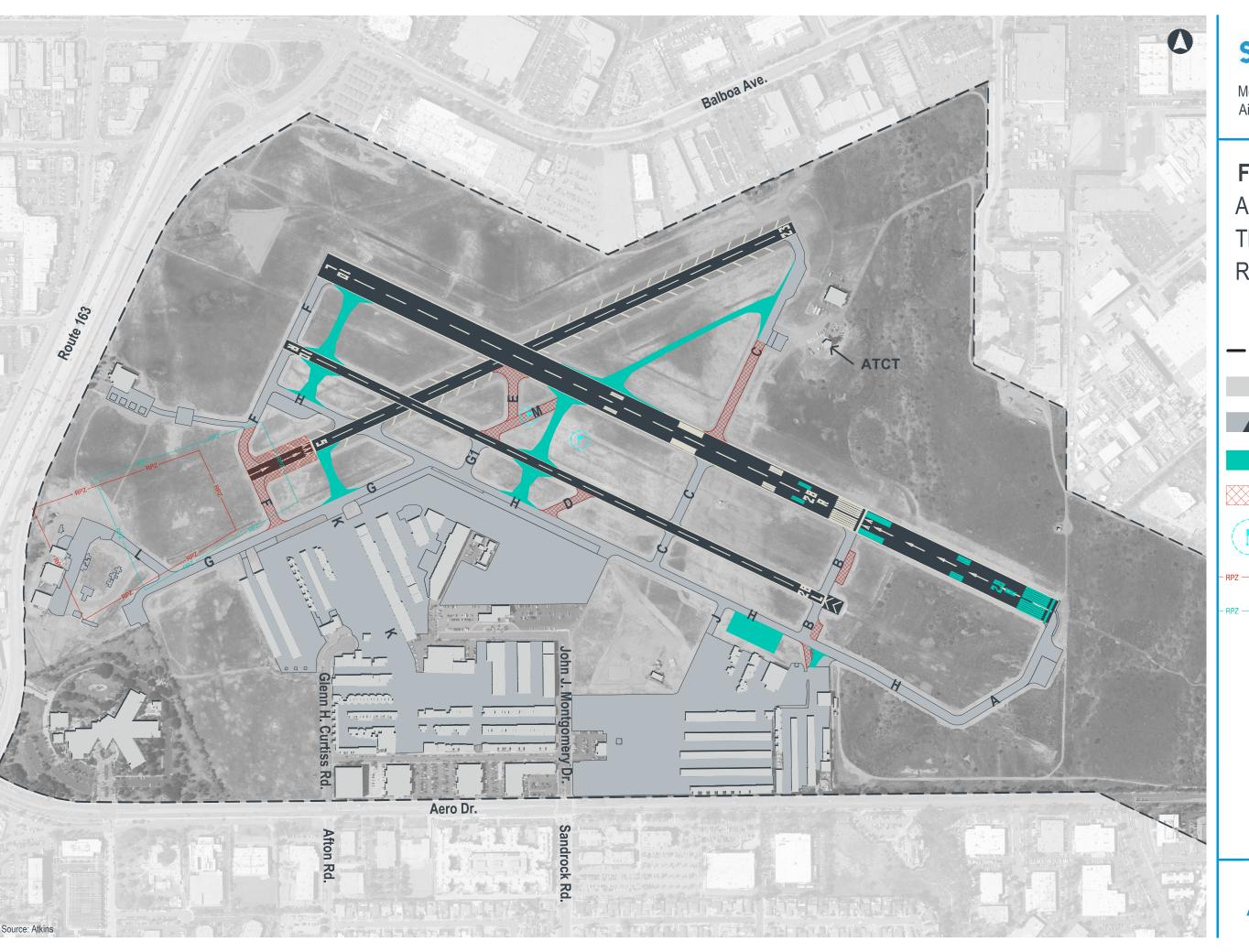
This alternative presents similar design deficiency options as Alternative 2, as well as options for the Runway 5 and Runway 28R thresholds. These options will meet the minimum required demand, but in a manner that will maximize the runway length available for landing on Runway 28R and optimize the space in previously disturbed areas to capitalize on landside development opportunities. Components of this alternative are depicted in **Figure 5.4** and include the following proposed activities:

- **Runway 28R, Displaced Threshold Removal** Proposed removal of the 1,176-foot displaced threshold on Runway 28R, with associated MALSR and other NAVAID relocation. This relocation will allow aircraft to utilize the full runway length when landing.
- **Runway 5, Runway End Relocation** To increase developable area along Kearny Villa Road, this alternative proposes the removal of pavement up to the Runway 5 displaced threshold and some of the airfield pavement, including a portion of Taxiway Foxtrot from Taxiway Hotel to the entrance of the police department facility. A new connection is proposed for access to the new Runway 5 threshold from Taxiway Golf.
- **Partial removal of Taxiway Charlie** This removal is proposed to create previously disturbed areas suitable for development in the northeast quadrant of the Airport. To maintain access to the Runway 23 end, a partial-parallel taxiway is proposed for Runway 5/23.

Airside Alternative 4 - Fresh Perspective

This alternative provides new options for Runway 5/23, the Runway 28R threshold, and various taxiways. It also increases land available for future aeronautical development beyond the 20-year planning period. Alternative 4 is similar to Alternative 3 but would have the most impact on the City from an operational, financial, and environmental standpoint, and it has the greatest potential to limit the operational capabilities of small aircraft in crosswind scenarios. Components of this alternative are depicted in **Figure 5.5** and include the following features.

- **Removal of Runway 5/23** MYF currently exceeds the FAA standard 95 percent wind coverage with only the use of its parallel runways 10R/28L and 10L/28R. Therefore, Runway 5/23 is not required for airport crosswind coverage. This alternative looks at the impact of completely closing and removing the runway.
- **A full-parallel taxiway to the north of Runway 10L/28R** A full-length taxiway parallel to Runway 10L/28R is proposed in conjunction with adequate entrance and exit taxiways connecting to the runway in order to obtain the highest level of airfield capacity. This future parallel taxiway system would also provide additional entrance/exit taxiway to support development on the north side of the property.





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Figure 5.4 Airside Alternative 3 Threshold Reconfiguration

Legend

— Property Line

Existing Buildings

Existing Airfield Pavement

Proposed Airfield Pavement

Proposed Demolition

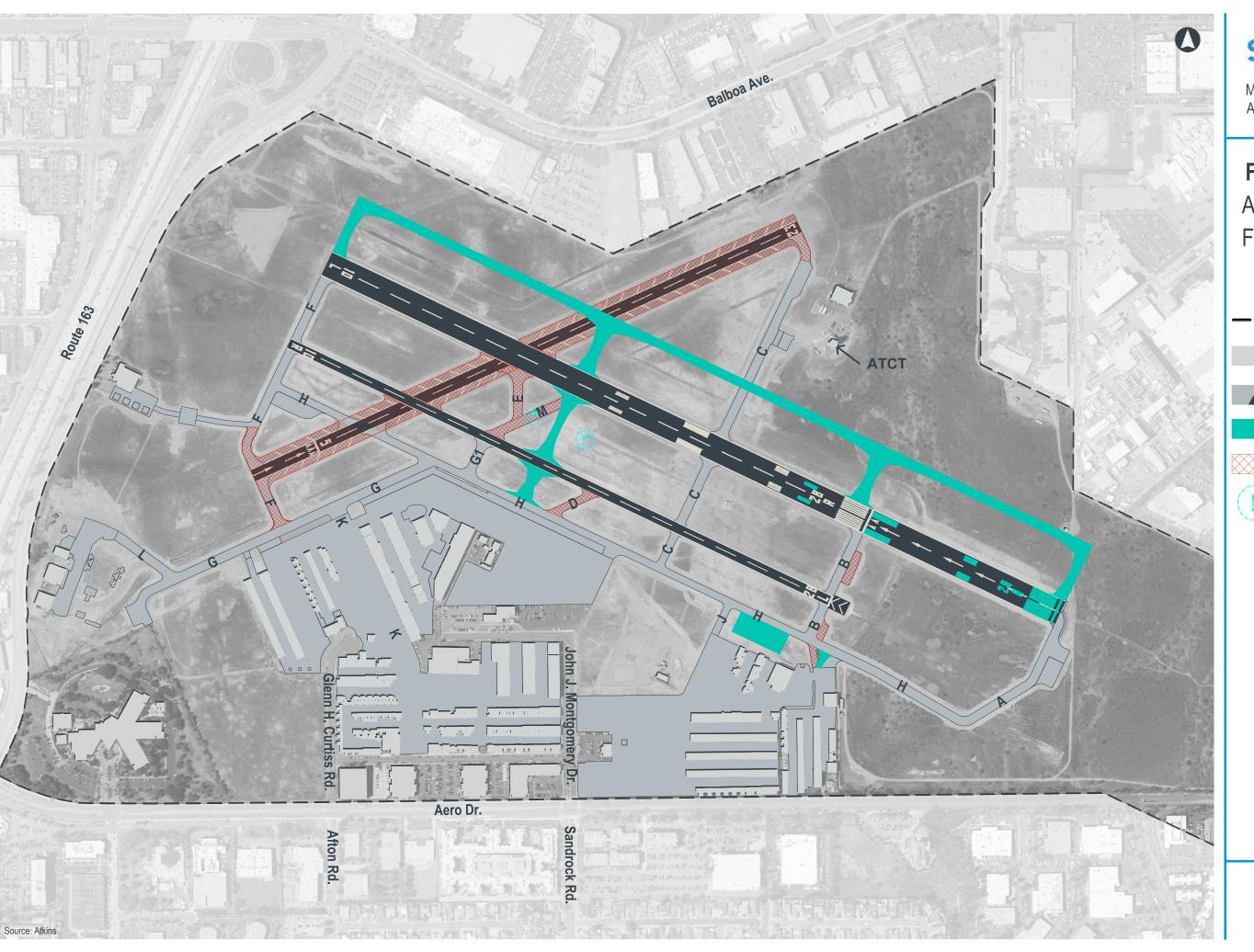
Proposed Segmented Circle

– RPZ — RPZ — Existing RPZ

RPZ — RPZ — Proposed RPZ









Montgomery-Gibbs Executive Airport Master Plan

Figure 5.5 Airside Alternative 4 Fresh Perspective

Legend













Proposed Segmented Circle





PAC and Public Review

The Airport Master Plan Planning Advisory Committee (PAC) and the public evaluated the airside alternatives and provided input and recommendations for the planning team's consideration. While the comments and recommendations varied on each alternative, several recurring themes emerged from the PAC and public's review and input. The more significant concerns and suggestions provided by both entities included the following:

- Hold bay enhancements were supported, but tenants voiced concerns over the location of the proposed run-up area adjacent to the Runway 28L threshold.
- Removal of Runway 5/23 was not widely supported.
- The relocation of the Runway 5 end was generally seen as a favorable and acceptable airfield modification.
- Removal of the displaced threshold on Runway 28R received mixed support, with tenants and operators in favor and residents of surrounding communities voicing concerns about changing fleet mix and increased noise.
- Modifications to hot spot areas were generally supported, with some pilots voicing disappointment in the proposed removal of several acute-angle exit taxiways.
- ATC staff recommended reviewing the proposed Taxiway Foxtrot hotspot to ensure the nature of incursions in this area is addressed.
- FAA Office of Engineering recommended further evaluation of the Taxiway Alpha and Runway 28R threshold connection for runway incursion mitigation opportunities.

The above items summarize the majority of the most frequent or common input that was received from the PAC, public, and FAA regarding the presented airside alternatives; however, all PAC and public comments related to the proposed alternatives can be found in **Appendix A**.



5.4 Landside Facility Priorities and Proposed Locations

Landside and select support facilities are integral components of a well-functioning airport. Thus the careful and insightful planning of proposed future development in these areas is essential. The previous section recognized the areas of the airfield where enhancements are needed and presented various alternatives correcting nonstandard design elements or improving the overall capacity and safety of the airfield configuration. Similarly, this section provides various alternatives for key components associated with landside facilities. As a result of the Facility Requirements needs assessment and outreach with the PAC and public users of the Airport, the top three priorities needed from a landside perspective were identified and include:

- 1) Additional hangar storage
- 2) Additional transient aircraft parking apron
- 3) Updated and larger terminal building

In addition to these top priorities, other components given consideration and incorporated into the alternatives included several support facility improvements, as well as land use preservation. These items are discussed further in the Ancillary Support Facilities section.

Hangars

The availability of aircraft storage hangars, specifically T-hangars and small single-aircraft box hangars, has become increasingly limited. The demand for additional hangars at the Airport has been apparent for some time and supports the results of the hangar demand analysis conducted within the Facility Requirements Working Paper. This analysis determined the Airport was deficient in Thangars and small single-aircraft box hangars and would benefit from the addition of approximately 36,000 square feet, or roughly 25 hangars, depending on the ultimate size of the structures. It should be noted this is the minimum amount of these hangar types recommended based on the projected demand over the planning period; however, the option to construct additional hangars beyond the forecasted demand is justified if the interest and financial support exist. Therefore, when identifying areas of the airfield to potentially construct the additional hangars, consideration was made as to the amount of space that would ultimately be needed if additional hangars were desired within the planning period and beyond. Designating a larger area for hangar development ensures the space is preserved for similar future development, which adds to the overall cohesiveness of the airfield.

Proposed Hangar Locations

Based upon the existing configuration of the airfield, along with input from the City, PAC, and the public, the identification of five areas on the airfield emerged as potential locations for the construction of additional hangars (see **Figure 5.6**). Designations assigned to the areas are:

- Hangar Site 1 Taxiway Lima West
- Hangar Site 2 Taxiway Golf South
- Hangar Site 3 City Triangle
- Hangar Site 4 Gibbs Lease Hold South
- Hangar Site 5 Taxiway Hotel South

The initial analysis examined a number of potential sites. These areas were ultimately narrowed down to the five potential locations described above, and represent the most logical areas based on the existing airfield configuration. For comparative purposes, **Table 5.1** illustrates the considerations given to each potential hangar site location.

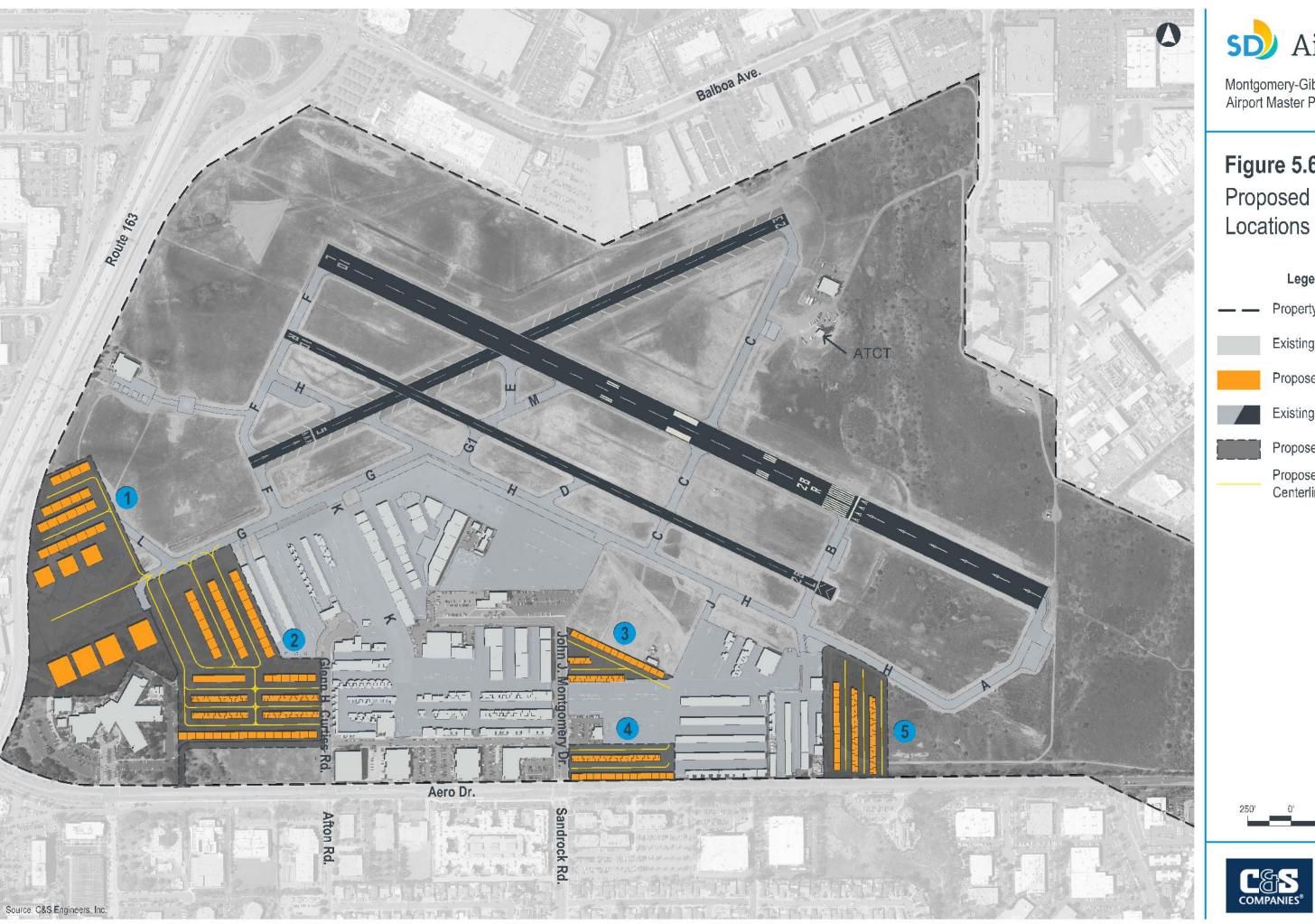


Table 5.1 – Hangar Site Comparison

Site Designation	Location Considerations
Site 1 – Taxiway Lima West	 Large area for growth; able to meet minimum hangar demand Proximity to roadways/freeways Potentially keeps larger corporate traffic separated from smaller GA traffic Easy access to taxiway/runway system Would require the removal of approximately 390 feet of pavement from Runway 5 end to existing displaced threshold location, reacquiring propert back from the hotel, and relocation of existing tenant Somewhat isolated from other airport facilities
Site 2 – Taxiway Golf South	 Large area for growth; able to meet minimum hangar demand, plus future development Preliminary environmentally cleared land; no construction issues once cleared Easy access to taxiway/runway system May require coordination with leasehold to the east Somewhat isolated from other airport facilities
Site 3 — City Triangle	 Close to existing airport facilities; centrally located Small area for development; cannot meet demandalone Potential future use by adjacent leaseholder (Corporate Helicopters)
Site 4 – Gibbs Lease Hold South	 Close to existing airport facilities; centrally located Small area for development; cannot meet demandalone Would require the relocation of existing tiedowns and coordination with existing tenant
Site 5 - Taxiway Hotel South	 Close to taxiways/runway 28R & 28L ends Could potentially meet the minimum amount of hangar demand Potential environmental and grading/drainage concerns Somewhat isolated from other airport facilities

Source: C&S Engineers, Inc., 2018

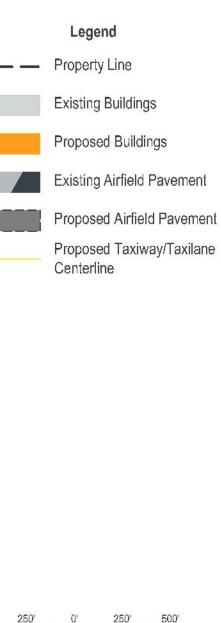






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Figure 5.6 Proposed Hangar





Transient Aircraft Parking Apron

Like the small hangars at MYF, the available aircraft parking apron areas have begun to reach capacity, particularly the transient (or visiting) aircraft apron. The results of the apron area demand analysis conducted in Working Paper 3 - Facility Requirements indicate the Airport is in need of approximately 21,000 square-yards of additional transient parking apron, which is slightly more than double what exists currently. The overflow of aircraft from the based aircraft parking aprons has begun to occur onto the main transient apron, which as previously mentioned in Working Paper 3, is located adjacent to the terminal building and the Crownair FBO on the south side of the airfield. Due to this encroachment and the anticipation of continued growth of itinerant operations, the desire to identify additional transient apron space at MYF was the second highest priority, as described above. The apron area demand analysis also indicated the Airport is in need of a minimal amount of additional based aircraft apron – approximately 600 square yards – over the course of the 20-year planning period. Because the estimated based aircraft apron area is relatively small, its addition to the alternatives will be included in conjunction with the additional T-hangar development.

Proposed Transient Apron Locations

Much like the potential hangar sites discussion, several sites on the airfield were examined to identify the most optimal location for additional transient aircraft parking. At most GA airports, the optimal location for the transient parking apron is adjacent to, or very near, the terminal and/or FBO facilities, as these locations are usually centrally located and have easy access to roadways. Today at MYF, the majority of existing transient apron is conveniently located adjacent to the terminal building, as well as one FBO. The desire to preserve the convenience of the current location resulted in only a few options being identified for the additional area. Likewise, two potential locations were removed from further considation after determining one site would better serve as the aircraft run-up and hold bay area (discussed in Section 5.3 above), and the second was already aligned with an existing tenant's future expansion plans, according to the terms of their lease with the City. With the loss of these two options, only four other feasible areas remained. **Figure 5.7** depicts the proposed transient aircraft parking apron locations; these areas have been designated as follows:

- Transient Apron Site 1 Taxiway Lima West
- Transient Apron Site 2 Taxiway Golf South
- Transient Apron Site 3 Existing and Expanded Terminal Apron
- Transient Apron Site 4 City Triangle

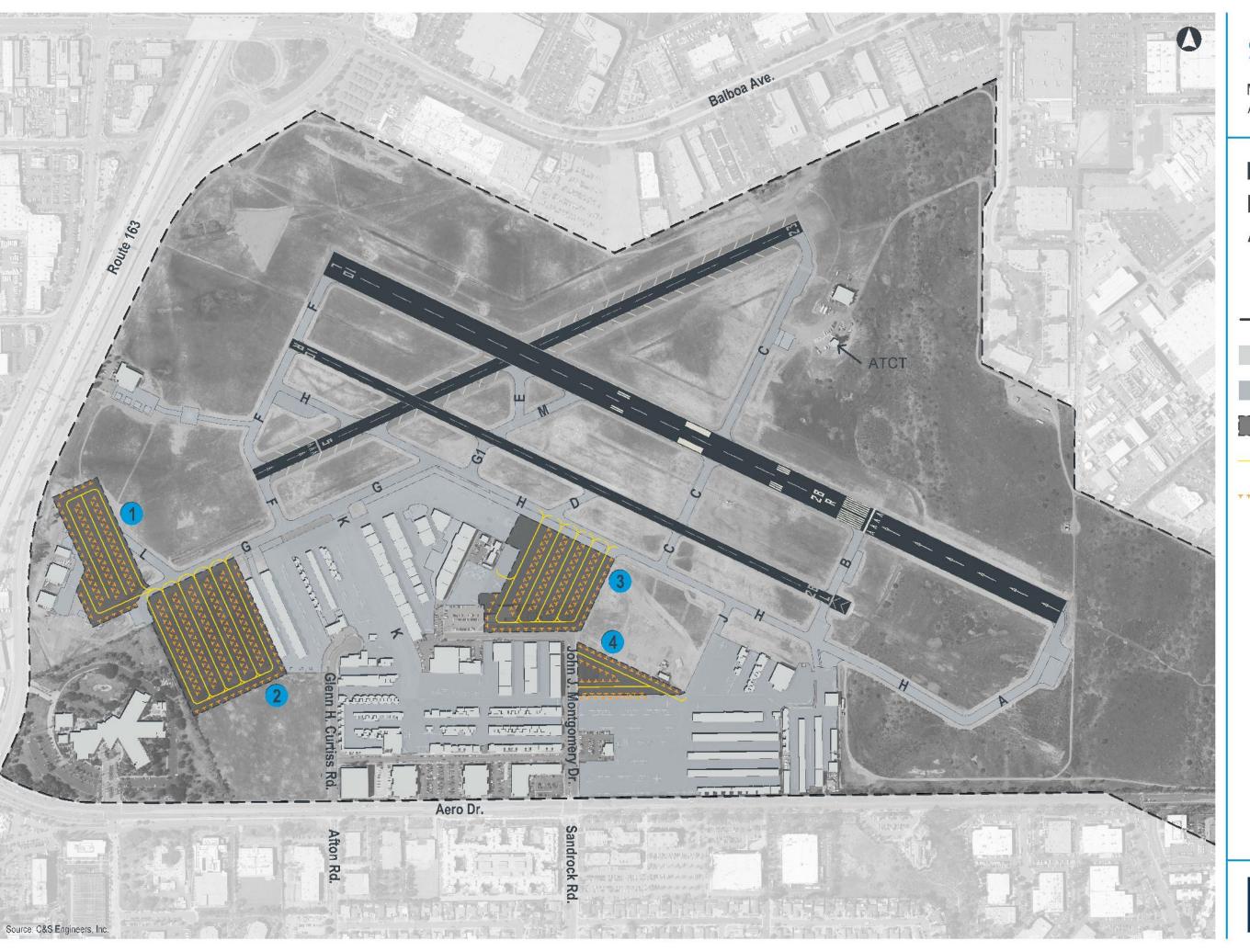
As discussed above, the location of the transient parking apron is often co-located with the terminal building. Another top priority for the Airport included an expanded refurbished terminal building or an expanded new construction terminal building. As such, it is important to note that the ultimate location of the transient apron may depend heavily upon where the proposed terminal facility is located. Again, for comparative purposes, **Table 5.2** demonstrates the considerations given to each potential transient apron location.

Table 5.2 - Transient Apron Site Comparison

Site Designation	Location Considerations
Site 1 – Taxiway Lima West	 Large area for growth; provides approx. 25,700 SY of apron¹ Proximity to roadways/freeways Would require the removal of approximately 390 feet of pavement from Runway 5 end to existing displaced threshold location Isolated from the terminal and other airport facilities
Site 2 – Taxiway Golf South	 Large area for growth; provides approx. 46,500 SY of apron¹ Proximity to roadways/freeways Isolated from the terminal and other airport facilities
Site 3 — Existing and Expanded Terminal Apron	 Requires the least amount of new pavement Centrally located; easy access to the terminal and other facilities Provides approx. 35,300 SY of apron¹ Reconfiguration and restriping could limit access by larger corporate aircraft
Site 4 – City Triangle	 Centrally located; easy access to the terminal and other facilities Cannot provide the minimum required apron alone; provides approx. 10,700 SY of apron¹ Potential future use by adjacent leaseholder (Corporate Helicopters)

Notes: ¹Based on the configuration shown for the site in Figure 5.7. SY = Square yards Source: C&S Engineers, Inc., 2018

Each site described above may not provide all the needed apron area individually. Therefore, it is possible the ultimate location will be a combination of two or more sites. Also, Site 3 assumes the existing apron near the terminal will not only be expanded to the south and east, but the tie-down layout will be reconfigured to make more efficient use of the space. Finally, the location of the terminal building, whether in its current location or at a new location, will most likely determine the final proposed additional transient apron area. The next section addresses the potential terminal location sites.





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Figure 5.7 Proposed Transient Apron Locations



Property Line



Existing Airfield Pavement

Proposed Airfield Pavement

Proposed Taxiway/Taxilane Centerline

Proposed Aircraft Tie-Downs





Terminal Building

The top priority of the Airport is to address the aging and confined space of the existing terminal building. The maintenance upkeep, as well as the increasing lack of space for MYF personnel, are the driving factors behind the need for a larger, modernized facility. Findings of the GA terminal area demand analysis completed within the Facility Requirements Working Paper also support this need. The existing City terminal building is approximately 10,000 square feet, while the estimated common space of the two FBOs on the airfield totals approximately 6,600 square feet. Within the terminal demand analysis, this combined space was utilized, along with a modified itinerant design hour to calculate the required terminal space needed over the course of the planning period. Based on current activity at the Airport, approximately 20,700 square feet should be dedicated to the terminal facility, meaning a deficit of just over 4,000 square feet presently exists. Furthermore, the total projected terminal space required in the year 2037 is estimated to be 22,950 square feet. Assuming the two FBO common spaces remain the same size, the City terminal space should be increased by approximately 6,400 square feet, totaling approximately 16,400 square feet.

Proposed Terminal Building Locations

The Airport's existing configuration, along with the desire to maintain the terminal's central location near the FBOs, vehicle parking, and access roadways led to only a few potential future locations being identified. As noted above, keeping the transient parking apron somewhat co-located with the future terminal remained a goal while identifying potential sites. As a result of these criteria, several areas initially proposed, such as in the far northwest corner of the airfield and in the existing Spider's leasehold southwest of the Runway 5 threshold, were eliminated from further consideration mainly due to the distance from other amenities. **Figure 5.8** depicts the proposed terminal building locations, which have been designated as follows:

- Site 1 Existing Location (Expand and Refurbish)
- Site 2 City Triangle
- Site 3A Gibbs Lease Hold North
- Site 3B Gibbs Lease Hold South

These potential sites represent the most logical areas on the Airport for a terminal building location. **Table 5.3** illustrates several considerations given to each potential terminal building location.

Table 5.3 – Terminal Building Site Comparison

Site Designation	Location Considerations
Site 1 — Existing Location (Expansion and Refurbish)	 Centrally located; users familiar with the location Potentially less expensive than new building construction Limits the amount of transient apron that can be added in the area Utilizes the existing vehicle parking lot
Site 2 – City Triangle	 Centrally located Opens existing terminal location for additional transient apron, but only minimally Would require construction of a new building Would require coordination with adjacent leaseholder (Corporate Helicopters)
Site 3A – Gibbs Lease Hold North	 Centrally located Would require construction of a new building Could make use of the existing Gibbs vehicle parking lot, but would still require additional parking area Displaces a small number of existing tie-downs; coordination with existing tenant needed Pairs well with the adjacent triangle parcel if used for transient apron
Site 4 – Gibbs Lease Hold South	 South-central location Would require construction of a new building Could make use of the existing Gibbs vehicle parking lot, but would still require additional parking area Displaces a small number of existing tie-downs; coordination with existing tenant needed Farther away from existing transient apron and potential future transient apron (triangle parcel)

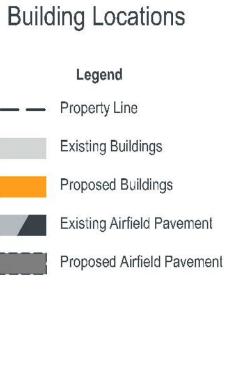
Source: C&S Engineers, Inc., 2018





Montgomery-Gibbs Executive Airport Master Plan

Figure 5.8 **Proposed Terminal**







Ancillary Support Facilities

The above sections identified the Airport's top three priorities from a landside perspective based on the forecasted aviation demand; however, there are also several other ancillary items that the City and users have identified as important support facilities that should be considered within the 20-year planning period. These support facilities include aircraft wash racks, a public recreational viewing area, and a central fuel facility. The aircraft wash rack facilities have been a frequent request from the based aircraft tenants for some time. Thus, several locations have been proposed around the airfield for consideration. Another support facility of importance based on feedback from the public is a designated recreational viewing area where aviation enthusiasts and others can go to relax and enjoy the view of the Airport and its aircraft. This area would be outside of the secure fence line and ideally offer some type of greenspace or landscaped area. No definitive plans have been developed yet for this site, but the City desires to preserve a potential location for the area within this master plan for future development. Finally, the City has indicated there is a potential need for a self-service aircraft fuel island at the Airport. The need is anticipated should an increase in based aircraft continue to occur within the planning period. The proposed locations for these ancillary items are shown on select alternative renderings (where applicable), which allowed evaluators to weigh each option and make recommendations as to the preferred location(s) of these support facilities.

5.5 Landside Alternatives Development

The City of San Diego has a defined vision for the future of the Airport. Based on this vision, input from the public, and the considerations described above for potential locations of the three key landside components, several landside development alternatives emerged. These alternatives are designated as follows:

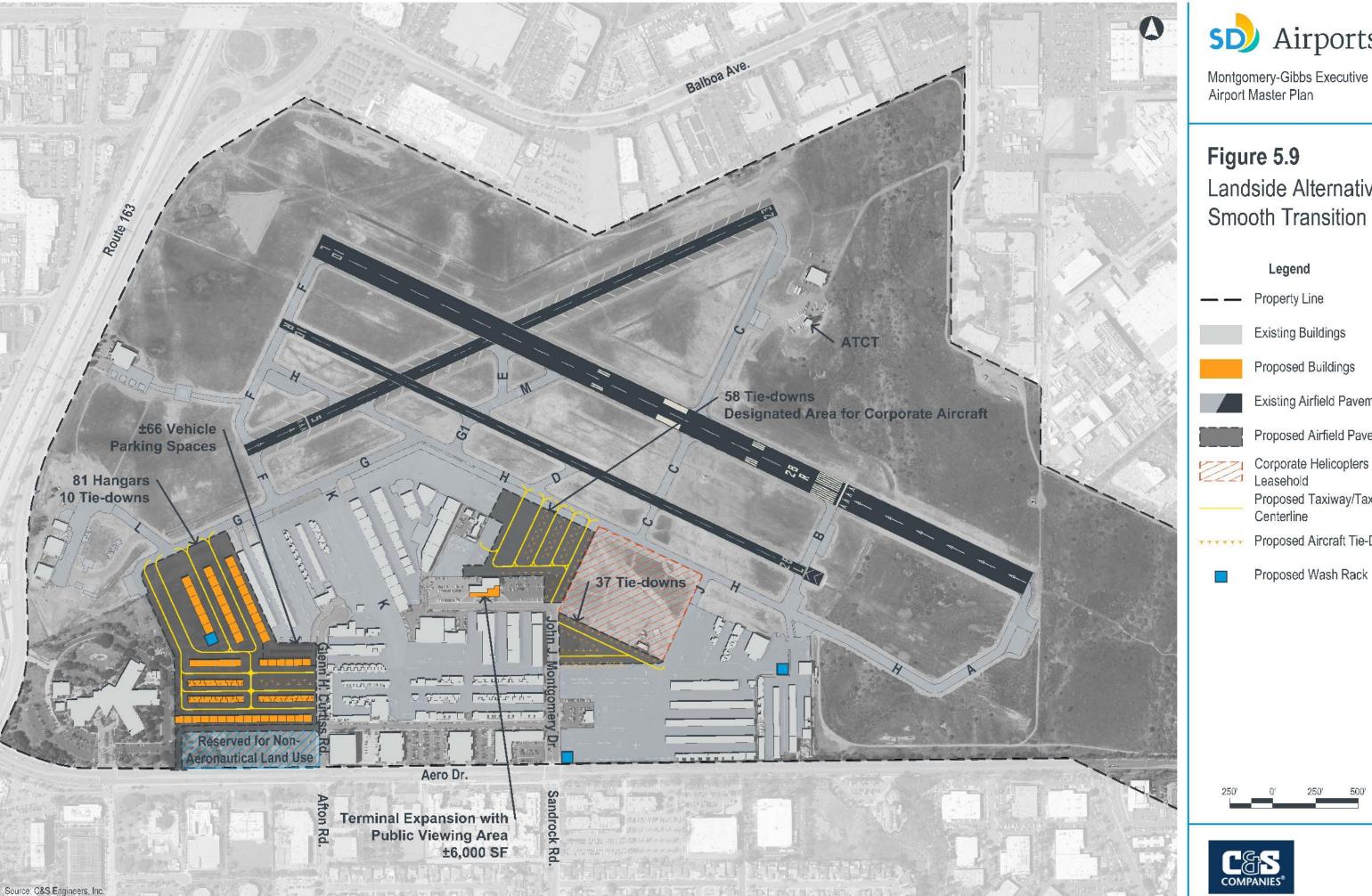
Landside Alternative 1 - No Action

This alternative involves maintaining the existing layout, size, and configuration of all associated landside buildings and ancillary facilities over the course of the planning period. **Figure 5.2** depicts the No Action alternative.

Landside Alternative 2 - Smooth Transition

This alternative presents options for the terminal building, transient aircraft parking apron, and hangars that will meet the minimum required demand with the least amount of financial and environmental impact to the City. This includes using existing City land and facilities needed for development as much as possible and minimizing the amount of undisturbed land, or land already leased to other tenants. Components of this alternative are depicted in **Figure 5.9** and include:

- **Hangar Site 2** This site proves the least challenging for the construction of new hangars because it is in the City's control, has been removed from the City's Multi-Habitat Planning Area (MHPA) for development, is not impacted by any of the airfield's imaginary surfaces, and does not displace any existing tenants. There is room on this site to construct the minimum 25 T-hangars or small single-aircraft box hangars with additional space for future expansion, as well as a based aircraft apron (or additional transient apron if needed). This area also has sufficient room to construct additional vehicle parking spaces to replace those lost around the terminal building as discussed below.
- **Transient Apron Sites 3 and 4** Neither Site 3 nor Site 4 alone will provide the approximate 21,000 square yards of transient aircraft parking apron needed over the course of the 20-year planning period. However, reconfiguring the layout in Site 3, plus the addition of part of the existing terminal building automobile parking lot, combined with Site 4 provides approximately 13,000 square yards of additional aircraft apron. The remaining requirement for transient apron can be made up using a portion of Hangar Site 2.
- **Terminal Site 1** Expand the existing terminal footprint to the south to include an additional 6,000 square feet of space; refurbish the remainder of the building to match newly constructed portion; utilize the existing adjacent vehicle parking lot, but eliminate approximately 45 spaces; convert the existing restaurant balcony to a public viewing area, including a greenspace/picnic area on the ground level.





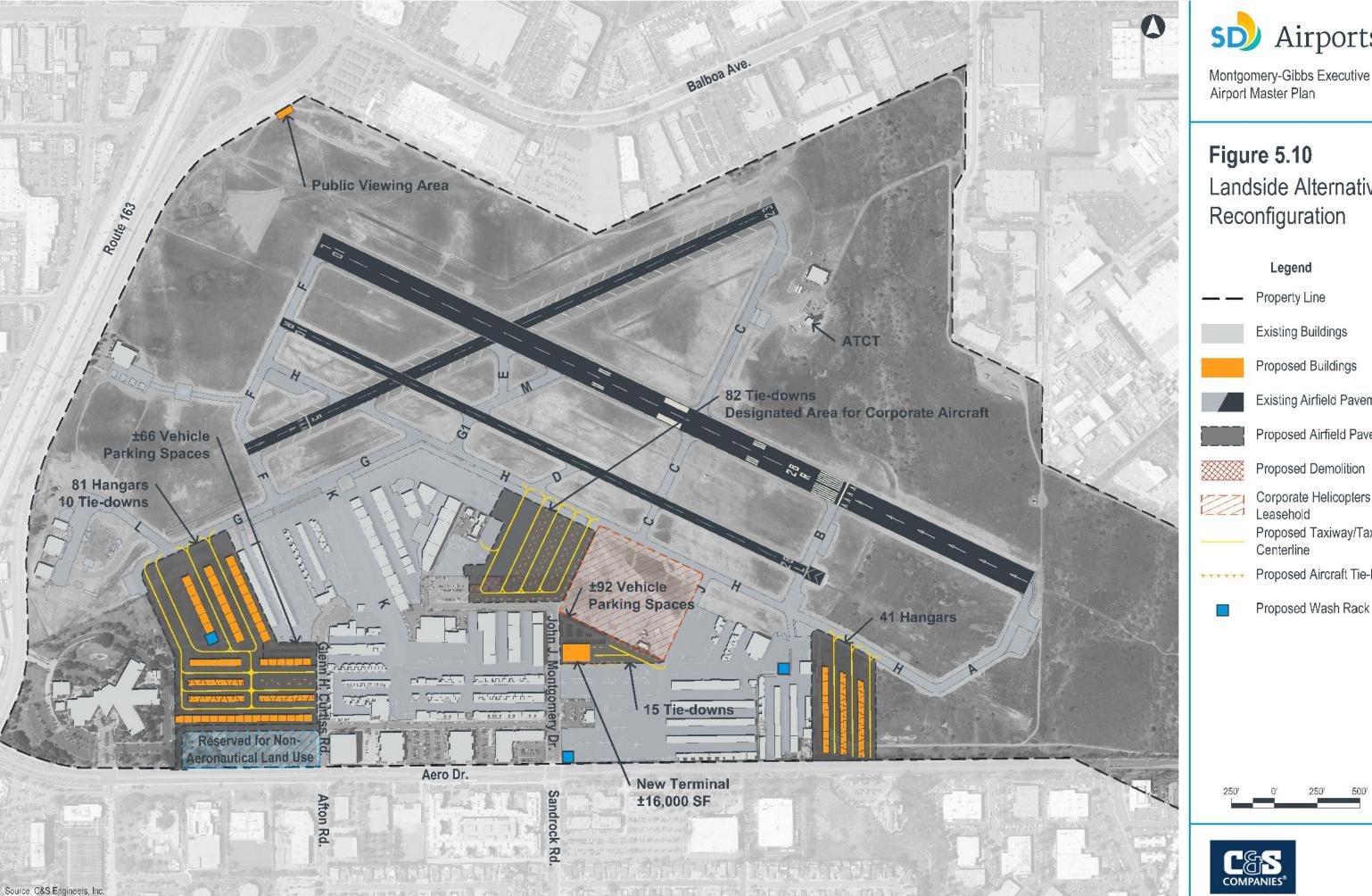
Landside Alternative 2



Landside Alternative 3 - Reconfiguration

This alternative presents options for the terminal building, transient aircraft parking apron, and hangars that will meet the minimum required demand, but in a manner that will optimize the space in potential areas as much as possible while still remaining centrally located to existing facilities and utilizing City land. Components of this alternative are depicted in **Figure 5.10** and include:

- **Hangar Sites 2 and 5** The same logic described above also applies in this scenario; most importantly, this land is under the City's control and provides adequate room for the minimum amount of required hangars, plus some room for expansion. Furthermore, in this option, the addition of Hangar Site 5 allows the City or private developer the option to construct small hangars in this area. This area may be somewhat more constrained due to potential environmental and drainage concerns, which would require further investigation and clearance prior to any construction activities.
- **Transient Apron Sites 3 and 4** In this option, Site 3 will be entirely used for apron (assumes the relocation of the terminal building, which will be described below), while only a portion of Site 4 would be used for apron. A combined total of approximately 14,000 square yards would result utilizing Site 3 and Site 4 in this option. With the added space and reconfiguration, Site 3 would allow for some larger corporate transient aircraft parking. The remaining requirement for transient apron can be made up using a portion of Hangar Site 2.
- **Terminal Site 2** This option proposes that a new terminal building be constructed within the City Triangle parcel adjacent to John J. Montgomery Drive. As described above, this would allow the area where the terminal exists now to be converted to transient apron space. Construction of a new vehicle parking lot would also be included adjacent to the proposed terminal; allocated vehicle parking spaces would be split between this location and a proposed lot near Hangar Site 2. This option allows construction of a new, modern facility approximately 16,000 square feet in size on City-controlled land. Furthermore, additional transient apron space would also be located adjacent to the new terminal more conducive to smaller single-engine aircraft, freeing up space within the proposed north apron area for larger turboprop and jet transient aircraft.





Landside Alternative 3



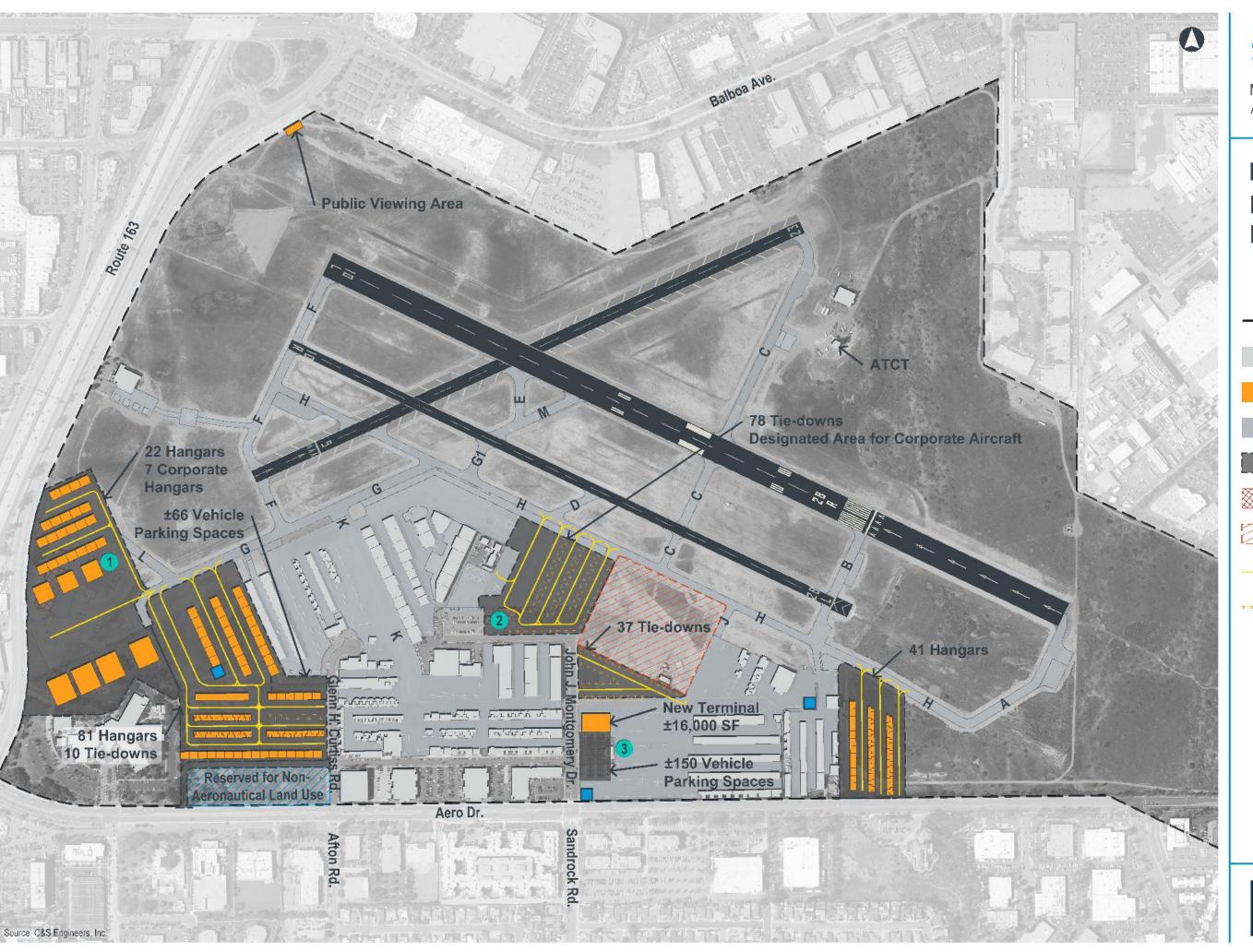


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Landside Alternative 4 – Fresh Perspective

This alternative presents options for the terminal building, transient aircraft parking apron, and hangars that will meet the minimum required demand but also preserves land for future aeronautical development beyond the 20-year planning period. It is similar to Alternative 3, but would have the most impact on the City from a financial and environmental standpoint, as well as require existing leaseholds to be renegotiated or relocated and consideration given to the airfield's imaginary surfaces. Components of this alternative are depicted in **Figure 5.11** and include:

- **Hangar Sites 1, 2, and 5** Hangar Site 2 provides adequate space for T-hangars and small single-aircraft box hangars throughout the 20-year planning period based on the logic used in the previous Alternative options. Hangar Site 2 will also include a small amount of based aircraft parking apron and a designated vehicle parking lot of approximately 66 spaces. This option also incorporates the use of Hangar Site 1; this site would provide adequate space for some larger corporate hangars and apron space, as well as additional single-aircraft box hangars should the demand for hangar space continue to increase beyond the projected demand. As previously noted above, Hangar Site 2 has very minimal impacts on development. However, the addition of Hangar Site 1 to this option requires more coordination on the City's behalf. It assumes that a large portion of the adjacent hotel property will, in fact, be reallocated back to the City, requires renegotiation with an existing tenant (Spider's leasehold) to develop a portion of the proposed site, and depends on the removal of pavement from the Runway 5 end. As described in Alternative 3, Hangar Site 5 will still be shown as a potential location for hangars as well.
- **Transient Apron Sites 3 and 4** In this option, both Sites will be entirely used for transient apron (again assumes the relocation of the terminal building), allowing for approximately 18,000 square yards of apron space. Site 3 once reconfigured would allow for some parking of smaller single-engine aircraft, but would also create more space for larger jet aircraft parking. Likewise, Site 4 could be entirely used for parking of smaller aircraft, essentially creating some barrier between the smaller GA piston aircraft and the larger corporate turbine aircraft. The remaining requirement for transient apron can be made up using a portion of Hangar Site 2.
- **Terminal Site 3A** This option proposes that a new terminal building be constructed within the northwestern portion of the existing Gibbs Flying Service leasehold adjacent to John J. Montgomery Drive. As described above, this would allow the area where the terminal exists now to be converted entirely to transient apron space. Furthermore, it would also allow the entire City Triangle parcel (Apron Site 4) to be used for transient parking and provide convenient access to the new terminal. The existing Gibbs vehicle parking lot could also be utilized, but would need to be expanded to the south in order to accommodate the required amount of vehicle parking spaces needed over the planning period (including a small lot near Hangar Site 2 to accommodate based aircraft owners' parking needs would still be proposed). This option therefore would require the City to renegotiate the terms of the existing lease with Gibbs Flying Service, or reacquire the parcel once their existing lease term expires.





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Figure 5.11 Landside Alternative 4 Fresh Perspective



- Property Line

Existing Buildings

Proposed Buildings

Existing Airfield Pavement

Proposed Airfield Pavement

Proposed Demolition

Proposed Demonitor

Corporate Helicopters Leasehold

Proposed Taxiway/Taxilane Centerline

Proposed Aircraft Tie-Downs

Proposed Wash Rack

Potential Fuel Island Location Options





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PAC and Public Review

The Airport Master Plan Planning Advisory Committee (PAC) and public evaluated the aforementioned alternatives and provided input and recommendations for the planning team's consideration. While the comments and recommendations varied on each alternative, several recurring themes emerged from the PAC and public's review and input. The more significant concerns and suggestions provided by both entities included the following:

- There was significant support for leaving the terminal in its existing location, as well as for significantly renovating the existing building or constructing a new building in the same footprint. Requests related to the terminal also included the need for ample parking and accessibility to transient aircraft parking.
- There was strong support for the inclusion of a public viewing area in every alternative; however, some would have liked more details to be provided such as vehicle parking, access, amenities, and security.
- Hangar Site 5 (Taxiway Hotel South) had strong support, but the potential environmental constraints are a likely hindrance to development in the area as noted by most.
- Hangar Site 2 (Taxiway Golf South) was well supported, although a common concern was the distance that would be required for taxiing aircraft to the Runway 28R/L thresholds.
- Hangar Site 1 (Taxiway Lima West) had overwhelming support with no reported opposition.
- The proposed multiple wash racks were also widely supported with the exception of the location positioned closest to Aero Drive.

The above items summarize the majority of the most frequent or common input that was received from the PAC and public regarding the presented landside alternatives; however, all PAC and public comments related to the proposed alternatives can be found in **Appendix A**.

5.6 Alternatives Evaluation Criteria

The evaluation of the alternatives followed the criteria as found in FAA's AC 150/5070-6B, *Airport Master Plans* and included the following:

- Financial Feasibility
- Operational Performance
- Environmental Implications
- Best Planning Tenets

Financial Feasibility

This analysis considers the impacts of a particular alternative in relation to the Airport's economic viability as well as that of the surrounding community. Furthermore, the analysis provides consideration of the estimated development costs associated with the various alternatives, along with prospective funding sources. The following were assessed as a part of this analysis:

- Development costs Includes anticipated costs of development and potential alternative funding sources. Alternative funding sources include those other than the City or the FAA, such as private business owners and/or developers.
- Job creation The potential of each alternative to create employment and other economic development benefits for the Airport and immediate surrounding area.
- Financial sustainability Anticipated opportunities for revenue generation through increased activity, new businesses, etc. in order to increase the Airport's ability to become more financially self-sufficient.

Operational Performance

An airport's ability to function as a system can be determined based on several factors:

- Capacity The ability to accommodate future demand as determined in the facility requirements.
- Capability The ability to meet airport design standards and ensure a safe operating environment.
- Operational efficiency How well the alternatives work as a system to avoid delays, inefficiencies, airspace conflicts, etc. This also considers the coexistence of existing and future users.

Environmental Implications

As discussed in the Environmental Overview, there are a number of environmental resources that may be impacted to some degree as a result of airport development. To review the NEPA environmental categories associated with MYF in detail, please refer to Section 4.3, Environmental Impact Analysis in Working Paper 4. The following are the environmental criteria identified for MYF (See **Table 5.4** and **Table 5.5**):

- Air Quality
- Biological Resources (Including Fish, Wildlife, and Plants)
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Land Use
- Noise and Noise-Compatible Land Use
- Climate
- Department of Transportation Act, Section 4(f)
- Historical, Architectural, Archeological, and Cultural Resources
- Visual Effects (Including Light Emissions)
- Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

Best Planning Tenets

Several best planning tenets were selected in order to determine the most responsible and implementable alternative within this Airport Master Plan. These include:

- Flexibility to accommodate unforeseen change (e.g., increases or decreases in activity levels, changes to fleet mix, new users, etc.).
- Technically feasible (e.g., considers site constraints and other limitations).
- Conforms to the City's goal of creating a more attractive experience/airport for GA pilots.

5.7 Alternatives Evaluation Summary

Evaluation Criteria Descriptions and Analysis

The evaluation criteria described above were applied to each airside and landside alternative based on the initial input from the PAC and public. **Tables 5.4** and **5.5** contain a detailed summary of each alternative evaluation.

	Description	Alternative 1: No Action	Alternative 2: Design Deficiencies	Alternative 3: Runway Threshold Relocation	Alternative 4: Fresh Perspective			
Comparative Features								
Financial Feasibility	Financial Feasibility							
Development Costs	Anticipated costs of development, considering potential alternative funding sources.	No Change.	The City's share of the costs would include the amount after any FAA AIP and/or Caltrans funding is provided for eligible projects.	City's share in development costs are anticipated to be approximately 10% of project costs, due to 90% federal share of AIP grant eligible projects. Development costs will be increased over Alternative 2 due to the relocation of NAVAIDS and lighting.	City's share in development costs are anticipated to be approximately 10% of project costs, due to 90% federal share of AIP grant eligible projects. Development costs will be increased over Alternative 2 decommission of runway 5-23 and new taxiway infrastructure.			
Job Creation	Via employment, economic development, etc.	No Change.	Job creation and economic development will be temporary and tied to project design and construction.	Job creation and economic development will be temporary and tied to project design and construction.	Direct job creation and economic development will be temporary and tied to project design and construction. However, an increase in airfield areas with direct airside access could attract airport development opportunities and additional employment.			
Financial Sustainability	Revenue generation through increased activity and new businesses, etc. in order to increase the Airport's ability to become more financially self-sufficient.	No Change.	Projects will not create a direct impact to revenue generation.	Projects will not create a direct impact to revenue generation.	Projects will not create a direct impact to revenue generation. However, an increase in airfield areas with direct airside access could attract revenue generating airport development opportunities.			
Operational Performance	ce							
Capacity	Ability to accommodate future demand as determined in the facility requirements.	No Change.	Overall airfield capacity will increase due to the addition of and relocation / reconfiguration of existing taxiway connections. Run up area capacity increased.	Similar capacity increases to Alternative 2, with an increase in Landing Distance Available for aircraft operating on 28R. Relocation of Runway 5 end is not anticipated to impact airfield capacity.	Anticipated to increase airfield capacity by roughly 25 percent due to the elimination of Runway 5-23 crossing.			
Capability	Ability to meet airport design standards and ensure a safe operating environment.	Does not address the existing design deficiencies, including FAA identified hot spot locations.	Addresses airport design deficiencies and ensures a safer operating environment.	Addresses airport design deficiencies; increases Landing Distance Available for aircraft landing on Runway 28R, and will reduce the frequency of vertically guided approaches ensuring a safer operating environment.	The removal of crosswind Runway 5-23 decreases the likelihood of runway incursions in the area. However, without a dedicated crosswind runway, small aircraft operators may potentially face unsafe landing conditions on the remaining runways when crosswinds conditions are present at the Airport			





	Description	Alternative 1: No Action	Alternative 2: Design Deficiencies	Alternative 3: Runway Threshold Relocation	Alternative 4: Fresh Perspective		
Comparative Features							
Operational Performan	CE (Continued)						
Operational Efficiency	How well the alternatives work as a system to avoid delays, inefficiencies, airspace conflicts, etc. Considers the coexistence of existing and future users.	No Change.	The proposed taxiway geometry modifications and additional run-up area may provide minimal improvements to efficiency. Potential to provide slightly more operational efficiency due to the reduced number of circling operations to runway 10L, ultimately improving airspace around the Airport.		The removal of crosswind Runway 5-23 improves operational and airspace efficiency creating a parallel runway complex. However, without a dedicated crosswind runway, small aircraft operators may potentially face unsafe landing conditions on the remaining runways when crosswinds conditions are present at the Airport		
Environmental Implicati	ons						
Air Quality	Anticipated change in emissions.	No Change.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.		
Biological Resources (Including Fish, Wildlife, and Plants)	Adverse impacts to special status species and substantial loss, degradation, disturbance, or fragmentation of native species habitats or populations.	No Change.	Proposed development activity is located in areas identified as having low levels of biological constraint. Additional environmental review and evaluation for all proposed development will still be needed prior to construction.	MALSR location occurs in areas identified as having high levels of biological constraint. Additional environmental review and evaluation for all proposed development will still be needed prior to construction.	Significant taxiway development occurring in areas identified as having high levels of biological constraint. Additional environmental review and evaluation for all proposed development will still be needed prior to construction.		
Hazardous Materials, Solid Waste, and Pollution Prevention	Involve a contaminated site, violate laws regarding hazardous materials, or produce a different quantity or type of hazardous waste.	No Change.	Development is does not impact any known contaminated sites. Therefore there is no anticipated hazardous materials impact.	Development is does not impact any known contaminated sites. Therefore there is no anticipated hazardous materials impact.	Development is does not impact any known contaminated sites. Therefore there is no anticipated hazardous materials impact.		
Land Use	Compatibility of existing and planned surrounding land uses.	No Change.	The proposed development is not anticipated to have an impact on land use compatibility.	Land use modifications anticipated with RPZ relocation associated with Runway threshold and end relocations. Potential for compatibility issues associated with Runway 28R RPZ relocation.	No off airport land use modifications associated with the decommissioning of Runway 5-23. No compatibility issues anticipated.		





	Description	Alternative 1: No Action	Alternative 2: Design Deficiencies	Alternative 3: Runway Threshold Relocation	Alternative 4: Fresh Perspective			
Comparative Features								
Environmental Implica	tions (Continued)							
Noise and Noise-Compatible Land Use	Noise impacts on noise sensitive areas within Section 4(f) properties.	No Change.	No significant impact is anticipated.	Potential to impacts to existing noise characteristics exist due to the relocation of Runway 28R threshold coupled with a reduction of circling operations by jet airframes which require the full runway length available on Runway 10L. Noise Analysis Recommended, but no significant impact is anticipated.	Alteration of Runway 28R approach coupled with reduction of circling operations to Runway 10L. Removal of all operations on Runway 5-23 flight tracks. Noise Analysis Recommended.			
Climate	Impacts to air quality due to an increase in greenhouse gas (GHG) emissions.	No Change.	There will be an increase in GHG emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on climate change.	There will be an increase in GHG emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on climate change.	There will be an increase in GHG emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on climate change.			
Department of Transportation Act, Section 4(f)	Protection of significant resources including publicly owned parks, recreational areas, wildlife refugees, and historic sites.	No Change.	The proposed development is not anticipated to have a significant effect on any Section 4(f) resources.	The proposed development is not anticipated to have a significant effect on any Section 4(f) resources.	The proposed development is not anticipated to have a significant effect on any Section 4(f) resources.			
Historical, Architectural, Archeological, and Cultural Resources	Potential for project to disturb any cultural, historic, or archaeological resources at the Airport.	No Change.	Development occurs in areas with low levels of cultural constraints. However, proposed development in previously undisturbed areas has the potential to impact underground resources, thus further review and coordination would be needed prior to construction.	Development occurs in areas with low levels of cultural constraints. However, proposed development in previously undisturbed areas has the potential to impact underground resources, thus further review and coordination would be needed prior to construction.	Development occurs in areas with low levels of cultural constraints. However, proposed development in previously undisturbed areas has the potential to impact underground resources, thus further review and coordination would be needed prior to construction.			
Visual Effects (Including Light Emission)	Light emission effects and changes to visual resources or visual character.	No Change.	No anticipated impact on visual effects or light emissions due to the Airport's location in an already highly developed landscape	Runway 28R threshold placement will require relocation of the Runway 28R MALSR. No net increase or decrease in light emission anticipated. However, the potential of additional light emissions to affect any biological resources may need further evaluation prior to construction.	Removal of Runway 5-23 will ultimately reduce light emission, and therefore is not anticipated to have a significant effect on visual effects or light emissions.			





	Description	Alternative 1: No Action	Alternative 2: Design Deficiencies	Alternative 3: Runway Threshold Relocation	Alternative 4: Fresh Perspective			
	Comparative Features							
Environmental Implica	tions (Continued)							
Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)	Water used for drinking and support functions such as recreation, transportation, agriculture, and aquatic ecosystems.	No Change.	The proposed development occurs in areas with existing surface waters and/or wetlands; additional environmental review and evaluation is needed prior to construction.	The proposed development occurs in areas with existing surface waters and/or wetlands; additional environmental review and evaluation is needed prior to construction.	The proposed development occurs in areas with existing surface waters and/or wetlands; additional environmental review and evaluation is needed prior to construction.			
Best Planning Tenets								
Flexibility	Accommodates unforeseen change (e.g., increases or decreases in activity levels, changes to fleet mix, new users, etc.).	No Change.	Allows for unforeseen small fluctuations in activity levels due capacity enhancing taxiway geometry modifications. Anticipated to maintain the existing fleet mix size due to landing distances available.	Allows for unforeseen small fluctuations in activity levels due capacity enhancing taxiway geometry modifications. Accommodates unforeseen increases in fleet mix size or new users due to additional landing distance available.	Would not accommodate for potential wind pattern changes or decreases in activity levels.			
Technically Feasible	Considers site constraints and other limitations.	No Change.	Technically Feasible	The proposed 28R threshold relocation has RPZ impacts, as well as potential for changes in noise footprint; therefore, the proposed development may be less technically feasible than other alternatives due to FAA Interim Guidance On Land Use within an RPZ, and City of San Diego Resolution: R-280194. Further FAA review would be necessary prior to construction.	Grant assurance requirements for Runway 5-23 may not allow for decommissioning within the planning period, and significant biological constraints exist for proposed taxiway development. Thus, the proposed development may be less technically feasible than other alternatives.			
Conforms to the City's Goals	Creates a more attractive experience/Airport for GA pilots.	No Change.	Creates a safer facility which conforms to current FAA standards. Attractive additional features for GA pilots such as additional run up areas are proposed.	More attractive for GA pilots due to longer landing distance available.	Removal of crossing runway5-23 is anticipated to increase safety by reducing incursions. However this alternative will reduce attractiveness to some GA pilots due to the lack of a crosswind runway.			





Table 5.5 – Landside Alternatives Evaluation

	Description	Alternative 1: No Action	Alternative 2: Smooth Transition	Alternative 3: Reconfiguration	Alternative 4: Fresh Perspective		
Comparative Features							
Financial Feasibili	ty						
Development Costs	Anticipated costs of development, considering potential alternative funding sources.	No Change.	Approximately \$29 million in development costs, including hangars; hangars are usually funded by private developers, thus the ultimate FAA/City cost share may be less. In addition, AIP eligible projects would receive 90% FAA funding and 4.5% Caltrans funding.1	Approximately \$43.3 million in development costs, including hangars; hangars are usually funded by private developers, thus the ultimate FAA/City cost share may be less. In addition, AIP eligible projects would receive 90% FAA funding and 4.5% Caltrans funding.1	Approximately \$69.3 million in development costs, including hangars; hangars are usually funded by private developers, thus the ultimate FAA/City cost share may be less. In addition, AIP eligible projects would receive 90% FAA funding and 4.5% Caltrans funding.1		
Job Creation	Via employment, economic development, etc.	No Change.	Some temporary employment opportunities tied to project design and construction would occur; non-aeronautical land parcel will contribute to the economic development of the surrounding area.	Some temporary employment opportunities tied to project design and construction would occur; non-aeronautical land parcel will contribute to the economic development of the surrounding area.	Some temporary employment opportunities tied to project design and construction would occur, but slightly more potential to add permanent employment tied to Hangar Site 1 exists compared to the other alternatives; non-aeronautical land parcel will contribute to the economic development of the surrounding area.		
Financial Sustainability	Revenue generation through increased activity and new businesses, etc. in order to increase the Airport's ability to become more financially self-sufficient.	No Change.	May provide some increase in activity and new business generation.	May provide slightly more of an increase in activity and new business than Alternative 2.	Potential to provide the biggest increase in activity and new business compared to the other Alternatives.		
Operational Perfor	mance						
Capacity	Ability to accommodate future demand as determined in the facility requirements.	Does not accommodate future demand.	Meets minimum future demand for the terminal building, hangars, and transient apron. Preserves additional space for hangars should demand continue to increase.	Meets minimum future demand for the terminal building, hangars, and transient apron. Preserves additional space for hangars should demand continue to increase.	Meets minimum future demand for the terminal building, hangars, and transient apron; Preserves additional space for hangars and a potential location for corporate aircraft complex should demand continue to increase.		
Capability	Ability to meet airport design standards and ensure a safe operating environment.	No change. (Existing taxilanes do not meet current design standards.)	Meets airport design standards and supports a safe operating environment.	Meets airport design standards and supports a safe operating environment.	Meets airport design standards and supports a safe operating environment.		
Operational Efficiency	How well the alternatives work as a system to avoid delays, inefficiencies, airspace conflicts, etc. Considers the coexistence of existing and future users.	No Change.	Somewhat of an improvement in operational efficiency.	Somewhat of an improvement in operational efficiency.	Potential to provide the most operational efficiency by increasing the distance between corporate jet aircraft and piston recreational aircraft operating areas.		





Table 5.5 – Landside Alternatives Evaluation

	Description	Alternative 1: No Action	Alternative 2: Smooth Transition	Alternative 3: Reconfiguration	Alternative 4: Fresh Perspective			
Comparative Features								
Environmental Im	plications							
Air Quality	Anticipated change in emissions.	No Change	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.			
Biological Resources (Including Fish, Wildlife, and Plants)	Adverse impacts to special status species and substantial loss, degradation, disturbance, or fragmentation of native species habitats or populations.	No Change.	The proposed development occurs in areas previously identified as having the presence of biological resources (Hangar Site 2) with moderate to high levels of constraint; however, this area was recently (February 2018) released from the City's Multi-habitat Planning Area (MHPA) for development. Additional environmental review and evaluation for all proposed development will still be needed prior to construction.	Proposed development occurs in areas previously identified as having the presence of biological resources (Hangar Site 5) with moderate to high levels of constraint; this area would require removal from the City's MHPA prior to any construction. Furthermore, additional environmental review and evaluation for all proposed development will still be needed prior to construction.	Proposed development occurs in areas previously identified as having the presence of biological resources (Hangar Sites 2 and 5); Hangar Site 2 has been removed from the City's MHPA and may now include development, whereas Hangar 5 five is still included in the MHPA and would require removal from the MHPA prior to any development. Furthermore, additional environmental review and evaluation for all proposed development is needed prior to construction.			
Hazardous Materials, Solid Waste, and Pollution Prevention	Involve a contaminated site, violate laws regarding hazardous materials, or produce a different quantity or type of hazardous waste.	No Change.	Due to the nature of airport activities, the potential to encounter a range of containments during ground-disturbing activities associated with the proposed development exists; the potential to encounter containments associated with leaking underground storage tanks is possible within proposed apron development Sites 3 and 4. Additional environmental review and evaluation is needed prior to construction.	Due to the nature of airport activities, the potential to encounter a range of containments during ground-disturbing activities associated with the proposed development exists; the potential to encounter containments associated with leaking underground storage tanks is possible within proposed apron development Sites 3 and 4. Additional environmental review and evaluation is needed prior to construction.	Due to the nature of airport activities, the potential to encounter a range of containments during ground-disturbing activities associated with the proposed development exists; the potential to encounter containments associated with leaking underground storage tanks is possible within proposed apron development Sites 3 and 4. Additional environmental review and evaluation is needed prior to construction.			
Land Use	Compatibility of existing and planned surrounding land uses.	No Change.	The proposed development is consistent with ongoing activities and is not anticipated to have an impact on land use compatibility.	The proposed development is consistent with ongoing activities and is not anticipated to have an impact on land use compatibility.	The proposed development is consistent with ongoing activities and is not anticipated to have an impact on land use compatibility.			
Noise and Noise- Compatible Land Use	Noise impacts on noise sensitive areas within Section 4(f) properties.	No Change.	The proposed development is consistent with activities found at airports and is not anticipated to have a direct impact on noise.	The proposed development is consistent with activities found at airports and is not anticipated to have a direct impact on noise; only small portions of Hangar Site 5 occur inside of the 65–70 db CNEL noise contour.	The proposed development is consistent with activities found at airports and is not anticipated to have a direct impact on noise; only small portions of Hangar Sites 1 and 5 occur inside of the 65-70 db CNEL noise contour.			





Table 5.5 – Landside Alternatives Evaluation

	Description	Alternative 1: No Action	Alternative 2: Smooth Transition	Alternative 3: Reconfiguration	Alternative 4: Fresh Perspective		
Comparative Features							
Environmental Implica	tions (Continued)						
Climate	Contribution to climate change due to increased Greenhouse Gas (GHG) emissions.	No Change.	There will be an increase in GHG emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on climate change.	There will be an increase in GHG emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on climate change.	There will be an increase in GHG emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on climate change.		
Department of Transportation Act, Section 4(f)	Protection of significant resources including publicly owned parks, recreational areas, wildlife refugees, and historic sites.	No Change.	The proposed development is not anticipated to have a significant effect on any Section 4(f) resources, if at all.	Proposed development is not anticipated to have a significant effect on any Section 4(f) resources, if at all.	Proposed development in Hangar Site 1 could potentially affect three structures that have been classified as unevaluated Historic Section 4(f) resources. Further evaluation is needed prior to construction.		
Historical, Architectural, Archeological, and Cultural Resources	Potential for project to disturb any cultural, historic, or archaeological resources at the Airport.	No Change.	The proposed development is not anticipated to have a significant effect on any historical, architectural, archeological, or cultural resources, if at all. However, proposed development in previously undisturbed areas has the potential to impact underground resources, thus further review and coordination would be needed prior to construction.	The proposed development is not anticipated to have a significant effect on any historical, architectural, archeological, or cultural resources, if at all. However, proposed development in previously undisturbed areas has the potential to impact underground resources, thus further review and coordination would be needed prior to construction.	Proposed development in Hangar Site 1 could potentially affect three structures that may have historical, architectural or cultural significance. Further evaluation of the structures is needed prior to construction. Furthermore, proposed development in previously undisturbed areas has the potential to impact underground resources, thus further review and coordination would be needed prior to construction.		
Visual Effects (Including Light Emission)	Light emission effects and changes to visual resources or visual character.	No Change.	The proposed development is not anticipated to have a significant effect on visual effects or light emissions due to the Airport's location in an already highly developed landscape. However, the potential of additional light emissions to affect any biological resources may need further evaluation prior to construction.	The proposed development is not anticipated to have a significant affect on visual effects or light emissions due to the Airport's location in an already highly developed landscape. However, the potential of additional light emissions to affect any biological resources may need further evaluation prior to construction.	The proposed development is not anticipated to have a significant affect on visual effects or light emissions due to the Airport's location in an already highly developed landscape. However, the potential of additional light emissions to affect any biological resources may need further evaluation prior to construction.		
Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)	Water used for drinking and support functions such as recreation, transportation, agriculture, and aquatic ecosystems.	No Change.	The proposed development occurs in areas with existing surface waters and/or wetlands; additional environmental review and evaluation is needed prior to construction.	The proposed development occurs in areas with existing surface waters and/or wetlands; additional environmental review and evaluation is needed prior to construction.	The proposed development occurs in areas with existing surface waters and/or wetlands; additional environmental review and evaluation is needed prior to construction.		





Table 5.5 – Landside Alternatives Evaluation

	Description	Alternative 1: No Action	Alternative 2: Smooth Transition	Alternative 3: Reconfiguration	Alternative 4: Fresh Perspective		
Comparative Features							
Best Planning Tenets							
Flexibility	Accommodates unforeseen change (e.g., increases or decreases in activity levels, changes to fleet mix, new users, etc.).	No Change.	Allows for unforeseen change should demand warrant.	Allows for unforeseen change should demand warrant.	Allows for unforeseen change should demand warrant.		
Technically Feasible	Considers site constraints and other limitations.	No Change.	All future development occurs on land under direct control of the City, thus making it the most technically feasible Alternative.	Technically feasible, but with limitations; would require development in an environmentally sensitive area.	Technically feasible, but with limitations greater than Alternative 2; would require development in an environmentally sensitive area and coordination with existing leaseholds.		
Conforms to the City's Goals	Creates a more attractive experience/Airport for GA pilots	Does not conform to the City's goals for the Airport.	Creates a more attractive experience for GA pilots by increasing capacity in key landside facilities, i.e. aircraft parking and storage and pilot amenities.	Creates a more attractive experience for GA pilots by increasing capacity in key landside facilities, i.e. aircraft parking and storage and pilot amenities.	Creates a more attractive experience for GA pilots by increasing capacity in key landside facilities, i.e. aircraft parking and storage and pilot amenities.		





Evaluation Scoring

Based on the qualitative and quantitative assessments presented, each evaluation criteria was assigned a comparative rating. Similar to the Consumer Reports' system, the rating system uses a modified circle that visually communicates the qualitative assessment. The assessments were translated numerically, as depicted in **Table 5.6**.

Table 5.6 – Alternative Evaluation Rating Values

Negative (-1)	Neutral (0)	Positive (+1)
Source	e: C&S Engineers, Inc	., 2018

The environmental category criteria outnumbered the criteria in other categories; thus, to ensure balanced results, the environmental category was weighted accordingly to equate to the other categories. A summary of the alternatives' evaluation scorings is presented in **Tables 5.7** and **5.8**.

Table 5.7 – Airside Alternatives Evaluation Summary

Airside Alternatives

-1: Negative 0: Neutral +1: Positive	Alternative 1:	Alternative 2: nies Design Deficiencies	Alternative 3: noted	Alternative A: Alternative Active
	Comparative	Features		
Financial Feasibility				
Development Costs				
Job Creation				
Financial Sustainability				
Operational Performance				
Capacity				
Capability				
Operational Efficiency				
Environmental Implications				
Air Quality				
Biological Resources (Including Fish, Wildlife, and Plants)				
Hazardous Materials, Solid Waste, and Pollution Prevention				
Land Use				
Noise and Noise-Compatible Land Use				
Climate				
Department of Transportation Act, Section 4(f)				
Historical, Architectural, Archeological, and Cultural Resources				
Visual Effects (Including Light Emission)				
Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)				





Table 5.7 – Airside Alternatives Evaluation Summary

Airside Alternatives

-1 : Negative 0 : Neutral +1 : Positive	Alternative 1:	Alternative 2: cies Alternative 2: cies Design Deficiencies	Alternative 3: hold Runnay Threshon Runnagelocation	Alternative A: Alternative Retaine		
	Comparative					
Best Planning Tenets						
Flexibility						
Technically Feasible						
Conforms to the City's Goals						
	Summary	Score				
Summary Score	-2	4	1.1	-1.6		
Ranking						
Ranking	4	1	2	3		





Table 5.8 – Landside Alternatives Evaluation Summary

Landside Alternatives

-1 : Negative 0 : Neutral +1: Positive	Alternative 1:	Alternative 2: tion Smooth Fransition	Alternative 3: Alternation Reconfiguration	Alternative A: Alternative Restrictive
	Comparative			
Financial Feasibility				
Development Costs				
Job Creation				
Financial Sustainability				
Operational Performance				
Capacity				
Capability				
Operational Efficiency				
Environmental Implications				
Air Quality				
Biological Resources (Including Fish, Wildlife, and Plants)				
Hazardous Materials, Solid Waste, and Pollution Prevention				
Land Use				
Noise and Noise-Compatible Land Use				
Climate				
Department of Transportation Act, Section 4(f)				
Historical, Architectural, Archeological, and Cultural Resources				
Visual Effects (Including Light Emission)				
Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)				





Table 5.8 – Landside Alternatives Evaluation Summary

Landside Alternatives

-1 : Negative 0 : Neutral +1: Positive	Alternative 1:	Alternative 2: tion Smooth Transition	Alternative 3: On Reconfiguration	Alternative ditive Alternative ditive Alternative ditive
	Comparative	Features		
Best Planning Tenets				
Flexibility				
Technically Feasible				
Conforms to the City's Goals				
	Summary	Score		
Summary Score	-4	5	2.8	3.2
	Ranki	ng		
Ranking	4	1	3	2





5.8 Recommended Preferred Alternative Development

Recommended Preferred Alternative

The initial input from the PAC and public allowed the planning team to evaluate each alternative for the airside and landside portions of the Airport using the criteria described. As a result, a combined preliminary recommended alternative was developed based on the highest ranking airside and landside alternatives. As shown in **Table 5.7** and **Table 5.8**, Alternative 2 in both instances was ranked the highest and was used as the basis for the airside and landside recommended alternative. However, based on the detailed alternatives evaluation and input from the City, PAC, and public, certain components found within other Alternative scenarios that received a high amount of support were carried over into the recommended alternative to provide the most value to the stakeholders, and most cohesive recommended alternative. The items carried over from other airside and landside alternatives include the following.

Airside

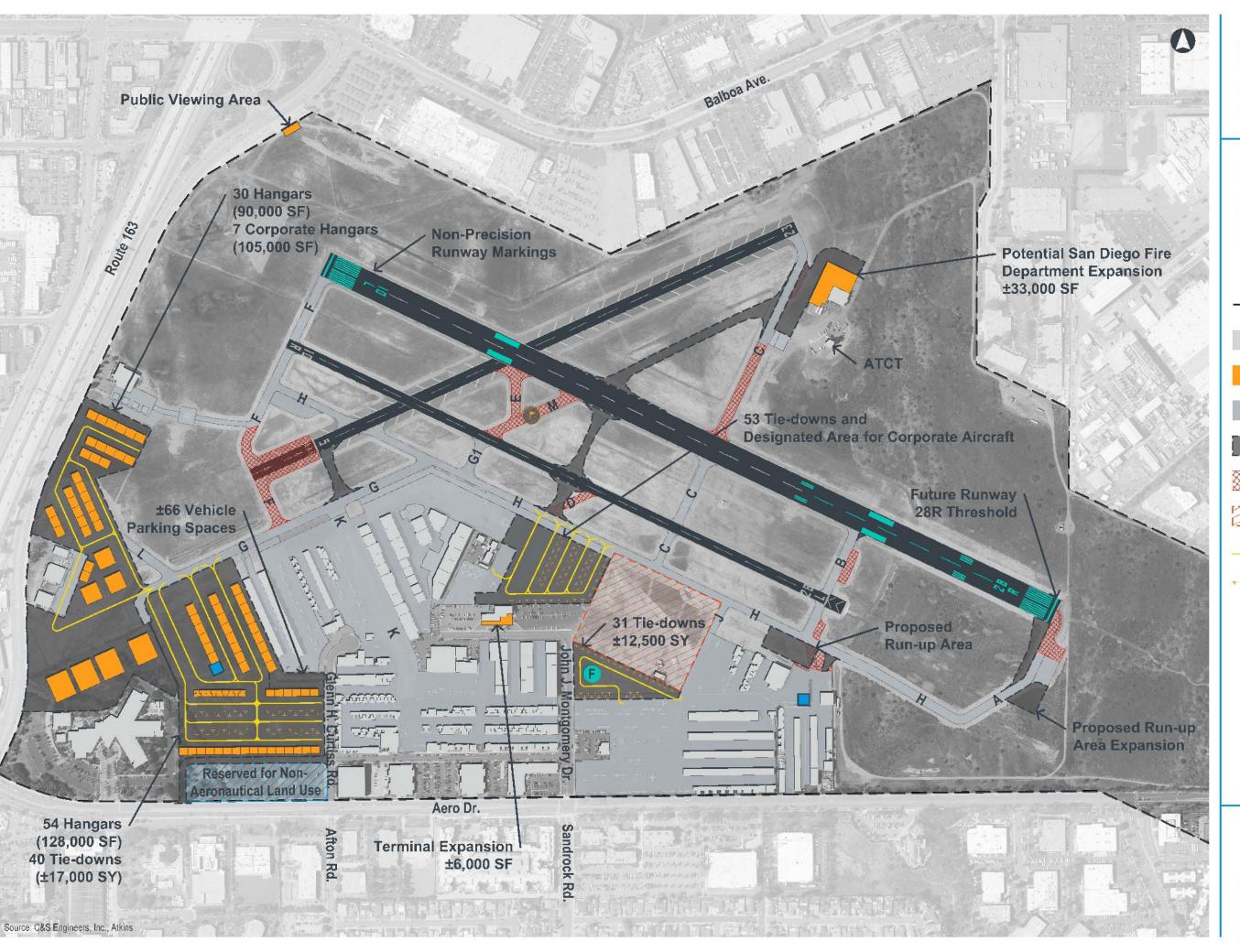
- The removal of 390 feet of pavement on the Runway 5 end, as well as portions of Taxiway Foxtrot as shown in **Figure 5.4**, received favorable input mostly in direct support of the proposed hangar development for Hangar Site 1; shortening the runway would move the RPZ out of the area proposed for future development.
- The removal of a large portion of Taxiway Charlie on the east side of the airfield as shown in **Figure 5.4**, was preferred to accommodate any future long-range development in that area of the Airport.
- [Pending] Removal of Runway 28R displaced threshold as illustrated in **Figure 5.4** and **Figure 5.5**.
- Reconfiguration of Hot Spot 1 to include the removal of Taxiways Echo and Mike, with a new 90-degree taxiway intersection as depicted in **Figure 5.2**.
- Runway Guard Lights are recommended to be installed on Taxiway F and 10R hold bars.
- A realignment of Taxiway Alpha is proposed to standardize the Runway 28R entrance geometry to a 90-degree entrance. Additionally, this option proposes the removal of unusable run-up area pavement north of the hold bar location, while adding additional hold bay capacity south of the existing run-up area.

Landside

- Hangar Site 1, as depicted in **Figure 5.10** and **Figure 5.11**, received a great deal of support from the City, PAC, and public as a potential location for additional development. The concept of separating the jet and turboprop aircraft from the smaller single- and multi-engine piston aircraft seemed to be one of the reasons why this location was received so well. Furthermore, reserving the area for future aeronautical use also resonated well with all stakeholders. As such, Hangar Site 1 was incorporated into the recommended preferred alternative.
- The public viewing area concept was highly supported by all entities. The location shown on the northwest portion of the airfield, as seen in **Figure 5.10** and **Figure 5.11**, received the most positive comments. Thus, this proposed location was included on the recommended alternative.
- The preferred locations of the aircraft wash racks and self-service fuel island within the recommended alternative were also determined based upon the majority of the City, PAC, and public's input for the location of these support facilities.

Figure 5.12 illustrates the resulting Recommended Preferred Alternative. This recommended alternative was presented to the City and PAC for final review and approval.







Montgomery-Gibbs Executive Airport Master Plan

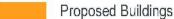
Figure 5.12

Recommended Preferred Alternative

Legend













Corporate Helicopters Leasehold

Proposed Taxiway/Taxilane

Centerline
Proposed Aircraft Tie-Downs

Proposed Wash Rack

Proposed Fuel Island

Proposed Segmented Circle







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Recommended Supplemental Projects

Some improvement projects recommended for the Airport relate to routine maintenance and upkeep, safety and security enhancements, or other proposed studies that were not associated with a development alternative. Regardless of the preferred development alternative selected, incorporating these items into the planning horizon is suggested. The subsequent Working Paper, Financial Feasibility Analysis, will contain a financial analysis and a phased capital improvement plan (CIP) of all proposed development and recommended supplemental projects. The supplemental airfield and landside projects suggested for MYF include the following:

Airside Considerations

Associated airside-related projects suggested for inclusion on the Airport's CIP:

- Runway 10L/28R Grooving
- Runway Guard Lighting Systems at Hotspot 2, 3 and proposed crossing taxiway locations
- Run up area reconfiguration, and Runway 28R, Taxiway Alpha intersection.
- Request for FAA to publish a non-precision approach to Runway 10L.

Landside Considerations

Associated landside-related projects suggested for inclusion on the Airport's CIP:

Perimeter fencing enhancements (where applicable)

Airport Related Reports and Studies

Runway Protection Zone Risk Analysis – Runway 28R threshold relocation Wildlife Hazard Assessment General Utility Study Market analysis for non-aeronautical land use along the Aero Drive corridor

Appendix A - Public Comments

PAC Meeting #4 Comments

The fourth PAC meeting of the master planning process was held on 01–16–2018. The comments received at this meeting are documented in the following pages.



City of San Diego Airports Master Plan Updates PAC Comments

FAC Comments
A115, de Alternative

Pros	Cons	Comments
alt 3 - Running 28R th Not heided Big fam	Concerns about D & Capacity	
Pro - 28 R - Marc	Run Up Locations	
Ojureter	- Guestioning C Removale	
	- Removae of length at 5 threshold-	
	- Concerned of Safety For 23/5 Removae	
	- minual issue with Runnay 5 Remonal	
	- Cons	



PAC Comments

Airsile Alternative 3

	Pros	Cons	Comments
17	IS ROUES TO ALTERMINES ZO 4 ALSO	RUNUIAREM ADJOSCENT TO TAXIMAY HOTEZ IS A POOR CHOICE AS IT IS GOING TO CALISE PROFES WITH A D JACGOST HANGORDS. IT IS NOT NECESSARY AS EXISTING 2BR RUNUI AREA IS ADEQUATE FOR LARGE AIRCA	EAST OF THIS LOCATION.
	ELMINATING- RUMMY 5 15 A GREAT IDEA. IT IS NOT NEEDED AND MAKE RIZ MAKE USERLE BETTER.	exaust for Residents on aero Drue	
		Wind Scenario on 5/23/Removal	
		*	;
		3	
			5
	¥	or as and	



City of San Diego Airports Master Plan Updates
PAC Comments

Alternative _____2

Pros	Cons	Comments
	EGilb - to commercial	
	ESilb - to commercial (3) 10052 PARK/100 1055 Of vehicle peny from terminal expasion - 910 poses parking is too for 100 1000	
Expanded Terminal maintains the Perimeter gateway.	accos	



PAC Comments

	I AC CO	IIIIICIIIS
L	Alternative	2

Pros	Cons	Comments
Pros KN WASH PACE IS ALREADY PLANDED A E+K FOR COAST. MAY NOT NEED MOTHER. IF SO, LOBATE 678051TE OH FIELD, HT. 2 WASHRACE OUT. BAD WORM	DO NOT GIVE US LAND FAR NOW AVIATION USE. August land 10 too precious + rane.	
	a a	



PAC Comments

∠
 Alternative ∠
 ∠
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Pros	Cons	Comments
	Corp Holiupter area + he down parking lots right up against are going to be blasted + world course airplan damage Proposed Washrack 2 — to lose + Aero + washing Epray will be problemmente	+
	Proposed washrack 2 - to don't sero trashing Epray will be problemmate	
	Proposed washrack in also discrine cted from area + is located on promiseof estate	
	Relocate non rach #2 to localin	
		Need commercial along Aero Drive for rosse abote work



PAC Comments

Alternative Landside #3

		Commonts
Pros	Cons	Comments
		in 41 hangar area, show vehicle purking
		(oæst mill have washrack
	3	accesss from transient parking to now terminal Pilots have lots of luggage/dogs
		look at now terminal where existing is



PAC Comments

Landside Alternative ____3

Pros	Cons	Comments
41 Hangars on SE end by Gibbs teare- Great Idea!	too many issues w/ vernal pools and	
the act touc.	accomo desting grade changes	
Nice to have 2 new airplane wash-racks		Would want to make sure the terminal blog has
		access for transpent polots to the secure area through bidg.
		Is there adequate parking at the public viewing
		area
		Want to see the security (fencing, etc) maintained
		ox upgraded inot degraded
		Washrack by Aero dr. is too close to street



City of San Diego Airports Master Plan Updates PAC Comments

PAC Comments

Landsi Le Alternative

Pros	Cons	Comments
		No housing in non-aeronautical land use area on Aero Drive
		No houndy in non-aeronautical land use area on Aero Driver why does the terminal head to be in the same building as the office?
		Terminal should be for their buck, more towards Dero Dr.
	a a	



Alternative PAC Comments

Alternative PAC Comments

Alternative

Pros	Cons				Comments
81 HANGAR ABEA - RECONFIGURE	KEEP IN	Land	ALONG	AERO DR	
MIX	KEEP IN	AERO	USE		
41 HARGAR AREA - GOOD MIX					
WASHRACKS GOOD					
				×	
			·		
			2		



PAC Comments

Alternative (LANDSIDE)

		Comments
Pros	Cons	
	WEW TERMINAL PRESENTS	TYXI HENRY SICKESS BEB-818-8338
	185 MIN 22 7/11/2 24/12/21	IN UND PRINT SERVE
	AWIXAT GO ZUAWIXAT THO	O'TY
		1200 101 121 121 121
	WASH RACK ON AERO BRIV	E PROPOSED TERMINAL WICLINGRAM
1	1214 HAZARDOUS AREA	wind MRADAL MOIZE LO NEIRHADKHOOD
12.00	COLL BSSON ELIGH OULD HE	RO DR ACROSS AFRO DRIVE TAXIING AIRPLANES)
	ESTE DED MICH A LEED C TO	BE TAKEN SMI AKE DOISE AISO. TERMINAL
	allaliene alla MORCALLEC	Jan Valve I CHINCHIKE THE DOCCOUNT OF WILLIAM
, 1	FOR HETICOLUE VERLYANTER	REPORTED SHOULD BE AT PRESENT LOCATIONS OR SOMEWHERE AWAY FROM AERO.
	LEOW THE BEDVER IN BACING	STREET STREET HONGEROW HERO.
	+ccessbility of transfert parking (a/c) & - 10githes w transport would be diff	SO SIG DERTH PURCUALLAW OFFIRA I BUSINEST SONS
	Locare pillan of the assert bearing of the	icil a design construction of the construction
	- 108, Ass. of francisco per out	MROGOF KANGARS BICK ALSO WORK
		ME YST KONDAN MOW WORLED IL IE YILLYE
		CUPRENT TERMINAL I MAGINE ILL THAT
		ON AERO DRIVE.
*		
		at a del at a section
		Extern portion of Gbbs periol - re-delined In perator
		Fire Depty impact?
	×	dwelopment
	· · · · · · · · · · · · · · · · · · ·	



City of San Diego Airports Master Plan Updates

Alternative Alternative

Pros	Cons	Comments
	Al honger area has foomany vernal pool issues	
	making it inpractical	
	Notenough trè-downs in the area N. of the	Make the area adjacent to Aero Pr. Connercial
	hotel; SW of RWY 5 end.	
		Follow Alt. 3 for location of the new terminal
		building
		Modify the 87 tiè down area to make the space available per airplane bigger
		Possibly shift the public viewing area to the
		terminal building
		Enhance the value of the airport to the
		community; i.e. bite/walking path



City of San Diego Airports Master Plan Updates

PAC Comments

Alternative Language Alf 4

Pros	Cons	Comments
22 hangins on west End of RNWY 5 - Great Ideal, (Spidens)		
Morning terminal to Gibbs area - why? Old Terminal Locastion is good.	conflict w/ large AC traffic taxing all themay to Gibbs to new torminal.	



City of San Diego Airports Master Plan Updates

PAC Comments

Alternative LANDSIDE # 4

	T	
Pros	Cons	Comments
	MOVING TERMINAL IS NOT A MACRIN ECONOMIC MUZ	Does Louis NEGO TO BE IN
		TERMINAL
		Terminar Los Luraren Atz BETER
=		
	4)	

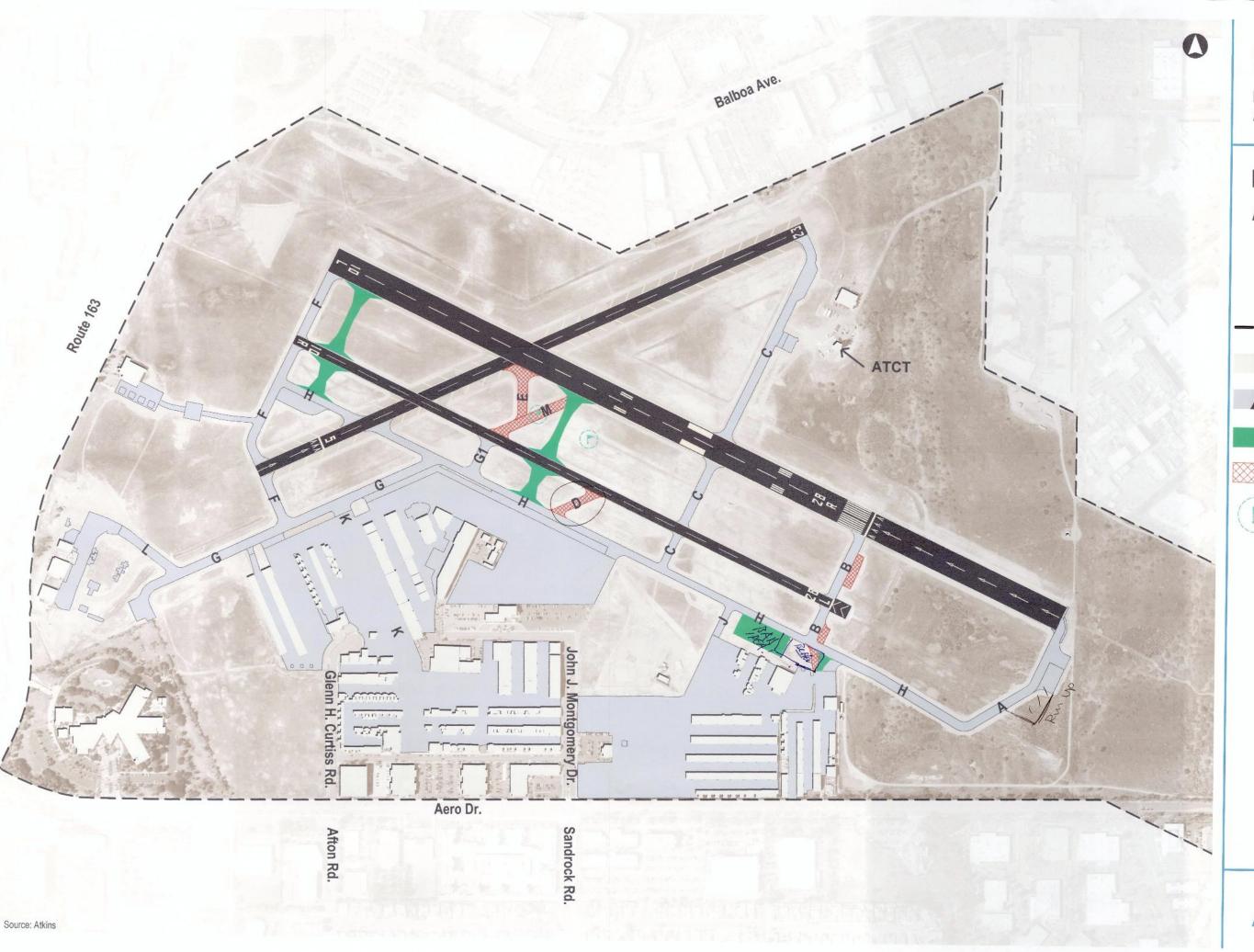




Figure Alternative 2

Legend

Property Line

Existing Buildings

Existing Airfield Pavement

Proposed Airfield Pavement

Proposed Demolition

Proposed Segmented Circle





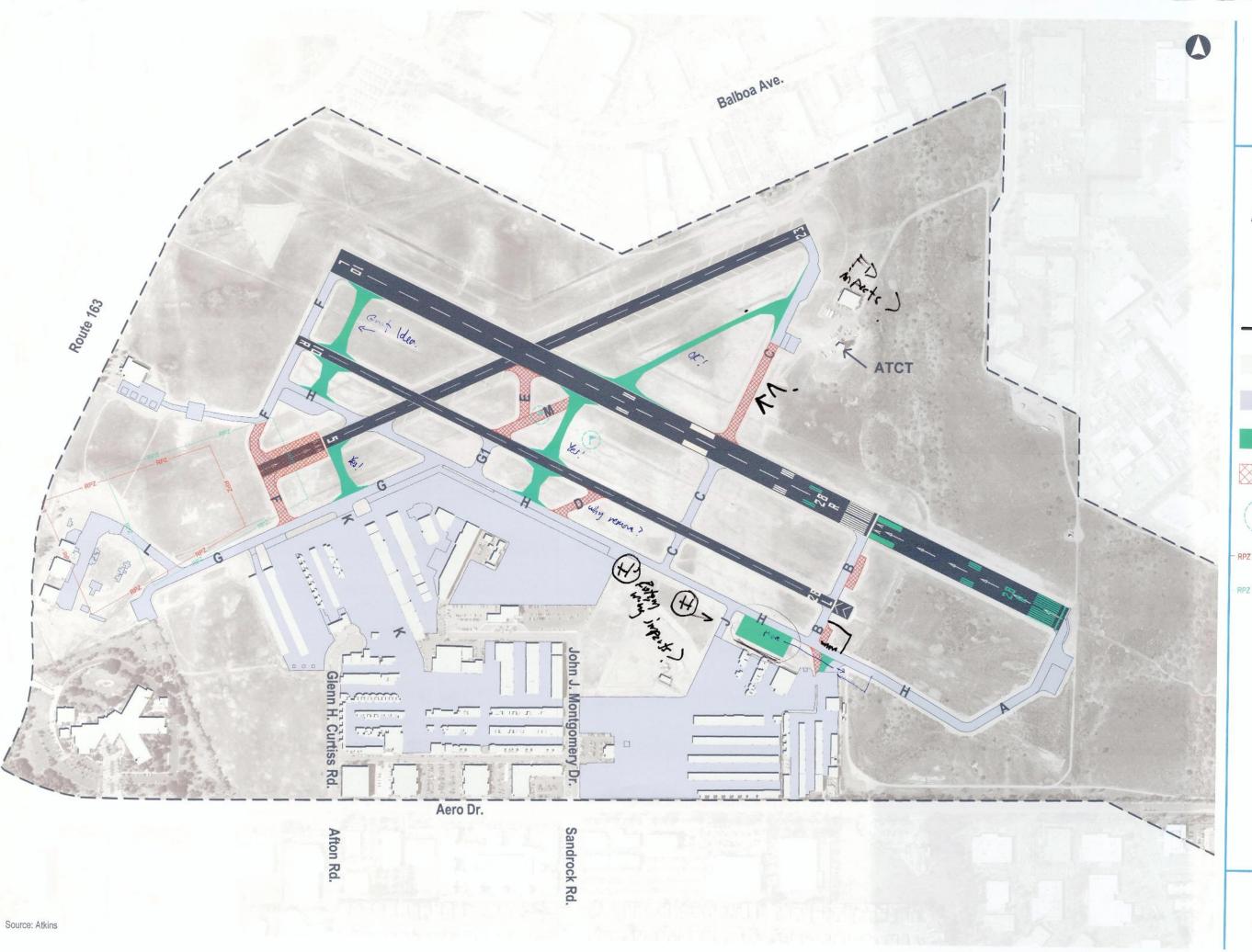




Figure Alternative 3

Legend

Property Line

Existing Buildings

Existing Airfield Pavement

Proposed Airfield Pavement

Proposed Demolition

Proposed Segmented Circle

RPZ — RPZ — Existing RPZ

RPZ — RPZ — Proposed RPZ





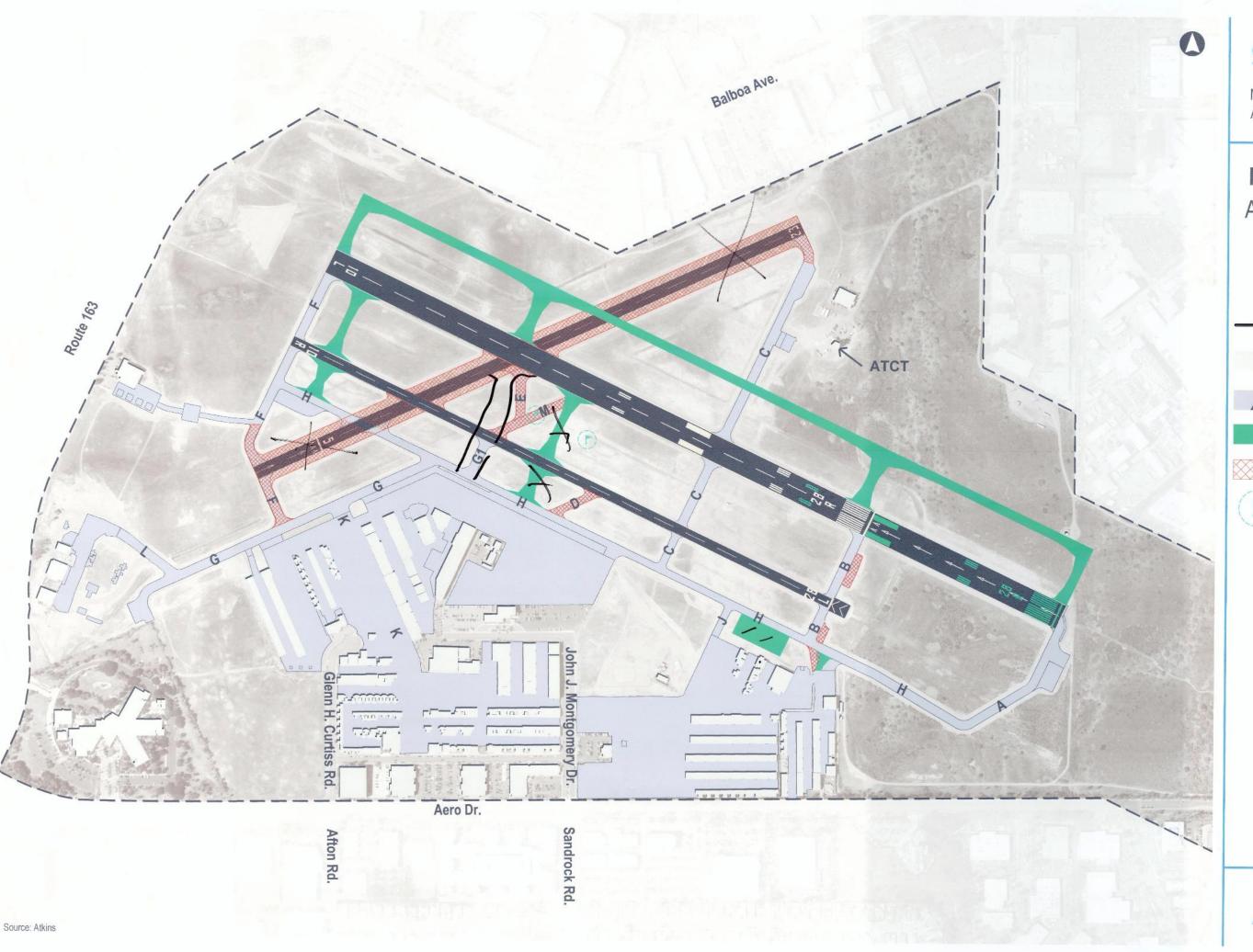




Figure Alternative 4

Legend

Property Line

Existing Buildings

Existing Airfield Pavement

Proposed Airfield Pavement

Proposed Demolition

Proposed Segmented Circle





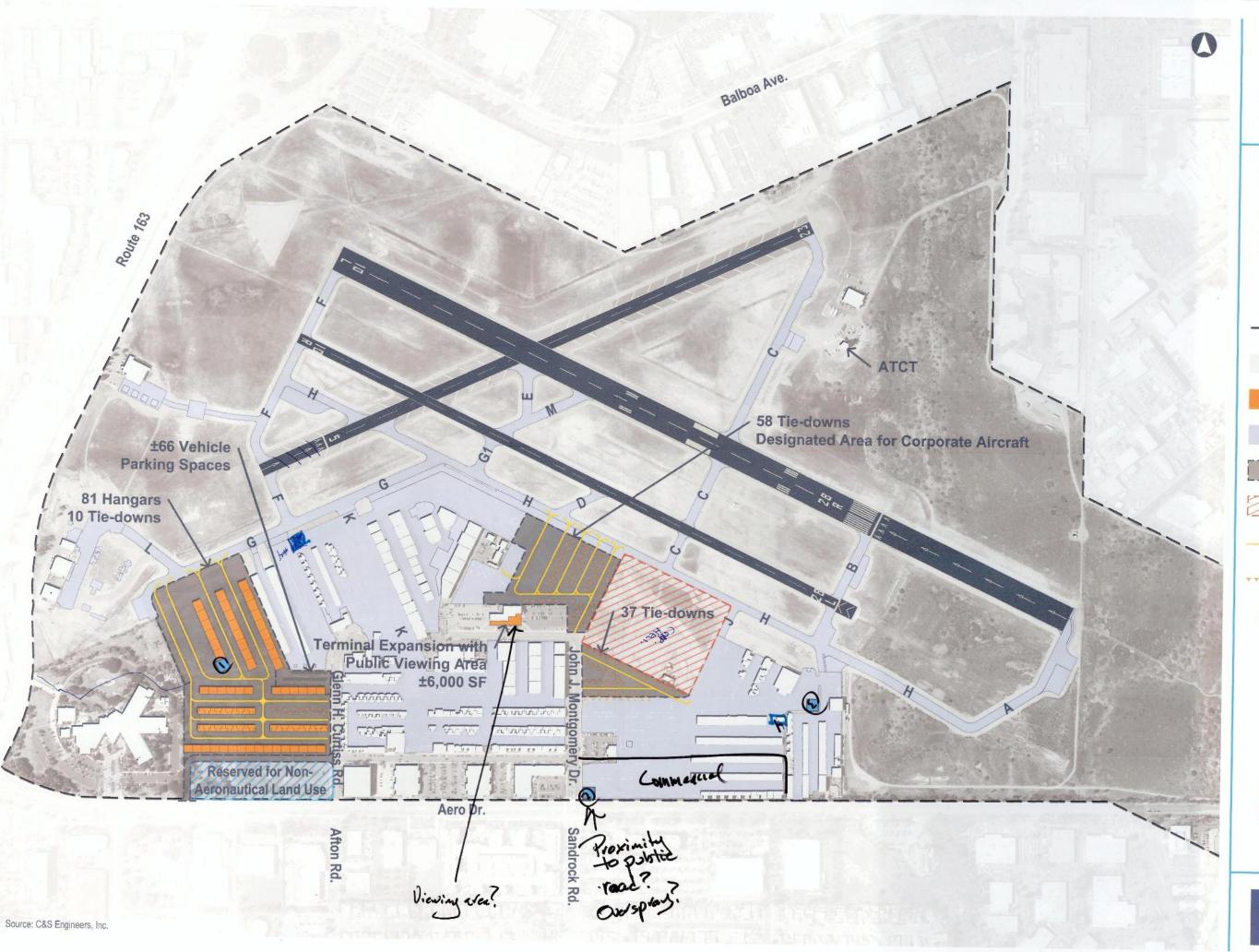




Figure 5.X Alternative 2 Smooth Transition

Legend

— Property Line

Existing Buildings

Proposed Buildings

Existing Airfield Pavement

Proposed Airfield Pavement

Corporate Helicopters
Right of First Refusal

Proposed Taxiway/Taxilane Centerline

Proposed Aircraft Tie-Downs

Proposed Wash Rack





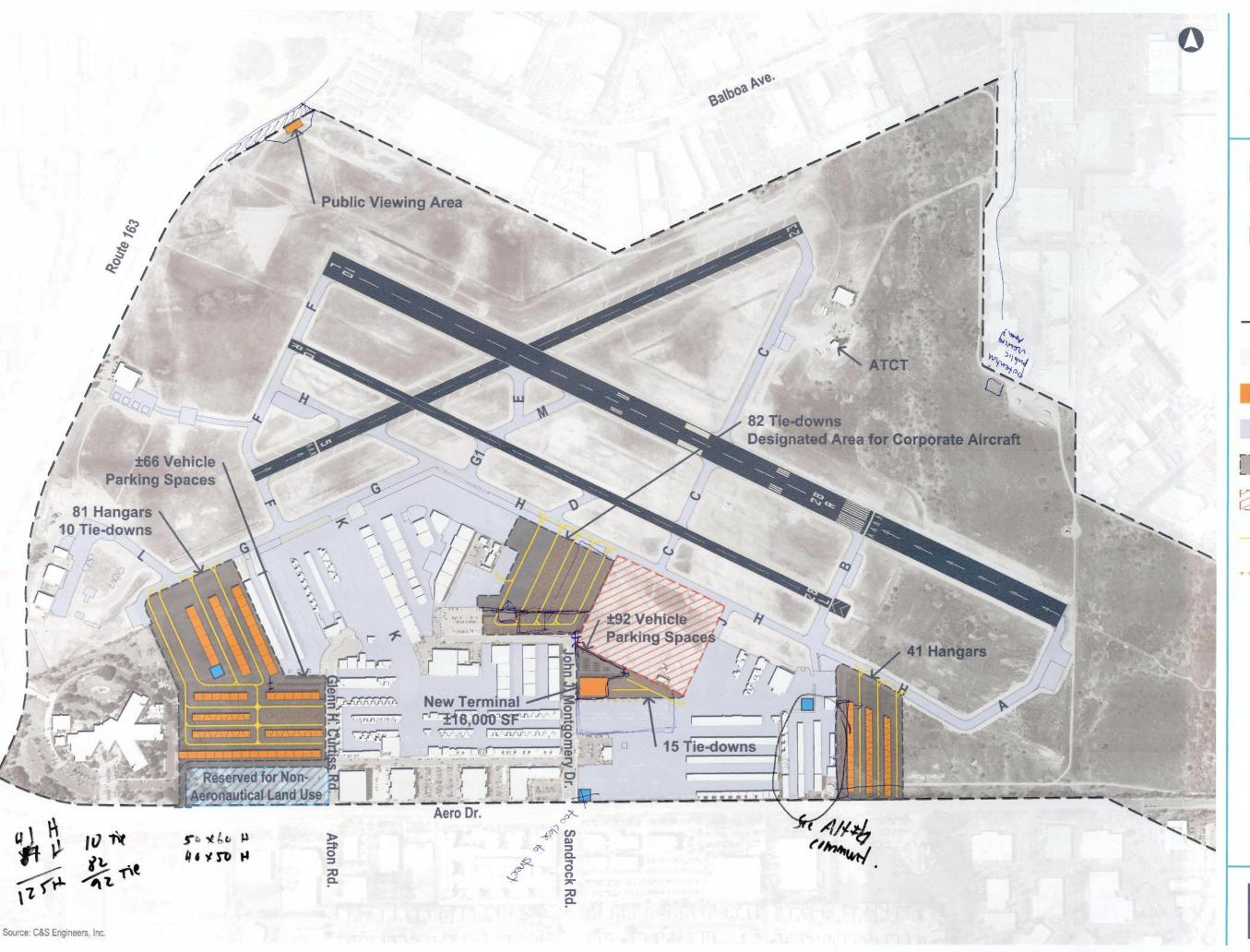




Figure 5.X Alternative 3 Reconfiguration

Legend

- Property Line

Existing Buildings

Proposed Buildings

Existing Airfield Pavement

Proposed Airfield Pavement

Corporate Helicopters
Right of First Refusal

Proposed Taxiway/Taxilane

Centerline

Proposed Aircraft Tie-Downs

Proposed Wash Rack





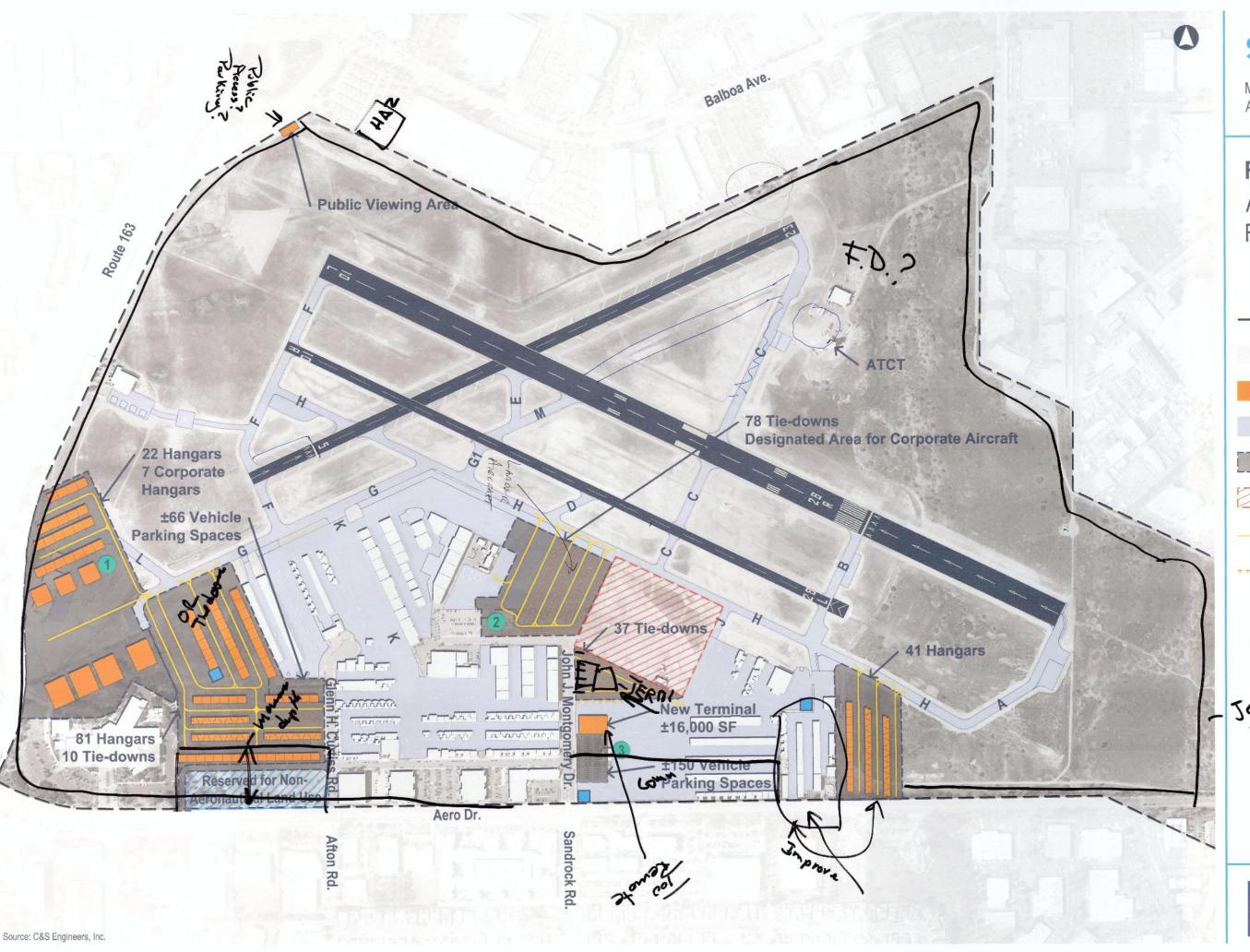




Figure 5.X Alternative 4 Fresh Perspective

Legend











Corporate Helicopters

Right of First Refusal
Proposed Taxiway/Taxilane

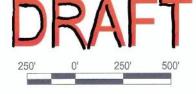
Centerline

Proposed Aircraft Tie-Downs

Proposed Wash Rack

Potential Fuel Island Location Options







Public Meeting #3 Comments

The third public meeting of the master planning process was held on 02-20-2018. The comments received at this meeting are documented in the following pages.

Airside Alternative 2

- 1. Suggestion, expand B run-up area to the east, instead of eliminating it.
- 2. Would the added run-up area at 28L need clearance from "ground "to cross RWY "H" for takeoff position on RWY 28L?

Airside Alternative 3

1. Eliminating Runway 5/23 is a terrible idea. Never lose a runway.

Q&A Session Card

- 1. Were flying clubs part of economic analysis?
- 2. What is the plan for upgrading the noise monitoring system as well as the security surveillance for planes taking off from field?
- 3. What is the current status of moving back the displaced threshold to allow larger aircraft to land?



MONTGOMERY – GIBBS EXECUTIVE AIRPORT MASTER PLAN - PUBLIC MEETING

Comment Card

Date: 2/20/18
Name:
Organization/Affiliation (if applicable): Clairement Town Council
Email Address:
Would you like to receive project updates? Yes No Receive them as a Air Mader Man Com wiender Please note that comments and corresponding contact information received will become part of the Meeting Summary Report and may be publicly available.
Do you wish to withhold your name and contact information from public review?
No []Yes
Please Print Clearly – Use the other side of this form if additional space is needed.
in the region of the air port have are noise and Security. Regardless of which plan for the air port Moves forward, residents would like to be reassored that noise and Security surveillance is a paraded. Presently, the air port relies on verbal communications with the control tower to record the identification of air craft tesking of from the air port when the tower is not manned. Their is no way to accurately identify air craft that do not self identify of incorrection identify (e.g. wrong sequency) their diversely by nears format to way the evidence or electronic absorbed entitication be included in the overall Master in process to allow for better identification of workers and or self-wind identification.
Please submit completed comment cards at the meeting or via email to Wayne Reiter at

WReiter@sandiego.gov.

Capturing identification of planes
utilizing the airport for security
reasons. De Community noise maniforing
upgrades to ensure accurate noise
impact on the surrounding communities.



MONTGOMERY – GIBBS EXECUTIVE AIRPORT MASTER PLAN - PUBLIC MEETING

Comment Card

Date: <u>02/19/2018</u>
Name:
Organization/Affiliation (if applicable): Resident of Tierrasanta
Email Address:
Would you like to receive project updates? $\square X$ Yes \square No
Please note that comments and corresponding contact information received will become part of the Meeting Summary Report and may be publicly available.
Do you wish to withhold your name and contact information from public review?
[] No [X] Yes

As you know well, our neighborhood in Tierrasanta continues to be plagued with increasing and unacceptable aircraft noise from private airplanes coming and going from Montgomery-Gibbs Airport. The increased routing of flights <u>directly over residential</u> communities and regional parklands, coupled with the combined noise and pollution of these very low-flying planes is <u>completely unacceptable</u> -- not to mention the other environmental impacts, which apparently have not even been considered, except in the areas within and immediately adjacent to the field. Also of concern are the safety issues, as one of your planes recently crashed into a residential house in Clairemont. Your expansion project will only exacerbate these legitimate concerns as air traffic volume increases.

Please Print Clearly – Use the other side of this form if additional space is needed.

Your committee, which I understand has been funded with over \$500,000 from the FAA, is proposing a plan to enhance the Montgomery Gibbs airport with the goal of increased use by pilots of private planes and other aircraft, culminating in much more noise, pollution and safety issues in the future to the tax-paying residents of surrounding neighborhoods. Although your committee makes a pretense of soliciting public input, I have attended several of your meetings, and there is very little time, if any, allotted for public questions to be presented within the forum — or for responses to the legitimate concerns of surrounding area taxpayers and property owners. In fact, most of the meeting attendees are pilots of private aircraft who have a vested interest in the proposed plan with little regard for concerns of residents impacted by such a plan. This plan will only encourage more pilots to use the airport in the future creating more noise, pollution and environmental issues. Shouldn't we be looking for ways to make the airport better for residents, not pilots??



MONTGOMERY – GIBBS EXECUTIVE AIRPORT MASTER PLAN - PUBLIC MEETING

Comment Card

Date: ∠/2I / IB

Name:

Organization/Affiliation (if applicable):

Email Address:

Would you like to receive project updates? ☑ Yes ☐ No

Please note that comments and corresponding contact information received will become part of the Meeting Summary Report and may be publicly available.

Do you wish to withhold your name and contact information from public review?

[] No [] Yes

Please Print Clearly – Use the other side of this form if additional space is needed.

Concern - Lack of "Proper" Layman's Level Transparency to the Public

I have been following the online updates, public meetings, and general notifications about the Montgomery-Gibbs Master Plan for nearly a year. The communications coming from the process are "open" to the public and portrayed to be transparent, but the real information is masked in deep, lengthy, complex reports and further clouded in airport jargon which is not easily obtained and processed, or understood by the general public.

Example language briefly buried deep in your reports: "The displaced threshold may be modified."

What this really means to the public: We are proposing to move back the landing limit lines on the runway by 1,176' so larger aircraft / jets can land from the east. Communities to the east of Montgomery (Del Cerro / Allied Gardens / San Carlos / Grantville / La Mesa / Tierrasanta) can expect more frequent, larger and louder aircraft / jets flying over their homes. The altitude of these larger aircraft / jets may also be lower to accommodate the longer runway that has been shifted to the east.



MONTGOMERY – GIBBS EXECUTIVE AIRPORT MASTER PLAN PUBLIC MEETING

Comment Card

Date: 2/21/18				
Name:				
Organization/Affiliation (if applicable):				
Email Address:_	ion/Affiliation (if applicable): ress:_ u like to receive project updates? 区 Yes			
Would you like to receive project updates?	? ⊠ Yes	⊢ ∐ No		
		ormation received	will becom	ne part of th
Do you wish to withhold your name and co	ontact informati	on from public rev	iew?	

Please Print Clearly - Use the other side of this form is additional space is needed.

Concern - Modifying the Displaced Threshold to Land Larger Jets from the East

Modifying the displaced threshold will be devastating to the residents around the Montgomery-Gibbs Airport (MGA). The greatest impact will be recognized in Del Cerro, Allied Gardens, San Carlos, Grantville, La Mesa, and Tierrasanta.

Modifying the displaced threshold (in layman's terms: moving the lines back on the existing runway to allow larger aircraft / jets to land from the east) will result in the following affects to the neighborhoods surrounding MGA.

General Affects from Modifying the Displaced Threshold:

- More frequent, larger aircraft flying at lower altitudes over communities.
- More noise.
- More pollution.
- More risk / increased odds to neighborhoods of crashing larger aircraft.
- Convenience / central city location to private / charter / corporate aircraft operators that want to land larger aircraft / jets at MGA at the costs of the surrounding communities. Alternative locations include Brown Field, Lindbergh, and McClellen-Palomar.
- More revenues and income to MGA, for the benefit of MGA.

Affects to Neighborhoods:

- Lower quality of life and diminished pride of home ownership due to noise, pollution, and crash risks.
- Lower property values and immediate impacts to home equity.
- No financial gain to the City's general fund since MGA contributes nothing.
- Insignificant local San Diego economic benefit to the surrounding communities in comparison to the detriments as a result of the changes.
- Negative change to the affected communities' fabric.
- No public money from the City for the benefits given to MGA and its customers.

A proper cost-benefit analysis would prove the minor benefits to MGA would be far outweighed by the financial / community-related losses to modify the displaced threshold to allow larger jets to land from the east. This analysis needs to cover not only financial metrics, but immediate and long term affects to the people and communities.

Appendix B - Airspace Analysis

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Executive Summary

Airport owners and operators should continually strive to maximize the utility of the Airport for its users, consistent with the community goals and objectives. The runway facilities are a key component of the airport and have a direct correlation with respect to demand and capacity considerations. In addition to ensuring adequate length, width and pavement strength for aircraft operations, runways should also offer operational capability during marginal weather conditions to the extent practical and achievable. Accordingly, an evaluation of the runway system was conducted as it relates to instrument approach procedures and focused on the Runway 10L end of the primary Runway 10L–28R that is not presently served with this capability. The current instrument approach procedures to Runway 28R were also reviewed with an aim to determine if mitigation of the controlling obstacle, i.e., the obstacle that establishes the approach minimums could result in a reduction of the approach minimums. These are summarized in the sections that follow as Appendix A and provides further detail of the analyses.

Runway 28R Controlling Obstacles

Runway 28R is served with two instrument approach procedures -- Category I ILS or LOC and an RNAV (GPS) and a medium intensity approach lighting system (MALSR) is installed on the runway end. The Category I ILS approach is clear of obstacles in the final approach segment and results in the lowest approach minimums that can be authorized for this type of procedure -- 200 feet ceiling and ½-s.m. visibility. The LOC approach minimums are controlled by a transmission tower KMYF0030 to yield an altitude of 800 feet AMSL or 377 feet above touchdown zone elevation and, as a consequence of the approach lighting system, a ½-s.m. visibility minimum. Enhancing the accuracy code for this tower will not lower the ceiling minimum. Lowering or removing the tower could result in a reduction to the approach minimums, but should be subject to a benefit/cost analysis.

The obstacles controlling the RNAV (GPS) instrument approach minimums for LNAV, LNAV/VNAV, LPV minimums differ from those for the Category I ILS or LOC approach with the exception of the LPV minimums that are equivalent owing to no penetrations of the obstacle clearance surface. The tree KMYF0005 controlling the LNAV/VNAV approach minimums could also be a cluster of trees and is surveyed to the highest level of accuracy. Tree removal could lower the currently published instrument approach ceiling minimum of 327 feet above the touchdown zone elevation, but should be subject to an appropriate benefit/cost analysis. The LNAV approach minimums are controlled by the same transmission tower KMYF0030 that is associated with the LOC approach. Its lowering or removal could lower the current approach ceiling minimum of 417 feet above the touchdown zone elevation should such action be considered cost–justified.

Circling minimums for both types of instrument approach procedures are controlled by a tank KMYF0022 that has been confirmed to no longer exist and this finding should be communicated to the FAA Flight Procedures Office. A review of the obstacle data indicates that a building located at latitude 32°49'37.24"N and longitude 117°08'30.57"W at an elevation of 577' AMSL with an accuracy code of 1A will control the circling minimums. It is located north of the Airport on the north side of Spectrum Center Boulevard and east of Kearny Villa Road. The elevation of this building is 1 foot less than that of the currently identified controlling obstacle (tank) and thus the circling minimums will remain unchanged.

Runway 10L Approach Procedure Analysis

An instrument approach procedure needs to consider airspace constraints and the obstacle environment. For Runway 10L, these factors present some challenges to implementing an instrument approach procedure. Specifically, these include:

- The proximity of the Airport to others in the region that influences airspace use and emphasize a westerly flow.
- Only San Diego International Airport some six n.m. southwest has an instrument approach procedure to accommodate east flow arrivals.

The TERPS evaluation determined that an RNAV (GPS) procedure with LNAV and LPV approaches could be achieved within the airspace environment and yield effective approach minimums. The LNAV approach can achieve approach minimums of 840 feet AMSL or 417 feet above the touchdown zone elevation and a visibility of one s.m. These approach minimums are controlled by a building located at latitude 32°49'37.24"N and longitude 117°08'30.57"W at an elevation of 577 feet AMSL and has been surveyed to the highest accuracy level required for analysis (1A.)

A potential LPV approach can be designed with approach minimums of 673 feet AMSL or 250 feet above the landing touchdown zone elevation due to penetrations of the TERPS obstacle evaluation surfaces. Although obstacles penetrate these surfaces, the extent of the penetrations was assessed as insufficient to cause further increases to the ceiling minimum. Notwithstanding this outcome, the visibility minimum for the LPV procedure is restricted to $\frac{3}{4}$ -s.m. due to a pole located at latitude $\frac{38^{\circ}49'11.38''N}{1.38''N}$, longitude $\frac{117^{\circ}08'53.36''W}{1.38''N}$ at an elevation of 451 feet AMSL that penetrates the $\frac{34:1}{1.38''N}$ obstacle identification surface by 8 feet. Lowering or removal of this pole may be justified if the Runway 10L is to be equipped with a MALSR in order to achieve a visibility minimum of $\frac{1}{2}$ -s.m.

Recommendations

The FAA Flight Procedures Office should be formally advised that the tank identified as the controlling obstacle for circling approaches no longer exists. This will trigger a re-evaluation of the currently published circling approach minimums, which are anticipated to remain the same given the obstacle environment within the circling approach obstacle evaluation area.

The results of these analyses suggest that the establishment of LNAV and LPV approaches to Runway 10L be pursued and can yield effective approach minimums. These approach procedures support easterly flow arrivals during those times of the year that area winds favor that direction and/or when San Diego International Airport is operating in an easterly flow.

Existing Instrument Approach Procedures

The FAA has published two straight-in instrument approach procedures to Runway 28R at Montgomery-Gibbs Executive Airport utilizing ground-based terminal navigational aids and satellite-based systems. The ILS or LOC procedure offers three lines of approach minimums -- straight-in ILS, straight-in LOC, and a circling minimum. The RNAV (GPS) procedure provides four lines of approach minimums that may be flown depending on the avionics equipage of the aircraft. These are the LPV, LNAV/VNAV and LNAV minimums and a circling minimum. Approach minimums are presented for approach category A and approach category B aircraft. The current instrument approach procedure diagrams are presented on the last two pages.

Controlling Obstacles – ILS or LOC 28R

The controlling obstacles identified by the FAA, i.e., those that establish the altitudes for each segment of the ILS or LOC approach to Runway 28R are shown in **Table 1**. A stepdown fix is incorporated in the intermediate and final approach segments. A stepdown fix in the final approach segment is applicable only when the LOC approach is flown.

Table 1 – RNAV (GPS) 8L Controlling Obstacles

Approach Segment	Туре	Coordinates	Elevation (feet above mean sea level [AMSL])	Accuracy Code
Initial	Assumed Adverse Object	32°42'10.60"N 116°45'48.60"W	3960'	6A
Intermediate	Terrain	32°41'47.00"N 116°56'10.00"W	2567'	2A
Intermediate Stepdown	Assumed Adverse Object	32°46'01.49"N 116°59'00.06"W	1573'	2A
Final - ILS	None	NA	NA	NA
Final - LOC	Assumed Adverse Object	32°47'31.26"N 117°03'37.98"W	1029'	2C
Final Stepdown – LOC	Transmission Tower (KMYF0030)	32°47'59.99'N 117°06'20.24''W	549'	2A
Circling by Aircraft				
Category A and B	Tank (KMYF0022)	32 ⁰ 49'30.23"N 117 ⁰ 07'56.00"W	578'	1b

Source: Federal Aviation Administration Flight Procedures Office

Controlling Obstacles - RNAV (GPS) 28R

The controlling obstacles identified by the FAA, i.e, those that establish the altitudes for each segment of the RNAV (GPS) approach to Runway 28R are shown in **Table 1**. The procedure incorporates a stepdown fix in the intermediate approach segments. A stepdown fix in the final approach segment is applicable only when the LNAV approach is flown.

Table 2 - RNAV (GPS) 28R Controlling Obstacles

Approach Segment	Туре	Coordinates	Elevation (feet above mean sea level [AMSL])	Accuracy Code
Initial	Assumed Adverse Object	32°43'42.00"N 116°47'34.00"W	2999'	2C
Intermediate	Tower (06-000384)	32 ⁰ 41'47.00"N 116 ⁰ 56'10.00"W	2791'	4D
Intermediate Stepdown	Assumed Adverse Object	32°42'22.42"N 116°56'33.85"W	1839'	2C
Final - LPV	None	NA	NA	NA
Final – LNAV/VNAV	Tree (KMYF0005)	32°49'21.41"N 117°07'43.61"W	524'	1A
Final - LNAV	Assumed Adverse Object	32°47'31.26"N 117°03'37.98"W	1029'	2A
Final Stepdown - LNAV	Transmission Tower (KMYF0030)	32°47'59.99'N 117°06'20.24''W	549'	2A
Circling by Aircraft				
Category A and B	Tank (KMYF0022)	32 ⁰ 49 ¹ 30.23 ¹¹ N 117 ⁰ 07 ¹ 56.00 ¹¹ W	578'	2B

Source: Federal Aviation Administration Flight Procedures Office

Absent specific surveyed obstacle data, the FAA will typically incorporate an assumed adverse object in an approach segment, particularly when it overlies terrain that may or not be covered with vegetative growth such as trees. The use of 200 feet above ground level (AGL) election is commonly applied in these instances. An accuracy code of 2C (50 feet \pm horizontal and 20 feet \pm vertical) is acceptable for use in procedure design in the final approach segment. Less accurate codes such as 4D will require an upward adjustment to the reported elevation and the location of the obstacle. However, higher than 2C accuracy codes for the controlling obstacles in the initial and intermediate approach segments are acceptable for use without adjustment.

The approach minimums for the ILS procedure to Runway 28R are the lowest that can be authorized for this procedure with a medium intensity approach lighting system with runway alignment indicator lights (623 feet AMSL or 200 feet above touchdown zone elevation and $\frac{1}{2}$ -s.m. visibility.) The LOC approach minimums to Runway 28R reflect the transmission tower KMYF0030 location and elevation to yield an altitude of 800 feet AMSL or 377 feet above touchdown zone elevation and, because of the approach lighting system, a $\frac{1}{2}$ -s.m. visibility minimum. Enhancing the accuracy code for this tower will not lower the ceiling minimum. Lowering or removing the tower could result in a reduction to the approach ceiling minimum, but should be subject to a benefit/cost analysis.

The approach minimums for the RNAV (GPS) LPV approach to Runway 28R are the lowest that can be authorized for this procedure with a medium intensity approach lighting system with runway alignment indicator lights (623 feet AMSL or 200 feet above touchdown zone elevation and ½-s.m. visibility.) The LNAV/VNAV approach minimums are controlled by a tree or cluster of trees that border the western edge of the road loop at the northwestern intersection of Balboa Avenue and Cabrillo Freeway. The transmission tower that controls the approach minimums for the LOC approach is also controlling the LNAV approach minimums (840 feet AMSL or 417 feet above touchdown zone elevation and ½-s.m. visibility.) Mitigation of the tree or tree cluster controlling the LNAV/VNAV ceiling elevation of 750 feet AMSL or 327 feet above touchdown zone elevation may be possible; however, the gain in runway end use afforded by a lower ceiling minimum should be evaluated to determine if the cost associated with such mitigation is warranted.

The circling minimums for the ILS or LOC and RNAV (GPS) procedures are based on a tank structure; however, the coordinates in the FAA database do not support physical evidence of the tank. This obstacle should be reassessed by the FAA for its accuracy in the design of the procedure. In the event that this tank is determined to no longer be at the site, another obstacle will assume the controlling function. The circling approach TERPS obstacle evaluation area is defined by radii extending from the end of each runway for a distance of 1.7 n.m. when applied to approach category B aircraft. A review of the obstacle data indicates that a building located at latitude 32°49'37.24"N and longitude 117°08'30.57"W at an elevation of 577' AMSL with an accuracy code of 1A will control the circling minimums. It is located north of the Airport on the north side of Spectrum Center Boulevard and east of Kearny Villa Road and has red obstruction lights atop of it. The elevation of this building is 1 foot less than that of the currently identified controlling obstacle (tank) and thus the circling minimums will remain unchanged.

Potential Instrument Approach Procedures to Runway 10L

The design criteria for instrument approach procedures is contained in several FAA Orders, principal among which are:

- FAA Order 8260.3C, United States Standard for Terminal Instrument Procedures (TERPS)
- FAA Order 8260.58A, United States Standard for Performance Based Navigation (PBN) Instrument Procedure Design

These procedure design documents offer flexibility in the configuration of the final, intermediate and initial approach segments in terms of their alignment with the extended runway centerline, length, width when joining the succeeding segment, intersection point of an offset alignment with the extended runway centerline, and descent gradients. Additionally, a stepdown fix may be incorporated into the design of the procedure in the final segments for only LNAV approach procedures in order to achieve lower minimum descent altitudes, which allows the design to accommodate obstacles that cannot otherwise be mitigated by their removal or reduction in elevation. Stepdown fixes are

considered a nonstandard application of TERPS design criteria.

RNAV (GPS) LNAV 10L

A conceptual design for an RNAV (GPS) procedure with LNAV (lateral navigation) minimums was evaluated to the Runway 10L landing threshold at Montgomery-Gibbs Executive Airport (Airport.) Procedure design guidance contained in the FAA Orders listed above was utilized in the analysis. The key elements in the conceptual design take into consideration the obstacle environment, the use of the airspace for operations at neighboring airports, and the guidelines presented in the FAA Orders with respect to course alignments and descent gradients between each segment fix of the instrument approach procedure.

Current instrument approaches to Runway 28R at the Airport are published for approach category A and B aircraft. Accordingly, the RNAV (GPS) LNAV procedure evaluation was for the same aircraft use to Runway 10L.

The airspace environment in the vicinity of the Airport can be described as very active given the number of airports in proximity to one another, each with instrument approach procedures, and the mix of commercial, general aviation and military aircraft. As illustrated in **Figure 1**, the Airport and those surrounding it are located in Class B airspace, sections of which are segregated by minimum altitude floor levels and all extend to 10,000 feet above mean sea level (AMSL.) Clearance from air traffic control is required when operating in Class B airspace. The Airport is located within that segment of the Class B airspace with a floor of 4800 feet AMSL. Aircraft flying at a lower altitude under visual flight rules need not require air traffic control clearance to transit the airspace.

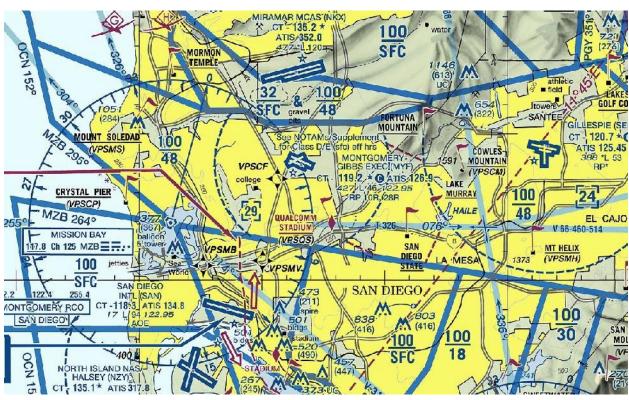


Figure 1 – Airspace Environment

Source: www.faa.gov, San Diego Terminal Area Chart

Each of the airports within the area airspace is served with an instrument approach procedure and all are based on a westerly traffic flow, that is, arrivals on runways with alignments to the west. Only San Diego International Airport provides instrument approach procedures, an instrument landing system and an RNAV (GPS), for landings to the east. Winds in the region also favor westerly traffic flow. Consequently, instrument flights and approach procedures in the region tend to support a westerly direction. Given the above considerations, it was determined that aircraft instrument arrivals to Runway 10L at the Airport should avoid conflict with standard terminal arrival route procedures to San Diego International Airport. **Figure 2** highlights the current low altitude instrument flight routes (those less than 18,500 feet AMSL) and suggests that an instrument arrival route to Runway 10L be west of Victor 23–363–597 as defined by the 326° radial from the Mission Bay VORTAC (MZB) until aligned with the extended Runway 10L centerline.

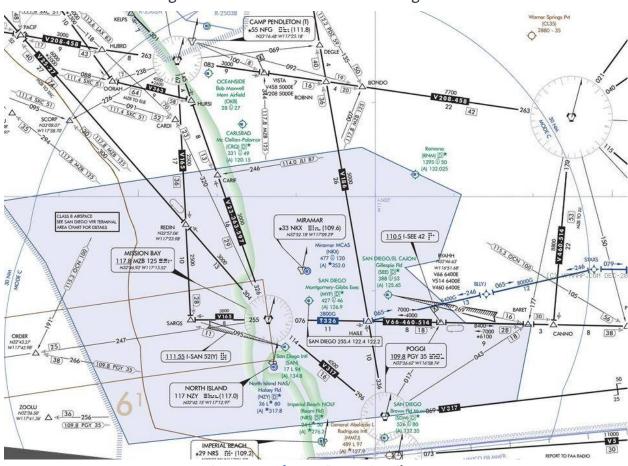


Figure 2 – Low Altitude Instrument Flight Chart

Source: www.faa.gov, Enroute L-4 Chart

The geometry of the final approach segment obstacle evaluation area (OEA) for an RNAV (GPS) procedure with LNAV minimums is essentially rectangular in shape with flaring to sides as it meets the incoming intermediate approach segment. The final approach segment can be offset by as much as 30 degrees (°) to either side of the extended centerline, a design feature of TERPS that enables avoidance of obstacles. The optimal length of the final approach segment is five nautical miles (n.m.) and the optimal descent gradient is 318 feet per nautical mile (318'/n.m.) Unless circumstances require, it is desirable to achieve these outputs in the design of the instrument approach procedure.

Obstacle Data Sources

Obstacle data for the Airport environs is available from three primary sources. These include the National Digital Obstacle File (DOF), instrument departure procedures based on obstacle data in the FAA database, and surveys conducted by third parties in accordance with FAA standards. All obstacles are accorded an accuracy code that reflects the degree to which the reported location and elevation of the obstacle meets a series of established criteria. Accuracy codes are assigned to those obstacles that have been verified to meet these criteria. The DOF provides obstacle data for manufactured objects, whereas other sources identify both manufactured and natural objects such as buildings, water towers and vegetative growth.

A review of the DOF for the Airport environs identified a number of transmission power line and communications towers that were assigned low accuracy codes, such as 5E, which implies that the reported elevation should be increased by 125' when used in TERPS analyses. Normally, these structures when first proposed, are reported with a high level of accuracy when transmitted to the FAA as part of its aeronautical study that assesses the potential impact they may have on the navigable airspace. However, it is also common that the final constructed location and elevation of these structures is not formally communicated to the FAA. As a consequence, when the obstacle data is input to the DOF, a 5E accuracy code is assigned. For the purpose of the instrument approach procedure evaluations presented herein, it was assumed that the adjustment associated with a 5E accuracy code could be obviated inasmuch as the initial reported location and elevation data was considered to be meet the required accuracy criteria. However, accuracy codes assigned to other obstacles as shown in the DOF were taken into consideration in the TERPS evaluations.

Controlling Obstacle and Procedure Design

Review of the obstacle environment in the final approach segment OEA indicated that the controlling obstacle, that is, the obstacle establishing the minimum descent altitude (MDA) is a building located at latitude 32°49'37.24"N and longitude 117°08'30.57"W. At an elevation of 577 feet AMSL, the controlling obstacle has been surveyed to the highest accuracy level required for analysis (1A.) The resulting MDA is 840 feet AMSL, or a ceiling of 417 feet. It is noted that offsetting the final approach course as much 30° to the north does not mitigate the impact of any of the potentially controlling obstacles.

The final approach fix (FAF) was set at the optimal 5 n.m. distance along the extended runway centerline at an elevation determined by obstacles located in the intermediate approach segment as well as the objective to achieve the optimal 318'/n.m. descent gradient. A 50-foot threshold crossing height was implemented in the procedure design. The altitude of the FAF is 2000 feet AMSL and yields an acceptable descent gradient of 327'/n.m.

The intermediate approach fix (IF) was established by the 343° radial from the MZB VORTAC at a distance of 14.3 n.m. and an elevation of 3500 feet AMSL. This yields a descent gradient of 150'/n.m., which is the optimal value in the intermediate approach segment.

The initial approach fix (IAF) was based on a 145° heading from the CARIF reporting point and an elevation of 6600 feet AMSL. The descent gradient between the IAF and the IF is 250'/n.m. and is the optimal value for this segment of the approach procedure.

The IAF and IF are at higher altitudes than those associated with the instrument approach procedures to Runway 9 at San Diego International Airport, thereby affording vertical separation between the two instrument arrival streams. Once reaching an altitude of 2000 feet AMSL, each of the instrument approach procedures to these airports has a FAF altitude of 2000 feet AMSL.

The missed approach procedure for the RNAV (GPS) LNAV to Runway 10L incorporates a straight

climb to 3000 feet AMSL and then a climbing left turn to 5000 feet AMSL with a holding position at the Camp Pendleton VORTAC (NFG) north-northwest of the Airport. The left turn also provides separation from aircraft executing a missed approach to Runway 9 at San Diego International Airport that provide for straight and then climbing right turns to fixes positioned offshore and to the southwest.

The visual area associated with the RNAV (GPS) LNAV approach to Runway 10L is penetrated by an obstacle, a pole located at latitude 38°49'11.38"N, longitude 117°08'53.36"W at an elevation of 451 feet AMSL. The penetration is 8 feet to the 34:1 obstacle identification surface and thus the visibility minimum can be as low as 3/4 statute mile (s.m.) for approach category A and B aircraft. However, the achievable ceiling minimum of 417 feet requires a 1 s.m. visibility minimum. Installation of an omnidirectional approach lighting system (ODALS) can lower the visibility minimum to 3/4-s.m. Action to implement the ODALS should be subject to a net present value, life-cycle benefit/cost analysis to determine if it is cost-justified.

RNAV (GPS) LPV 10L

Current instrument approaches to Runway 28R at the Airport are published for approach category A and B aircraft. Accordingly, the RNAV (GPS) LNAV procedure evaluation was for the same aircraft use to Runway 10L.

An RNAV (GPS) LPV procedure provides lateral and vertical guidance during the approach to a runway end. Although the terms 'lateral and vertical' imply a precision approach, an LPV procedure is classified as a nonprecision instrument approach for the purposes of Federal Aviation Regulations Part 77. This is because the LPV does not meet International Civil Aviation Organization (ICAO) Annex 10 requirements to be considered a precision approach. LPV approaches take advantage of the refined accuracy of the wide area augmentation system (WAAS) lateral and vertical guidance to provide an approach very similar to a Category I instrument landing system (ILS) flown to a decision altitude (DA.) When TERPS criteria are applied, the LPV procedure is referred to as an approach procedure with vertical guidance (APV.)

A conceptual design for an RNAV (GPS) procedure with LPV minimums was evaluated to the Runway 10L landing threshold at Montgomery-Gibbs Executive Airport (Airport.) Procedure design guidance contained in FAA Order 8260.3C, "United States Standard for Terminal Instrument Procedures (TERPS)" and FAA Order 8260.58A, "United States Standard for Performance Based Navigation (PBN) Instrument Procedure Design" were utilized in the analysis. The key elements in the conceptual design take into consideration the obstacle environment, the use of the airspace for operations at neighboring airports, and the guidelines presented in the FAA Orders with respect to course alignments and descent gradients between each segment of the instrument approach procedure.

Obstacle data was obtained from surveys, and that reported in the Digital Obstacle File and obstacles noted for instrument departures on Runway 28R as maintained by the FAA. As noted for the conceptual RNAV (GPS) LNAV procedure, elevation adjustments defined by the accuracy code assigned to certain manufactured obstacles (power transmission line and communication towers) were assumed to not be applicable.

Briefly, the obstacle evaluation area for the LPV procedure consists of three sloping surfaces termed W, X and Y in the final approach segment that originate at a calculated distance from the landing threshold and rise at a slope defined by the glidepath angle. This slope applies to the W surface; the X surface is attached to both sides of the W surface and rises at a slope of 1' vertically for each 4' of horizontal distance perpendicular to the final approach course. The Y surface is similarly attached to

the both sides of the X surface, but has a slope of 1' vertical for every 7' of horizontal distance. The overall dimensions of the LPV obstacle evaluation surface is narrower than that for an LNAV procedure owing to the higher level of signal accuracy afforded by the positioning satellites and avionics in the aircraft. The basic design of the final, intermediate and initial approach segments are usually similar for each type of procedure, which allows one approach chart to serve both procedures.

Controlling Obstacle and Procedure Design

Based on the fix locations and altitudes used to design the RNAV (GPS) LNAV procedure, it was found that several obstacles penetrate either the W or X obstacle evaluation surfaces by between 2 feet and 49 feet. Normally, penetrations to the obstacle evaluation surface trigger an upward adjustment to the decision altitude for the procedure. The lowest decision altitude that can be authorized for an LPV procedure is 200 feet above the landing touchdown zone elevation. However, further review of the obstacle penetrations revealed that they were insufficient to cause an upward adjustment to the decision altitude. Nonetheless, when such penetrations occur, the minimum decision altitude that can be authorized is 250 feet above the landing touchdown zone elevation. This equates to a decision altitude of 673 feet above mean sea level.

The final, intermediate and initial approach fix locations and elevations defined for the RNAV (GPS) LNAV procedure described above are appropriate for use with the RNAV GPS) LPV procedure. Similarly, the missed approach area is clear of obstacles and can mimic that flown for the RNAV (GPS) LNAV approach.

The visibility component of the LPV approach minimums is based on the availability of an approach lighting system and the extent of penetrations to the visual area. The pole identified as a penetration to the 34:1 obstacle identification surface of the visual area for the RNAV (GPS) LNAV procedure is also applicable in this case, and restricts the visibility minimum to ³/₄-s.m. This visibility minimum is also consistent with the achievable ceiling minimum of 250 feet. Installation of any level of approach lighting system does not result in a lowering of the visibility minimum because of the penetration tot the 34:1 obstacle identification surface. In the event that this obstacle can be lowered in elevation by at least 8 feet, removed or relocated to a location beyond the boundary of the visual area, the installation of a medium intensity approach lighting system with runway alignment indicator lights (MALSR) can lower the visibility minimum to ½ - s.m. Such action should be subject to a net present value, life-cycle benefit cost analysis.

Recommendations

The existing ILS or LOC and RNAV (GPS) LPV and LNAV/VNAV approach minimums to Runway 28R are either the lowest that can be authorized or can be considered reasonable given the obstacle environment at the Airport. There appears to be some inaccuracies associated with certain obstacles that when further investigated by the FAA could result in slightly lower approach minimums. The FAA should be advised of these discrepancies so that they may be reassessed when the existing instrument approach procedures undergo their periodic review. In any event, those approaches that could realize lower approach minimums should be subject to appropriate benefit/cost analyses that compare the economic value of increased runway end utilization and the cost to mitigate the controlling obstacle.

An RNAV (GPS) procedure to Runway 10L can yield useful approach minimums and should be pursued for final design, flight check and establishment by the FAA Flight Procedures Office. Prior to initiating a request to the FAA for this approach procedure, the Airport should investigate the potential of lowering or relocating the pole located at latitude 38°49'11.38"N, longitude 117°08'53.36"W at an elevation of 451 feet AMSL to mitigate its penetration of the 34:1 obstacle identification surface of the visual area. This would provide opportunity to achieve a ½-s.m. visibility minimum in the event that a MALSR was to be installed on Runway 10L.

Disclaimer

The evaluation and findings presented above are based on obstacle data that is readily available and is limited to the FAA design guidelines relevant to RNAV (GPS) LNAV and LPV instrument approach procedures. The FAA may have other data that can alter these findings and, therefore, this analysis should be used to support a request to the FAA for its further detailed assessment of the potential to establish the suggested RNAV (GPS) LNAV and LPV procedure to Runway 10L and their flight check prior to publication.

SAN DIEGO, CALIFORNIA AL-5401 (FAA) 17117 LOC/DME I-MYF Rwy Idg 3401 ILS or LOC RWY 28R APP CRS TDZE 111.95 423 281° MONTGOMERY-GIBBS EXECUTIVE (MYF) Apt Elev 427 Chan 56(Y) DME or RADAR required. VDP NA with San Diego Intl altimeter setting. MALSR MISSED APPROACH: Climb to 1100 then When local altimeter setting not received, use San Diego Intl altimeter climbing left turn to 3000 via heading 270° and MZB VORTAC R-326 to CARIF setting and increase all DA 71 feet and all MDA 80 feet. For inoperative MALSR when using San Diego Intl altimeter setting, INT/MZB 16.3 DME and hold. increase S-ILS 28R all Cats visibility to 1 mile. SOCAL APP CON MONTGOMERY TOWER * GND CON CLNC DEL SAN DIEGO RADIO 126.9 124.35 279.625 119.2 (CTAF) 0 269.4 118.22 123.725 -115.3 OCN NSA MZB 25 NA 1140 111 Chan 100 Chan 87 2140 4400 R-246 CARIF ۸²⁹⁷⁶ 3103 MZB 16.3 A OON 12.8 2100 5400 Λ¹⁶⁰⁸ 3226 2696 11/4011 8 A1178 IOCALIZER 111.95 3675 A989 A1165 SW-3. **∧**1580 Chan 56(Y) FEB 2 A1146± JAN 201 A 993 5 1051 2 475 I-MYF 3.6 A 1624 (IAF) BAKELINT A1699± JAN 2018 OGOTE INT 548 A 8 6100 MZB 23.5 MZB 19.3) 8 549± 5900 2 R-076 256 A 40B FEB 000 8 (4.2)2486 PENYY MISSION BAY 117.8 MZB = :: Chan 125 I-MYF 7 BARE 2801 2 RADAR 2810 MZB 27.7 3836 NESTY I-MYF 11.2 ELEV 427 **TDZE 423** • 3760 (IF) 10/a 3339 2059 · MIBBY INT A522 I-MYF 14.5 ⁴⁷²∧ JU 29.6) ∆⁴⁸⁰ RADAR 1100 3000 CARIF MIBBY INT I-MYF 14.5 MZB NESTY Δ hdg 270° R-326 RADAR Procedure PENYY I-MYF 11.2 I-MYF 7 RADAR Turn RADAR *LOC only PALOS NA 281°-4200 I-MYF 3.6 RADAR 2500 I-MYF 1.7 3600 0.7 281° 6.3 NM from FAF 2500 GS 3.00° TCH 41 1380* 3.4 NM 43 NM -3.3 NM -REIL Rwy 28L CATEGORY D MIRL Rwy 10L-28R 623-1/2 200 (200-1/2) S-ILS 28R NA FAF to MAP 6.3 NM S-LOC 28R 800-1/2 377 (400-1/2) NA 60 90 120 150 180 Min:Sec 6:18 4:12 3:09 2:31 2:06 CIRCLING 880-1 453 (500-1) SAN DIEGO, CALIFORNIA MONTGOMERY-GIBBS EXECUTIVE (MYF) Amdt 4B 15SEP16 ILS or LOC RWY 28R 32°49'N-117°08'W

Figure 3 – ILS or LOC RWY 28R Approach Plate



17005 SAN DIEGO, CALIFORNIA AL-5401 (FAA) WAAS 3401 RNAV (GPS) RWY 28R MONTGOMERY-GIBBS EXECUTIVE (MYF) APP CRS Rwy Idg CH 45710 TDZE 423 281° 427 **W28A** Apt Elev For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 54°C (130°F). DME/DME RNP- 0.3 NA. VDP NA with San Diego Intl altimeter setting. MISSED APPROACH: MALSR Baro-VNAV NA when using San Diego Intl altimeter setting. When local altimeter setting Climb to 3000 direct not received, use San Diego Intl altimeter setting and increase all DA 71 feet and all JOPDO and on track ٥ MDA 80 feet and increase LNAV/VNAV all Cats visibility 14 mile. For inoperative MALSR 327° to CARIF and hold when using San Diego Intl altimeter setting increase LPV all Cats visibility to 1 mile. CLNC DEL SOCAL APP CON MONTGOMERY TOWER* GND CON SAN DIEGO RADIO 119.2 (CTAF) 0 269.4 126.9 124.35 279.625 118.22 123.725 122.4 MISSED APCH FIX 2976 ∧ *3103 CARIF Λ¹⁶⁰⁸ 2696 3226 4 NM A1178 3675 A989 A1165 A 1580 JOPDO ∆1146± 4187 SW-3. 01 FEB 2018 Procedure NA for arrivals at BARET **A993** 1049 via V66-460-514 eastbound. 524± 04 JAN 2018 548 1 475 Λ 2510 1 3291 A1624 A1699± 5900 OGOTE (FAF) (IAF) 2539∧ 2 RW28R 25 PENYY BAKEL JAN 2018 PALOS 257 (4.2)2.9 NM to 7800 A3017 8 6100 NESTY RW28R 2801 257° 01 FEB (4.3)*3836 8 (IF) SW-3, MIBBY 2018 1 € 2713 3760 3339 2642 2059 ELEV 427 TDZE 423 △522 3000 **JOPDO** CARIF ⁴⁷²∧ Λ^{480} MIBBY 327° Δ NESTY PENYY PALOS 2.9 NM to 4200 -281° *LNAV only *1.2 NM to 2500 RW288 RW28R 3600 RW2BR 2500 GP 3.00° 1380* -1.7 NM -3.4 NM 4.3 NM 3.3 NM -281° to CATEGORY RW28R DA 623-1/2 200 (200-1/2) NA LNAV/ DA 750-3/4 327 (400-3/4) NA VNAV NA LNAV MDA 840-1/2 417 (500-1/2) REIL Rwy 28L CIRCLING 880-1 453 (500-1) NA MIRL Rwy 10L-28R SAN DIEGO, CALIFORNIA MONTGOMERY-GIBBS EXECUTIVE (MYF) Amdr 1B 15SEP16 RNAV (GPS) RWY 28R 32°49'N-117°08'W

Figure 4 - RNAV (GPS) RWY 28R

