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# Alternate Runway Prelilminary Analysis



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## Introduction

This report evaluates the concept of a third runway at Truckee Tahoe Airport (TRK). The conceptual third runway was proposed in the 2015 TRK Airport Master Plan (AMP) and named Alternative 3. This concept was presented at AMP Working Group meetings and dismissed during initial alternative screenings. Alternative 3 is illustrated in Figure 1.

The Truckee Tahoe Airport District (TTAD) requested that Alternative 3 be reconsidered to explore the possibility of a third runway at TRK to provide more options for arrivals and departures. One goal of this project, if implemented, is that it could disperse noise impacts and overflight.

TTAD requested that Alternative 3 be reevaluated in the context of the latest FAA airfield geometry standards, to explore the likelihood of Federal Aviation Administration (FAA) support and approval, and to provide a summary of the process to fully evaluate this runway with the potential for construction. This Preliminary Analysis is organized into the following sections:

- Runway Classification and Eligibility
- Runway Geometry
- Approval and Implementation Process

This analysis of the feasibility of Alternative 3 in this report is based on FAA design standards and policy. Key FAA criteria used in the analysis are:

- 14 Code of Federal Regulations Appendix A to Part 150
- FAA Order 5100.38D, Change 1, Airport Improvement Program (AIP) Handbook
- FAA Order 5190.6B, FAA Airport Compliance Manual
- Advisory Circular (AC) 150/5300-13A, Change 1, Airport Design
- AC 150/5060-5, Airport Capacity and Delay

## **ALTERNATIVE 3**

Alternative 3 was established during the AMP with a goal of reducing residential overflight. The proposed runway is meant to function as a secondary runway and would not eliminate either of the existing runways. During the AMP process, the Working Group presumed that Alternative 3 would provide pilots another runway option to operate on with an orientation that directs aircraft away from residential areas. This orientation also maximizes runway length on relatively flat land and on existing airport property. **Figure 1** shows the conceptual layout of Alternative 3 that was developed during the AMP.





The north end of Alternative 3 would be located near the existing threshold of Runway 20, and the south end of the runway would be near the edge of Airport property near Martis Dam Road. The conceptual third runway is 6,300 feet long and is located on the east side of the Airport with a north – south orientation. The true bearings of the proposed runway are 172/352 degrees, and this equates to magnetic headings of 159/339 degrees. The magnetic headings determine the conceptual runway end designations, which would be 16/34.

Conceptual Runway 16/34 requires a full-length parallel taxiway. The conceptual layout shows a parallel taxiway located on the west side of conceptual Runway 16/34, intersecting Runway 11/29 near the approach end of Runway 29. This parallel taxiway would likely need to be relocated to the east side of the Runway 16/34 to avoid this intersection.

Throughout this document, Alternative 3, Conceptual Runway 16/34, and third runway are used interchangeably to describe the conceptual runway.

## **Runway Classification and Eligibility**

This section addresses the FAA funding eligibility of the planning, design, and construction of Alternative 3. If the project is not eligible for FAA funding, in full or in part, TTAD may consider funding Alternative 3 locally. This option is addressed later in this report.

FAA Order 5100.38D, released in February 2019, defines policy and procedures used in the administration of the FAA AIP funds. The procedures and requirements in FAA Order 5100.38D are considered mandatory by the FAA.

## **RUNWAY TYPES AND ELIGIBILITY**

Appendix G in Order 5100.38D outlines AIP eligibility and justification for runways. The FAA has narrowed the eligibility for funding additional runways. According to the Order, the Airports District Office (ADO) can only support a single runway at an airport unless the ADO has made a specific determination that one or more crosswind or secondary runways are justified. The ADO will determine the runway type prior to planning a project. The runway types are listed below with ADO eligibility.

## **Primary**

The primary runway is a single runway at an airport consistent with FAA design and engineering standards is eligible for funding and development. Runway 11/29 is the primary runway at TRK.

## Crosswind

A crosswind runway is eligible for AIP funding if the wind coverage on the primary runway is less than 95 percent. Runway 2/20 is the crosswind runway at TRK. A second crosswind runway may be eligible if the wind coverage on the primary runway is less than 95 percent, and the existing crosswind runway is operating at 60 percent or more of their annual capacity.



## Secondary

A secondary runway maybe eligible for AIP funding if there is more than one runway at the airport, and the proposed runway is not a crosswind runway. The proposed runway may be considered a secondary runway if either of the following is true: The primary runway (or primary runway and all secondary runways) is operating at 60 percent or more of its annual capacity, or APP-400 (Airport Planning and Environmental Division) has made a specific determination that the runway is required for operation of the airfield.

## Additional

A runway would be classified an additional runway if there is more than one runway on the airport, and the ADO has determined that the proposed runway does not meet the requirements of a crosswind runway or a secondary runway. Additional runways are not eligible for AIP funding.

It is possible for an airport with two runways that consist of a primary runway and an additional runway without having a secondary or a crosswind runway. This can happen because there are specific parameters in terms of operations (Table G-1 of the Order) that must be present for an ADO to classify a runway as a crosswind or secondary runway. The busiest airports can have more than one secondary or crosswind runway.

For the ADO to fund and support Alternative 3, it needs to fall into the crosswind or secondary categories. The following sections evaluate the eligibility based on crosswind and secondary criteria.

## **CROSSWIND RUNWAY ANALYSIS**

The combined wind coverage of the existing Runway 2/20 and Runway 11/29 needs to be below 95 percent for Conceptual Runway 16/34 to be eligible for AIP funding. This section first evaluates the wind coverage of the existing runways, and then the wind coverage of Conceptual Runway 16/34.

**Table 1** shows the wind coverages for the existing runways at TRK, individually and combined. **Table 1** shows wind coverages for three different visibility conditions (visual, instrument, and all weather) and two different wind velocities (10.5 knots and 13 knots). The visibility conditions are based on flight rules, and the wind velocities are based on FAA criteria for wind coverage, described in AC 150/5300-13A, and the aircraft types that TRK facilities are designed for.

Primary Runway 11/29 has less than 95 percent coverage for 10.5 knot and 13 knot crosswinds. This justifies crosswind Runway 2/20. **Table 1** shows the crosswind coverage for 10.5 knot and 13 knot wind conditions are above 95 percent for Runway 2/20. Runway 2/20 also improves the combined wind coverage of the Airport to provide over 95 percent wind coverage for all crosswind components.



	Runway	Crosswind Component and Coverage	
		10.5 Knots	13 Knots
All Weather	Runway 2/20	97.68%	99.07%
	Runway 11/29	90.22%	94.21%
	Combined	99.38%	99.85%
Visual Flight Rules (VFR)	Runway 2/20	97.64%	99.07%
	Runway 11/29	90.20%	94.27%
	Combined	99.41%	99.86%
Instrument Flight Rules (IFR)	Runway 2/20	97.60%	98.89%
	Runway 11/29	87.21%	91.42%
	Combined	98.65%	99.56%

#### Table 1: Wind Coverage on Existing Runways

Source: NOAA Weather Station 725846, Truckee, California. Jan. 1, 2010 – Dec. 31, 2019

The existing runway configuration exceeds 95 percent crosswind coverage; therefore, Alternative 3 is unlikely to be eligible for AIP funding as a crosswind runway. However, Alternative 3 could improve upon the existing wind coverage at TRK in a scenario where it replaces Runway 2/20 as the crosswind runway. In this scenario, Conceptual Runway 16/34 would be eligible for AIP funding and existing Runway 2/20 would not be. To determine this, the wind coverage for Alternative 3 is compared to the coverage of Runway 2/20 and presented in **Table 2**.

#### Table 2: Wind Coverage Comparison on Alternative 3 and Runway 2/20

	Runway	Crosswind Component and Coverage	
		10.5 Knots	13 Knots
All Weather	Alt 3 – Runway 16/34	95.62%	97.78%
	Runway 2/20	97.68%	99.07%
Visual Flight Rules (VFR)	Alt 3 – Runway 16/34	95.44%	97.68%
	Runway 2/20	97.64%	99.07%
Instrument Flight Rules (IFR)	Alt 3 – Runway 16/34	97.46%	98.77%
	Runway 2/20	97.60%	98.89%

Source: NOAA Weather Station 725846, Truckee, California. Jan. 1, 2010 - Dec. 31, 2019

Alternative 3 meets the minimum 95 percent wind coverage for all crosswind components and the three types of weather conditions. However, Alternative 3 does not improve upon the wind coverage that Runway 2/20 provides. For instance, Runway 2/20 shows coverage of 99.07 percent for VFR conditions at 13 knots. Alternative 3 shows 97.68 percent coverage for visual flight rule conditions at 13 knots. This comparison consistently shows that Runway 2/20 provides the best wind coverage of the three runways.



Alternative 3 would likely not be supported by the ADO as a crosswind runway because it does not provide better wind coverage than the existing runways, and the existing crosswind runway is not exceeding the operational capacity threshold to add another crosswind runway. Runway 2/20 would need to operate at 60 percent or more annual capacity before a second crosswind runway will be eligible, which is addressed in the capacity discussion below. The FAA has invested millions of AIP dollars in Runway 2/20, and the ADO will likely not support the abandonment of Runway 2/20 in favor of Alternative 3.

## SECONDARY RUNWAY ANALYSIS

For Alternative 3 to be considered a secondary runway and therefore eligible for funding, it must meet all of the following criteria:

- There is more than one existing runway. (Criteria met, there are two existing runways)
- Alternative 3 is not a crosswind runway. (Criteria met, Runway 2/20 is the crosswind runway)
- The primary runway (or primary and all secondary/crosswind runways) is operating at 60 percent of more annual capacity. (Criteria to be evaluated in this section)

## **Airport Capacity**

FAA AC 150/5060-5, *Airport Capacity and Delay* (AC-5060-5), defines capacity as "a measure of the maximum number of aircraft operations which can be accommodated on the airport or airport component in an hour." Methodology used to quantify capacity focuses on the annual service volume (ASV). AC-5060-5 defines ASV as "a reasonable estimate of an airport's annual capacity. It accounts for differences in runway use, aircraft mix, weather condition, etc., that would be encountered over a year's time."

AC-5060-5 provides a formula to calculate ASV. Inputs required for the formula include total operations, the percentage of operations by aircraft that weigh over 12,500 pounds, and the configuration of the runway system (TRK has two runways that intersect). There were 36,379 operations at TRK in 2019, not including touch and go operations. Adding in the estimated 5,000 touch and go operations produces 41,379 operations in 2019. Of this, there were 3,450 operations by aircraft over 12,500 pounds, or eight percent of the annual total.

Based on this data and the existing runway configuration, the AC-5060-5 formula calculates an ASV of 230,000 annual aircraft operations. The existing runway system is functioning at about 18 percent of capacity. AC-5060-5 guidance recommends initiating planning for a secondary runway when aircraft operations reach 60 percent of the ASV, or 138,000 annual operations at TRK. Runway construction should begin when aircraft operations reach 80 percent of the ASV, which is 172,000 annual operations. Based on the capacity calculation, Alternative 3 does not meet the criteria to be considered as a secondary runway at TRK. The only category that Alternative 3 potentially meets criteria for is that of an additional runway.

An additional runway is ineligible for AIP funding. If Alternative 3 is built without AIP funds, Order 5100.38D notes that the FAA will not fund any development for auxiliary facilities on an additional runway such as markings, lighting, associated taxiways. or maintenance projects.



## **Runway Geometry**

FAA airfield design standards for runways and taxiways are defined in AC-5300-13A. This AC was updated in 2014, just as the AMP was being completed. AC-5300-13A revised and expanded upon runway and taxiway geometry standards with the purpose to limit runway incursions. The conceptual plan for Alternative 3 shows two significant design features that are non-standard for runway design and will likely require modification from the conceptual layout:

- Overlapping runway thresholds
- Intersecting runways

The following section describes the significant design differences of the conceptual runway from FAA standard design criteria. Modifications to the geometry for either the existing runway and/or the conceptual runway to meet design standards are considered. These modifications would likely require significant reduction in runway length for either Alternative 3 or the existing runways.

## **OVERLAPPING RUNWAY THRESHOLDS**

The conceptual design for Alternative 3 at 6,300 feet would result in the runway thresholds overlapping at the approach ends of Runway End 16 and Runway End 20. This configuration of two runways overlapping at their apex is a design issue that the FAA looked to eliminate with specific design recommendations in AC-5300-13A. Paragraph 304(e) states, "Configurations where runway thresholds are close together should be avoided, as they can be confusing to pilots, resulting in wrong-runway takeoffs."

Runway design standards in AC-5300-13A incorporated geometry recommendations to decouple runway ends to reduce the possibility that aircraft may depart on the wrong runway. There is an elevated risk for wrong runway departures due to co-located runway thresholds. This design of coupled runway ends is similar to the configuration at Blue Grass - Lexington Airport where a wrong-runway departure in 2006 resulted in 49 fatalities.

The FAA Airports Runway Incursion Mitigation (RIM) program was developed in 2015. The RIM program's purpose is to mitigate problematic airfield geometry, marking, and signage inconsistent with FAA standards that might contribute to runway incursions. While the RIM program specifically evaluates design of *existing* runways and taxiways, it is considered here because recent practice and recommendations by the RIM program would likely need to be followed for Alternative 3 design.

Two examples of the airfield geometry issue at TRK that the RIM program identified are included below in **Figures 2 and 3**, with nonstandard geometry on the left, and the constructed resolution on the right. These are included to show that even relocating the approach end of Runway 20 or Runway 16 to shorten the runways would not completely resolve the issue. The pavement and taxiways must also be disconnected a significant distance from each other to help avoid wrong way departures.





#### Figure 2: Mitigation Runway Decoupled with Removal of Pavement

Source: FAA RIM Safety and Engineering Presentation, 2018 Southwest Region Airport Conference



#### Figure 3: Mitigation – Taxiways Reconfigured to Meet Current Standards & Runways Ends Displaced

Source: FAA RIM Safety and Engineering Presentation, 2018 Southwest Region Airport Conference

These examples intend to illustrate the required threshold relocation plus the collateral effects of this total pavement separation of runways and taxiways to limit the potential to depart from the wrong runway.



Relocating the end of Runway 20 would reduce the utility of an existing runway and impact a facility that was previously funded by the FAA. This possible relocation will also result in the relocation of the visual approach slope indicator navigation aid. Relocating the threshold of Runway 16 to the south would reduce the length of the conceptual runway, and therefore reduce the potential for this runway to be utilized by aircraft other than piston or turboprop aircraft.

## **INTERSECTING RUNWAYS**

Conceptual runway Alternative 3 is located just east of the approach end of Runway 29. While the runways do not physically intersect, the design surfaces do. These include the runway safety area (RSA) and runway object free area (ROFA).

Paragraph 304(e) in AC-5300-13A states: "Runway separation must take into account the full dimensional requirements of the safety areas of the runway and taxiway systems on the airport. If possible, safety areas should not overlap, since work in the overlapping area would affect both runways. In addition, operations on one runway may violate the critical area of a NAVAID on the other runway. This condition should exist only at existing constrained airports where non-overlapping safety areas are impracticable... If the RSA of one runway overlaps onto the full-strength pavement of a second runway or taxiway, the chance of runway/taxiway incursion incident is increased."

The confluence of the approach end of Runway 29 with Alternative 3 and the parallel taxiway will create an expanse of pavement that the RIM program may find confusing to pilots. This may be alleviated by either lengthening or shortening Runway 11/29 so the markings for the Runway 29 approach threshold are some distance from the conceptual Alternative 3. Relocating Runway 29 approach threshold to shorten the runway will reduce the length of an FAA funded runway and its utility. The approach end for Runway 29 may also be relocated east of Alternative 3, intersecting Alternative 2, and lengthening Runway 11/29. However, for approaches on Runway 29, this may result in airspace issues with terrain to the east.

## **IMPACT TO EXISTING FACILITIES**

The conceptual design of Alternative 3 will impact existing TRK facilities. The Visual Approach Slope Indicator (VASI) on Runway 20 will need to be relocated if the threshold of Runway 20 is relocated. Private businesses Soar Truckee and Skydive Truckee Tahoe will also need to be relocated with Alternative 3.

If TTAD moves ahead with designing and constructing Alternative 3 using local funds, the FAA may require compensation for any impacts to previously FAA funded facilities. If the utility of any of the FAA funded facility is reduced or eliminated, the FAA may require compensation for these facilities. These include impacts airfield facilities constructed using FAA grant funds (e.g., runway or taxiway pavement, edge lights, signs).

Taxiing distance from the terminal area to each end of the conceptual runway is also significant. The approximate distance to taxi from the terminal area to Alternative 3 (Runway End 16) is 6,100 feet. The approximate distance to taxi from the terminal area to Alternative 3 (Runway End 34) is 4,700 feet. All potential impacts and design issues are illustrated in **Figure 4**.



Figure 4

## **Alternative 3 - Runway Geometry Issues**

Truckee Tahoe Airport



## **Approval and Implementation Process**

Five steps map the process that TTAD will need to follow to obtain necessary approvals to permit construction of Alternative 3. This section describes the actions needed during each step.

- 1. Negotiation with the FAA
- 2. Update the Airport Master Plan
- 3. Federal and State Environmental Review
- 4. Airport Land Use Commission Approval
- 5. Coordination with Town of Truckee and Nevada and Placer Counties

## **NEGOTIATION WITH THE FAA**

To obtain funding from the FAA, projects must meet eligibility and justification by virtue of three tests:

- 1. The project advances an AIP policy.
- 2. There is an actual need.
- 3. The project scope is appropriate.

As discussed in the Runway Classification and Eligibility section above, the FAA will likely conclude that Alternative 3 does not advance AIP policy, since it is not required for TRK to meet wind coverage or capacity demand.

While there is community concern regarding noise and overflight, according to FAA noise mitigation standards, TRK does not qualify for additional noise mitigation. Guidance in 14 Code of Federal Regulations Appendix A to Part 150 - Noise Exposure Maps Section A150.101 (d) states, "For the purpose of compliance with this part, all land uses are considered to be compatible with noise levels less than Ldn 65 dB." The 2015 AMP illustrates noise contours at TRK under existing and future conditions (Chapter 5, Figures 5-2, 5-3 and 5-4), and shows the 65 dB contour remaining on Airport property. Based upon these FAA noise standards, the Truckee area does not meet FAA criteria for federal assistance and/or approval of noise mitigation actions.

Even if the FAA concludes that their policies do not support the need for Alternative 3, it could be added to the Airport Layout Plan (ALP) of record. However, the FAA would likely require that a disclaimer be added indicating that the Alternative 3 is a TTAD project, not eligible for FAA funding. If construction of the third runway would impact any airfield facilities constructed using FAA grant funds (e.g., runway or taxiway pavement, edge lights, signs), the FAA could require TTAD to financially compensate the federal government for these impacts, or relocate the facilities at TTAD expense to a place where they would provide the same utility as before the project. This issue would best be explored with the FAA during preliminary design. Early discussions would offer the potential for refinements to the design Alternative 3 to be made that would reduce or eliminate impacts to FAA funded facilities. This negotiation should be undertaken concurrently with an AMP update, as discussed in the next section. It should be possible for the negotiations to be completed by the time the National Environmental Policy Act (NEPA) document is approved.



## UPDATE THE AIRPORT MASTER PLAN

Before taking any action related to a third runway, TTAD must first update the adopted TRK ALP. To update the ALP with a major project, an AMP update will be needed to show the planning that went into Alternative 3, including how impacts to existing facilities that are FAA eligible will be met and how FAA geometry standards will be followed. The master plan process will provide TTAD an opportunity to further evaluate the purpose for the third runway, perform public outreach, refine the layout of the conceptual runway and parallel taxiway, and determine how the runway will be integrated with the existing airfield. Additionally, airspace surfaces, Terminal Instrument Procedures (TERPS), overflight impacts and instrument approach capabilities of the third runway can be evaluated as part of the AMP.

The AMP update will also provide a means for TTAD to officially engage with the FAA. The FAA will not start the federal environmental review process until the AMP update is completed, and the agency has formally approved the associated ALP.

If TTAD wishes to use FAA grant funds for the AMP update, there will be a two- to three-year lead time to obtain a grant. If FAA staff are supportive of the master plan update, they will need that lead time to arrange an allocation of discretionary funds for the project. If FAA staff are not supportive, TTAD will need that lead time to accumulate sufficient entitlement funds or use local funding for the update.

A typical AMP update takes about two years to complete, from project initiation to an approved ALP. TTAD would receive a *conditional approval* of the ALP. This means that the FAA has found the ALP to meet its technical requirements. However, this level of approval is not sufficient enough to move ahead with engineering design and runway construction. It will be necessary to obtain a *partial unconditional approval* of the ALP before the runway could be constructed. It would be a partial unconditional approval, because it would only apply to third runway components of the ALP and not other improvements. The partial unconditional approval can only be obtained following completion of the federal environmental review process which is discussed in the next section.

#### FEDERAL AND STATE ENVIRONMENTAL REVIEW

Both federal and state environmental review processes will need to be completed before Alternative 3 can be constructed. Even if TTAD provides funding for construction of Alternative 3, federal environmental review is required. Approval of the partial unconditional ALP (discussed above) is considered a *federal action* which necessitates a supporting environmental document. The federal environmental review process is defined in NEPA and NEPA implementing documents prepared by the FAA. The state environmental review process is defined in the California Environmental Quality Act (CEQA).

The description of Alternative 3 in the NEPA and CEQA documents would need to include details of construction-related impacts. This would include such details as drainage facilities, haul routes, contractor staging areas, limits of grading, and the location of trenches needed for runway and taxiway edge lighting. Preliminary engineering design of the third runway will be needed to provide this information. It would be most efficient to prepare this preliminary engineering as part of the AMP update. This would help solidify the layout of Alternative 3 and make it less likely that a modification to the updated ALP would be required after the master plan and before construction of the third runway could begin.



Based upon the data generated by recent TTAD projects (e.g., TTSA Land Exchange, AMP), the environmental resources most likely to be impacted by Alternative 3 project are:

- Cultural
- Biological

Because Martis Valley is rich in cultural resources, both historic and prehistoric, these resources have the greatest potential to complicate and delay the third runway project. Impacts to cultural resources also have the greatest potential to necessitate preparation of an Environmental Impact Statement and Environmental Impact Report. Protected species and wetlands may exist in the area affected by the third runway; only a portion of the site has been previously surveyed for environmental impacts. Although there is the potential for biological resources to be impacted by the third runway project, it is not expected that the impacts would be significant enough to create a substantial delay. Because the third runway would not result in increased use of the Airport, it is expected that some types of impacts would not occur. For example, there would not be increased impacts to air quality or surface traffic.

Available data on environmental constraints suggest that it is likely that an Environmental Assessment will need to be prepared to comply with NEPA. It normally takes eighteen months to two years for an Environmental Assessment to be completed and approved by the FAA. If an environmental impact is identified that cannot be mitigated, an Environmental Impact Statement would need to be prepared. These documents commonly take three to four years to be completed. The NEPA document would need to be approved before the FAA could provide a partial unconditional approval of the ALP.

CEQA compliance would likely require preparation of a Mitigated Negative Declaration. This document would be needed by TTAD to approve the Airport Master Plan update and subsequent construction of the third runway. It would be subsequently used by the Town of Truckee, Nevada and Placer Counties, and the Truckee Tahoe Airport Land Use Commission (TTALUC) to take implementing actions to support implementation of the third runway. A Mitigated Negative Declaration typically takes nine months to a year to produce and approve. If an environmental impact is identified that cannot be mitigated, an Environmental Impact Report would need to be prepared. These documents commonly take two to three years to be completed. This Mitigated Negative Declaration would be structured as a *project-level* document and be produced at a level of detail sufficient to address construction-related impacts.

The overall schedule could be reduced by about one year, if the master plan update, preliminary engineering, and CEQA/NEPA documents were prepared concurrently. Concurrent preparation has other benefits:

- Project alternatives are most effectively created during preliminary engineering design.
- Refining the project design to avoid or minimize impacts is most efficiently done during the design phase.
- It reduces the potential for project design modifications to be needed during the environmental review process.

Depending upon the nature of any impacts, TTAD may need to obtain permits or approvals from resource agencies. Normally these will need to be acquired before construction can begin.



## AIRPORT LAND USE COMMISSION APPROVAL

California statutes require that airport master plans be approved by the local airport land use commission. In this case, the AMP update would be reviewed by the TTALUC. To make this review process as efficient as possible, the CEQA environmental document should include proposed text and graphics needed to amend the adopted Comprehensive Land Use Plan for the Airport's environs. This would allow the TTALUC to use the CEQA document prepared by the District. This review would likely take about three months.

## **COORDINATION WITH LOCAL AGENCIES**

It is recommended that TTAD begin coordination with the Town of Truckee and Nevada and Placer Counties when the AMP update process begins. Adjustments to these agencies' general plan designations and zoning may be required. At a minimum, these local jurisdictions should modify their plans to protect the airspace associated with the third runway. The CEQA document should be arranged to provide these jurisdictions with most of the information that they will need to revise their plans and policies. Early coordination with these agencies will enable TTAD's CEQA document to identify the connected actions that will accompany the third runway. Assuming that coordination runs concurrently with preparation of the AMP update and CEQA document preparation, these local agencies should be able to implement the necessary revisions within six months of the TTAD's adoption of the CEQA document.

## **Summary**

FAA acceptance of Alternative 3 as a crosswind or secondary runway at TRK is unlikely because wind coverage and capacity are adequate at TRK in accordance of FAA standards. The Airport currently does not have an FAA defined need to mitigate noise, therefore mitigation through a third runway will likely not be supported by the FAA.

TTAD has the option to fund Alternative 3 without FAA support. Geometry issues of the conceptual runway design will need to be alleviated, however, with anticipated significant impact to existing runway length and utility. Using local funds to plan, design, and construct Alternative 3 may require compensation to the FAA for any reduction in utility and function of these facilities previously funded by the FAA:

- Reduction in length of Runway 11/29 or Runway 2/20 to alleviate geometry issues
- Relocation of Runway 20 VASI if Runway 20 threshold is relocated
- Associated taxiway system redesign
- Associated runway and taxiway lighting

TTAD may consider including a more comprehensive study of Alternative 3 in the next master plan update. The master plan process or a comprehensive ALP update will offer TTAD and the Board more opportunity to study Alternative 3 and weigh the costs of environmental and design and construction versus the benefits and impacts to the community.