

# AIRPORT MASTER PLAN UPDATE (PHASE 1)

## **DRAFT** Scope of Services for

### **Truckee Tahoe Airport District**

Truckee Tahoe Airport, California

**January 21, 2022**

## **PROJECT DESCRIPTION**

Mead & Hunt, Inc. (hereafter “the Consultant”) was selected to provide airport planning services for Truckee Tahoe Airport District (TTAD), the owner and operator of Truckee Tahoe Airport (hereafter “TRK” or “Airport”). This Scope of Services includes the planning services and tasks associated with the preparation of an Airport Master Plan (AMP) Update.

The primary goal of the AMP is to evaluate the future disposition of the airfield. This process will involve analysis of several runway development options and alternatives to assess and quantify the potential benefits to the community surrounding TRK in terms of reduced noise and reduced aircraft overflight. The preferred alternative from this analysis will likely be carried forward into an environmental project, and the AMP report will be structured to facilitate the transition from planning to environmental analysis.

Before taking any action related to a third runway or alternative airfield configuration, TTAD must first update the adopted TRK ALP. Building justification for the improvement requires an AMP update that shows the planning that supports the change, including how impacts to existing facilities that are Federal Aviation Administration (FAA) eligible will be met and how FAA geometry standards will be followed. The AMP 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.

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/signed the associated ALP.

The AMP will be prepared following FAA standards and guidance so that the ensuing capital program is positioned for FAA funding eligibility, and so that TTAD continues to meet the assurances of the FAA grants that they have previously accepted. Key FAA guidance includes:

- Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5300-13A, Change 1, *Airport Design (AC-13A)*\*
- FAA AC 150/5070-6B, Change 2, *Airport Master Plans (AC-6B)*
- FAA AC 150/5000-17, *Critical Aircraft and Regular Use Determination*
- Federal Regulation Title 14 Part 77, Objects Affecting Navigable Airspace, Section 25, Civil Airport Imaginary Surfaces (Part 77)

- Standard Operating Procedure (SOP) for FAA Review and Approval of Airport Layout Plans (SOP No. 2.00)
- SOP for FAA Review of Exhibit 'A' Airport Property Inventory Maps (SOP No. 3.00)

\* It is understood that the FAA is in the process of updating AC-13A. A draft of AC-13B was circulated for industry comment and the changes primarily affect taxiway design. Since AC-13B has not been finalized, it will not be used as guidance at this time. The Consultant will use AC-13A for this document unless AC-13B is released before geometric planning begins. Changes to the guiding AC after work has started can be accommodated, but will affect the scope, fee, and schedule.

Most airports of a similar size to TRK complete AMPs every ten years. TRK is in a unique situation because the inventory and forecast chapters were updated in 2021. For this reason, this scope of services does not include updates to these chapters apart from formatting changes for consistency with the rest of the AMP. The following Scope of Services (hereafter "Scope") will explain the study process and items that are included in the TRK AMP.

The AMP will be separated into two (2) phases. Phase 1 will focus on the third runway. The scope and fee for Phase 1 is provided below. Phase 2 will integrate the findings of the Phase 1 and further evaluate impacts for a new runway or geometry on the airfield and existing facilities. Phase 2 of the AMP may also evaluate other airside facilities, landside facilities, land use, airport sustainability, and property interest considerations.

## **TASK 1 - STUDY DESIGN**

Study design involves coordination between the Consultant and TTAD to develop the project Scope, Fee, and Schedule. Up to six (6) virtual meetings will occur with TTAD management and an Ad Hoc committee tasked with overseeing the AMP. No travel is expected as part of this task. The process is as follows:

- TTAD and the Consultant will have a kickoff call (Meeting 1) to initiate the scoping process.
- The Consultant will prepare a draft scope outline. TTAD will review.
- TTAD comments and direction will be collected, and the Consultant will prepare a draft scope. TTAD will review.
- TTAD and the Consultant will have a virtual meeting to discuss comments on the draft scope (Meeting 2).
- The Consultant will revise the draft scope and prepare a fee and schedule for TTAD consideration. TTAD will review.
- TTAD and the Consultant will have a call to discuss comments on the draft scope, fee, and schedule (Meeting 3).
- The Consultant will finalize the scope, fee, and schedule based on TTAD feedback. Up to two (2) additional virtual meetings (Meeting 4 and Meeting 5) may occur during this time to handle any final questions and comments.

- The Consultant will virtually attend, and make a presentation at, a TTAD Board Meeting (Meeting 6). The purpose of this is to answer questions about the scope and study process from TTAD Board members who are not on the Ad Hoc committee.

The Consultant will prepare contract documents for TTAD to execute. Receipt of these signed documents will be considered “notice to proceed” with the Scope, Fee, and Schedule.

**Task 1 Deliverables:** One (1) Scope outline, up to two (2) each draft scope, fee, and schedule, and one (1) final scope, fee, and schedule.

## **TASK 2 - PROJECT MANAGEMENT**

Projects such as this require a refined approach to project management to achieve success. This is especially true at the beginning of the process when the goals, direction, criteria, assumptions, roles, and expectations are developed. Continuous and timely coordination with TTAD and the Ad Hoc Committee will be provided throughout the study. Project management tasks will continue throughout all aspects of the agreed-upon project schedule. The project management and coordination process includes the following tasks.

### **2.1 Project Management**

The Consultant will monitor project status and performance and provide TTAD with regular status updates during bi-weekly calls, monthly invoicing, and at TTAD Board meetings. Other project management tasks the following:

- Project set-up (accounting and invoicing requirements)
- Project schedule
- Sub-consultant management
- Internal project teleconferences with subconsultants (up to 10 expected)
- Management of task progress
- Deliverable QA/QC
- Monthly project status reports and invoices to TTAD

The Consultant will invoice TTAD monthly (up to 6 expected throughout Phase 1). Invoices will include efforts by task, indicate a percentage of completion, and contain a brief progress report that describes what was completed in the past month and milestones expected to be completed in the coming months.

Project Management documentation will not be presented as part of the AMP Report.

### **2.2 Consultant and TTAD Coordination**

The Consultant will correspond with TTAD via email, telephone, and in-person. The Consultant will arrange teleconferences with the Ad Hoc committee (twice monthly) to discuss the AMP and overall project status. These calls are to provide updates of work completed, conclusions reached, and approaches to resolving

existing or upcoming AMP challenges. These calls will also provide opportunities for the Consultant to present alternatives and for TTAD to evaluate the presented alternatives and ask questions. Calls will be attended by up to two (2) members of the Consultant team. During certain AMP tasks, specialist members of the Consultant team will join the calls to discuss their work. The Consultant will take notes, distribute the notes to the Ad Hoc committee, and include items discussed with action items.

The primary contact information for the AMP is below.

TRK Airport Primary Point of Contact  
Kevin Smith, General Manager  
[kevin.smith@truckeetahoeairport.com](mailto:kevin.smith@truckeetahoeairport.com)  
Direct: 530-587-4119 x 105

Consultant Point of Contact  
Bradley Musinski, Project Manager  
[brad.musinski@meadhunt.com](mailto:brad.musinski@meadhunt.com)  
Direct: 707-284-8685

### 2.3 TTAD Board Meetings

It is expected the Consultant will attend up to two (2) TTAD Board meetings during Phase 1 of the AMP to present findings and analysis and answer questions. It is expected that Consultant attendance at the TTAD Board meetings will be virtual.

### 2.4 TRK Site Visits

It is expected the Consultant will require up to two (2) trips to TRK to perform field work, interview stakeholders, review plans, or present alternatives. Up to two (2) Consultant staff will be present for each visit.

**Task 2 Deliverables:** Monthly status reports and notes from meetings.

## TASK 3 - STAKEHOLDER ENGAGEMENT

Stakeholder engagement is multi-faceted and includes interaction between the Consultant and TTAD, the Project Team (Consultant and TTAD) and those who live and work near TRK (the Community), and the Consultant Team and the FAA San Francisco Airports District Office (SFADO).

### 3.1 Project Team and the Community

TTAD has procured a Stakeholder Engagement Firm under a separate contract. The Stakeholder Engagement Firm will handle communications with the Community. The Consultant will assist the Stakeholder Engagement Firm by providing technical documentation from the AMP. The Consultant will not schedule or run meetings and is not responsible for logistical or technological arrangements. Participation will be limited to attendance, presentations, and answering questions.

Up to one (1) community workshop meeting will occur as part of this task. It is expected the community workshop meeting will occur after the initial draft of the Runway Feasibility Working Paper (**Task 5.1**). These meetings will be virtual, with no Consultant travel. Up to five (5) members of the Consultant staff are expected to be present for each community workshop meeting, including airport planners and the noise

and airspace subject matter experts. Effort is included for Consultant attendance at, and material preparation for, each meeting.

### **3.2 Project Team and the FAA SFADO**

The Consultant and TTAD staff will attend one (1) meeting with the SFADO to discuss the AMP Update. The meeting is expected upon completion of the Runway Feasibility Working Paper (**Task 5.1**) and initial ALP submittal. These meetings are expected to be in-person.

**Task 3 Deliverables:** No formal documentation for this task. Notes from **Task 3.2** will be provided that summarizes this meeting. It is expected the Stakeholder Engagement Firm will record notes and produce a report on feedback and action items from the Community meetings.

## **TASK 4 - FACILITY REQUIREMENTS**

The Consultant will use the demand forecasts prepared as part of the 2021 ALP Update to assess the facility requirements. Facility requirements analysis can have multiple purposes: to assess the adequacy of existing infrastructure to meet future demands, to decide if it is in the community's interest to meet future demands, or to meet future demands only up to a point. The Facility Requirements Chapter from the 2015 AMP will be used as a starting document and updated with the tasks below. Design concepts for future improvements will be developed as part of **Task 5**, and not as part of this chapter.

### **4.1 Airport Design Standards**

The Consultant will identify and update the appropriate FAA design standards applicable to the airfield, airspace, and terminal area based on the critical/design aircraft forecast. Airport design standards will be analyzed using AC-13A and FAR Part 77, Objects Affecting Navigable Airspace, Section 25, Civil Airport Imaginary Surfaces.

### **4.2 Runway Length Analysis**

Runway length analysis will evaluate recommendations to meet the forecasted aircraft fleet mix identified in the 2021 ALP Forecasts. This analysis will be conducted according to guidance in FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*. The Consultant will use takeoff and landing performance information published by aircraft manufacturers in airport planning manuals. Considerations for stage length, engine type, elevation, and temperature will be included in the screening criteria used to make runway length recommendations.

### **4.3 Aeronautical Facilities and Airspace**

The Consultant will update aeronautical and airspace facility requirements in AC-13A by examining known existing issues, space allocation deficiencies, forecast demand triggers using FAA standards, and representative industry best practices. The following airside and airspace facilities will be evaluated:

- Runway requirements (width, strength, safety area distances, object free area distances)
- Taxiway system requirements (geometry, width, strength, safety area distances)

- Navigational aids, lighting systems, and shelters
- Pavement markings, lighting, signage
- Air Traffic Control Tower requirements
- Aircraft fuel storage and dispensing systems
- Instrument procedure equipment to enhance approach minimums
- Airfield vehicle access routes
- Airspace surfaces
- General aviation facilities
- Aircraft hangars (by function and type)
- Airport maintenance and Snow Removal Equipment (SRE) storage
- Airfield vehicle access
- Fencing/gates/security

**Task 4 Deliverables:** The Facility Requirements Chapter from the 2015 AMP will be updated as a Working Paper. This will be delivered in PDF format, with up to two (2) draft reviews with TTAD. The complete Facility Requirements chapter will be produced as part of Phase 2 and included in the final AMP.

## **TASK 5 - ALTERNATIVES ANALYSIS**

The process of defining and evaluating alternatives is iterative, beginning with a broad comprehensive range of possibilities that are then refined based on evaluation criteria and development goals. The evaluation process is structured to provide the basis for achieving a preferred development concept. Alternatives for the different functional areas of TRK may have unique screening criteria that reflect the purpose and considerations of each airport functional area.

### **5.1 Runway Alternatives Analysis**

Phase 1 of the AMP Update will focus on alternatives intended to improve operational safety and reduce overflight of the surrounding community through potential changes to the airfield configuration.

The alternative analysis and findings will be documented in a Runway Feasibility Working Paper. Two (2) iterations of the Working Paper are expected. The first iteration will be an Initial Draft that documents screening criteria and analysis but does not offer a recommendation or preferred alternative. The Initial Draft Working Paper will be presented to the community at a community workshop meeting as described in **Task 3.1**. Feedback from the community, stakeholders, air traffic control tower staff, pilots, and users will be incorporated into the Final Draft Working Paper. The second iteration will be a Final Draft that will include a recommendation and serves as a decision point for the preferred runway alternative.

### 5.1.1 Goals and Assumptions Development

The Consultant will assemble a series of goals and assumptions related to the intent, direction, purpose and strategic vision of the Airport and the airfield. These will be based on the TRK's role, forecasts of aviation activity, and input from TTAD and stakeholders.

### 5.1.2 Screening Criteria Development

The Consultant with TTAD and the Ad Hoc committee will establish screening criteria and a scoring system to objectively evaluate each alternative quantitatively, in addition to qualitative analysis. It is expected the screening criteria will focus on:

- Safety
- Noise (See **Task 6**)
- Residential overflight and airspace (See **Task 7**)
- Feasibility of use and utilization
- Environmental

### 5.1.3 Preliminary Runway Concept (Initial 16/34 Evaluation)

The Consultant will finalize the location of the third runway for evaluation. This refined analysis will confirm if the runway geometry is feasible. The alignment may be refined slightly to minimize airspace obstructions and residential overflights. This will establish the runway end points, length, and alignment for the third runway that will be used in the alternative analysis.

### 5.1.4 Initial Runway Alternative Analysis

The Consultant will evaluate runway alternative configurations based on the scoring and criteria established in **Task 5.1.2** to meet TTAD established goals. Up to five (5) runway alternatives will be considered. These alternatives are expected to be the following:

- Alternative 1 – Third Runway
- Alternative 2 – Runway 2/20 Extension and Widening (2015 AMP preferred)
- Alternative 3 – Runway 11 Displaced Threshold
- Alternative 4 – Third Runway and Runway 11 Displaced Threshold
- Alternative 5 – No Build

The intended purpose of the runway project is to enhance safety and reduce residential overflight in the vicinity of TRK. Factors to evaluate in the alternatives will be developed with the Ad Hoc committee, but may include:

- How Alternatives 1 through 4 will alter the existing runway utilization patterns.
- How the feasibility of an approach procedure from the north (and missed approach) to the third runway will affect use for this runway.

- How to encourage use on the third runway and/or Runway 2/20 and discourage use on Runway 11/29 while complying with FAA policy, which includes, but is not limited to, design standards and grant assurances.

#### 5.1.5 Runway Feasibility Working Paper Initial Draft

The Initial Draft Working Paper will document items from **Tasks 5.1.1** through **5.1.4** described above. The Initial Draft will not offer a recommendation or preferred alternative, but rather present objective analysis of each alternative. The Initial Draft Working Paper findings will be presented to the community at a meeting as described in **Task 3.1**. Up to two (2) drafts of the Initial Draft Working Paper will be reviewed prior to public meetings.

#### 5.1.6 Runway Feasibility Working Paper Final Draft

Stakeholder feedback and revised analysis will be incorporated into the Final Draft Working Paper. The Final Draft will include a recommendation and decision point for the preferred runway alternative. This Draft will be presented to the TTAD Board as part of **Task 2.3**. Up to two (2) drafts of the Final Draft Working Paper will be reviewed.

Following the completion of the Runway Feasibility Working Paper, and at direction of the TTAD Board, if the third runway is found to be feasible this will be added to the ALP and this will be submitted to the SFADO for review.

#### 5.1.7 Preliminary Environmental Roadmap

A key purpose of this AMP is to prepare TTAD for an environmental project performed pursuant to the National Environmental Policy Act of 1970, as amended. A key element of the AMP is evaluation of a potential third runway at TRK. Should TTAD decide to proceed with the third runway as a near-term capital project, then the next step after the AMP is an environmental analysis. The level of environmental analysis will ultimately be determined by the FAA and is likely to be either an environmental assessment (EA), or an environmental impact statement (EIS).

A Preliminary Environmental Roadmap will be developed to help evaluate the preferred runway alternative as part of **Task 5.1.6**. The Preliminary Roadmap will be limited to an outline of the items below.

- What level of state and federal environmental review is anticipated for this improvement?
- What potential complications may occur during this process?
- If mitigation is expected, how expensive might it be, how uncertain is the mitigation methodology, and what is the process for performing it?

**Task 5 Deliverables:** A Final Runway Feasibility Working Paper in PDF format, with material (graphics, presentations, narrative) to support alternative analysis at public meetings. The Final Working Paper will be delivered in PDF format, with up to two (2) draft reviews with TTAD. The complete Alternatives chapter will be produced as part of Phase 2 and included in the final AMP.

## **TASK 6 - NOISE ANALYSIS**

The Consultant will use the FAA Airport Environmental Design Tool Version 2d to prepare noise analysis and contours to help evaluate runway alternatives as part of **Task 5.1**.

### **6.1 Noise Analysis for Runway Alternative Analysis**

Noise analysis will be used to evaluate runway alternatives in **Task 5.1**. The Consultant will develop "Number Above" a specific noise level (to be determined during the analysis) in a regular grid format to illustrate noise impacts as determined in Screening Criteria. This will be presented in the Initial Runway Alternative Analysis.

The Number Above analysis shows the number of aircraft events above a certain decibel level on a daily basis. This is accomplished by modeling one (1) year of flight track and aircraft identification data from the existing condition and modifying that condition for the future condition using the same number of annual tracks. Typical modeling of backbone and dispersed tracks cannot provide the level of detail required for this type of grid analysis.

The five (5) alternatives will use the same year for aircraft operations, and either be calendar year 2021 or a forecast year to be determined with TTAD input during Screening Criteria (**Task 5.1.2**), using the 2021 ALP Update Forecasts for operations.

### **6.2 Updated Noise Contours**

The Consultant will prepare three (3) sets of noise exposure contours and prepare three single-page graphics with the noise exposure contours. Forecasts developed as part of the 2021 ALP Update will be used. The three noise contours will reflect operations on the preferred alternative:

- 1) Existing noise exposure contours
- 2) Forecast year noise exposure contours
- 3) Same forecast year noise exposure contours with a proposed new runway

Each noise exposure contour set will include 5-dB increment contours of 60 dB through 75 dB using the California Noise Standard metric of Community Noise Equivalent Level (CNEL).

**Task 6 Deliverables:** Materials and analysis (graphics, tables, and narrative) to support **Task 5.1**. Noise contours will be produced digitally for conversion to AutoCAD and included with the Draft ALP (**Task 8.2**).

## **TASK 7 - AIRSPACE ANALYSIS**

Airspace analysis will be used to evaluate runway alternatives in **Task 5.1**.

### **7.1 Feasibility Study of Runway 16/34**

The Consultant will develop potential Instrument Approach Procedures (IAPs) and Departure Procedures (DPs) for the third runway alternative using current Terminal Instrument Procedures (TERPS) criteria, 20:1

and 34:1 Visual Surface and Vertical Guidance Surface protected areas. This will also include feasibility for Performance Based Navigation (PBN) specifications (NavSpecs) to include RNAV and RNP. The Consultant will also evaluate the flight path impact of the initial IAP and DP designs on residential and other noise sensitive areas surrounding the Airport and document the findings in the Initial Draft Runway Feasibility Working Paper with narrative and graphics. This task also includes Instrument Flight Procedure (IFP) workspace preparation to update terrain and obstacle survey data.

## **7.2 Evaluate Alternatives Impacts to Runways 11 and 2/20**

The Consultant will assess impacts of proposed Runway 11 displacement and the proposed Runway 2/20 extension on existing IFPs, potential new IFPs, and existing infrastructure. The Consultant will offer recommendations for revised and redesigned PBN IAPs and DPs for Runway 11 and Runway 2/20 and document the findings in the Initial Draft Runway Feasibility Working Paper with narrative and graphics.

## **7.3 Identification and Refinement of Runway Alternatives**

The Consultant will identify and refine the preferred runway alternative that most closely aligns and supports the Airport's objectives. This will include evaluation of the compatibility of refined procedures in avionics systems of target aircraft representative of operators at TRK. The Consultant will finalize design and confirm criteria conformity of proposed PBN IAPs and DPs. The findings will be documented in the Final Draft Runway Feasibility Working Paper with narrative and graphics.

Compatibility of refined procedures in avionics systems of target aircraft representative of operators at TRK, along with finalization of design with criteria conformity of proposed PBN IAPs and DPs will be completed in Phase 2 for the preferred alternative runway.

**Task 7 Deliverables:** Materials and analysis (graphics, tables, and narrative) to support **Task 5.1**. The findings will be documented in a report that will be included in the Final Draft Runway Feasibility Working Paper.

## **TASK 8 - AIRPORT LAYOUT PLAN**

The ALP contains a set of drawing sheets produced in accordance with AC-13A, and guidance in 2013 ALP Review Checklist (ARP Standard Operation Procedures (SOP) No. 2.00). The ALP is not intended to provide engineering accuracy.

The Consultant will update the 2021 ALP files to reflect the current airfield conditions and data, runway and taxiway design surfaces, and future projects analyzed as part of the Plan. The 2021 ALP contains 16 sheets, which include the core ALP (Data, Building Area Plans), the Airspace Plan (Part 77 and Inner Approach Analysis, Departure Surfaces), Runway Profiles, Land Use, and a Property Map. No new sheets will be produced, unless required for airspace analysis for a new runway.

- The Consultant understands that TTAD wants to expedite ALP production and review. The ALP may be updated with the third runway, while this is being evaluated concurrently under **Task 5.1**. Once alternative evaluation and Runway Feasibility Working Paper is complete, the ALP will be ready for submittal to the SFADO.

- Other items evaluated within Phase 2 of this Master Plan (airside facilities, future property interests, and landside facilities and parking) may be added to the ALP later, with the understanding these facilities do not affect runway lengths or airspace surfaces.
- The Airspace Plan will be updated to reflect ongoing obstruction mitigation.
- No new AGIS planimetrics or base engineering files will be integrated as part of this update.
- An Exhibit 'A' Property Map will not be produced as part of this Master Plan Update.

### **8.1 Preliminary Draft ALP Update – TTAD Review**

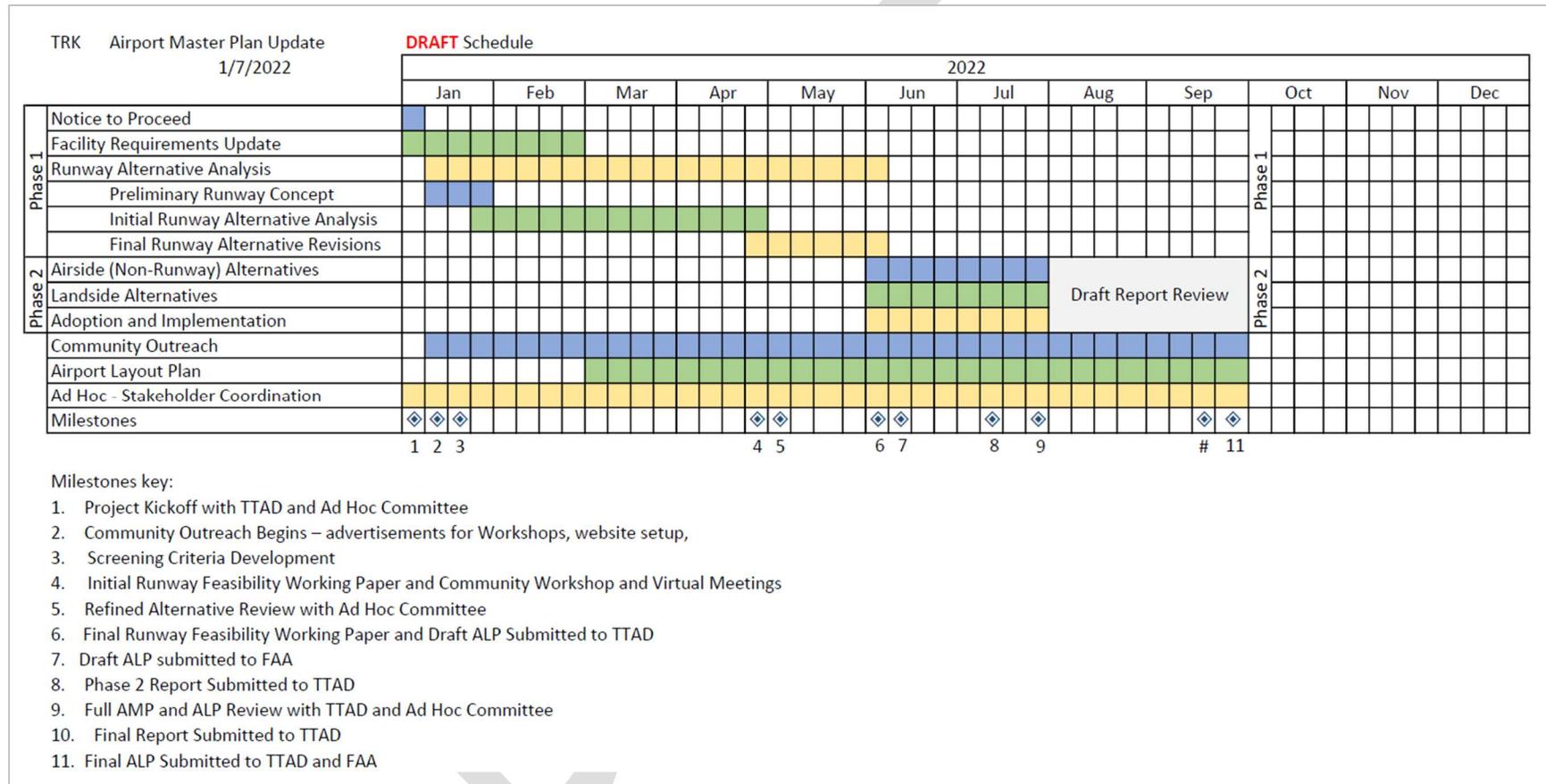
The Consultant will prepare a Preliminary Draft ALP set for TTAD review. TTAD will review the Preliminary Draft ALP set within ten (10) business days of receipt and provide comments to the Consultant. The Consultant will update the Preliminary Draft ALP based on comments from TTAD.

### **8.2 Draft ALP Update – FAA Review**

The Consultant will prepare the Draft ALP set for delivery to the FAA SFADO. The Consultant will also prepare the ALP Checklist (ARP SOP No. 2.00) with a cover letter for Draft ALP submittal. The Checklist will be used to verify the ALP set conforms to FAA content and graphical standards. The cover letter will summarize the ALP update for the FAA reviewers. The Final Runway Feasibility Working Paper will also be included with the Draft ALP to show justification for the third runway, if this is determined to be the preferred alternative.

**Task 8 Deliverables:** The ALP drawings will be prepared electronically in colored drawing format using Autodesk Civil 3D (AutoCAD, most recent version), and plotted to 24-inch by 36-inch sheet size. The ALP drawings will be converted to PDF file format for reviews and deliverables.

## PROJECT SCHEDULE



Subject to change. Phase 2 schedule to be refined during Study Design for this phase.

**DRAFT PROPOSED FEE**

| <b>Truckee Tahoe Airport District (TTAD)</b> |                        |                   |
|--|------------------------|-------------------|
| <b>Master Plan Update (Phase 1)</b>          |                        |                   |
| January 21, 2022                             |                        |                   |
| Mead & Hunt                                  |                        |                   |
| 1  | Study Design           | \$ 6,000          |
| 2  | Project Management     | \$ 36,800         |
| 3  | Stakeholder Engagement | \$ 28,400         |
| 4  | Facility Requirements  | \$ 17,200         |
| 5  | Alternatives Analysis  | \$ 86,100         |
| 6  | Noise Analysis         | \$ 80,200         |
| 7  | Airspace Analysis      | \$ 30,100         |
| 8  | Airport Layout Plan    | \$ 26,700         |
|  | <b>TOTAL</b>           | <b>\$ 311,500</b> |