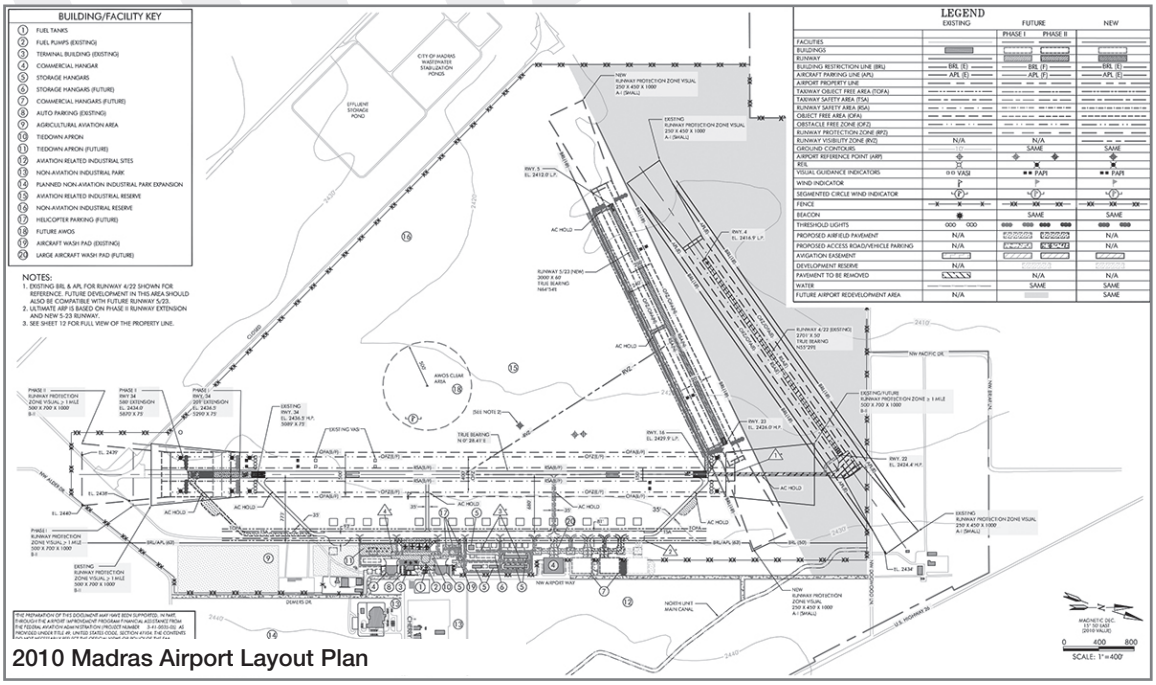
Chapter 1

Introduction

The City of Madras is preparing an Airport Master Plan Update for Madras Municipal Airport (S33) in cooperation with the Federal Aviation Administration (FAA) to address the Airport's needs for the next twenty years. The Airport Master Plan will provide specific guidance in making the improvements necessary to maintain a safe and efficient Airport that is economically, environmentally, and socially sustainable.

Study Purpose

The purpose of the Airport Master Plan is to define the current, short-term and long-term needs of the Airport through a comprehensive evaluation of facilities, conditions and FAA Airport planning and design standards. The study will also address elements of local planning (land use, transportation, environmental, economic development, etc.) that have the potential of affecting the planning, development and operation of the Airport.



2010 Madras Airport Layout Plan

Project Need

The FAA requires airports to periodically update their master plans as conditions change in order to maintain current planning. Activity at Madras Municipal Airport has diversified significantly since the last master plan to include several unique types of aircraft, in addition to its traditional general aviation, business aviation, and agricultural aviation base. The addition of transport-category jet and propeller air tankers, heavy-lift helicopters, and antique aircraft has resulted in public and private investment in new facilities and changing airport operational needs that will be addressed in the master plan.

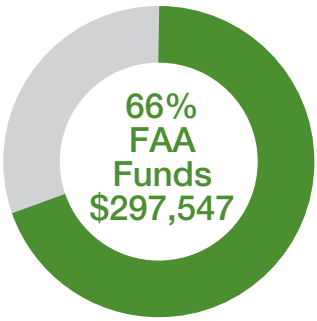
The addition of the Erickson Aircraft Collection is major Central Oregon attraction that draws visitors from around the state and beyond Oregon. The Airport also accommodates airport-compatible development of non-aeronautical facilities, including the Daimler Trucks High Desert Proving Grounds located on the west side of the airfield and several tenants in the airport's east industrial park area. In addition to contributing to increased aeronautical use, these activities have allowed the Airport to make significant contributions to the local economy by supporting employment growth and attracting visitors. Over the last twenty years, both Madras and Jefferson County have experienced growth in population that is generally consistent with Oregon's statewide rate of growth.

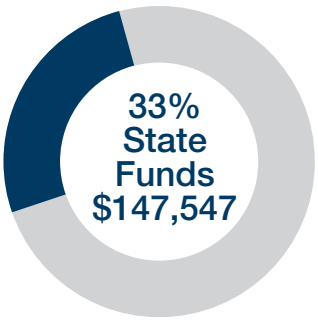
As many of the previous airport master plan recommendations have been implemented, the need now exists to update the long-term planning for the Airport and reevaluate/refresh several concepts presented in the previous master planning effort. In addition to addressing changing local conditions, updated FAA standards and current trends within the aviation industry also need to be reflected in updated airport planning.

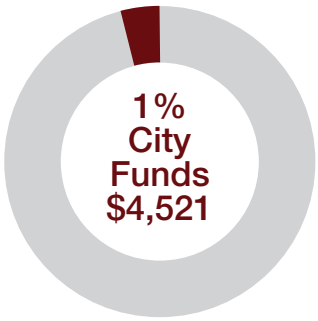
This project replaces the 2010 Airport Master Plan, which serves as primary source for inventory data. However, where available, more current or comprehensive data have been included in the report to illustrate current conditions. Existing airfield facilities were examined during on-site inspections to update facility inventory data. The consultants also worked closely with Airport staff to review the current facility and operational data maintained by the City.

Project Funding

Funding for the Airport Master Plan Update is being provided through an FAA Airport Improvement Program (AIP) grant of $297,547 (66%) and an Oregon Department of Aviation (ODA) Critical Oregon Airport Relief (COAR) grant of $147,547 (33%) with a local match of $4,521 (1%) provided by the City of Madras. The total project cost of $449,615 includes City staff administration time to support the planning process. The AIP is a dedicated fund administered by FAA with the specific purpose of maintaining and improving the nation's public use airports. The AIP is funded exclusively through fees paid by users of general aviation and commercial aviation.







Goals of the Master Plan

The primary goal of the master plan is to provide the framework and vision needed to guide future development at the Madras Municipal Airport. The FAA sets out goals and objectives each master plan should meet to ensure future development will cost-effectively satisfy aviation demand and also consider potential environmental and socioeconomic impacts.

Goal 1: Define the vision for the airport to effectively serve the community, airport users, and the region. Assess known issue including air traffic control, runway length, the ability to accommodate development, auto parking, fencing, and land use to develop a realistic sustainable plan to improve the airport.

Goal 2: Document existing activity, condition of airfield facilities, and policies that impact airport operations and development opportunities.

Goal 3: Forecast future activity based on accepted methodology.

Goal 4: Evaluate facilities and conformance with applicable local, state, and FAA standards.

Goal 5: Identify facility improvements to address conformance issues and accommodate demand.

Goal 6: Identify potential environmental and land use requirements that may impact development.

Goal 7: Explore alternatives to address facility needs. Work collaboratively with all stakeholders to develop workable solutions to address needs.

Goal 8: Develop an Airport Layout Plan to graphically depict proposed improvements consistent with FAA standards as a road map to future development. Prepare a supporting Capital Improvement Plan to summarize costs and priorities.

Goal 9: Provide recommendations to improve land use, zoning, and City/County oversight of the airport to remove barriers to appropriate growth at the airport.

Goal 10: Summarize the collective vision and plan for the airport in the Airport Master Plan report.

THE FAA ROLE IN THE AIRPORT MASTER PLAN

FAA Advisory Circular 150/5070-6B Airport Master Plans defines the specific requirements and evaluation methods established by FAA for the study. The guidance in this AC covers planning requirements for all airports, regardless of size, complexity, or role. However, each master plan study must focus on the specific needs of the airport for which a plan is being prepared.

The recommendations contained in an airport master plan represent the views, policies and development plans of the airport sponsor and do not necessarily represent the views of the FAA. Acceptance of the master plan by the FAA does not constitute a commitment on the part of the United States to participate in any development depicted in the plan, nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public law. The FAA reviews all elements of the master plan to ensure that sound planning techniques have been applied. However, the FAA only approves the Aviation Activity Forecasts and Airport Layout Plan.

Planning Process

The three phase planning process is designed to provide multiple feedback loops intended to maintain the flow of information and ideas among the community and project stakeholders and ultimately maximize public involvement.

DEVELOP UNDERSTANDING

A comprehensive understanding of the issues and opportunities, existing conditions, and an identified level of future aviation activity that would mandate facility improvements required to satisfy future demand.

Analysis

- Develop Scope of Work
- Public Involvement Strategy
- AGIS Survey
- Existing Conditions Analysis
- Aviation Activity Forecasts

Project Meetings

- Bi-Weekly Planning Team Meetings
- Project Kick-off Meeting
- Planning Advisory Committee (PAC) Meetings

Work Product

- Introduction
- Existing Conditions
- Aviation Activity Forecasts

EXPLORE SOLUTIONS

A collaborative exploration of local Airport needs, goals, and facility requirements in sequence with the development of community generated ideas, solutions, and development alternatives.

Analysis

- Define Updated Airfield Design Standards
- Perform Demand/Capacity Analysis
- Define Facility Goals and Requirements
- Identify & Prepare Development Alternatives
- Evaluate Development Alternatives

Project Meetings

- Bi-Weekly Planning Team Meetings
- Planning Advisory Committee (PAC) Meetings

Work Product

- Facility Goals & Requirements
- Airport Development Alternatives

IMPLEMENTATION

An implementation program with recommended strategies and actions for future land use, transportation, and environmental requirements; a realistic and workable CIP; and current ALP drawings that graphically depict existing conditions at the airport as well as proposed development projects.

Analysis

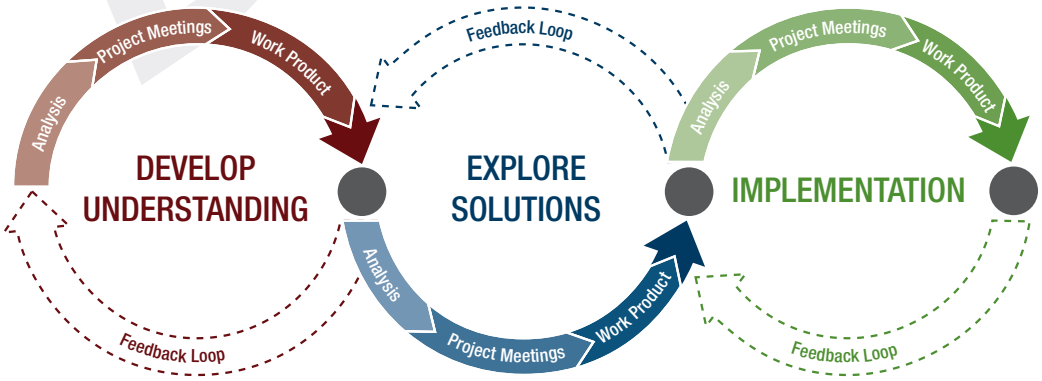
- Conduct Airport Noise Evaluation
- Develop Strategies & Actions
- Develop CIP/Phasing/Financial Plan
- Develop ALP Drawing Set

Project Meetings

- Bi-Weekly Planning Team Meetings
- Planning Advisory Committee (PAC) Meetings

Work Product

  - » Strategies & Actions
  - » Financial Plan (CIP/Phasing)
  - » ALP Drawing Set
- Draft Report
- Final Report



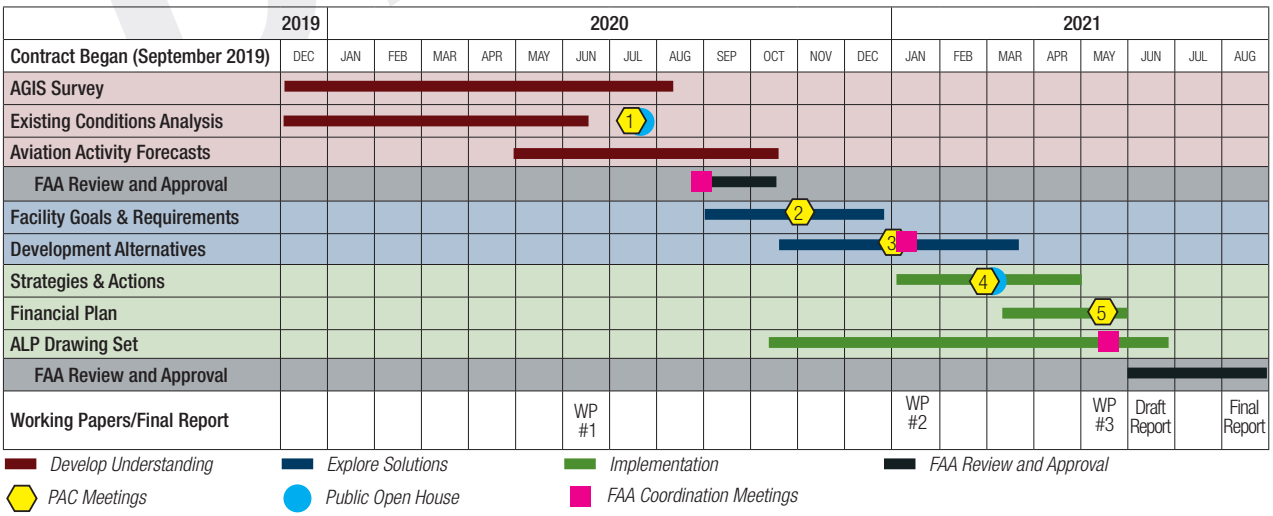
Framework of the Airport Master Plan

The framework of the Airport Master Plan provides a clear structure to inform and steer future planning decisions and serve as a tool to guide a process that allows the plan to take shape through flexibility, iteration, and adaptation. The framework is based upon an airport-urban interface model intended to analyze the regional setting of the airport, the airside and landside elements of the airport, as well as the management and administration functions associated with the airport. The framework provides guidance, while being flexible enough to adapt to changing conditions to maximize opportunities to develop understanding, explore solutions, and implement the preferred development alternatives for the Airport and adjacent urban and rural environments.

	Regional Setting	Airside Elements	Landside Elements	Airport Administration
Develop Understanding **Explore Solutions** **Implementation**	Location & Vicinity Socio-Economic Data Airport Role Airport History Area Airports Context Airport Operations Relevant Studies Environmental Data Local Surface Transportation Land Use/Zoning	Area Airspace Instrument Flight Procedures Runway/Helipad Taxiways/Taxilanes Aprons/Tiedowns Pavement Condition Airside Support Facilities	Terminal Building Hangars Airport Fencing Airport Surface Roads Vehicle Parking Utilities	Airport Ownership & Management Airport Financials Airport Rates and Charges Local Rules & Regulations Oregon Aviation Laws FAA Compliance Overview

Project Schedule

The Madras Municipal Airport Master Plan schedule is expected to occur over the course of 18- 24 months. Phase 1 - Develop Understanding will take approximately 6-7 months excluding the AGIS element, Phase 2 - Explore Solutions will take approximately 8-9 months, and Phase 3 - Implementation will take approximately 8-9 months including 3 months for FAA approvals, which can take anywhere from 3-6 months upon receipt of the final draft narrative reports and drawings. The COVID-19 pandemic impacted the original project schedule by delaying the ability to hold in-person public meetings by several months in 2020. It should be noted that FAA-funded master planning project grants cannot be amended to account for unexpected delays and the costs associated with the delays. Despite the unexpected operating constraints, efforts are being made within the project team to maintain the original completion schedule for the master plan to the greatest extent possible.



Known Issues & Opportunities

At the outset of the Airport Master Plan, several known issues and opportunities were identified by airport management, the FAA, or users of the Airport. The issues and opportunities identified below are among the focus areas that will be addressed during the master plan. The goal of this examination is to ensure a comprehensive and thorough assessment that addresses and documents proposed solutions, potential constraints, and methods of implementation.

RUNWAY 04/22 PAVEMENT CONDITION/RELOCATION

According to the 2017 Pavement Management Plan (PMP) completed by ODA, Runway 04/22's pavement condition index (PCI) was 53 indicating it is in poor condition. At this time, Runway 04/22 is not eligible for FAA funding to assist with maintenance and rehabilitation. The ongoing maintenance is completed through local funding or use of ODA's PMP funds. The current ALP depicts a relocation of the runway when it is time to reconstruct it. The relocation is necessary to remove a nonstandard in line taxiway that is used to access the runway and comply with current FAA design standards.

ALIGNED TAXIWAY (RUNWAY 22 & 34 ENDS)

Aligned taxiways connect Runway 22 end with the Runway 34 end. Current FAA guidance to airports is to eliminate these whenever possible. Ideally, taxiways are configured with 90-degree connectors to the runway, unless they high speed exit geometry is justified.

RUNWAY 16/34 LENGTH

The length of Runway 16/34 has been identified as an operational constraint for current transport category aircraft activity. Erickson Aero bases a portion of its large aerial tanker fleet, and performs regular fleet maintenance and aircraft (tanker) conversions at Madras Municipal Airport. The current length of Runway 16/34 requires a variety of "short field" techniques for both takeoff and landing, particularly for their McDonnell Douglas MD80 series aircraft. Some of the operational techniques increase wear and tear on the runway. The master plan will evaluate this facility need and address potential funding challenges for future runway extensions.

DEFINITION OF NON-AERONAUTICAL LANDS

The Airport has an extensive land area capable of accommodating a wide range of aeronautical and non-aeronautical uses. Existing non-aeronautical land uses include an industrial vehicle testing facility, a municipal wastewater treatment plan and golf course, and industrial park development. The process for FAA approval of non-aeronautical land uses was updated in the 2018 AIP Reauthorization Act. Section 163 of the Act provides guidance to simplify and streamline the FAA process to facilitate appropriate non aeronautical development while protecting the airport's primary aeronautical functions. An evaluation of aeronautical and non-aeronautical land uses will be performed as part of the master plan, and definitions will be assigned to all airport lands.

TAXIWAY GEOMETRY (RUNWAY 16 & 34 ENDS)

Taxiway A and its four connecting taxiways (A1-A4) to the runway was fully reconstructed in 2019. The project included installation of new LED taxiway edge lighting and internally illuminated signage. The two end taxiways (A1 and A4) have 45-degree connections to the runway. Current FAA guidance recommends 90-degree taxiway connections to runways. Since the FAA-funded project was just recently completed, no changes to the existing taxiway geometry are anticipated in the near term. However, the master plan will address FAA design guidance to determine if future changes in taxiway geometry are warranted.

FUTURE LANDSIDE DEVELOPMENT

The plan to relocate Runway 4/22, as identified on the current ALP, will create developable land area on the north side of the new runway to accommodate aviation related uses. The area represents a significant opportunity to accommodate future general aviation development adjacent to the new crosswind runway. Concepts for a variety of improvements including aircraft parking, t-hangars, box hangars, and buildings to accommodate aviation related businesses will be considered.

ROAD IMPROVEMENTS

Future roadway improvements will be evaluated to support proposed development including the planned extension of Berg Drive.

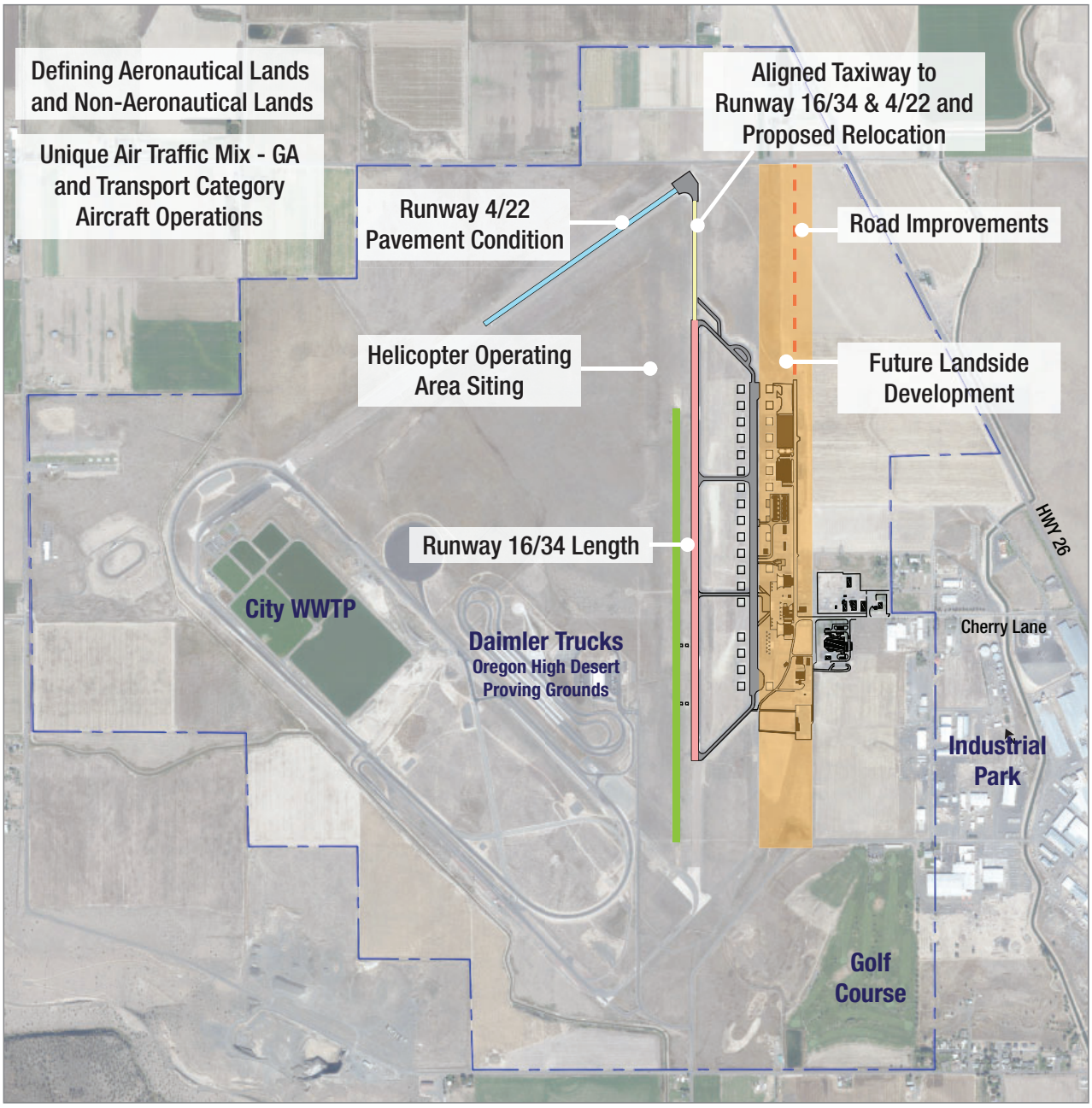
HELICOPTER OPERATING AREA SITING

During the summer fire season, the Airport is used as a staging area for large helicopters, including Boeing CH-47 (Chinook) and Kaman KMax helicopters. These helicopters produce significant FOD that interferes with the operation of other aircraft at the Airport. The construction of a helicopter operating area to separate helicopter and fixed wing operations at the Airport will be evaluated. Airport management has identified the need to better control Foreign Object Debris (FOD) created when larger helicopters utilize the apron area in close proximity to general aviation activities.

WASTE WATER TREATMENT PLAN EXPANSION

The City of Madras currently operates two wastewater treatment plants, with one located on the west side of the Airport. The airport WWTP plant site utilizes a lagoon system as part of the treatment process with land application of treated effluent applied to the nearby City-owned Desert Peaks Golf Course. The current wastewater master plan for the City includes a planned expansion of the plant that includes the construction of an additional lagoon on airport property. The proposed improvements will be evaluated based on FAA requirements for water impoundments in the vicinity of airport operations.

Known Issues



Location and Vicinity Map