

TABLE C1
Environmental Analysis Overview
Angwin Airport Feasibility Study
Napa County, California

Task	Units
<i>Initial Development</i>	
Initial airport purchase	89 acres
Fence relocation (remove from OFA)	5,000 linear feet
Grade west side	17,000 cu. yds.
Correct runway grade	25,500 cu. yds
Re-pave 600 ft. of runway	4,000 sq. yds.
Develop road access – new hangar area	5,000 sq. yds.
Develop taxiway access – new hangar area	5,000 sq. yds.
Upgrade perimeter fencing	10,000 linear feet
<i>Future Development</i>	
Grade to meet north ARC-BII RSA requirements	480,000 cu. yds.
Grade east side level with primary surface	100,000 cu. yds.
Upgrade to B-II Runway (widen to 75 ft.)	34,000 sq. yds.
Construct parallel taxiway	15,000 sq. yds.

ENVIRONMENTAL RESOURCES

Air Quality

The U.S. Environmental Protection Agency (EPA) has adopted air quality standards that specify the maximum permissible short-term and long-term concentrations of various air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of primary and secondary standards for six criteria pollutants which include: Ozone (O₃), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Nitrogen Oxide (NO), Particulate matter (PM₁₀ and PM_{2.5}), and Lead (Pb). Various levels of review apply within both NEPA and permitting requirements. Potentially significant air quality impacts, associated with an FAA project or action, would be demonstrated by the project or action exceeding one or more of the NAAQS for any of the time periods analyzed.

Additionally, the State of California Air Resources Board has adopted thresholds for ten criteria pollutants. In addition to the federal criteria pollutants, the State of California also monitors: hydrogen sulfide, sulfates, and visibility reducing particles.

Angwin Airport is located in Napa County, California which is federally designated as a marginal non-attainment area for the 8-hour ozone standard. Additionally, Napa County is located within the Bay Area Air Quality Management District and is designated nonattainment for the State of California 8-hour ozone, 1-hour ozone, and 2.5 and 10 micrometer particulate matter.

During the environmental documentation for the initial phase of the airport acquisition and development, an emissions inventory may be required to estimate the emissions generated by the airport and associated activities, including construction, automobile traffic, and fueling related to the operation of the airport. Coordination with the Bay Area Air Quality Management District may be necessary to determine if any permits or additional modeling requirements need to be satisfied for proposed projects.

Additional emissions modeling and coordination will also likely be necessary for projects beyond the initial development stage at the airport, including the north runway end grading and parallel taxiway. The transition of the airport fleet mix would be incorporated into this analysis.

Biotic Resources

Biotic resources include the various types of plants and animals that are present in a particular area. The term also applies to rivers, lakes, wetlands, forests, and other habitat types that support plants, birds, and/or fish. Concerns regarding potential impacts to biotic resources arise typically if a proposed project would impact habitat supporting floral or faunal species not commonly occurring in the affected area.

Biotic resources surrounding Angwin Airport are common to the area and consist of a mix of forested and agricultural areas. An irrigation storage reservoir is located east of the existing runway. No unique habitat types have been documented as occurring in the immediate area, according to data obtained from the California Natural Diversity Database (CNDDB).

As part of the NEPA and CEQA documentation for the acquisition of the airport and any initial development, a biological survey may be required for the entire 103 acres of the existing airport property. Field surveys are typically needed in areas which have not been previously, or recently, investigated. The survey will document existing habitat and identify sensitive biological areas, if any. The survey findings could be used to support subsequent environmental documentation for future projects.

Compatible Land Use

The compatibility of existing and planned land uses in the vicinity of an airport is typically associated with the extent of the airport's noise impacts, although attention is also given to wildlife attractants and community disruption.

Noise. The FAA adopted land use compatibility guidelines for noise when it promulgated 14 CFR Part 150 in the early 1980s. These guidelines were based on earlier studies and guidelines developed by federal agencies and are only advisory; they are not regulations. Part 150 explicitly states that determinations of noise compatibility and regulation of land use are purely local responsibilities. The Part 150 noise compatibility threshold guidelines are expressed in the Day-Night Average Noise Level (DNL). In California, the CNEL (community noise equivalent level) metric is used instead for noise level quantification. CNEL accumulates the total noise occurring during a 24-hour period, and adds a 4.77 decibel weight for noise occurring between 7:00 p.m. and 10:00 p.m. and a 10-decibel weight applied to noise occurring between 10:00 p.m. and 7:00 a.m.

From a local perspective, the Napa County Airport Land Use Commission's *Airport Land Use Compatibility Plan* (ALUCP) identifies the maximum cumulative noise exposure level for noise-sensitive land uses within the vicinity of the airport as 55 decibels CNEL.

Exhibit C4 depicts the modeled, existing (2008) noise condition at the airport. As depicted on the exhibit, the 65 CNEL noise contour remains very close to the runway. The 55 CNEL noise contour extends over the agricultural uses to the east, an industrial area to the south, and agricultural related structures to the west. A small portion of the parking area is also contained within the 55 CNEL noise contour immediately to the east of the segmented circle and windsock. No incompatible land uses are contained within the 55 or 65 CNEL noise contours.

Existing land uses around the airport consist of agricultural uses to the immediate north, east, and west. Beyond the agricultural areas to the east are undeveloped, forested areas. To the west, beyond the agricultural uses, are residential and commercial/industrial uses. Pacific Union College is located beyond the residential land uses to the south and southeast. As discussed in the previous section, an irrigation storage reservoir is located just east of the runway at approximately its midpoint.

Exhibit C5 depicts the potential long-term (2030) noise condition for the airport. This contour assumes the change in fleet mix to include more small business jet operations as well as additional single and multi-engine operations. As with the existing condition noise exposure, the 65 CNEL noise contour is primarily confined to the areas immediately surrounding the runway. The 55 CNEL noise contour expands to include additional agricultural/undeveloped areas to the east, west, and

north; the entire industrial area to the north; and approximately 17 residences to the east of the segmented circle, based on a review of aerial photography. According to FAA guidance, no incompatible land uses are located within the 65 CNEL noise contour; however, as previously stated, the Napa County ALUCP establishes a noise threshold of 55 decibels CNEL for noise-sensitive land uses. This regulation does not apply to existing land uses, but may be applicable to any planned redevelopment in the area, such as the Angwin Ecovillage. The 55 CNEL noise contour developed as part of this plan extends on to areas considered for inclusion in the Ecovillage project. It should be noted that the Napa County ALUCP noise contours reflect different assumptions and may encompass more or less land area. Any future development at the airport will be evaluated by the noise contours currently included in the Napa County ALUCP rather than those prepared as part of this study.

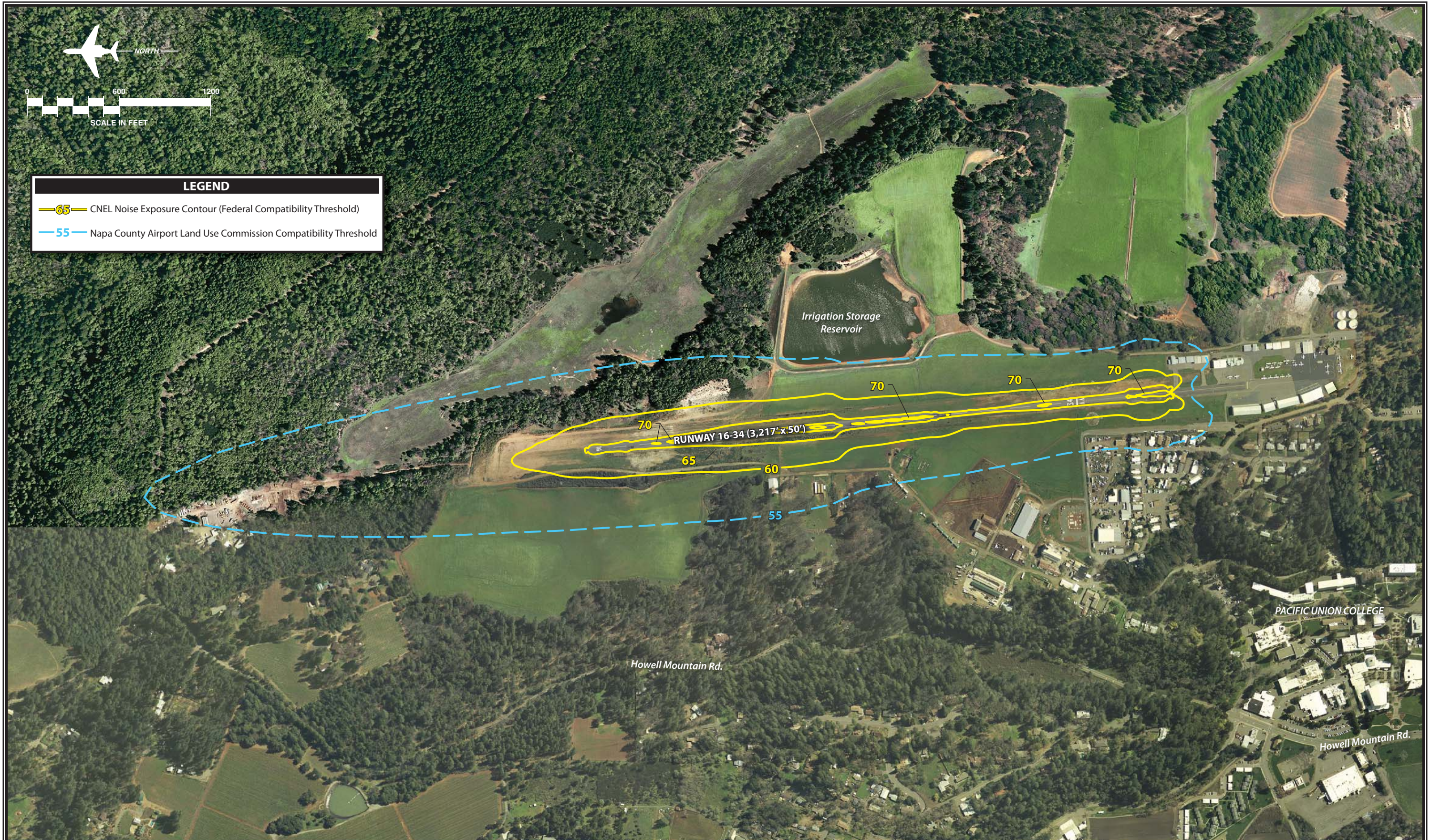
Wildlife attractants. Wildlife attractants include those land uses that bring wildlife into areas where they could prove hazardous to aircraft operations. Wildlife attractants include landfills, wastewater treatment facilities, wetlands, wildlife refuges, or any other land use that attracts wildlife. FAA AC 150/5200-33B states that the aforementioned land uses prove hazardous if they are located within:

- 5,000 feet of an airport serving piston-powered aircraft;
- 10,000 feet of an airport serving turbine-powered aircraft; and/or
- For all airports, the FAA recommends a distance of five miles between the farthest end of the airport's operating area and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the airport approach or departure airspace.

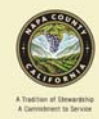
Potential wildlife attractants within the vicinity of the airport include the on-site irrigation basin and the Pacific Union College wastewater treatment plant. The treatment plant is located approximately one-half mile southwest of the airport near Howell Mountain Road. The landfill facility closest to Angwin Airport is the Clover Flat Landfill located approximately 10 miles west of the airport by road.

Construction

Grading activities at the airport may also require a grading permit from Napa County. Based on Napa County regulations, CEQA review is required for grading projects that exceed 2,000 cubic yards. Additionally, grading permits require engineering plans for projects involving more than 5,000 cubic yards. As indicated in **Table C1**, grading is planned for the initial and future development stages. The initial grading will include cutting an estimated 25,500 cubic yards, a portion of which will be used as fill on the west side of the runway. The future grading will include cutting approximately 480,000 cubic yards. Coordination with the Napa County Planning Department and Public Works Department will be necessary to



Department of Public Works

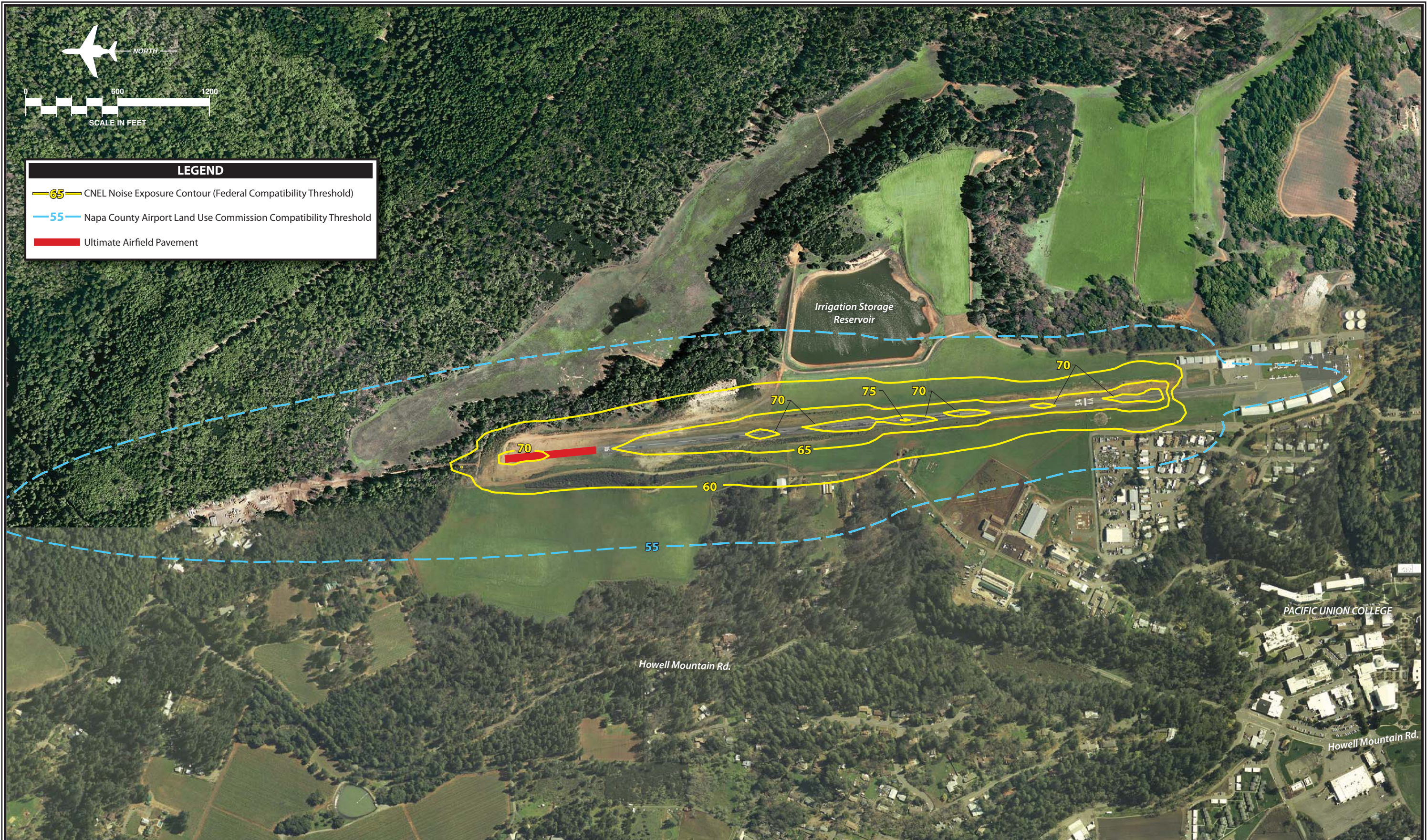


**Master Plan Feasibility
and Alternate Site Selection Study**
Angwin Airport/Parrett Field

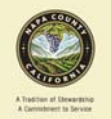


LEGEND

- 65 CNEL Noise Exposure Contour (Federal Compatibility Threshold)
- 55 Napa County Airport Land Use Commission Compatibility Threshold
- Ultimate Airfield Pavement



Department of Public Works



**Master Plan Feasibility
and Alternate Site Selection Study**
Angwin Airport/Parrett Field

determine grading permit requirements and fees. Additionally, prior to undertaking the runway grading project, coordination should be undertaken with surrounding communities to identify potential projects that may require fill dirt as potential sites for disposal of the fill surplus.

Department of Transportation Section 4(f) Resources

Section 4(f) properties include publicly owned land from a public park, recreational area, or wildlife and waterfowl refuge of national, state, or local significance; or any land from a historic site of national, state, or local significance.

Angwin Airport is located approximately one-half mile west of the Las Posadas State Forest which is used for a variety of recreational activities. Additionally, according to the Napa County General Plan, a potential trail corridor has been identified within the general vicinity of the Angwin Airport site. No wildlife or waterfowl refuges are located in proximity to either site. Further discussion regarding historic sites can be found later in this appendix. Based on the proximity of the existing and planned publicly owned parks and recreation facilities, it is not anticipated that planned improvements to Angwin Airport will affect any Section 4(f) resources.

Energy Supply and Natural Resources

In instances of major airport development projects, power companies or other suppliers of energy will need to be contacted to determine if the proposed project demands can be met by existing or planned facilities.

There are no existing powerlines near the Angwin Airport that would need to be relocated as a result of development at the airport. Increased use of energy and natural resources are anticipated as the operations at the airport grow. A number of improvements to the site would be required upon its selection to ensure the airport meets FAA design standards. It is not anticipated that development projects at Angwin Airport would result in significant increases in energy consumption.

Farmland

Under the *Farmland Protection Policy Act* (FPPA), federal agencies are directed to identify and take into account the adverse effects of federal programs on the preservation of farmland, to consider appropriate alternative actions which could lessen adverse effects, and to assure that such federal programs are, to the extent practicable, compatible with state or local government programs and policies to

protect farmland. The FPPA guidelines developed by the U.S. Department of Agriculture (USDA) apply to farmland classified as prime or unique, or of state or local importance as determined by the appropriate government agency, with concurrence by the Secretary of Agriculture.

A review of the Natural Resource Conservation Service's Web Soil Survey indicates the presence of farmlands of statewide importance within the vicinity of Angwin Airport. However, the transition of these areas to airport uses may not be considered to be an impact under the FPPA as much of this area is committed to urban uses. Further coordination with the Natural Resource Conservation Service is needed to confirm this determination.

As discussed in Chapter Four, Napa County has adopted Measure J which requires voter approval for any General Plan changes to areas designated Agricultural Resource or Agriculture Watershed and Open Space (AWOS). A review of the *Napa County General Plan* map indicates that portions of the airport, as well as parcels north, east, and northwest of Angwin Airport are designated AWOS areas. Changes to these designations to accommodate airport-related development would require approval under Measure J. Coordination with the Napa County Planning Department is necessary to determine whether Measure J is applicable to the proposed airport improvements.

Federally Listed Threatened or Endangered Species

The Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) are charged with overseeing the requirements contained within Section 7 of the *Endangered Species Act*. This Act was put into place to protect animal or plant species whose populations are threatened by human activities. Along with the FAA, the FWS and the NMFS review projects to determine if a significant impact to these protected species will result with implementation of a proposed project. Significant impacts occur when the proposed action could jeopardize the continued existence of a protected species or would result in the destruction or adverse modification of federally designated critical habitat in the area

Table C2 depicts federally listed threatened and endangered species within the St. Helena 7.5-minute quadrangle map. This map contains the airport as well as its immediate surroundings.

TABLE C2
Threatened or Endangered Species in Napa County, California
St. Helena, USGS 7.5-Minute Quadrangle

Species	Federal Status ¹	Habitat
Valley elderberry longhorn beetle	Threatened	Riparian forests associated with rivers and streams
California freshwater shrimp	Endangered	Aquatic
Delta smelt	Threatened	Aquatic
Central California coastal steelhead	Threatened	Aquatic
Central Valley steelhead	Threatened	Aquatic
Central Valley spring-run Chinook salmon	Threatened	Aquatic
Winter-run Chinook salmon	Endangered	Aquatic
California red-legged frog	Threatened	Riparian forests associated with rivers and streams, wetlands, uplands
Northern spotted owl	Threatened	Mature forests with dense canopy cover
Clara Hunt's milk-vetch	Endangered	Serpentine or volcanic clay soils in foothill grasslands or blue oak woodlands

Source: ¹ Sacramento FWS Office online species list, accessed March 2009
http://www.fws.gov/sacramento/es/spp_lists/QuickList.cfm?ID=516C

² California Natural Diversity Database RareFind, February 2009

According to the California Natural Diversity Database, there are no known occurrences of threatened or endangered species listed within the vicinity of the airport. Based on the habitat requirements listed in **Table C2**, only the northern spotted owl and the California red-legged frog have the potential to possibly occur in the vicinity of the airport. Field surveys will likely be required to determine if these species, or their habitat, or other listed species, are located within the vicinity of the airport.

Floodplains

As defined in FAA Order 1050.1E, floodplains consist of “lowland and relatively flat areas adjoining inland and coastal water including flood prone areas of offshore islands, including at a minimum, that area subject to one percent or greater chance of flooding in any given year.” Federal agencies are directed to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains. Floodplains have natural and beneficial values, such as providing ground water recharge, water quality maintenance, fish, wildlife, plants, open space, natural beauty, outdoor recreation, agriculture, and forestry. FAA Order 1050.1E (12) (c) indicates that “if the proposed action and reasonable alternatives are not within the limits of a base floodplain (100-year flood area),” that it may be assumed that there are no floodplain impacts. The limits of base floodplains are

determined by Flood Insurance Rate Maps (FIRM) prepared by the Federal Emergency Management Agency (FEMA).

According to the Federal Emergency Management Agency's FIRM number 06055C0275E, the 100-year floodplain associated with Conn Creek is located approximately one-half mile west of the airport. The Angwin Airport and its potential aviation development areas are not located within the 100-year floodplain.

Hazardous Materials

Federal, state, and local laws regulate hazardous materials' use, storage, transport, and disposal. These laws may extend to past and future landowners of properties containing these materials. In addition, disrupting sites containing hazardous materials or contaminants may cause significant impacts to soil, surface water, groundwater, air quality, and the organisms using these resources.

The EPA's *EnviroMapper for Envirofacts*¹ was consulted regarding the presence of impaired waters or regulated hazardous sites. No impaired waters or hazardous material sites are located on or in the vicinity of Angwin Airport.

Prior to acquisition of the airport property, the preparation of an environmental due diligence audit (EDDA) may be required to determine the presence of any recognized environmental conditions (RECs). An REC is defined by the American Society for Testing and Materials as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances, or petroleum products into the ground, groundwater, or surface water of a property. The EDDA could be used to supplement subsequent environmental documentation at the airport.

A construction-related National Pollutant Discharge Elimination System (NPDES) permit would be required prior to starting on-airport construction projects that disturb an area greater than one acre. The permit requires a Notice of Intent for all construction activities disturbing one or more acre of land. In conjunction with the NPDES, a storm water pollution prevention plan (SWPPP) may be required to outline the best management practices (BMPs) to be used to minimize impacts to storm water conveyance systems.

¹ <http://www.epa.gov/enviro/em ef/>, Accessed March 2009.

Historic Properties and Archaeological Resources

Determination of a project's impact to historical and cultural resources is made in compliance with the *National Historic Preservation Act (NHPA) of 1966*, as amended for federal undertakings. A historic property is defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Properties or sites having traditional religions or cultural importance to Native American Tribes may also qualify.

A review of the NRHP database indicates that no known historical or cultural resources are known to exist at Angwin Airport. However, prior to the acquisition of airport property and subsequent improvements at the site, field surveys and coordination with the California State Historic Preservation Office may be required to determine the presence of previously unidentified historic properties or archaeological resources on the airport.

Light Emissions

Airport lighting is characterized as either airfield lighting (i.e., runway, taxiway, approach and landing lights) or landside lighting (i.e., security lights, building interior lighting, parking lights, and signage). Generally, airport lighting does not result in significant impacts unless a high intensity strobe light, such as a Runway End Identifier Light (REIL), would produce glare on any adjoining site, particularly residential uses.

Future improvements at Angwin Airport may increase the amount of light emissions within the vicinity of the airport. Measures such as shielding guidance lighting so that they are only visible to pilots or using vegetative buffers could be used to reduce the effects of airport-related light emissions.

If the potential for lighting or visual impacts is determined to be associated with the planned development, consultation with local residents and the owners of light-sensitive sites may be needed to determine possible alternatives to minimize these effects without risking aviation safety or efficiency. Additional coordination with state, regional, or local art or architecture councils, tribes, or other organizations having an interest in airport-associated visual effects may be necessary.

Noise

As previously discussed, the CNEL is accepted by the FAA for use in California to assess the extent of aircraft noise within a community. Cumulative noise metrics

such as CNEL and the DNL are accepted by the FAA, EPA, and Department of Housing and Urban Development (HUD) as appropriate measures of noise exposure. These three agencies have each identified the 65 CNEL or DNL noise contour as the threshold of incompatibility; however, local jurisdictions may adopt more restrictive noise thresholds such as those included in the Napa County ALUCP. Noise exposure contours are overlaid on maps of existing and planned land uses to determine areas that may be affected by aircraft noise at or above 65 CNEL. The noise exposure contours are developed using the FAA-approved Integrated Noise Model (INM) which accepts inputs for several airport characteristics including: aircraft type, operations, flight tracks, time of day, and topography.

Exhibit C4 depicts the existing condition (2008) noise exposure contours for Angwin Airport. As shown on the exhibit, the 65 CNEL noise contour does not extend off airport property. **Exhibit C5** depicts the forecast 2030 noise exposure contours which assume the operation of the airport as a public facility and continued growth through the time period. As indicated on the exhibit, the future noise exposure contours are also not anticipated to impact noise-sensitive areas. It is not anticipated that the operation of the Angwin site as a growing airport would result in significant noise impacts.

Socioeconomic, Environmental Justice, And Children's Health and Safety Risks

Socioeconomic impacts known to result from airport improvements are often associated with relocation activities or other community disruptions, including alterations to surface transportation patterns, division or disruption of existing communities, interferences with orderly planned development, or an appreciable change in employment related to the project. Social impacts are generally evaluated based on areas of acquisition and/or areas of significant project impact, such as areas encompassed by noise levels in excess of 65 CNEL.

Significant socioeconomic impacts would result if an extensive number of residents need to be relocated and sufficient replacement housing is unavailable; if extensive relocation of businesses is required and this relocation would create a severe economic hardship for the affected communities; if disruptions of local traffic patterns would substantially reduce the level of service of the roads serving the airport and the surrounding community; or if there would be a substantial loss in the community tax base.

Acquisition of Angwin Airport would result in continuation of the existing aviation use and, potentially, an increase in the use of the facilities. The relocation of businesses or residences or disruptions in local traffic patterns would not occur.

Should the airport continue to grow, additional business may locate on-site, thereby potentially increasing tax revenues and employment opportunities.

Executive Order 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations*, and the accompanying Presidential Memorandum, and Order DOT 5610.2, *Environmental Justice*, require the FAA to provide for meaningful public involvement by minority and low-income populations, as well as analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse.

According to the EPA's *Environmental Justice Geographic Assessment Tool*², the U.S. Census Bureau block groups, including the Angwin Airport vicinity, do not contain high percentages (above 50 percent) of minority populations or high percentages of residents below the poverty level.

Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are directed to identify and assess environmental health and safety risks that may disproportionately affect children. These risks include those that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they may be exposed to.

Potential risks to children from the development at the airport could be minimized through the use of standard security measures such as fencing and locks on cabinets or structures which contain hazardous materials.

Water Quality

The *Clean Water Act* provides the authority to establish water quality standards, control discharges, develop waste treatment management plans and practices, prevent or minimize the loss of wetlands, and regulate other issues concerning water quality. Water quality concerns related to airport development most often relate to the potential for surface runoff and soil erosion, as well as the storage and handling of fuel, petroleum products, solvents, etc.

An irrigation water storage reservoir is located on the east side of Angwin Airport. A review of topographic maps and aerial photos indicates that this would not be considered a Water of the U.S. Additionally, there are no streams or washes within the vicinity of Angwin Airport that the U.S. Army Corps of Engineers could consider Waters of the United States. It is not anticipated that improvements at the site would affect any Waters of the U.S., although field investigation may be required to verify the absence of potential Waters of the U.S. This information could be used to supplement future environmental documentation for projects at the airport.

² <http://www.epa.gov/enviro/ej/>. Accessed March 2009.

During construction of any of the planned improvements at the airport, it is suggested that mitigation measures from FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control*, be incorporated into project design specifications to further mitigate potential water quality impacts. These standards include temporary measures to control water pollution, soil erosion, and siltation through the use of berms, fiber mats, gravels, mulches, slope drains, and other erosion control methods. Implementation of these measures will help to protect the on-site irrigation pond and other local water bodies and streams.

Additionally, construction activities would need to comply with Napa County's Phase II National Pollutant Discharge Elimination System (NPDES) general permit for discharge to surface waters and Napa County Construction Site Runoff Control Measures. Napa County would also need to update its NPDES Multi-Sector General Permit to include the Angwin Airport as an industrial activity site and maintain a *Stormwater Pollution Prevention Plan* (SWPPP) for the airport in accordance with EPA regulations. All future construction of the planned improvements at the airport will require subsequent updates of the airport's SWPPP and NPDES.

As previously discussed, none of the waters within the vicinity of Angwin Airport are considered impaired and, therefore, are not in violation of established water quality standards.

Wetlands

The U.S. Army Corps of Engineers regulates the discharge of dredged and/or fill material into waters of the United States, including adjacent wetlands, under Section 404 of the *Clean Water Act*. Wetlands are defined by Executive Order 11990, *Protection of Wetlands*, as those areas that are inundated by surface or groundwater with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Categories of wetlands include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, natural ponds, estuarine areas, tidal overflows, and shallow lakes and ponds with emergent vegetation. Wetlands exhibit three characteristics: hydrology, hydrophytes (plants able to tolerate various degrees of flooding or frequent saturation), and poorly drained soils.

The *Napa County Baseline Data Report* was adopted by Napa County in November 2005 to provide an overview of a variety of environmental and natural resource topics within Napa County. According to this report, there are no wetlands located within the vicinity of Angwin Airport. A biological field survey may be required to confirm these findings. If wetlands are present within the existing or future project areas, coordination with the U.S. Army Corps of Engineers may be necessary.



KANSAS CITY
(816) 524-3500

237 N.W. Blue Parkway
Suite 100
Lee's Summit, MO 64063

PHOENIX
(602) 993-6999

4835 E. Cactus Road
Suite 235
Scottsdale, AZ 85254