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## Chapter 4. Land Use

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### 4.1 Overview

This chapter describes existing and planned land uses within ARC as a whole, and in the surrounding area. It also includes a discussion of existing conditions relative to airfield land uses. Applicable regulations are discussed as well as relevant policies that address ARC's conformance with federal, state, and local land use plans and regulations. The information presented in this chapter was drawn from the November 2009 NASA ARC ERD (NASA 2009), NADP EIS (Design, Community & Environment 2002), local planning documents, and other sources.

### 4.2 Regulatory Background

#### 4.2.1 Federal Regulations

##### 4.2.1.1 *National Aeronautics and Space Administration*

###### 4.2.1.1.1 NASA Ames Development Plan

The NADP, the operative planning document for ARC, is a result of a five-year planning effort involving NASA, local cities, community groups, and planned NRP partners. The NADP provides a framework to guide the future use, renovation, management and development of facilities at ARC. It also provides for collaboration among NASA, universities, and businesses to develop a shared-use R&D campus that comprises academia, industry, and non-profit organizations.

The Final Programmatic EIS for the NADP, which NASA published in 2002, evaluated five development alternatives within four areas of ARC, including: NRP, Eastside/Airfield, Bay View, and the Ames Campus. In November 2002, NASA issued a ROD approving implementation of the Preferred Alternative (Mitigated Alternative 5). Mitigated Alternative 5 under the NADP provides for new construction of approximately 2.5 million square feet of educational, office, R&D, museum, conference center, housing and retail space in the NRP area. The NADP also included the addition of approximately 1.2 million square feet of new development (primarily housing) in the Bay View area, and approximately 500,000 square feet of new high-density office and R&D space in the Ames Campus. It was estimated that implementation of planned development activities under the NADP would generate 7,088 new employees, approximately 3,000 students, and house 4,909 residents in 1,930 housing units.

To comply with the Clean Air Act (42USC Sections 7401 et seq.), ARC maintains a Construction Emissions Mitigation Plan (CEMP) that limits construction and operational emissions from NADP development to no more than 91,000 kilograms (100 tons) each of ozone precursors per year. The CEMP also includes measures to control emissions of diesel particulate matter, which is regulated by the state as a toxic air contaminant. See Chapter 8, *Air Quality*, for more information.



#### 4.2.1.1.2 Comprehensive Use Plan

NASA's first plan for ARC after the closure of NAS Moffett Field was the Comprehensive Use Plan (CUP). The CUP and its EA were adopted as official NASA policy in 1994. They were developed by NASA in order to effectively implement the transfer of the former NAS Moffett Field, with the exception of the military housing areas, which were transferred to the DOD.

The 1994 CUP EA was approved with a mitigated Finding of No Significant Impact in 1994, and was the controlling environmental document for ARC until the ROD for the NADP EIS was signed. The CUP foresaw a program of demolition and new construction, with a total of just over 93,000 square meters (1 million square feet) of new building space across the entire base constructed over a period of 15 years. Under the CUP, the airfield was to remain restricted to government use, although operations were allowed to increase to up to 80,000 flights per year. Administrative and operational support services were to increase slightly. The largest change on the base was foreseen to be in R&D activity, with just over 79,000 square meters (800,000 square feet) of new R&D space for laboratories, wind tunnels and other related facilities. Approximately 72,000 square meters (777,000 new square feet) of building space under the CUP EA was included in the baseline for the NADP EIS, described above.

#### 4.2.1.2 Federal Aviation Administration

The airfield at ARC is owned by NASA and is currently used by NASA and CANG, with some limited use by other resident agencies and tenants. Since taking over the airfield from the Navy, NASA has primarily used the facility for Rotorcraft and transient research aircraft. ARC has applied FAA civilian standards to determine adjacent land uses and airport operating clearances for Moffett Field. The controlling documentation regarding such clearances and design criteria are based on FAA Regulations Part 77. The following regulations govern other aspects of airfield operations: Part 99, which covers security control of air traffic, and Part 150, which governs airport noise compatibility planning and contains both Noise Exposure Maps and a Noise Compatibility Program to reduce and prevent noise exposure impacts.

Part 77 addresses maximum building heights adjacent to the runways. Specifically, no obstruction may penetrate the "Transitional Surface," which is determined by calculating a slope of 7:1 extending from the edge of the "Primary Surface," which is an imaginary surface extending 152 meters (500 feet) on either side of the centerline of the runway. For example, building heights at the eastern edge of NRP Parcels 7 and 8 may not exceed 22 meters (73 feet), according to the transitional surface slope. At the western edge of the parcels, building heights may not exceed 36 meters (120 feet). Furthermore, no buildings may be constructed within the "Building Restriction Line," which is located 234 meters (769 feet) from the centerline of the runway, and the taxiway Object Free Area prohibits the placement of buildings within 59 meters (193 feet) of the taxiway centerline.

MFA generally operates in accordance with Federal Aviation Regulation Part 139, which describes the procedures, standards, equipment, facilities, and personnel at the airfield.



While MFA is not currently certified under Federal Aviation Regulation Part 139, nor is it required to be, NASA strives to meet Part 139 standards to the extent feasible and practicable.

#### **4.2.1.3 *The Coastal Zone Management Act***

The coastal zone was specifically mapped by the state legislature and covers a large area. On land, the coastal zone varies in width from several hundred feet in highly urbanized areas up to 8 kilometers (5 miles) in certain rural areas, and offshore the coastal zone includes a 4.8-mile (3-mile)-wide band of ocean. The Coastal Commission was established by the Coastal Zone Management Act (CZMA) but does not include San Francisco Bay, where development is regulated by the Bay Conservation and Development Commission (BCDC). The BCDC, in addition to the Coastal Commission, is one of California's two designated coastal management agencies for administering the federal CZMA in California.

The most significant provisions of the federal CZMA give state coastal management agencies regulatory control (federal consistency review authority) over all federal activities and federally licensed, permitted, or assisted activities, wherever they may occur (that is, landward or seaward of the respective coastal zone boundaries fixed under state law) if the activity affects coastal resources. Examples of such federal activities include outer continental shelf oil and gas leasing, exploration, and development; designation of dredge material disposal sites in the ocean; military projects at coastal locations; U.S. Army Corps of Engineers (Corps) fill permits; certain USFWS permits; national park projects; highway improvement projects assisted with federal funds; and commercial space launch projects on federal lands. Federal consistency is an important coastal management tool because it is often the only review authority over federal activities affecting coastal resources given to any state agency.

#### **4.2.1.4 *National Environmental Policy Act***

NEPA requires federal agencies to include in their decision-making process appropriate and careful consideration of all environmental effects of a proposed action and of possible alternative actions. Measures to avoid or minimize the adverse effects of proposed actions and to restore and enhance environmental quality as much as possible must be developed and discussed where feasible.

### **4.2.2 State Regulations**

#### **4.2.2.1 *McAteer-Petris Act and San Francisco Bay Plan***

BCDC is a California state agency that was established to accomplish two primary goals: first, to prevent the unnecessary filling of San Francisco Bay, and second, to increase public access to and along the Bay shoreline. The commission is responsible for carrying out the McAteer-Petris Act and the San Francisco Bay Plan (Bay Plan). These laws and plans were adopted to protect the Bay as a great natural resources for the benefit of the public and to encourage development compatible with this protection.

It is necessary to obtain BCDC approval prior to undertaking any of the following activities:



- Filling. Placing solid material, building pile-supported or cantilevered structures, disposing of material, or permanently mooring vessels in the Bay or in certain tributaries of the Bay
- Dredging. Extracting material from the Bay bottom
- Shoreline Projects. Nearly all work, including grading, on the land within 30 meters (100 feet) of the Bay shoreline
- Other Projects. Any filling, new construction, major remodeling, substantial change in use, and many land subdivisions in the Bay, along the shoreline, in salt ponds, duck hunting preserves, or other managed wetlands adjacent to the Bay

Since portions of ARC are within this area, proposed activities by NASA are referred to BCDC for consistency with the Bay Plan. The Bay Plan contains policies regarding development of the Bay coastal areas, and NASA operations are consistent with these policies. ARC has been designated as an Airport Priority Use Area by BCDC. Work within 30 meters (100 feet) south of the BCDC line or any activity that would affect the airfield priority use requires a consistency determination by BCDC.

### 4.2.3 Local Regulations

#### 4.2.3.1 Santa Clara County

##### 4.2.3.1.1 Santa Clara County General Plan and Zoning

ARC is located mostly in unincorporated Santa Clara County. The MFA and runway approach in Sunnyvale<sup>3</sup> are designated Transportation Facility in the County's General Plan and are zoned A-1, General Use. The areas west of the airfield, including the current and former military housing areas, have a General Plan land use designation of Major Public Facility and a zoning designation of A-1, General Use. All other areas on ARC's borders, with the exception of a small strip of land along ARC's southern border that is zoned CG, General Commercial, are within the urban service areas of Mountain View and Sunnyvale and are not assigned specific land use or zoning designations by the County (Santa Clara County 1994, 2012).

The Growth and Development Chapter of the General Plan contains goals, strategies, and policies that define allowable land uses and development potential for unincorporated lands in the County. Additionally, the County's updated 2009-2014 Housing Chapter, adopted in August 2010, addresses projected growth in the County's housing need and identifies the future development of housing at ARC as a potential source of housing credits to help the County meet its state-mandated regional housing allocation (Santa Clara County 2010). Other discussions and/or policies that are relevant to ARC can be found in the Transportation, Resource Conservation, and Health and Safety Chapters of the General Plan.

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<sup>3</sup> NASA owns several holes at the City of Sunnyvale Golf Course and pays the City to top trees to maintain the clear zone and support approach lighting systems to the south of the runway.



ARC is not subject to the County's land use or zoning regulations because it is a federal facility; however, it does cooperate with the County on matters of mutual concern and attempts to meet the City's guidelines and standards whenever possible.

#### 4.2.3.1.2 Santa Clara County Comprehensive Land Use Plan

The Santa Clara County Airport Land Use Commission (ALUC) is charged by the County Board of Supervisors with a variety of functions, including assisting local jurisdictions with planning for compatible land uses around airports, coordinating air transportation planning at the state, regional and local levels, and developing the countywide airport master plan.

Since ARC is a federal facility, it is not subject to the jurisdiction of the County's ALUC. Although the ALUC may regulate development adjacent to ARC, no portion of the site is within its jurisdiction.

#### 4.2.3.2 City of Mountain View

##### 4.2.3.2.1 City of Mountain View General Plan and Zoning

The City of Mountain View borders ARC to the south and west. ARC is partially within Mountain View's city limits and partially in the City's sphere of influence. For planning purposes, ARC is designated Institutional in the City's 2030 General Plan and is zoned PF, Public Facility (City of Mountain View 2012; City of Mountain View 2013a).

Areas to the west of ARC in Mountain View have General Plan designations of High Intensity Office, Regional Park, and Mobile Home Park. Zoning designations in this area include P, Planned Community/Precise Plan; A, Agriculture; R1, Single Family Residential; R2, One and Two Family Residential; R3, Multiple Family Residential; R4, High Density Residential; MM, General Industrial; and ML, Limited Industrial.

Areas to the south of ARC have General Plan land use designations of Low-, Medium-, and High-Density Residential; Neighborhood Commercial; Mixed-Use Corridor; General Mixed Use; and High -Intensity Office; Parks, Schools, and City Facilities; and Regional Park. Zoning designations in this area include P, Planned Community/Precise Plan; PF, Public facility; A, Agriculture; F, Floodplain; RMH, Mobile Home; and ML, Limited Industrial.

The Land Use and Design Element of the General Plan contains land use goals and policies, both citywide and for specific change areas, where major growth and development are expected to occur until 2030, the Plan's horizon. Additionally, the Mobility; Infrastructure and Conservation; Parks, Open Space and Community Facilities; Noise; and Public Safety Elements contain policies that are relevant to ARC.

ARC is not subject to the City's land use or zoning regulations because it is a federal facility; however, it does cooperate with the City on matters of mutual concern and attempts to meet the City's guidelines and standards whenever possible.



#### 4.2.3.2.2 North Bayshore Precise Plan

The City of Mountain View is currently in the process of developing the North Bayshore Precise Plan, which builds off of recent General Plan analysis and studies for the North Bayshore Change Area, located immediately west of ARC and north of Highway 101. The Plan includes specific land use and development standards with the objective of providing more diverse land uses; revitalizing North Shoreline Boulevard; incentivizing highly sustainable development; improving mobility; increasing economic competitiveness; and streamlining the land use administration process in the North Bayshore Area (City of Mountain View 2012).

In July 2014, Mountain View released a public draft of the Precise Plan that would add up to 3.4 million square feet of new development, concentrated in several key areas of North Bayshore. Each area would have its own character and identity, form, interface with habitat and open space, development intensity and scale, and building massing. Areas would include:

- The Gateway Area, a mixed-use center at North Shoreline Boulevard and Highway 101 that supports a broad range of uses, including entertainment, retail, office and R&D, service, and hotels.
- The Core Area, a pedestrian-oriented office/R&D area focused on Shoreline Boulevard and located near both public and private high-frequency transit that provides space for retail, services, and small start-up businesses.
- The General Area, a campus-like environment with office and R&D buildings surrounded by usable open space.
- The Edge Area, an area comprised of lower-scale office and R&D uses to serve as a transition between other character areas and sensitive habitat areas.

Buildings within the Precise Plan area would be between two and eight stories high, with floor area ratios (FARs) ranging from 0.45 to 2.35 (City of Mountain View 2014a). Adoption of the plan by the City is expected by the end of 2014 (City of Mountain View 2014b).

#### 4.2.3.3 City of Sunnyvale

##### 4.2.3.3.1 City of Sunnyvale General Plan and Zoning

The City of Sunnyvale borders ARC to the south and east. ARC is partially within the Sunnyvale's city limits and partially within the City's sphere of influence, as discussed in the City's General Plan (City of Sunnyvale 2011a). No land uses within ARC are assigned specific General Plan or zoning designations (City of Sunnyvale 2014a). Land within the Specific Plan area east of ARC has a General Plan land use designation of Moffett Park with a zoning designation of Moffett Park Industrial and Moffett Park TOD. The Sunnyvale Golf Course, south of ARC, has a General Plan land use designation of Park and a zoning designation of PF, Public Facilities.

Because Sunnyvale is under the airfield approach path for the ARC airfield, the Safety and Noise Element of the General Plan includes policies that address specific aviation hazards



and noise associated with operation of the airfield. Additionally, the Land Use and Transportation, Community Character, Housing, and Environmental Management Elements contain policies that are relevant to ARC.

ARC is not subject to the City's land use or zoning regulations because it is a federal facility; however, it does cooperate with the City on matters of mutual concern and attempts to meet the City's guidelines and standards whenever possible.

#### 4.2.3.3.2 Lockheed Site Master Use Permit

The Lockheed Site Master Use Permit was approved in 1994 and revised in 1998. The Master Use Permit functions as a Master Plan for the Lockheed Martin Missiles and Space Company's (Lockheed Martin's) industrial campus site in northern Sunnyvale. The Master Permit guides all phases of development of the existing site until 2024. The site is bounded by ARC to the west, San Francisco Bay to the north, 11<sup>th</sup> Avenue to the south, and Mathilda Avenue to the east.

The detailed site plan for the Site Master Use Permit proposes the addition of 2.9 million square feet of new building space. Office space will comprise 55 percent of new development while manufacturing buildings will comprise the other 45 percent. At total build-out, the site will have 78,200 square meters (8.4 million square feet) of building area at a floor area ratio of 0.35, the maximum allowed under the M-3 zoning designation.

#### 4.2.3.3.3 Onizuka Air Force Station Redevelopment Plan

The Onizuka Air Force Station (AFS) Redevelopment Plan, prepared by the City in December 2011, set forth the recommendations of the City of Sunnyvale's Onizuka AFS Local Redevelopment Authority for the reuse of the Onizuka AFS at North Mathilda Avenue and California Highway 237, which was closed in 2011 as part of a Defense Base Closure and Realignment Commission action (City of Sunnyvale 2011b). At the time of its closure, the 18-acre site contained 507,457 square feet of space in 33 buildings. The site is located less than ½-mile east of ARC and is immediately bounded by Innovation Way to the north and west, Highway 237 to the south, and Mathilda Avenue to the east.

#### 4.2.3.3.4 Moffett Park Specific Plan

The Moffett Park Specific Plan, adopted by the City Council on April 27, 2004 and amended in 2006, 2009, 2011, and 2013, proposes redevelopment of 24.3 million square feet of former industrial and military uses to R&D, Class "A" development, Corporate Headquarters, general industrial, and support services (City of Sunnyvale 2013). The 1,156-acre Specific Plan Area, which includes Lockheed Martin's industrial campus and the Onizuka AFS (described above) is bounded by ARC to the west, the closed Sunnyvale Landfill and the Sunnyvale Materials Recovery and Transfer Station to the north, Highway 237 to the south, and Sunnyvale Baylands Park to the east.

The Specific Plan Area is divided into three zoning subdistricts, with FARs ranging from 35% to 70%, and a development reserve. Based on FAR limitations, only 18.9 million square feet of the total is assigned to the three sub-districts, while the remaining 5.4 million



square feet is allocated to a development reserve to encourage higher intensity development of targeted uses.

#### **4.2.3.4 Midpeninsula Regional Open Space District**

The Midpeninsula Regional Open Space District (MROSD) owns the salt marsh adjacent to and northwest of ARC (Figure 1-3). This area is designated as open space for recreational use, and includes the 21-hectare (54-acre) Stevens Creek Shoreline Nature Study Area.

Conceptual plans for the area were first defined in a 1980 report commissioned by the City of Mountain View, Santa Clara Valley Water District (SCVWD), and MROSD. The report, entitled "Stevens Creek: A Plan of Opportunities," describes a basic plan for the portion of the creek adjacent to Shoreline Park and is aimed at integrating Shoreline Park with the creek and the marsh refuge of the MROSD within a uniform concept for flood protection, recreational use, and public access (Planning Collaborative, Inc. 1980).

In order to create a strong functional and physical relationship between the creek, Shoreline Park, and the MROSD's marsh preserve, the plan proposes that the linear dikes on the east and west side of the creek be breached to create a broad, common marshland restoration area. The plan acknowledges that, although breach of the east side levee would allow incorporation of the MROSD marsh refuge into the channel scheme, some flood containment to the east of the refuge may be necessary. Levees could be designed to maximize public use of the marsh refuge area.

### **4.3 Regional Setting**

Land uses in the area surrounding ARC are illustrated in Figure 4-1 (Figure 3.2-1 from the NADP EIS) and described below.

Immediately west of ARC are the former Orion Park military housing area; Stevens Creek; and a Pacific Gas & Electric (PG&E) transmission line corridor, a portion of which is subleased to a commercial tree nursery. Farther to the west is a mixture of office and light industrial buildings including existing office developments for high tech companies such as Google, Microsoft, LinkedIn, and Intuit. Some supporting commercial, retail, and entertainment services are located in the area and provide services for nearby workers. Residential use is limited, with the largest being the Santiago Villa Mobile Home Park, located across Stevens Creek from ARC (City of Mountain View 2012a).

The area east of ARC, in Sunnyvale, is characterized by industrial and office uses. Lockheed Martin's 414-acre industrial campus is directly east of ARC and flanks the majority of the airfield. It is mostly developed with office, manufacturing, and R&D buildings, including high-bay facilities. The Moffett Towers complex, which abuts the airfield at the northeast quadrant of Manila Drive and Enterprise Way, is a relatively new 1.96-million square foot office park development consisting of seven 8-story towers. Other prominent industrial/office developments in the area include the existing Yahoo Inc., Network Appliances, and Technology Corners campuses; the former Onizuka AFS (discussed above); and Juniper Networks' future 2.3-million-square-foot campus, currently under construction (City of Sunnyvale 2014b).





South of ARC, at the southwest quadrant of Highway 101 and Moffett Boulevard, is a large, undeveloped parcel that is jointly owned by the City of Mountain View and the California Department of Transportation (Caltrans) and contains a PG&E substation (City of Mountain View 2013b). Farther to the south and east, between Highway 101 and Middlefield Road, is a mix of office, light industrial, commercial, residential, educational, and park uses, including several existing large-scale office complexes along Fairchild Drive, directly across U.S. Highway 101 from ARC, which are occupied by high tech companies such as Google, Locus, and Audience. Construction of the future 385,000-square foot Samsung R&D campus is also underway near the junction of Fairchild Drive and Clyde Avenue, across U.S. Highway 101 from the ARC Airfield (City of Mountain View 2014b).

Southeast of ARC, on the south side of Highway 101, is the Sunnyvale Municipal Golf Course, which is dedicated as parkland. Fourteen hectares (35 acres) of the Sunnyvale Municipal Golf Course belongs to ARC. Surrounding the golf course is a mix of industrial land uses, including large office developments owned by high tech companies such as Apple, Hewlett Packard, and Synopsis.

Open space near ARC includes the wetlands and tidal marshes of the Don Edwards National Wildlife Refuge, MROSD Stevens Creek Nature Study Area, San Francisco Bay Trail, Stevens Creek Regional Trail, Shoreline Park at Mountain View, Sunnyvale Baylands Park, various neighborhood parks, and several private recreational areas.

## 4.4 Existing Site Conditions

### 4.4.1 Ames Research Center

ARC consists of the 752-hectare (1,857-acre) NASA-administered portion of the former NAS Moffett Field and the original NASA Ames Campus. ARC is composed of the original ARC campus, the airfield, airfield support facilities, Bay View planning area, barracks, support facilities for current and former military personnel, and open space. Portions of the former NAS Moffett Field that are not under NASA control include two DOD-administered housing areas: the Wescoat Village military housing area and the former Orion Park military housing area. The Army Reserve demolished the Orion Park housing facilities to allow for the construction of an Armed Forces Reserve Center Complex, the Army Reserve Regional Readiness Sustainment Command Headquarters, an organizational maintenance shop, two storage buildings, and a fitness center (USACE 2007).

Under the NADP, ARC has been divided into four major planning areas: the 86-hectare (213-acre) NRP, the 95-hectare (234-acre) Ames Campus, the 385-hectare (952-acre) Eastside/Airfield, and the 38-hectare (95-acre) Bay View area. The remaining 144 hectares (357 acres) of NASA-administered land consists of wetlands areas along the northern boundary of ARC. Figure 4-1 shows the land uses within ARC.

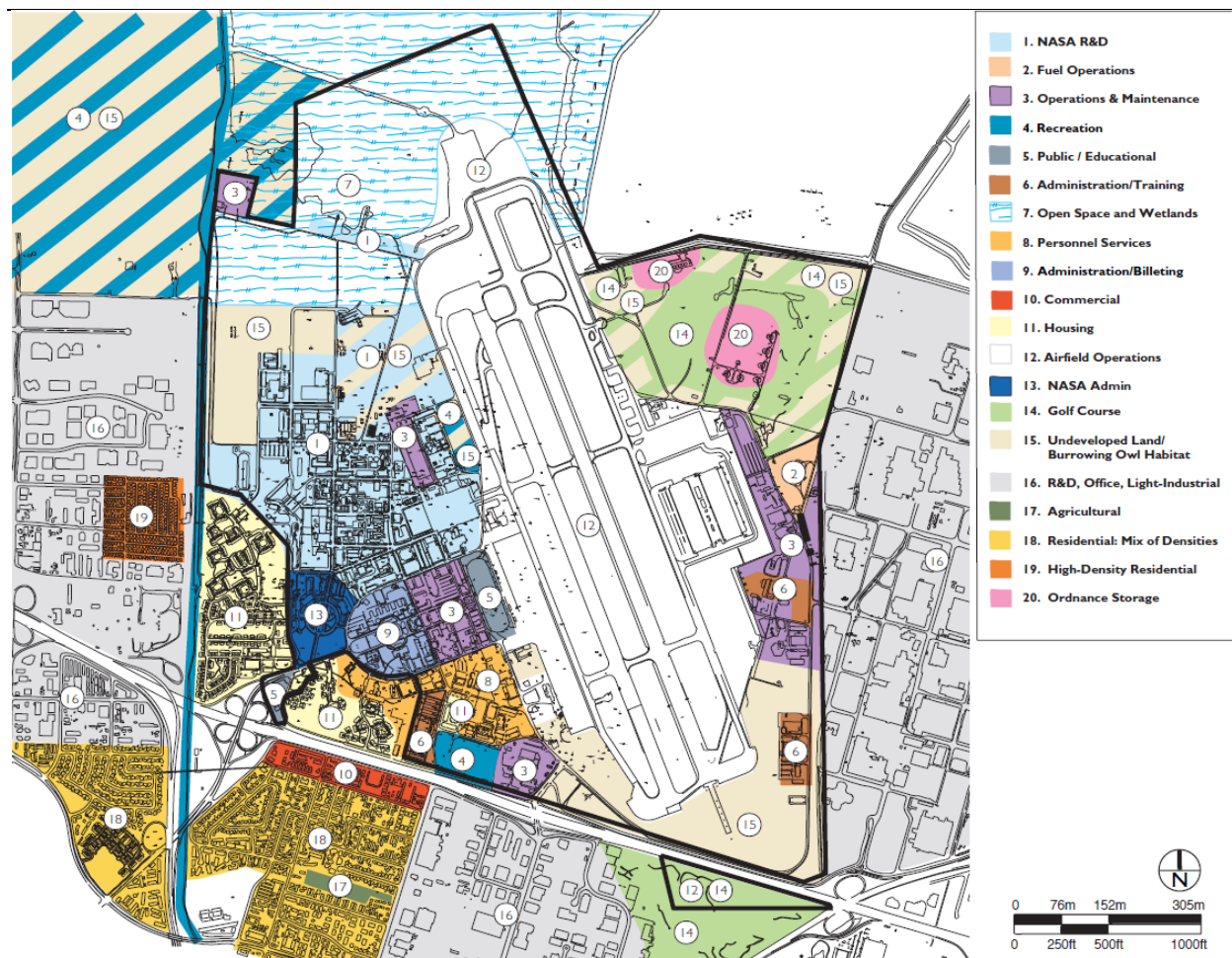


Figure 4-1. Existing Land Use

(Source: NASA 2009)

#### 4.4.2 NASA Research Park

The NRP consists of 86 hectares (213 acres) of land on the southwest edge of ARC. This area includes 29 hectares (72 acres) of the Shenandoah Plaza National Historic District, which is the entire Historic District under NASA control except for Hangars 2 and 3, which are in the Eastside/Airfield area. The NRP area lies adjacent to the Ames Campus and Eastside/Airfield areas. Current uses include office, R&D, education, retail, business services, barracks, vehicle maintenance facilities, airfield operations, and storage. There are also 9 hectares (22 acres) of burrowing owl habitat adjacent to the airfield have been designated as a preserve. There are approximately 5.6 hectares (14 acres) of active open space.

#### 4.4.3 Ames Campus

The Ames campus area encompasses 95 hectares (234 acres) in the northwest portion of ARC. The Ames campus area contains 40 major technical facilities and laboratories, and 48



other major supporting and administrative buildings and structures. Current programs of the Ames campus are directed toward research and development in exploration, life and space sciences, and information technology and aeronautics.

#### 4.4.4 Eastside/Airfield

The Eastside/Airfield area consists of 385 hectares (952 acres) on the east side of ARC. The primary land use in the Eastside/Airfield area is the runway, which is currently utilized by CANG, ARC aircraft, and aircraft from other federal agencies, partners, and tenants. Hangars 2 and 3, which are part of the Shenandoah Plaza National Historic District, are in this area.

In recent years, most of the development activity in the Eastside/Airfield has involved construction of new facilities or consolidation of existing facilities on CANG's property. CANG completed construction of its 70,000-square-foot hangar (Building 662) in 2002 as part of its Short Range Master Plan. In 2009, the National Guard Bureau prepared an EA and Finding of No Significant Impact to evaluate their "Proposed Long-Term Lease and Installation Development Plan for the 129<sup>th</sup> Rescue Wing," under which several construction and demolition projects were needed to provide secure access, consolidate facilities, and ensure that existing facilities comply with Air National Guard space requirements (National Guard Bureau 2009). Several of the projects planned under the 2009 EA have been implemented or are currently under construction, including demolition of Buildings 664, 665, and 669, and construction of a new main entrance, para-rescue facility, training tower, and squadron operations building.

In October 2014, NASA entered into an Adaptive Reuse Lease with PV, to lease approximately 1,000 acres of land area in the Eastside/Airfield area and portions of the NRP area, which includes the following buildings and facilities: Hangar 1, Hangar 2, Hangar 3, Building 158 (Air Operations Building), MFA, and the Moffett Field Golf Course. The lease provides for PV's use of Hangars 1, 2, and 3 for R&D while granting them limited use, operation, and maintenance of the airfield and golf course. Under the terms the lease, PV also has the right to construct a new 90,000-square foot educational facility, provided it does not interfere with the airfield and golf course operations, is consistent with the ARC's Security Plan, and complies with applicable laws.

PV's concept for these facilities prioritizes their rehabilitation and reuse in a manner consistent with their historic character and is anticipated to comply with the requirements of NEPA and the NADP EIS.

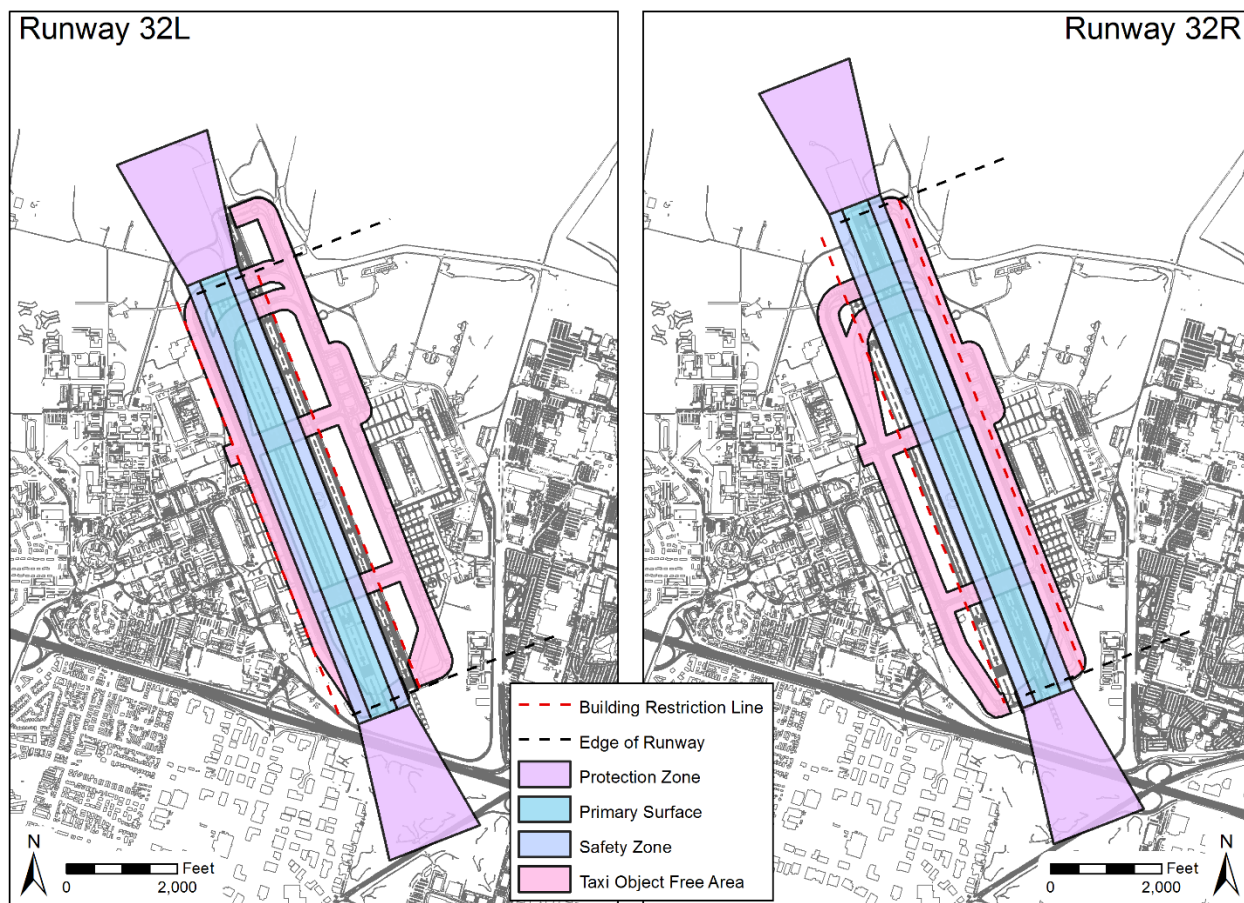
#### 4.4.5 Bay View

The Bay View area is a 38-hectare (95-acre) site immediately north of the original ARC campus. Most of the land in the eastern portion of the planning area is comprised of undeveloped upland grassland supporting a few research facilities such as the OARF. On the western side of the planning area, approximately 42 acres of leased property in Bay View Parcels 1, 2, and 4 is currently under development for Google's Bay View campus. The property is under lease to PV, a wholly-owned subsidiary of Google, pursuant to a 2008 Enhanced Use Lease between PV and NASA. Development of the Bay View area was evaluated in the NADP EIS, for which a ROD was signed in November 2002.



#### 4.4.6 Airfield Operations

Due to the nature of operations at the airfield, there are several areas that are designated as safety clearance zones based on the criteria established under FAA Regulation Part 77. These areas, shown in Figures 4-2, delineate areas on the ground that must be kept clear of structures or any other obstruction.



**Figure 4-2. Minimum Operating Clearances Runway 32 Left and Right**

(Source: NASA 2009)

MFA currently operates in accordance with these regulations, with the exception of Hangars 1, 2, and 3. Hangars 1 and 2 are considered to be “fundamental discrepancies” because they exceed the Transitional Surface slope (as described in the *Federal Regulations* section above), but because they predate existing federal regulations, and because they are part of the Shenandoah Plaza Historic District (see Chapter 7, *Cultural Resources*), NASA has no plans to correct these violations at the present time. ARC has received a temporary waiver from NASA Headquarters regarding these conditions. Hangar 1 is currently closed to address contamination associated with the Hangar 1 siding.



As part of the MFA Lease, discussed above, PV is responsible for providing a qualified operator to manage the airfield. The lease includes also rights to a portion of the NASA's annually allowable flights and responsibilities for rehabilitating the hangars.

#### 4.4.7 Areas with Safety Clearance Zones

These areas include the following:

- **Outdoor Aerodynamic Research Facility.** Aerodynamic testing of experimental aircraft is conducted on OARF's suspended platform. OARF is surrounded by a 76 meter (250 foot) Primary Exclusion Zone, a 229 meter (750 foot) Primary Clearance Zone, and a 457 meter (1,500 foot) Secondary Safety Zone. When operational, activities within the Primary Exclusion Zone require safety clearance due to elevated noise levels and the potential for projectiles. The Primary Clearance Zone defines the area in which non-aerodynamic fragments from a damaged test vehicle would likely land. A 457 meter (1,500 foot) Secondary Safety Zone delineates the area within which aerodynamic fragments (i.e., parts of the aircraft itself) or complete test vehicles would likely land due to an accident. Although unlikely, projectiles may travel beyond these zone boundaries during an accident.
- **Low-Altitude Testing.** NASA also performs low-altitude test flights and helicopter tests above the northern portion of the site (within the boundaries of ARC). These operations are occasional and carefully monitored.
- **Ordnance and Weapons Storage.** Storage occurs near the northern perimeter on the northeast side of the runway. Due to the nature of explosives, stringent safety zones have been established around the ordnance bunkers in accordance with U.S. Air Force regulations. CANG and other resident agencies actively use the bunkers. CANG ensures full regulatory compliance. The need for secure ordnance and weapons storage areas has significantly increased in the Bay Area because of numerous base closures. Hence, this land use continues at ARC.
- **Magnetic Test Facility.** Testing in this facility requires a magnetic field-free environment. The facility, however, does not generate magnetic fields itself and is not considered a safety threat.
- **Moffett Federal Airfield.** NASA is responsible for managing the emergency services at MFA, including emergency/disaster preparedness. Operational responsibility for these services is the responsibility of the 129th Rescue Wing of CANG. The MFA Fire Chief oversees all aspects of fire protection, including crash, fire, rescue, and structural fire aspects of fire services.

#### 4.4.8 Encroachment

Encroachment is the cumulative impact of pressures placed on NASA's infrastructure, centers, facilities, and the surrounding communities and environmental controls resulting from: site specific development and urbanization; increasing regulatory requirements and community interests; competition for resources, such as air, land, water, energy, radio



spectrum, and outer space; and rising costs of energy and other resources across the Agency. These pressures are a key risk facing NASA's institutional base and can constrain the Agency's ability to execute its mission effectively (NASA 2010).

Encroachment risks to ARC's operations and mission include, but are not limited to:

- New land uses that would interfere with airfield safety clearances established by federal regulations, would be adversely affected by the noise generated by the airfield or other operations, or both
- Land area loss within ARC due to new development
- Continued development on ARC's borders
- Cumulative pressures on drinking water supply, energy, and wastewater treatment
- Changes in the severity of flooding or salt water intrusion
- Spread of environmental contamination
- Wildlife and habitat changes

## 4.5 Environmental Requirements

NASA has identified the following environmental policies that address ARC's conformance with federal, state, and local land use plans and regulations.

### 4.5.1 NASA Procedural Directive 8500.1, NASA Environmental Management

Per NPD 8500.1, it is NASA policy to: maintain compliance with all applicable federal, state, and local environmental requirements; to incorporate environmental risk reduction and sustainable practices to the extent practicable throughout NASA's programs, projects, and activities; and to consider environmental factors throughout the life cycle of programs, projects, and activities (as defined in NPD 7120.4, *NASA Engineering and Program/Project Management Policy*, and related documents), including planning, development, execution, and disposition activities. Examples of environmental factors include consideration of environmental impacts as required by the NEPA and NHPA; the proposed use of hazardous materials; the potential for waste generation; the need to acquire necessary permits, waivers, and authorizations; and the use of environmentally-preferable materials and processes wherever practicable.

### 4.5.2 NASA Procedural Requirements 8553.1, NASA Environmental Management System

NPR 8553.1 sets forth requirements for the NASA Environmental Management System (EMS), which functions primarily to: (1) incorporate people, procedures, and work practices into a formal structure to ensure that the important environmental impacts of the organization are identified and addressed; (2) promote continual improvement, including periodically evaluating environmental performance; (3) involve all members of the organization, as appropriate; and (4) actively involve senior management in support of the EMS.



Agencywide, the EMS employs a standardized approach to managing environmental activities that allows for efficient, prioritized system execution, while at the same time helping to improve environmental performance and to maintain compliance with applicable environmental regulations and requirements. NASA's EMS approach involves identifying all activities, products, and services under each NASA center's control, and the environmental aspects associated with each centers' continued engagement in those activities, products, and services. Once identified, priority environmental aspects are assigned a risk ranking (from 1 to 4, based on its severity and frequency of occurrence) and are evaluated on a continual basis as means of highlighting associated positive or negative impacts and setting objectives and targets to reduce environmental risk. Each center's EMS also identifies methods for ensuring compliance by keeping abreast of environmental requirements. This includes requirements by law (EOs, federal regulations, state and local laws) and voluntary commitments made by the center or NASA.

#### **4.5.3 Ames Procedural Requirements 8500.1, Ames Environmental Procedural Requirements**

APR 8500.1 sets forth general procedural requirements to ensure compliance with applicable federal, state, and local environmental laws; regulations and EOs; and NASA policies and procedures. Organizational directors, division chiefs, branch chiefs, section heads, supervisors, managers, and CORs are responsible for planning, designing, constructing, managing, operating, and maintaining facilities in conformance with applicable regulatory directives, and should obtain environmental review from the Environmental Management Division early in project planning consistent with NASA's NEPA implementing procedures (NPR 8580.1 and EO 12114), NASA policies and procedures for programs and projects (NPR 7120), and NASA regulations related to environmental quality (14 CFR 1216). Program and project managers should coordinate with the Environmental Management Division in a timely manner to ensure that any new or modified programs, projects, and activities comply with regulatory requirements.

#### **4.5.4 Ames Procedural Requirements 8553.1, Ames Environmental Management System**

APR 8553.1 sets forth requirements for the Center-level EMS in accordance with NPR 8553.1B, *NASA Environmental Management Systems*. The ARC EMS also includes consideration of the findings of NASA Headquarters' triennial (3-year) Environmental Functional Review and other external EMS audits, as required.

Under the ARC EMS, the Center conducts an annual risk analysis across Center activities to determine which of 16 environmental aspects are of high or medium priority. The Center then identifies objectives (goals) and targets and develops action plans known as Environmental Management Plans to reduce identified risks. Currently, the high- and medium-priority environmental aspects of Center business activities are *Air Emissions*, *Hazardous Material Management*, *Water and Energy Conservation*, and *Other Sustainability Practices*. Objectives associated with these high- and medium-priority environmental aspects include:



- Reducing air (including greenhouse gas [GHG]) emissions through energy efficiency
- Improving hazardous material management
- Improving energy and water efficiency
- Providing for the integration of other sustainability practices into Center activities

#### 4.5.5 **Ames Policy Directive 8822.1, NASA Research Park Design Review Program**

APD 8822.1 establishes specific policies, responsibilities, and procedures for the Design Review Program for all proposed projects within the NRP and Bay View areas. New development projects in the NRP and Bay View areas should be coordinated through the NRP Design Review process during conceptual design (before building design or prior to 50 percent completion of the schematic design phase) to ensure that they meet all applicable land use and design requirements. Completion of an Environmental Checklist in coordination with the Environmental Management Division is also required during Design Review, as it will determine if additional environmental studies or approvals will be required before proceeding with the project.

#### 4.5.6 **Ames Procedural Directive 8829.1, NASA Ames Construction Permits**

APD 8829.1 establishes Ames-specific policies and responsibilities for construction activities at ARC. All construction work at ARC is reviewed in accordance with the Construction Permit Process (see APR 8829.1). Construction permits must be obtained prior to the commencement of the construction, modification, demolition, replacement, or new construction of any building, temporary structure, site utility, electrical or mechanical system, life safety alarm system, physical security system, or fire suppression system. The Environmental Management Division, for its part, reviews all preliminary plans submitted for construction permit approval. This ensures that all permitted work will be designed, performed, and constructed in accordance with applicable environmental requirements.

For NRP projects, the project proponent must first engage in the the NRP Design Review process (described above) and obtain approval from the NRP Design Review Board before applying for a construction permit. These planning review and approval procedures ensure consistency with Ames Master Planning and compatibility with other planned work as well as project definition and readiness.

#### 4.5.7 **Ames Environmental Work Instructions**

Ames's EWIs, which replace the previous Ames Environmental Handbook (APR 8800.3), set forth requirements to ensure that programs, projects, and activities at ARC comply with applicable federal, state, and local laws; regulations and EOs; and NASA policies and procedures. Each EWI lists relevant regulatory authorities and documents, assigns individual and organizational responsibilities within ARC, and identifies specific requirements applicable to the work being performed.

EWIs relevant to land development at ARC and compliance with applicable land use plans and regulations include, but are not limited to:





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- EWI 2-4, Wetlands and Flood Plains (Under review)
  - EWI 8, Restoration
  - EWI 12, Public Involvement
  - EWI 15, Wildlife (Under review)
  - EWI 16, Cultural Resources Management (Under review)
  - EWI 14, NEPA and Environmental Justice
  - EWI 18, Environmental Requirements for Construction Projects (Under review)