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Project name:
Building N204A Window Replacement Project

Project reference:
6067336

From:
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Date:
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Memo

Subject: Section 106 Consultation on Building N204A Window Replacement Project, NASA Ames Research Center, Moffett Field, Santa Clara County, California (NASA_2021_0525_001) – NACA Ames Historic District Evaluation

1. Introduction

The National Aeronautics and Space Administration (NASA) Ames Research Center (ARC) proposes the Building N204A Window Replacement Project (project or undertaking) at ARC, Moffett Field, Santa Clara County, California. As the lead federal agency, NASA is responsible for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (54 United States Code 300101 et seq.), which requires federal agencies to take into account the effects of their activities and programs on historic properties, and its implementing regulations in 36 Code of Federal Regulations (CFR) Part (§) 800. The project consists of replacing multiple windows in Building N204A due to very poor condition and the potential hazard of falling glass during a seismic event.

NASA ARC initiated Section 106 consultation with a letter to the State Historic Preservation Officer (SHPO) dated May 25, 2021, to which the SHPO responded with a request for additional information in a letter dated July 16, 2021, pertaining to the eligibility of resources in the Area of Potential Effects (APE) for the undertaking. Specifically, the SHPO requested evaluation of a previously identified but undefined potential historic district that could encompass with the APE. The purpose of this memorandum is to provide the additional information requested by the SHPO for compliance with Section 106, including a revised APE map and an evaluation of National Register of Historic Places (NRHP) eligibility of the potential historic district. Based on additional research and survey, AECOM identified the potential National Advisory Committee for Aeronautics (NACA) Ames Historic District (NACA District). This memorandum also includes an expanded effects assessment to consider potential project effects on the potential NACA District.

1.1 Project Location

Building N204A is located within the NASA Ames Research Park at ARC, Moffett Field, Santa Clara County, California (Attachment A; Figures 1 and 2). The building is connected to Building N206A, which is west of Building N206, the 12-ft. Pressure Wind Tunnel on the south side of King Street.

1.2 Project Personnel

This study was conducted by cultural resources professionals who meet the Secretary of the Interior's Professional Qualifications Standards in History and Architectural History (48 Federal Register 44738). Trina Meiser, M.A., Senior Architectural Historian, served as the Principal Investigator and conducted an intensive survey of the project area on November 29 and 30 and December 1, 2021. Senior Architectural Historian Chandra Miller, M.A., developed the historical context and evaluation of the historic district; Tim Wolfe created figures for the report; and Leah Moradi, M.A., RPA, and Monica Wilson, M.A., assisted with the creation of the Department of Parks and Recreation (DPR) 523 forms. Kirsten Johnson, M.A., provided senior review of this report.

2. Description of the Undertaking

The project involves the replacement of windows in Building N204A, which is considered an undertaking per 36 CFR § 800.3(a). The purpose of the undertaking is to improve seismic risk in Building N204A (**Photograph 1**). The need for the undertaking is to improve facilities to full operational capability. The project will replace nine existing windows on the west wall (**Photograph 2**) and replace or infill one window on the south wall (**Photograph 3**) (10 windows total). The existing windows are original wood-framed industrial windows in a three-row by four-column configuration of three-pane awning sash (**Photograph 4**). The replacement windows are aluminum-framed industrial windows with the same configuration and tempered glass panes. Some replacement panes will use black tempered glass to block light for interior usage requirements. In addition, lead-based paint abatement surrounding the windows may be necessary. Select project drawings are provided in Attachment B.



Photograph 1. Building N204A (Building N206A at left), view facing southeast.



Photograph 2. Building N204A, view facing northeast.



Photograph 3. Detail of window to be replaced or infilled, Building N204A, view facing northwest.



Photograph 4. Detail of typical wood-framed window to be replaced, Building N204A, view facing east.

3. Area of Potential Effects

The APE was defined to address both direct and indirect impacts on historic properties. Project activities are limited to window replacement, which is unlikely to have indirect impacts on historic properties beyond Building N204A's immediate vicinity. Exterior alterations are relatively minor due to the orientation and scale of the visible changes; therefore, the APE includes the project area (Building N204A) and Buildings N203, N204, N205, and N206A to address potential visual and/or atmospheric intrusions related to the exterior alterations (Attachment A; Figure 3). The SHPO indicated that the APE was sufficient for this undertaking in the letter dated July 16, 2021. The APE has been updated to illustrate the NACA District; although the entire proposed district boundary is not encompassed in the APE, its entirety is considered an affected historic property in the APE.

4. Identification of Historic Properties

Historic properties are defined as any district, site, building, structure, or object that is included in or is eligible for listing in the NRHP. The following sections address the methodology and efforts to identify historic properties in the APE. No ground disturbance is included in the project scope of work, and no potential effects on archaeological resources are anticipated.

4.1 Architectural Resources

The APE has been previously studied for cultural resources. Five buildings are in the APE: N203, N204, N204A, N205, and N206A. Each building was previously surveyed and evaluated for eligibility for listing in the NRHP and recorded on DPR 523 forms. None of the buildings met the NRHP criteria as individually eligible historic properties. AECOM revisited the buildings on May 20, 2021, to observe the existing conditions and determine if any alterations had occurred since the previous recording. No major alterations were observed. At the time of the initial survey, no historic district had been identified and evaluated, and it seemed beyond the scope of the evaluation to assess a potential historic district.

In support of continuing Section 106 consultation, AECOM conducted additional survey of the APE and surrounding area from November 29 through December 1, 2021, to observe and document common architectural and development themes for a potential historic district. The survey identified a concentration of 14 buildings that constitute a potential historic district based on the cohesion of their architectural design and development. AECOM delineated a boundary for the NACA District to encompass the 14 contributors and the three non-contributors that are interspersed among the contributors (Table 1) (Attachment A; Figure 4). Five contributing buildings are already listed in the NRHP, including N200 (individually listed), and N215, N220, and N226 (contributors to the Ames Wind Tunnel Historic District). AECOM prepared DPR 523 forms for the NACA District, including Primary and District Record forms for the NACA District and Primary and Building, Structure, Object (BSO) forms for the contributors and non-contributors (Attachment C).

Table 1. Contributors to the NACA Ames Historic District

Resource	Date	Eligibility Status
N200*	1943	Contributor to NACA District; individually listed in the NRHP
N201	1944	Contributor to NACA District
N202	1950	Contributor to NACA District
N203	1942	Contributor to NACA District
N204A	1955	Contributor to NACA District
N206A	1946	Contributor to NACA District
N207	1946	Contributor to NACA District
N207A	1949	Non-contributing to NACA District
N210	1941	Contributor to NACA District
N211	1945	Contributor to NACA District
N212	1950	Contributor to NACA District
N213	1950/1965	Non-contributing to NACA District
N215*	1941	Contributor to NACA District; listed in NRHP as a contributor to Ames Wind Tunnel Historic District
N219	1940	Contributor to NACA District
N220*	1940	Contributor to NACA District; listed in NRHP as a contributor to Ames Wind Tunnel Historic District
N226*	1946	Contributor to NACA District; listed in NRHP as a contributor to Ames Wind Tunnel Historic District
N235	1964	Non-contributing to NACA District

Note: *Previously listed in National Register of Historic Places (NRHP)

AECOM conducted additional fieldwork and research to evaluate the potential NACA District from November 2021 through February 2022. Research focused on the history of the NACA; development of the NACA Ames Aeronautical Laboratory; and the design, planning, and long-range construction program of the campus and its architecture under Engineer-in-Chief/Director Smith J. DeFrance. Two important sources of historical information referenced include *Adventures in Research: A History of Ames Research Center 1940-1965* (Hartman 1970) and *Searching the Horizon: A History of the Ames Research Center 1940-1976* (Muenger 1985). Based on these sources and additional research, AECOM developed the historical contexts and themes for the NACA period of development at Ames Campus for the evaluation of the potential NACA District.

4.1.1 Historical Context

The NACA Ames Aeronautical Laboratory (NACA Ames) at Sunnyvale was the second aeronautical laboratory established in the United States and the first West Coast facility. The following historical context describes the

development of the facility from its establishment in 1939, to 1958, when the NACA laboratory became part of NASA.

4.1.1.1 Funding for NACA Ames

The federal government established NACA in 1915, and two years later, NACA developed its first research facility at the Langley Memorial Aeronautical Laboratory (NACA Langley) in Virginia. Between its establishment in 1917 and the early 1930s, the development of advanced research facilities at NACA Langley brought the United States into the forefront of aeronautical research. However, by the mid-1930s, construction of aeronautical facilities in Europe, particularly those in Germany under the leadership of Adolf Hitler, were worrisome to leadership in NACA (Hartman 1970:5).

In 1938, NACA formed a Special Committee on the Relations of NACA to the National Defense in Time of War and suggested a West Coast or an interior United States research center to support NACA Langley, which was limited in its expansion capabilities with power and land shortages. The Special Committee recommended that a major NACA aeronautical research station be established in Sunnyvale, California, adjacent to Naval Air Station Moffett Field, to rival the scientific challenge that Germany posed. The Special Committee stated, "...the United States must more than redouble its efforts and the NACA should be authorized to establish without delay a second research center and to proceed immediately with the construction of the most advanced wind tunnels and other aeronautical research equipment" (Hartman 1970:9).

NACA's initial request to the Bureau of the Budget for \$11 million of federal funds to develop a new West Coast research center was reduced to \$10 million when sent to Congress in 1939. However, when the budget came up for consideration by the House Appropriations Committee, funding of the new Sunnyvale research center was denied (Hartman 1970:11–12). General Arnold of the U.S. Army Air Force and Admiral Cook of the Navy, who were well aware that their branches of the military were dependent on NACA research to improve the performance of their aircraft, urged Dr. J.S. Ames, who was ill and at the end of his life, to implore the Senate and Congress to restore the funding because "the Sunnyvale research project is emergency in character and of vital importance to the success of our whole program of strengthening the defense of the United States" (Hartman 1970:12).

The Senate Appropriation Subcommittee, which consisted largely of easterners and Virginians, again denied funds for a West Coast NACA facility in California. However, Senator Hiram Johnson of California and other senators sympathetic to NACA's needs, requested the restoration of the Sunnyvale research center project to the Senate Deficiencies Bill and, on April 14, 1939, the Senate appropriated \$4 million to get the laboratory started. When the Senate's Deficiencies Bill was sent to vote by the House, the Sunnyvale funding was again struck down, and only funds for expansion of NACA Langley facilities were approved. California's Senator and Congressman were outraged, and the *New York Times* ran an editorial that Congress would be making a huge mistake if it did not restore funds for Sunnyvale, and other Eastern newspapers also wrote in favor of a West Coast aeronautical research facility. The U.S. Army Air Force, Navy, and Charles A. Lindberg, a prominent national figure and member of NACA, were all public proponents pressuring Congress to approve funding of the new Sunnyvale facility. There was a growing consensus that Congress had made a grave mistake to allow East Coast factionalism to deny funds for expanding NACA aeronautical research in the west, as Germany's aeronautical developments under the Third Reich were becoming recognized as a prospect of war (Hartman 1970:14–16).

Two months after the NACA Ames funding was denied by Congress, NACA composed a Special Survey Committee to tour universities and aeronautical research labs to once again present their case that the nation's aeronautical research talent would be of better use if consolidated at a new facility. Charles Lindberg, who had celebrity status, was on the committee to assure that anything he said in support of NACA would have wide coverage in the press. The NACA Special Survey Committee presented their findings to the House Appropriations Subcommittee in July for the Third Deficiencies Bill and requested \$4 million to immediately start construction on the new NACA Ames with additional requests for \$6 million for later contract authorizations, additional funds for NACA Langley to appease the East Coast political faction in Congress, and \$250,000 to support aeronautical research in universities. In August 1939, the Third Deficiencies Bill was passed by the

House and Senate with the total \$10 million requested for a new research station, and \$1,890,000 was made available immediately for construction of a new NACA research facility. The new NACA Ames site was made official on September 22, 1939 (Hartman 1970:16–21).

For 25 years, Langley was NACA's only laboratory, and then within a year Sunnyvale was authorized for aerodynamic research on the West Coast and a new aircraft engine research facility was approved in Cleveland, Ohio. With this pent-up need for additional aeronautical research facilities, combined with war clouds on the horizon, NACA Ames pursued new construction at top speed (Hartman 1970:22).

4.1.1.2 Construction under DeFrance and Parsons

It was understood that experienced staff from NACA Langley would form a committee for the development of the NACA Ames facility. John F. Parsons was asked to take charge of construction and Smith J. DeFrance was appointed as Engineer-in-Charge. DeFrance joined NACA Langley in 1922 and led a group that was actively engaged in the design of new research facilities for expansion at NACA Langley and for the new NACA Ames facility. He was largely responsible for the design and construction of most of the laboratory's major research facilities. Parsons came to NACA Langley in 1931 and worked closely with DeFrance on wind tunnel construction, and, at the new NACA Ames facility, he was placed in charge of planning, designing, contracting, and construction (Hartman 1970:25–26; Muenger 1985:6). In the mid-1930s, the 8-foot high-speed wind tunnel constructed at NACA Langley was designed by NACA staff of reinforced concrete, a relatively cheap material, and left unpainted. Based on the time period, DeFrance would have overseen the design of the wind tunnel with the two-story office building that displays similar Art Deco / Streamline Moderne architectural style and use of industrial windows similar to buildings constructed at NACA Ames under DeFrance (**Plate 1 and Photograph 5**).

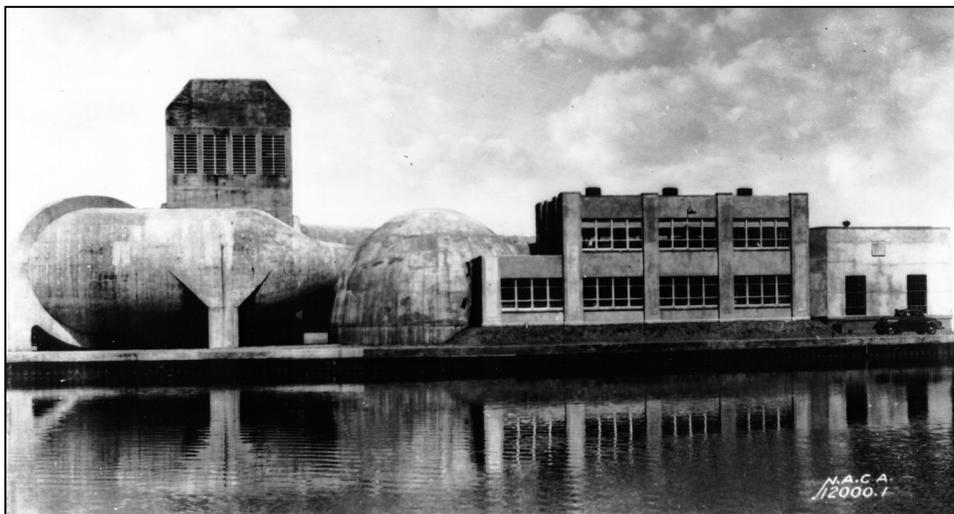


Plate 1: NACA Langley High-Speed Wind Tunnel (1936). Note unpainted concrete surfaces, Art Deco/Streamline Moderne architecture, and industrial windows of similar design of buildings at Ames. (Source: NACA 1936)



Photograph 5: Building N203 (1942). Note unpainted concrete surface, Streamline Moderne architecture, and industrial windows of similar design to the 1936 constructed NACA Langley High-Speed Wind Tunnel.

While state-of-the-art wind tunnels to test full-scale airplanes were high-priority items at the newly christened Ames Aeronautical Laboratory at Sunnyvale, these tunnels were a challenge to the designers. Therefore, flight research facilities, which were not technically complicated to design and build, were constructed first. Construction of the Flight Research Building (Building N210) began in late February 1940 and was completed in early August as the first permanent structure at NACA Ames. A technical services building (Building N220) was constructed next, followed by three wind tunnels, a science building, an administration building (Building N200), and an associated cafeteria and auditorium (Building N201) completed between 1940 and early 1944 (Hartman 1970:30–32).

Although there were no changes to the original plans of the NACA Ames facilities, by the fall of 1941 the original \$10 million appropriation funds had been exhausted. During wartime, construction costs increased greatly and fluctuated widely. Because NACA Ames was expected to be at full capacity for defense-related work, an additional \$6 million in construction funds was approved in October and, by the end of 1945, the cost of facilities at NACA Ames surpassed \$22 million (Muenger 1985:17).

4.1.1.3 Art Deco and Streamline Moderne Architectural Styles at Ames

During the NACA period, the building campaign at Ames was overseen by DeFrance and Parsons. In the beginning, swiftness of completion and economy of design were paramount. Once research facilities and wind tunnels came online, staff worked feverishly to resolve aircraft stability and control issues in concert with the military service and civilian aircraft companies for national defense. From the onset, the architecture at Ames had been characterized by two-story arrangements, simple horizontal lines, and flat unpainted concrete surfaces to create efficient designs and follow modernistic design trends of the Art Deco and Streamline Moderne styles in the late 1930s. This was the pattern of architecture originally established by NACA designers at NACA Langley and later carried out at NACA's request at NACA Ames by contracting architectural firms (Hartman 1970:427–428). With a few examples of restrained Art Deco, Streamline Moderne was the architectural style of choice of buildings constructed under DeFrance and Parsons. DeFrance was still at NACA Langley when he oversaw the design of the first buildings and facilities for NACA Ames in late 1939; however, Art Deco and Streamline Moderne were already adopted styles used by the federal government (Short and Stanley-Brown 1986).

Aspects of Art Deco on the first permanent building constructed at Ames are exhibited on the Flight Systems Research Laboratory (Building N210) (**Photograph 6**), which includes broad rectangular corner piers with decorative horizontal bands, stepped vertical decoration around door and window groups, glass block above the

main entry within a shaped parapet, and symmetry. With these Art Deco details, Building N210 is the most decorative of buildings at Ames compared to the emphasis on horizontality displayed in many of the other buildings reflecting the Streamline Moderne style that was less ornamental (Whiffen 1992:241; Gebhard 1996:9-12)



Photograph 6: Building N210 (1940) with Art Deco detailing at the main entrance to the office portion of the flight research facility.

Modernist architecture, including Art Deco and Streamline Moderne, evolved through various phases. Art Deco, the earliest phase, often emphasized verticality and included intricate geometric ornamentation like stylized floral decoration or patterns such as chevrons. This was followed by Moderne (also referred to as Art Moderne or Streamline Moderne), which was less ornamental than Art Deco. Streamline Moderne is a style focused on horizontality with vertical features typically used at the entrance, if at all, and curved surfaces. Roofs are flat, exterior surfaces are smooth, and details are limited to simplified geometric ornamentation usually expressed with scored panel striations or banding. Streamline Moderne, an offshoot of Art Deco, was inspired by the future, the machine age, and technological advances within transportation, but was also designed with stripped classicism with an emphasis on the monumental. The use of horizontal lines with banding or striations, columns with highlighted simple geometric designs, and the use of curves expressed modernity, but the form, symmetry, and organization of windows and doors also conveyed classical design traditions. The use of materials such as concrete, metal, and glass block were prominently used to illustrate a directness regarding the manufactured building fabric to help portray the machine / technological-inspired aesthetic. Streamline Moderne sought to project an image of a “scientifically advanced, effortlessly hygienic world,” that was imparted with a sense of speed enhanced by projecting or recessed horizontal bands on the façade, and was constructed using mass-produced materials such as concrete, and metal windows and doors (Gebhard 1996:10–11)

Streamline Moderne architecture at NACA Ames produced a continuity of design as part of the long-range building campaign under DeFrance and Parsons that appears to have been born out of the need for quick and cheap construction to meet war-time defense demands and was continued well into the post-war period as funding was limited for aeronautical research. As was true of so much of NACA's prudent financing, economy played a large role in construction plans in the post-war period. However, the construction of the Unitary Plan wind tunnel complex between 1950 and 1953 at a cost of \$27 million was the beginning of a change in attitude on the part of the federal government that major financial commitments to basic research were necessary for national defense. While the government was committed to funding scientific research, appropriations were not

unlimited and, until 1958, Ames and NACA as a whole continued to experience limited budgets and a conservative approach to planning facility expansion was the norm (Muenger 1985:37, 44, 51).

The early 1950s period at Ames was described as a “doldrums” by those involved with designing new facilities because of no money and a lack of motivation and spirit (Muenger 1985:51). However, in the post-war period, aeronautical research at Ames continued with a focus on supersonic flight, automatic control of aircraft, and other research that was essential to early space projects in the pre-NASA period at Ames (Muenger 1985:52–53, 80). In 1954, the Navy, Army, and Air Force all proposed plans for a satellite research program, which was seen as a necessary endeavor for continued global military supremacy. Ultimately, the Navy’s rocket-launch satellite plan was adopted in 1955 as Project Vanguard, which marked the beginning of the U.S. space program (Muenger 1985:83).

Streamline Moderne buildings were still being constructed at Ames as late as 1955, such as Building N204A. Starting in the mid-1950s, construction of new facilities for new technologies at Ames, including Building N223 as the Central Computer Facility, saw a departure from Streamline Moderne. The use of the Contemporary style, which was a prevalent architectural style used for industrial, commercial, municipal, and residential buildings throughout the United States by the mid-1950s, became the predominate style at Ames. Contemporary-style additions were also constructed on Streamline Moderne buildings to expand existing research facilities at Ames. These Contemporary-style buildings do not contribute to the NACA District because they do not contribute to the significance of the District under Criterion A or C.

4.1.2 National Register Evaluation

The NACA District encompasses 14 contributing buildings built between 1939 and 1955: N200, N201, N202, N203, N204A, N206A, N207, N210, N211, N212, N215, N219, N220, and N226.

NRHP Criterion A

The NACA District is significant under NRHP Criterion A for its association with the development of the second NACA aeronautical laboratory (the first on the West Coast) in anticipation of World War II, and for continued aeronautical research in the post-World War II period. The collection of contributing buildings to the NACA District reflects the immediate need for additional aeronautical research facilities in the United States to support national defense efforts in the lead-up to World War II, and the continued general aeronautical and special research directives from technical subcommittees at the NACA or various branches of the military in the post-war period. With the adoption of the Navy’s rocket-launch satellite plan in 1955 as Project Vanguard, which marked the beginning of the space program in the United States, research at Ames began to shift away from aeronautics towards early space research projects, aided by advancements in computer technologies and flight simulators that were added to the campus by the late 1950s in the immediate pre-NASA period. The period of significance for the NACA District under NRHP Criterion A spans from the establishment of the NACA Ames Aeronautical Laboratory in 1939, to the creation of Project Vanguard in 1955, which marked the beginning of the space program in the United States.

NRHP Criterion B

Smith J. DeFrance as Engineer-in-Charge/Director, and John F. Parsons as Construction Lead/Assistant Director were responsible for the long-range building program at Ames during the NACA period. However, their relationship to the development of the campus with Art Deco / Streamline Moderne style architecture is significant under NRHP Criterion C, rather than NRHP Criterion B. The NACA Ames campus was utilized by countless staff during the NACA period, and research did not reveal that any individuals made demonstrably important contributions to history at the local, state, or national level. Therefore, the NACA District does not qualify for eligibility under NRHP Criterion B.

NRHP Criterion C

The NACA District is significant under NRHP Criterion C for its association with Smith J. DeFrance, Engineer-in-Charge/Director and John F. Parsons, Construction Lead/Assistant Director, who led the design and

development of the campus; for exemplifying the Moderne architectural style used on early NACA-era campuses as part of a building campaign to express modernity with an economic design that continued even after the initial frenzied construction phase and well into the post-war period because of lack of funding; and for its representation as a significant and distinguishable entity whose components may lack individual distinction.

The NACA District comprises 14 buildings that feature Art Deco / Streamline Moderne-style designs developed between 1939 and 1955 under a long-range building campaign under DeFrance and Parsons. Economy played a large role in construction plans into the post-war period, and the development of Streamline Moderne-style buildings continued decades after the style was no longer popular because these buildings were cheap to design and construct. This continued use of the Streamline Moderne architectural style on the Ames campus produced a continuity of design utilized until 1955 when Contemporary-style buildings and additions became the prevalent style of new construction on the campus.

The period of significance for the NACA District under NRHP Criterion C begins in 1939 with the establishment of the NACA Ames Aeronautical Laboratory and ends in 1955, with the construction of the last Streamline Moderne style building at the Ames campus.

NRHP Criterion D

The NACA District is not likely to yield information regarding history or prehistory. None of the contributing buildings in the NACA District appear to have any likelihood of yielding important information about historic construction materials or technologies not already included in the historic record. The District does not meet NRHP Criterion D.

Integrity

In addition to meeting one or more of the NRHP criteria, a property must also retain a significant amount of its historic integrity to its period of significance to be considered eligible for listing. Integrity is the ability of a property to convey its significance through its physical features. For a district to retain integrity as a whole, the majority of the components that make up the historic character of the district must possess integrity even if they are individually undistinguished. In addition, the relationship among the district's components must be substantially unchanged since the period of significance (NPS 2002:44–46). Historic integrity is made up of seven aspects: location, design, setting, materials, workmanship, feeling, and association.

Location is the place where the historic property was constructed or the place where the historic event took place. The location of the contributing buildings in the NACA District have remained the same; therefore, the integrity of the NACA District location remains intact.

Design is the combination of elements that create the form, plan, space, and style of a property. The NACA-era Ames campus design retains circulation patterns such as the Bush Circle approach at the entry of the facility, tree-lined streets, and siting of buildings along roadways or airfields. Other buildings and structures have been constructed on the campus, infilling formerly undeveloped areas within the NACA-era historical core of the original 102-acre campus (Muenger 1985:6). The NASA Ames campus eventually expanded to encompass 500 acres as it developed outwards from the historical core. However, the design of the collection of contributing NACA-era buildings along Bush Circle, DeFrance Avenue, and King Road has been retained. While new construction has been added to the central core of the NACA-era campus, it has not substantially diminished the integrity of design from the 1939–55 period; therefore, the NACA District retains sufficient integrity of design to convey its historic significance.

Setting is the physical environment of a historic property. The setting of the Ames campus continues as a research facility, therefore, the NACA District retains integrity of setting.

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form a historic property. The contributing buildings to the NACA District largely retain integrity to the 1938–55 period as Art Deco / Streamline Moderne-style designed buildings with concrete exteriors and industrial windows. The NACA District retains integrity of materials.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. The contributing buildings to the NACA District largely retain integrity of workmanship as 1938–55 constructed Art Deco/Streamline Moderne-style buildings. The buildings retain integrity of original workmanship with the horizontal and tripartite scoring/banding of the concrete exteriors, entrances with rounded edge cantilevered concrete canopies, and incised logos/signs/decorative vertical lines around main entrances. The NACA District retains integrity of workmanship.

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. In general, the contributors as a whole generally retain the feeling of circa 1939–55 constructed buildings in the Art Deco/Streamline Moderne style. The NACA District retains integrity of feeling.

Association is the direct link between an important historic event or person and a historic property. The retention of 14 contributing buildings and their character-defining features reflects the significance of the NACA District; therefore, the District retains its association with the development of the second NACA aeronautical laboratory (the first on the West Coast) in anticipation of World War II, and for continued aeronautical research in the post-World War II period under NRHP Criterion A, and its association to DeFrance and Parsons under NRHP Criterion C. The NACA District retains integrity of association.

Evaluation Summary

Fourteen buildings were identified as contributors to the NACA District based on their thematic Moderne architectural features and place in the development of the NACA Ames Aeronautical Laboratory. Developed between 1939 and 1955, the NACA District is significant under NRHP Criterion A for its association with the development of the second NACA aeronautical laboratory (the first on the West Coast) in anticipation of World War II and continued post-war research, and under NRHP Criterion C for its association with Smith J. DeFrance, Engineer-in-Charge/Director, and John F. Parsons as Construction Lead/Assistant Director, who designed the campus. The District is also significant under NRHP Criterion C for exemplifying the Moderne architectural style used on early NACA-era campuses as part of a building campaign to express modernity with an economic design that was continued after the initial frenzied construction phase and well into the post-war period because of lack of funding, and for its representation as a significant and distinguishable entity whose components may lack individual distinction.

The period of significance for the District begins in 1939 with the establishment of the NACA Ames Aeronautical Laboratory and ends in 1955 with the shift towards early space research projects and the last building constructed utilizing Streamline Moderne architecture during the NACA period. Overall, the NACA District retains sufficient historic integrity to its period of significance under all seven aspects to physically convey its historic significance.

With the exception of the four previously listed buildings in the NRHP (N200, N215, N220, and N226), the contributors lack individual distinction and do not qualify for individual NRHP eligibility.

Character-Defining Features

The character-defining features of the NACA District from its period of significance (1939–1955) are:

- Concrete exteriors
- Horizontal banding/scoring
- Industrial windows in groups (typically metal)
- Metal entry doors
- Tripartite scoring/banding
- Flat roof with no overhang
- Metal flashing along the roofline
- Entrances with rounded edge cantilevered concrete canopies
- Incised logos/signs/decorative vertical lines around main entrances
- Symmetrical designs

5. Affected Historic Properties

The APE contains a portion of the NRHP-eligible NACA District, including three contributors, Buildings N203, N204A, and N206A. These contributors exhibit the typical Moderne architectural details that are characteristic of the NACA District, including utilitarian, reinforced concrete walls; flat roofs; scored concrete and horizontality; symmetrical fenestration; industrial windows; and utility doors. Interior finishes are non-contributing. Building N204A is a utilitarian building that does not exhibit the more formal character-defining features of the NACA District, such as the cantilevered canopies or incised logos that adorn many contributors facing the main streets and avenues of the NACA District. Located to the side of Building N206A and facing a parking lot, Building N204A is a more modest example of the style. Character-defining features of the potential district exhibited in Building N204A include its rectilinear form, flat roof, industrial windows, concrete bands, and decorative scoring. The changes proposed to Building N204A will have minimal impacts on the NACA District as a whole, or Buildings N203 and N206A specifically. Alterations to Building N204A will not compromise Building N203's or N206A's integrity of location, design, setting, materials, workmanship, feeling, or association, or the integrity of other contributing properties in the NACA District (see Photographs 7, 8, and 9). Therefore, the assessment of effects will focus on Building N204A.



Photograph 7. The NACA District, Buildings N202 (left), N203 (right), and N220 (far distance) along DeFrance Avenue, view facing northeast.



Photograph 8. Building N204A (background left) and Building N203 (foreground) from DeFrance Avenue, view facing east.



Photograph 9. Buildings N204A (right) and N206A (left), view facing southeast.

6. Assessment of Effects

Per 36 CFR § 800.5(a)(1), an adverse effect results when an undertaking may alter, either directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the historic property's integrity. Several examples of adverse effects are listed in 36 CFR § 800.5(a)(2). The following assessment examines each of those examples, including an analysis of compliance with the Secretary of the Interior's Standards for Rehabilitation (Standards) (36 CFR § 68).

(i) Physical destruction of or damage to all or part of the property

The project would remove and replace existing windows on Building N204A. Overall, no physical destruction is planned as part of this project and any damage would be minimal and repaired.

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 C.F.R. part 68) and applicable guidelines

With the SHPO's agreement, if a property is restored, rehabilitated, repaired, maintained, stabilized, remediated, or otherwise changed in accordance with the Standards, then it will not be considered an adverse effect. The following is an assessment of the undertaking for compliance with the Standards and guidelines (NPS 2017).

1. *A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces and spatial relationships.*

The project would have no change on the use of Building N204A.

2. *The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces and spatial relationships that characterize a property will be avoided.*

The project would not change the overall historic character of the potential historic property. The removal and replacement of existing wood-framed industrial windows with modern aluminum-framed industrial windows with the same configuration would not impair the building's ability to convey its potential significance. Although the change from wood-framed to aluminum-framed windows is not strictly an in-kind replacement, the wood-framed windows do not consist of particularly distinctive materials, and the appearance of the building would not change substantially. One window opening on the south side of the building in the first story behind an exterior steel stair may be infilled rather than replaced. This is an obscured opening and is not prominent or character-defining. No significant materials, spaces, or spatial relationships of the potential historic property would be modified as a result of this project.

3. *Each property will be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.*

Not applicable.

4. *Changes to a property that have acquired historic significance in their own right will be retained and preserved.*

Not applicable.

5. *Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.*

The removal and replacement of existing wood-framed industrial windows with modern aluminum-framed industrial windows with the same configuration would not remove distinctive materials, features, finishes, or construction techniques that especially warrant preservation. Although the change from wood-framed to aluminum-framed windows is not strictly an in-kind replacement, the wood-framed windows do not consist of particularly distinctive materials or represent significant craftsmanship.

6. *Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.*

The existing windows pose a risk in a seismic event and require replacement to continue scientific uses in Building N204A. The replacement aluminum-framed windows would match the original wood-framed windows in design, configuration, operability, and color (anodized color coating). Although the materials would not be the same, the appearance will be virtually the same.

7. *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*

Not applicable.

8. *Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.*

Not applicable.

9. *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.*

The replacement windows would be compatible in design and differentiated by materials.

10. *New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

Installation of the new windows would be permanent and irreversible but would not impair the essential form and integrity of Building N204A.

In summary, the project meets the Standards, as it proposes to replace Building N204A's industrial windows with similar industrial windows.

(iii) Removal of the property from its historic location

Not applicable.

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance

Not applicable.

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features

Not applicable.

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization

Not applicable.

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance

Not applicable.

7. Summary of Findings

This study identified five buildings in the APE: Buildings N203, N204, N204A, N205, and N206A. Building N203, N204A, and N206A are potential contributors to the NRHP-eligible NACA District, which is unified by Moderne architectural characteristics. The criteria of adverse effect were applied to potential historic properties in the APE. The proposed undertaking would directly alter Building N204A through the replacement of its industrial windows, which are a character-defining feature of the property. The replacement windows would be consistent with the original design, and the project would adhere to the Standards. Additionally, exterior changes to Building N204A would have negligible visual effects on Building N203 and N206A and the NACA District as a whole and would not change any of their characteristics that make them potentially eligible for the NRHP as contributors to the NACA District. Therefore, the proposed undertaking would result in No Adverse Effect on historic properties per 36 CFR § 800.5(b).

8. References

- Gebhard, David. 1996. *The National Trust Guide to Art Deco in America*. New York: John Wiley & Sons, Inc.
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- Whiffen, Marcus. 1992. *American Architecture Since 1780: A Guide to the Styles*. Cambridge, MA: MIT Press.

Attachments

- Attachment A: Maps
- Attachment B: Project Drawings
- Attachment C: DPR 523 Forms

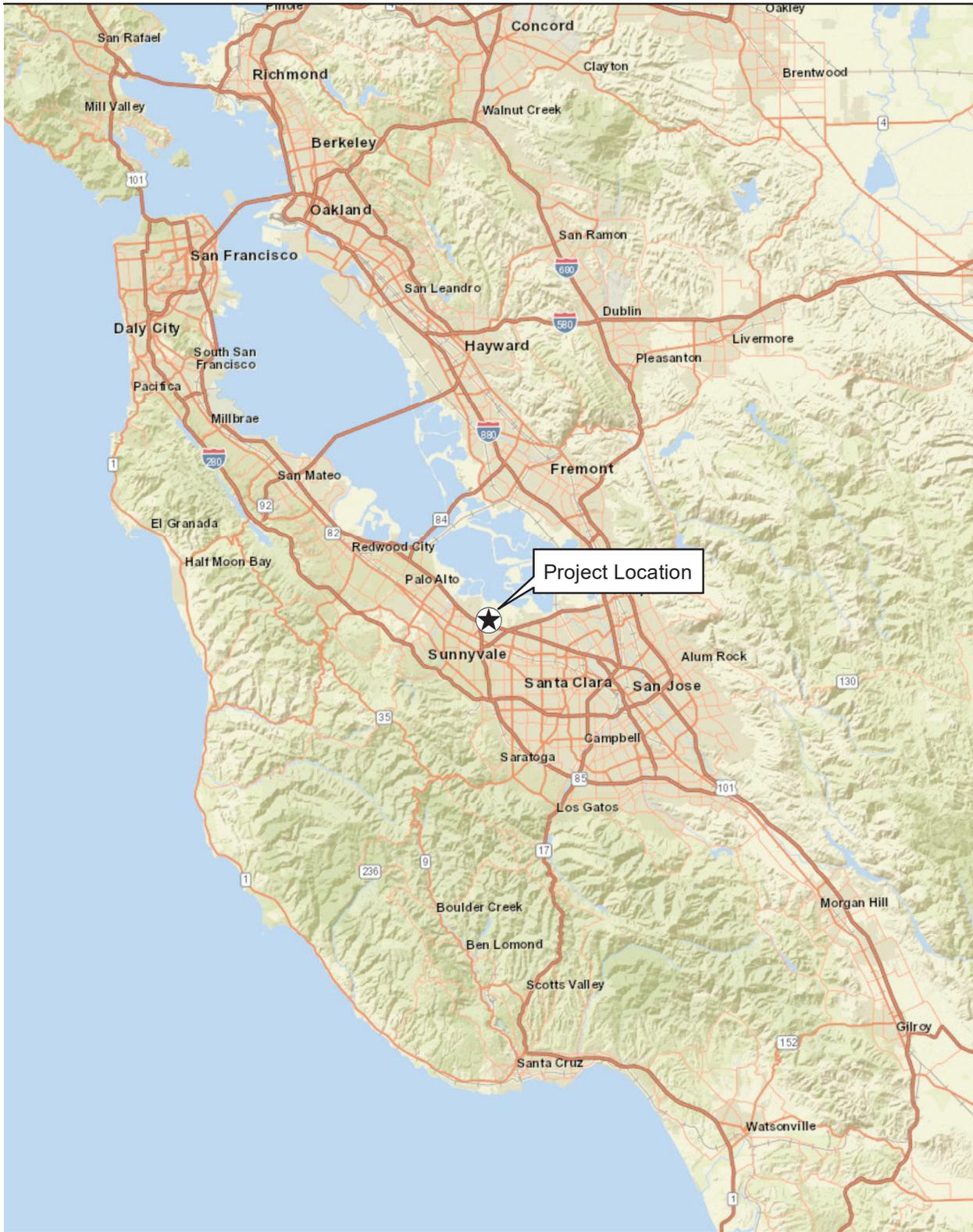
Attachment A: Maps

Figure 1: Location Map

Figure 2: Vicinity Map

Figure 3: APE Map

Figure 4: NACA Ames Historic District Map



Source: ESRI, AECOM, NASA

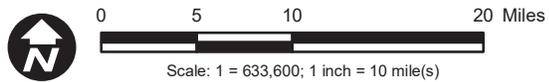
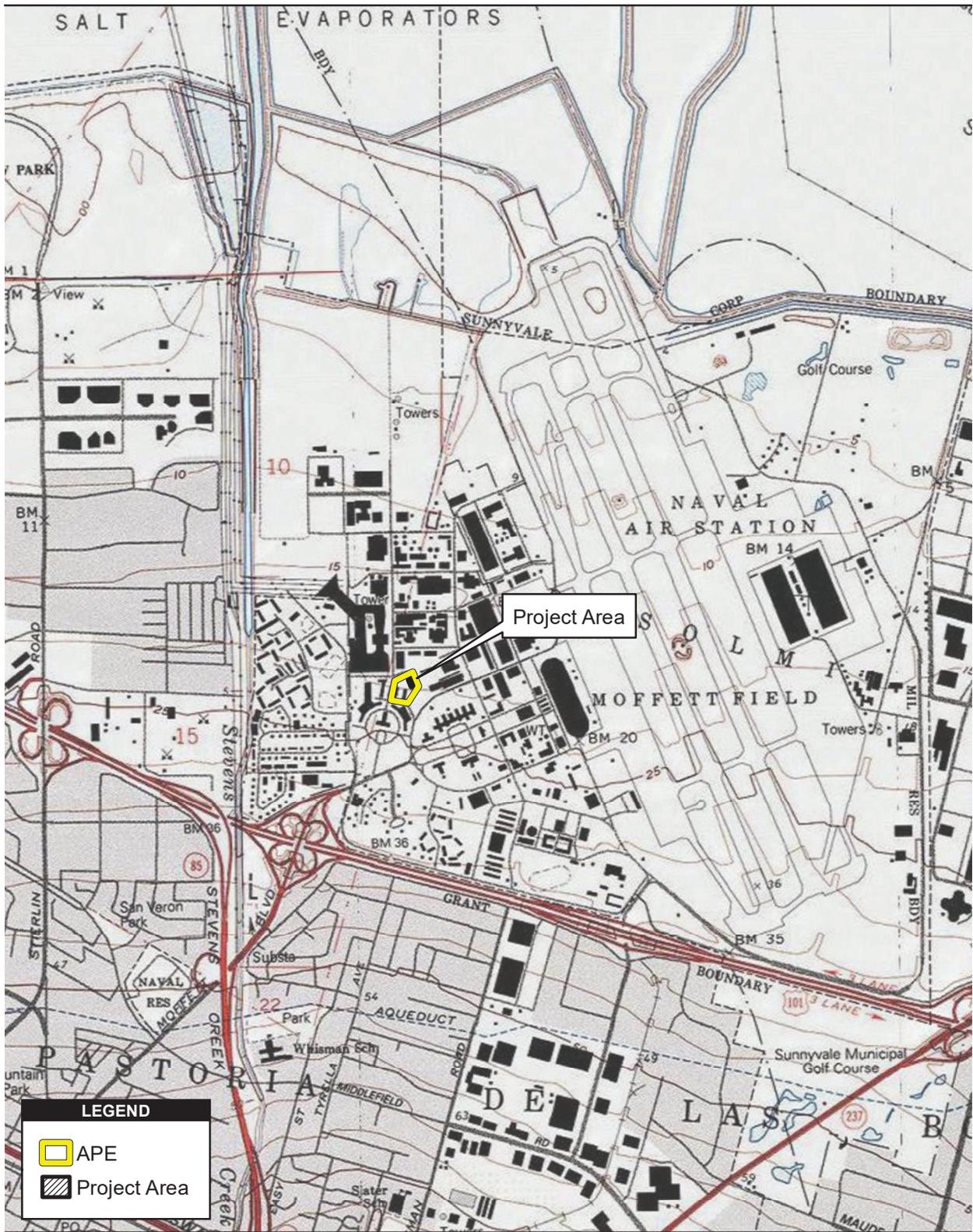


Figure 1
Project Location

Building N204A Window Replacement Project

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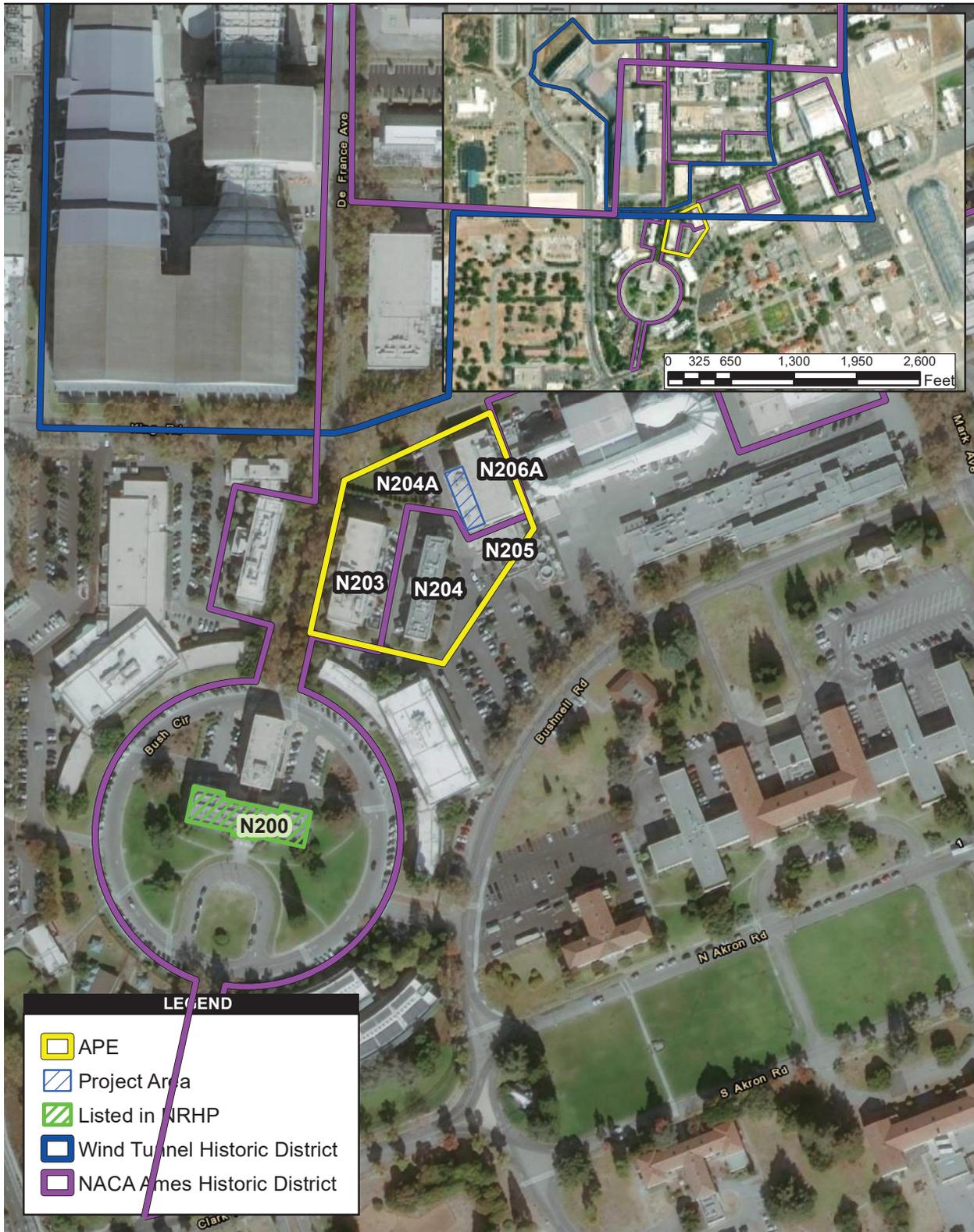


Source: ESRI, AECOM, NASA, National Geographic Society; USGS 7.5' Topographic Quadrangle: Mountain View

Figure 2
Project Vicinity Map

Building N204A Window Replacement Project

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Source: ESRI, AECOM, NASA

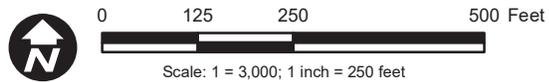
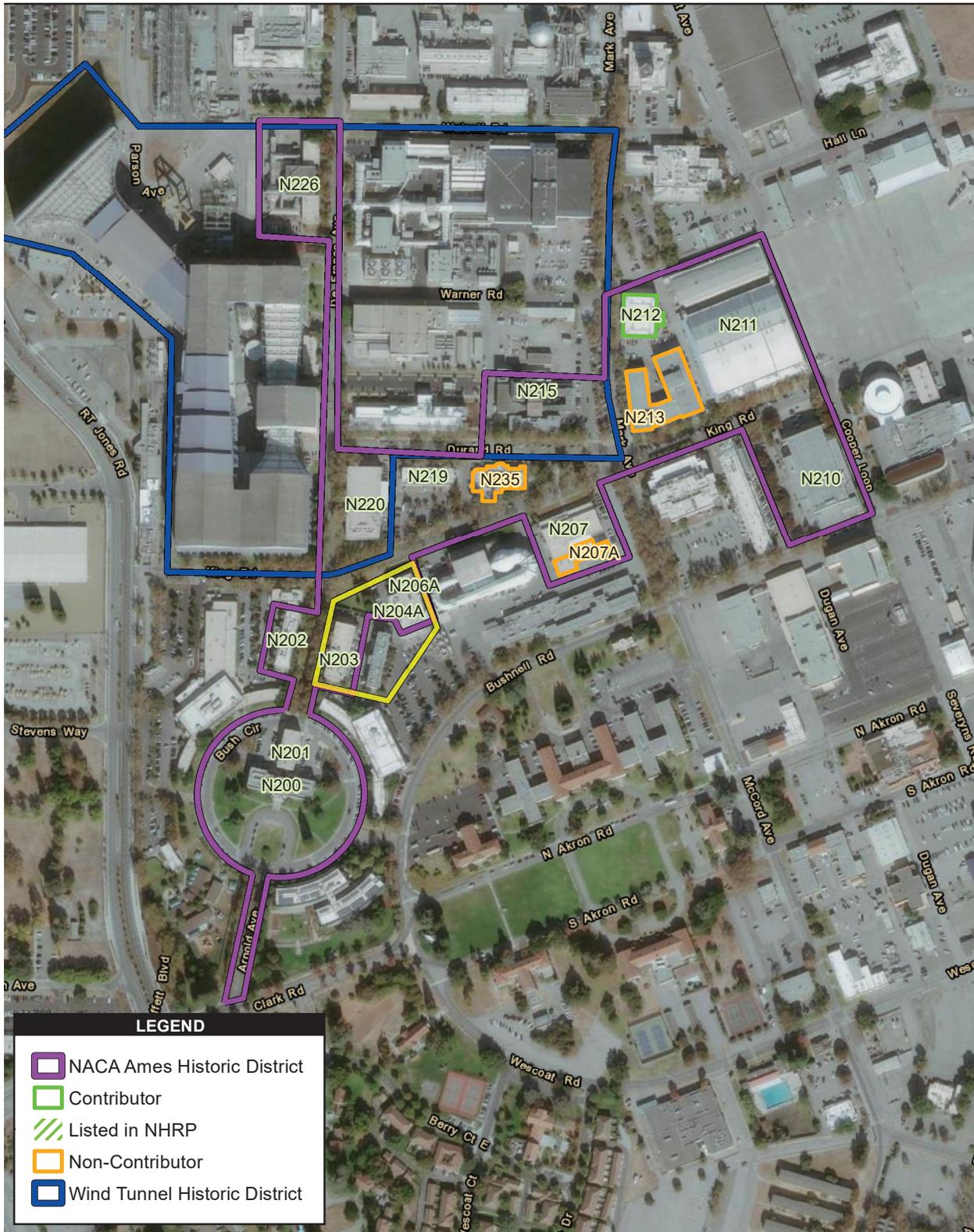


Figure 3
APE Map

Building N204A Window Replacement Project

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Source: ESRI, AECOM, NASA

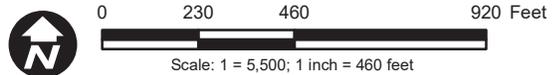


Figure 4
NACA Ames Historic District

Building N204A Window Replacement Project

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The following content was redacted from this public posting:

Attachment B: Project Drawings

Attachment C: DPR 523 Forms