NASA Langley Research Center Historic District

Statement of Significance

NASA LaRC—the successor of the NACA’s Langley Memorial Aeronautical Laboratory (LMAL) and the Langley Aeronautical Laboratory (LAL)—was the nation’s first civilian aeronautics laboratory and played a principal role in the American aerospace story. From its beginnings in 1917, NASA LaRC has examined complex and groundbreaking issues associated with flight and space travel. Collaborative research conducted in wind tunnels and laboratories, as well as testing of research aircraft, spacecraft, and flight simulators at NASA LaRC have led to significant advances in American aeronautical and space research and technology.

Phase I reconnaissance survey identified a potential NASA LaRC historic district with extant buildings and structures in both the East Areas and West Areas that illustrate the major contributions and advances made by NASA researchers in the fields of aeronautics and space flight. The district is eligible for listing in the National Register under Criterion A and C because of major contributions these facilities made to aeronautics and space research and testing. The district is significant at the national level in the areas of science, engineering, military, defense communication, and transportation. The historic district’s defined period of significance begins in 1917 with the date of the earliest surviving facility until the end of the Apollo Program in 1972.

Applicable National Register Criteria

Criterion A – Association with events that have made a significant contribution to the broad patterns of our history

The NASA LaRC historic district is eligible under Criterion A for its association with significant events in aeronautics and aerospace engineering research and the United States space program. Important scientific concepts and aeronautical and space research programs and projects were developed and implemented at the NASA LaRC, and several facilities house important research equipment designed specifically for conducting these unique tests and studies. The historic context identifies the major accomplishments and contributions of the NASA LaRC during the recommended period of significance.

Criterion C – Embodies the distinctive characteristics of a type, period, or method of construction, that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The NASA LaRC historic district is eligible under Criterion C for examples of significant works of engineering. Examples of resources that fall under this category are the specialized research facilities such as the wind tunnels and the Landing Loads and Traction Facility. While many of these facilities retain their basic structural elements, upgrades and modifications over the years have resulted in select alteration and replacement of various building elements. In the majority of
cases, however, these changes have not substantively affected the overall integrity of the resources such that they would not be considered eligible for listing in the National Register.

As NACA expanded in the West Area beginning in the late 1930s, construction of administrative and support facilities increased. Common architectural themes include two and three story stripped classical style brick buildings and Art Moderne construction. While indicative of industrial and post war construction, these buildings are not unique and are not unusually good examples of the execution of these building styles either individually or collectively and were not considered eligible for listing in the National Register under criterion C.

**Period of Significance**

The period of significance for the NASA LaRC historic district encompasses the period from 1917 until 1972. This period includes resources located both in the East Area and in the West Area. Typically, properties less than 50 years of age are not considered eligible for listing in the National Register unless they meet Criterion Consideration G, which provides for resources of exceptional significance to be considered eligible. In this particular case, the period of significance ends at a date that is less than 50 years in order to include those resources associated with the Apollo Program. Highlights of the events that focus and define the period of significance of the historic district include:

- With the dedication of its new Langley Memorial Aeronautical Laboratory (LMAL) in 1920, the National Advisory Committee for Aeronautics (NACA) soon began conducting groundbreaking research in its new, state-of-the-art facilities such as the Variable Density Tunnel and Propeller Research tunnel, resulting in major advances in military and civilian aircraft design and performance.

- Despite the Depression, the LMAL continued to pursue significant new large-scale building projects in the 1930s such as the Full Scale Tunnel, at the time the world’s largest wind tunnel.

- In 1938, a Special Committee recommended expanding the LMAL to relieve the “congested bottleneck” conditions in the original tract (the “East Area”) on Back River. The first parcel of 73 acres in the new “West Area” was acquired 1939, and by 1945 had expanded to 176 acres.

- During World War II, the LMAL played an essential role in military aircraft testing, considerably advancing the American war effort. The war years witnessed the rapid growth of research, administrative, and support facilities in the new West Area to support this significant research.

- Major advances in aircraft speed and performance (e.g. jet propulsion, rocketry, and transonic/supersonic flight) set the agenda for postwar research, and the LMAL played an essential role in the development of missile technology with the establishment of the Pilotless Aircraft Research Division at Wallops Island, Virginia.

- The LMAL was renamed the Langley Aeronautical Laboratory in 1948, and the late 1940s and early 1950s witnessed another rapid period of growth, with the construction of new wind tunnels
that could accommodate supersonic testing based on Langley engineer Ray H. Wright’s revolutionary refinement of “slotted throat” tunnel design.

• During the 1950s, advances in aeronautical research at the LAL continued to shape the development of supersonic flight, an outstanding example of which was Richard Whitcomb’s award-winning concept of the “area rule” for the design of high-speed aircraft.

• The NACA was superseded by the National Aeronautics and Space Administration (NASA) in 1958, and the LAL was renamed the Langley Research Center (LaRC). That same year, Project Mercury was inaugurated with the goal of putting a manned spacecraft in orbit. The Space Task Group (STG), which was established to oversee the project, initially was headquartered at the LaRC. The “Mercury Seven” astronauts conducted training there, its tunnels tested spacecraft performance, and STG staff developed an unprecedented international tracking system for the program.

• In 1961, the STG was replaced by the Manned Spacecraft Center (MSC), and in June 1962 was relocated from the LaRC to a new site near Houston, later named the Johnson Space Center.

• Aerospace research and testing continued at the LaRC after the relocation of the MSC. LaRC researchers developed Echo 1, the first communications satellite, and played a supporting role in Project Gemini, the next manned space program.

• Langley’s major contribution to the Apollo Program was the establishment in 1965 of the Lunar Landing Research Facility (LLRF), a lunar gravity simulator that allowed astronauts (including Neil Armstrong and Buzz Aldrin of Apollo 11) to train in piloting the Lunar Excursion Module (LEM), resulting in the first successful moon landing only four years later in July 1969.

The defined period of significance for the NASA LaRC Historic District ends in 1972, coinciding with the end of the Apollo Program.

**Integrity**

NASA LaRC’s aeronautical, engineering, and aerospace research facilities are unique both in form and function and retain a remarkable degree of integrity. The wind tunnels, laboratory buildings, hangers, etc. reflect the district’s principal activities and mission during the proposed period of significance. While some of the earliest test facilities have been removed (Wind Tunnel Building # 1149, the Gust Tunnel Building # 1218, and the Seaplane Impact Basin Building # 1192) their associated research buildings are still extant and have been adaptively reused.

As a whole, the majority of the components of the NASA LaRC historic district possess sufficient integrity to convey the district's historic character and function. The relationship of the various components from the period of significance is largely unchanged, and the relative number, size, scale, design, and location of the proposed noncontributing components do not overwhelm the observer or negatively detract from the proposed district.
While the NASA LaRC historic district does not retain all of its historic physical features or characteristics, it does include a sufficient number of essential physical features that convey the character and appearance of the district during its association with significant advances in aeronautics and space flight.