HISTORIC AMERICAN BUILDINGS SURVEY

CURTISS-WRIGHT AEROPLANE FACTORY

SUBMITTED TO:
MISSOURI STATE HISTORIC PRESERVATION OFFICE
1659 E ELM STREET
JEFFERSON CITY, MISSOURI 65101

HISTORIC AMERICAN BUILDINGS SURVEY

CURTISS-WRIGHT AEROPLANE FACTORY

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

AND

PHOTOGRAPHS

CURTISS-WRIGHT AEROPLANE FACTORY

Property Name: Curtiss-Wright Aeroplane Factory

Also known as Curtiss-Wright Aeroplane Factory and Office, McDonnell Aircraft, McDonnell-Douglas, and The Boeing Company

Location: 130 Banshee Road, Hazelwood,

Unincorporated St. Louis County, Missouri

Building 1 (latitude 38.756641, longitude -90.365913)

Building 2 (latitude 38.757832, longitude -90.365779)

Building 3 (latitude 38.756452, longitude -90.364628)

Present Owner: The Boeing Company, St. Louis Lambert International Airport

Present Use: Vacant

Significance: The Curtiss-Wright Aeroplane Factory was listed in the National Register of Historic Places (NRHP) in 2016 under Criterion A for its association with the aerospace industry, manufacturing, and military mobilization of the United States (U.S) Army and Air Force in preparation for and participation in World War II. The property's period of significance is from 1940–1946, which aligns with the factory's active use and significant construction of the complex. The property is additionally determined eligible for listing in the NRHP under Criterion C as the embodiment of a distinctive period in architecture of the modern movement and the representative work of a master architect, Albert Kahn. The complex was designed by Albert Kahn (1869–1942), who is regarded as a pioneer of American modern industrial architecture.

From the NRHP nomination form: "The property is primarily significant in the context of World War II Aviation as an excellent example of an "Aviation Development Facility and Production Plant" where engineering research and design occurred and subsequently the development and technology of air power for military aviation purposes was perfected and implemented with complete aeroplanes during its active use between 1941 and 1946. In addition, the property is associated with the larger United States context of "World War II and the American Home Front" as developed by the National Park Service. Aeroplanes were designed, built, and flown directly out of the building and into the field—contributing immensely to the mobilization effort on the home front for both the Allied Forces and U.S. military." (Bivens 2016)

PART I: HISTORICAL INFORMATION

A. Physical History

1. Date of Construction: 1940–1941; 1940–1943; 1944

2. Original and Subsequent Owners: The Curtiss-Wright Corporation (1941–1948); McDonnell-Douglas Corporation (1948–1997); The Boeing Company (1997–circa 2002, 2023–present long-term lessee); St. Louis Lambert International Airport (circa 2002–2023, 2023-present as long-term lessor)

3. Architect/Engineer: Albert Kahn (Architect); Morrison Knudson Corporation (Engineer)

4. Builder, contractor, suppliers: H. B. Deal

5. Original plans and construction: Built in several episodes, the Curtiss-Wright Aeroplane Factory documented in this Historic American Buildings Survey was constructed as an industrial complex made up of multiple buildings that housed managerial, administrative, engineering, and manufacturing functions built to serve U.S. and Allied Forces aviation during World War II. The complex was designed by Albert Kahn Associated and express aspects of the Modern style are shown in its curved buff brick walls, original entryway configuration and signage, and monitor roof windows. This document discusses three of the buildings in the complex, referred to as Buildings 1, 2, and 3, all having rectangular footprints and massings, partial basements, and sitting on concrete slab foundations.

   The Curtiss-Wright Corporation, or Curtiss-Wright, is responsible for the construction of the complex buildings: Buildings 1, 2, and 3. Built in 1940–1941, Building 1, also referred to as the office and No. A in the NRHP nomination from 2016, was constructed for administrative use by Curtiss-Wright. Built 1940–1943, Building 2, also referred to as the factory and Nos. B and C in the NRHP nomination from 2016, was constructed for airplane manufacturing. Built in 1944, Building 3, also referred to as the engineering annex and No. F in the NRHP nomination from 2016, was constructed to provide additional space for the engineering department. Buildings 1 and 3 are two stories, and Building 2 is one story. The buildings have steel frames with reinforced concrete walls; Buildings 1 and 3 have buff brick exterior walls, and Building 2 has concrete, buff brick veneer, and brick knee walls.

6. Alterations and Additions: Building 1 and Building 2 were part of the first phase of construction commencing in 1940. Building 2 was built in multiple episodes from 1940–1943. It contains the main factory floor, referred to as No. B, on the east and an addition to the west, referred to as No. C. The main factory floor was built in 1940, whereas the west addition was completed in 1943. In 1944, Building 3 was constructed with a brick hyphen wall to join with the east wall of Building 1.

   Alterations have occurred to accommodate the complex's use as a factory and office. Original windows, which were four-light steel sash windows with ventilators, were removed and replaced with multi-light fixed and operable metal windows between the 1970s and 1980s. Between 1987 and 1993, the main entrance of Building 1 was altered by installing a seven-bay trapezoidal entrance portico. Within the manufacturing space of Building 2, interior mezzanines and ancillary structures have been constructed and removed during the building's manufacturing history. A secondary entrance at the hyphen wall between Buildings 1 and 3 has been changed

from an open entrance with concrete steps to an enclosed entrance vestibule with double-leaf, full-light aluminum doors and storefront windows. Interior alterations have occurred, including changes to materials and finishes, within the office spaces of Buildings 1 and 3 and the basement in Building 2.

B. Historical Context

1. St. Louis's Aviation History Takes Flight (late 1800s–1920s)

St. Louis, Missouri, has been at the forefront of aviation development for nearly as long as the aviation industry has existed. One of the most famous maps of the city, the 1874–1875 Compton and Dry Pictorial St. Louis, has long been rumored to have been initially sketched from the skies in a hot air balloon (though limited historical documentation exists to support this claim). The skies above St. Louis became much more crowded with the opening of the Louisiana Purchase Exposition, better known as the St. Louis World's Fair, in April 1904. Hot air balloon rides were a popular attraction at the fair, and several cutting-edge flying machines were demonstrated, including a balloon called the *California Arrow*, powered by a Curtiss Motor Company motorcycle engine (Bivens 2016).

In 1910, former President Theodore Roosevelt boarded a small wooden biplane constructed by the Wright brothers and flown by aviation Arch Hoxsley at St. Louis's Kinloch Field. The 3-minute and 20-second flight made former President Roosevelt the first U.S. president to fly in an airplane. Area scholars debate the exact location of Kinloch Field, but it is considered the predecessor of Lambert Flying Field, now St. Louis Lambert International Airport.

In 1920, a 170-acre field was leased and opened by the Missouri Aeronautical Society under the name St. Louis Flying Field (Attachment 1, Figure 1). It was the first airfield in the county to implement an Air Traffic Control system, though this early system was based on flaggers on the ground and would be replaced by a radio tower in the early 1930s (Mola 2007). By 1923, the field had been renamed in honor of the society's founding member, Albert Bond Lambert. Lambert was a dedicated aviation enthusiast and the first St. Louisian to receive a pilot's license. Alongside Robertson Aircraft Corporation founders Frank and William Robertson and several other St. Louis-era aviation enthusiasts, Lambert sponsored Charles A. Lindbergh's 1927 attempt at claiming the Orteig Prize, a $25,000 reward offered to the first aviator to complete a nonstop flight between New York and Paris.

Lindbergh began his journey in his custom-built, single-seat Ryan Airlines monoplane in San Diego on May 10, 1927. Lindbergh briefly stopped at Lambert Flying Field to refuel and to reveal the name of his freshly built plane to his backers: *The Spirit of St. Louis*. The San Diego to St. Louis leg of Lindbergh's trip set the record for the longest nonstop solo flight in the U.S. Following his stop in St. Louis, Lindbergh went to New York City, where he departed for Paris on May 20, 1927, arriving at Le Bourget airport 33.5 hours after takeoff (Rust and Hoffman 2023).

After the lease on Lambert Flying Field expired, it was sold to the City of St. Louis, making it the first municipal airfield in the country. In 1930, aviation pioneer Richard E. Byrd christened the "Lambert-St. Louis Municipal Airport" field. The first terminal of the new airport opened in 1933. In its first decade of service, Lambert Airport attracted a post office branch, three airlines, three flight schools, three aviation service companies, two military flying units, and many small flying clubs and enthusiast

groups (Horgan 1984). During World War II, Lambert would become the manufacturing base for both McDonnell Aircraft Corporation and Curtiss-Wright Corporation, as both manufacturers produced military aircraft to support the war effort.

2. The Building of an Industry: The Curtiss-Wright Corporation (1920s–1940s)

The Curtiss-Wright Corporation, or Curtiss-Wright, was created in 1929 through the merger of the Curtiss Aeroplane and Motor Company and Wright Aeronautical. The Curtiss Aeroplane and Motor Company, originally the Curtiss Motor Company, was founded by Glenn Curtiss in 1909 in Hammondsport, New York. The highly experimental company developed and manufactured parts for motorcycles, airships, airplanes, and hydros (Curtiss and Post 1912).

During World War I, the Curtiss Motor Company focused on supplying aircraft for the war effort. The models produced by Curtiss Motor Company during the war included the Curtiss H-16, a seaplane; the Curtiss NC, a long-range flying boat/biplane; and the legendary Curtiss JN-4 Jenny (Attachment 1, Figure 2). After the war ended in 1918, surplus JN-4 Jenny aircraft were sold to civilian pilots, becoming synonymous with barnstorming shows and awakening enthusiasm for aviation nationwide (Dwyer 2010).

The Wright Aeronautical Corporation was officially incorporated in Paterson, New Jersey, in 1919. However, founders Wilbur and Orville Wright had been producing experimental aircraft under one name or another since their groundbreaking first flight in Kitty Hawk, North Carolina, in December 1903 (Wright Aeronautical Corporation 1942). During World War I, the Wright Aeronautical Corporation produced the Wright Model L, the last plane in which the Wright brothers themselves were involved in designing. The high-speed, high-altitude biplane proved less successful than similar models, including the Curtiss JN-4 Jenny, and was ultimately a commercial failure. Following the failure of the Model L, the Wright Aeronautical Corporation pivoted to solely manufacture aircraft parts, including engines (Wright Brothers Airplane Co. 2011).

Demand for military and civilian aircraft production increased by the 1920s. Significant national events fueled this demand, shaping military and commercial advancement in aviation well into the 20th century. In 1926, the U.S. military established a 5-year program to address the dwindling supply of military aircraft. In 1927, Lindbergh's successful transatlantic flight ignited a new demand for aircraft from would-be civilian pilots. As Lindbergh made the news, the Wright Aeronautical Corporation and Curtiss Company first discussed combining their engineering and manufacturing powers. After discussions, they merged at least a dozen companies in 1929, giving birth to the Curtiss-Wright Company (Eltscher and Young 1998).

In the 1930s, Curtiss-Wright leased about 25 acres of land from the Lambert-St. Louis Municipal Airport. The original plant primarily produced civilian aircraft and aircraft parts (Attachment 1, Figure 3). In 1939, at the start of World War II, Curtiss-Wright received one of the most significant production contracts from the U.S. government for wartime manufacturing. The company leased an additional 35 acres of land at their site on the Lambert-St.Louis Municipal Airport property to expand the plant (St. Louis Globe-Democrat 1940). The complex, constructed as part of this contract to provide aircraft for the war effort, currently stands onsite today. Buildings 1 and 2 of the

production plant were opened in 1941, with Building 3 following during a plant expansion in 1944 (Bivens 2016) (Attachment 1, Figure 4).

For the design of the new factory, Curtiss-Wright hired famed industrial architect Albert Kahn. A Jewish-German immigrant born in 1869, Kahn became renowned for his meticulous attention to detail, focusing on efficiency and safety to the extent that fire insurance costs were lower for buildings his company constructed (Albert Kahn Legacy Foundation 2024a). Kahn was 12 years old when he immigrated to Detroit, Michigan, with his family and began attending public schools. At age 14, Kahn got a job at local Detroit architecture firm Mason and Rice and started his architectural training designing residences and bank buildings. He was able to help pay for his younger siblings to attend college, one of whom became an engineer and worked with Kahn once his firm was established in 1895 (Albert Kahn Legacy Foundation 2024b).

Together, the Kahn brothers patented a new way of reinforcing concrete with steel, an innovation that improved industrial architecture. This new method of construction allowed for large, open interior spaces with natural light and increased ventilation, none of which were feasible with traditional wood and masonry construction. These larger spaces were suitable for industrial buildings, and, within a few years, hundreds of buildings were constructed with this new method (Albert Kahn Legacy Foundation 2024a; Ahrens 2021).

By 1938, Kahn was responsible for 19% of architect-designed industrial buildings in the U.S. and was known for his modern factory designs focusing on efficiency (Johnson 1997). The Curtiss-Wright Aeroplane Factory is no exception to his legacy of designing functional spaces. The basement was built for employee circulation so that activities on the main factory floor would be focused on manufacturing and unencumbered by shift changes or restroom breaks. The construction of the new plant was designed “over and around” the existing building to minimize production line impact (Bivens 2016).

Notably, the Curtis-Wright Aeroplane Factory was the last complex Kahn designed before he died in 1942. Kahn’s industrial designs became well known worldwide, and he started the world’s largest industrial architecture design firm. His designs and innovations have shaped modern factories and industrial buildings nationwide, making Kahn known as a “Maker of 20th Century Modern Architecture” (Johnson 1997). Other examples of Kahn’s work include the Ford Highland Park Factory in Highland Park, Michigan; the Detroit News Building in Detroit, Michigan; and the Glenn Martin Aircraft Factory in Baltimore, Maryland. A St. Louis company, H. B. Deal and Company, Inc., constructed the plant.

Curtiss-Wright suffered from a significant worker shortage because of World War II. To keep the production lines moving, Curtiss-Wright became one of the first aviation companies to train women as welders, riveters, inspectors, and assembly line workers (Bivens 2016). Curtiss-Wright pamphlets encouraged women between ages 18 and 45 to apply for free training programs at all three of their plants. The pamphlets offered various skill enrichment opportunities and claimed successful graduates would be offered jobs with equal starting salaries (Curtiss-Wright 1942) (Attachment 1, Figure 5).

In 1942, just 13 years after rejecting Cornelius Coffey and John Robinson, Black candidates from Curtiss-Wright School of Aviation in Chicago, the company began encouraging an all-gendered and diverse workforce to apply for skilled labor training

courses. By the war's end, the St. Louis plant boasted many skilled Black laborers, who were segregated to "All-Negro production units" floors (Burnett 1987; Laughead 2023).

Initial production at the newly built Curtiss-Wright Aeroplane Factory was focused on the A-25 Shrike dive bomber. The A-25 was the U.S. Army Air Corps (Air Corps) version of the Navy's SB2C Helldiver. The Air Corps ultimately found that the dive bombing missions were not efficient and had the production of the A-25 halted in 1943. Instead, the St. Louis plant began producing the C-46 Commando (Attachment 1, Figure 6). The C-46 Commando was a low-wing, twin-engine aircraft initially designed for commercial passenger transportation. However, it was adapted for use during the war as cargo and troop transport. Following the war, decommissioned C-46s were primarily used for civilian cargo, with few being used for the plane's original purpose of passenger transportation (St. Louis Globe-Democrat 1943; Finlay 2023).

The company had announced that its plan for post-war production would be to use the St. Louis factory to produce the CW-20, a civilian version of the C-46 (St. Louis Globe-Democrat 1945). However, as surplus military planes became available at the war's end, the market for new planes was significantly reduced. In July 1945, amid public outcry about the company's perceived abandonment of the St. Louis area and its economy, the Curtiss-Wright plant was handed over to the Defense Plant Corporation to complete outstanding aircraft orders (Eltscher and Young 1998). In 1948, the lease to the former Curtiss-Wright Aeroplane Factory was awarded to the McDonnell Aircraft Corporation. The company had previously occupied five smaller buildings spread out over the Lambert property. McDonnell Aircraft Corporation was able to hire back many of the 20,000 workers who had been laid off by Curtiss-Wright (Bivens 2016).

3. Ascending to New Heights: McDonnell-Douglas Corporation and The Boeing Company (1940s–2000s)

The McDonnell Aircraft Corporation, founded by James Smith McDonnell, opened the doors to its Lambert Field-based manufacturing plant in 1939. After a rocky first few years, the company eventually found success producing the XFD-1, the first jet to successfully take off and land from an aircraft carrier (Rumerman n.d.). In 1945, large orders from the Army and Navy for FH-1 and the XF2D-1 further boosted the company's profitability. The war's end briefly threatened the rising star of aircraft manufacturing; however, in 1947, orders for the F2H Banshee quickly turned the company profitable again. The production of the F2H Banshee, a sleek and versatile high-altitude fighter jet, led the company to acquire the former Curtiss-Wright Aeroplane Factory (Attachment 1, Figure 7). The road running along the plant's north side would later be renamed Banshee Road after the highly successful aircraft.

McDonnell Aircraft Corporation continued to use the plant to produce jets, including the F-102, the F-4 Phantom II, the F3H Demon, and the F-101 Voodoo through the 1960s (Yenne 1985). In 1959, the company was selected by the National Aeronautics and Space Administration (NASA) to produce spacecraft for the Mercury program. After an unsuccessful attempt by McDonnell Aircraft Corporation to acquire Douglas Aircraft Corporation in 1963, the U.S. government ultimately approved the merger of the two companies in 1966, creating McDonnell-Douglas Corporation.

The plant on Banshee Road would continue to be used for aircraft production by McDonnell-Douglas Corporation for another three decades through its 1997 merger with The Boeing Company (Boeing). Boeing ultimately shut down the plant in 2001 and sold it to the City of St. Louis Airport Authority (STLAA) in 2002; it has been vacant ever since. The proposed use for the complex was a temporary shelter for victims of Hurricane Katrina in 2005; however, those plans ultimately failed to materialize (Meadows 2005).

In 2023, Boeing proposed to lease certain tracts of land at the airport to support construction and operation for U.S. defense-related aircraft production and testing. Boeing's permanent lease would be with the STLAA , would include approximately 158 acres, and would let Boeing assume ownership rights to the leased land (Schlinkmann 2023). As part of Boeing's proposal, the site of the Curtiss-Wright Aeroplane Factory was included in one of the tracts of land, and, as such, the plant would be demolished in favor of the construction of new factory buildings. An environmental assessment report was prepared by Jacobs as part of the proposal and included an assessment of the plant. Because the plant has sat vacant and cut off from utilities for more than 20 years, it was found that the buildings are "functionally obsolete," and renovations to bring the plant to current-day standards would be costly. Additionally, the plant's demolition would adversely affect an NRHP-listed resource (Jacobs 2023).

As part of mitigation efforts executed in a Memorandum of Agreement (MOA) between Boeing and various relevant agencies, the plant would be documented prior to demolition. A physical display regarding the site's history will be located at the St. Louis Lambert International Airport, and a website discussing the site's history will be created (Jacobs 2023). Demolition of the site is planned to occur in 2024.

Part II: STRUCTURAL AND DESIGN INFORMATION

A. General Statement

1. Architectural character: The McDonnell-Douglas/Boeing Aircraft Factory is an industrial facility or multiple building complex. Buildings 1, 2, and 3 are covered in this report. A shared wall connects Buildings 1 and 2, and a two-story brick hyphen connects Buildings 1 and 3. Building 1 served as an administrative building, also known as the office, and was constructed in 1941. Building 2 was the main factory floor for the facility and was also constructed in 1941. Building 3 served as an engineering annex and was erected in 1944. The facility represents a large-scale, World War II-era industrial aviation facility in the modern industrial style.

2. Condition of Fabric: The facility is in overall fair condition. It has sat vacant since 2001, when Boeing ceased manufacturing operations, divested machinery, and cut off all utilities to the facility. Paint is peeling and chipping off of metal and wood surfaces throughout the facility. In 2011, a tornado opened the roof and a large monitor section from Building 2 was damaged and fully removed by wind. Since then, the building has been open to the elements and experienced extreme black mold and water damage, specifically in the basement. Due to this black mold and water damage, the basement was inaccessible to investigators during fieldwork. Additionally, due to damage sustained to the roof, bats have taken up residence in the facility and there has been contamination and deterioration due to their presence. Finally, there are broken windows at various locations of the fenestration.

B. Description of Exterior

1. Overall dimensions: Buildings 1 and 3 are two-story administrative buildings, and Building 2 is a large one-story industrial building. All three buildings have rectangular footprints. Building 1 currently measures approximately 165 feet by 396 feet, Building 2 measures approximately 600 feet by 1,120 feet, and Building 3 measures approximately 87 feet by 214 feet.

2. Foundation: The buildings are all constructed on concrete slab foundations.

3. Walls: Exterior wall materials at the facility consist of buff brick veneer, concrete, limestone, and gunite-clad metal. There are limestone details at Buildings 1 and 3, including window surrounds and a course at the cornice line. The entrance portico of Building 1 is made of limestone walls. Building 1 shares its north wall with Building 2. A two-story brick hyphen connects the east wall of Building 1 with the west wall of Building 3. The south mass of Building 1, which includes the first three bays of the east and west elevations, projects from the larger north mass of the building and has curved walls. Four small rectangular ancillary rooms of varying sizes protrude from the west elevation wall of Building 2 that are clad in brick. Off the north elevation wall of Building 2, two projecting loading bays were built to easily access the railroad spur on the north side of the building. They are clad in gunite-clad metal panels with a buff brick knee wall.

4. Structural system, framing: Buildings 1 and 3 have a steel frame with reinforced concrete and buff brick veneer exterior walls with limestone details, including lintels, sills, and cornice lines. Building 2 has an exposed steel truss frame with gunite-clad metal walls, buff brick veneer, and a brick knee wall.

5. Porticoes: The entrance on the south elevation of Building 1 is a seven-bay projecting trapezoidal portico, added between 1981 and 1997. Each bay is separated by limestone and consists of fixed, six-light aluminum windows, with the entrance within the central bay. The original drawings depict a flat limestone front entrance in a seven-bay configuration similar to the projecting addition. Letters reading “CURTISS WRIGHT CORPORATION / CURTISS AEROPLANE DIVISION” were attached to the limestone wall above the windows. The lettering was flanked by wings attached to the wall (Kahn 1940).

6. Openings

a. Doorways and doors: The south elevation entrance to Building 1 consists of a double-leaf, full-glass and metal storefront door within the projecting limestone entryway. The west elevation entrance to Building 1 consists of a double-leaf, half-light metal door with a hefty replacement transom window. The entrance is covered by a curved metal overhang and is flanked by protruding brickwork details. An enclosed entrance vestibule is located at the west side of the hyphen between Buildings 1 and 3 and consists of a double-leaf, full-light aluminum door and storefront windows, which replaced the original double-leaf entrance accessed by concrete walkway and stairs (Kahn 1941).

There are large sliding hangar doors on the south and west elevations of Building 2—the hangar door on the south elevation slides vertically into a cavity within the parapet roof. At the rear (north) of the east elevation of Building 2, there are seven loading bays with five overhead rolling loading

bay metal doors and a half-light flat metal personnel door at the loading dock. The original pedestrian entrance to Building 2 is on the east elevation, gives access to the basement, and consists of three sets of double-leaf, half-light metal doors covered by a curved metal overhang. There are three metal loading bays and personnel doors along the north elevation. A loading bay with a rubber curtain is at the rear (north) of Building 2's west elevation.

Building 3 is entranced on the south elevation by a half-light metal door with a vent within the transom window. Concrete steps with a metal railing lead to the door. On the north elevation are two personnel doors: a double-leaf, half-light wood door with a vent in the transom window opening and a half-light metal door with a transom window.

lightBuildings 1, 2, and 3 have various additional exterior personnel doors, including double-leaf metal doors, double-leaf wood accordion doors, half-light doors, and double-leaf, half-light wood doors.

b. Windows: Buildings 1 and 3 have two rows of continuous, single-light fixed replacement windows situated within a continuous limestone surround on the first and second levels of the east, south, and west elevation walls—the north elevation of Building 3 features a similar fenestration pattern. Two sets of four fixed windows are separated by brick at the basement level of the east elevation wall on Building 1. These windows replaced the original four-light steel sash with ventilators (Kahn 1941).

The fenestration pattern on Building 2 consists of continuous rows of one-over-one metal replacement hopper windows, two on the east and west elevations and three on the south and north elevations. Within each panel of the hangar doors on the south and west elevations are four or five sets of eight-light original fixed metal windows. On the east side of the south elevation wall, a row of replacement fixed windows pierce the lower brick wall, two of which have been infilled with brick. Within the concrete section of the wall, there is one row of continuous one-over-one metal replacement hopper windows and sets of 14 replacement hopper windows set within each monitor projection bay. This fenestration pattern is repeated on part of the north elevation. There are metal clerestory windows along the walls of the monitor roof projections of Building 2. Various window units have been removed and replaced with vents.

7. Roof: Building 1 has a flat roof with multiple mechanical penthouses over the south mass and an angular "sawtooth" roof accentuated with clerestory lights over the north mass. The west mass of Building 2 has a flat roof with a parapet wall and five monitor projections that run east to west. The east mass of Building 2 has a flat roof with seven monitor projections that run north to south. A large portion of the roof on Building 2 was heavily damaged and pulled off by a tornado in 2011. The damaged section of the roof has remained open since then. There are clerestory windows along all of the monitor roof projections. Building 3 has a flat roof with a mechanical penthouse.

C. Description of Interior

1. Floor plans:

a. Building 1: The Office

Building 1 consists of a partial basement and two floors. Original drawings depict a subterranean garage, storage, and mechanical systems within the partial basement level; a lobby, administrative offices, including the purchasing and sales department, and two large workrooms on the first floor; additional administrative offices, private offices, and a large workroom for the engineering department on the second floor (Kahn 1941).

Building 1's offices are located within the south mass, and larger workrooms are sited within the north mass. On each floor, there is a central circulation corridor that runs east to west along the south-most portion of the building and gives access to offices. In the basement and on the first floor, a second circulation corridor runs north to south and allows access to the manufacturing facilities in Building 2.

A subterranean bomb shelter, added in the 1950s by McDonnell-Douglas and later modified to serve as a conference room, is located off the southwest corner of Building 1 (McDonnell-Douglas 1978).

A set of staircases is located at each corner and centrally within the entrance lobby. Each staircase features original curved metal railings, concrete steps, and non-original traction tape on each tread. Flooring in Building 1 consists of tile in the entrance lobby, carpet and tile throughout the offices, and replacement asbestos tile in the basement, which originally featured finished concrete floors.

Walls are constructed of drywall and finished with paint or textured wallpaper. In private office spaces, the original built-in bookshelves have been removed. Drop ceilings with panel lighting are present throughout Building 1, as depicted in the original plans, except for the second-floor workroom, where skylights from the sawtooth monitors lit the room. There are various interior door types within Building 1, including double-leaf, full-light metal doors; double-leaf, half-light wood doors; and flat metal doors.

b. Building 2: The Factory

Building 2 has a partial basement and a large upper floorplan. The original drawings depict a kitchen, coat rooms, cafeteria, private dining rooms, restrooms, and lunch rooms in the basement, as well as one large room with an open floorplan on the first floor that housed manufacturing facilities. The basement and first floor were designed with open floorplans to alter spaces as various needs arose. Over time, larger spaces within the basement were changed to serve as smaller office spaces, and nonpermanent walls and ancillary spaces were constructed within the open manufacturing space.

By 1978, McDonnell-Douglas added at least seven mezzanines to the manufacturing space (McDonnell-Douglas 1978). The mezzanines, which are still extant today, are accessed by metal staircases with metal handrails supported by metal brackets. The mezzanines and ancillary rooms are

constructed of painted particle board, wood, and metal. Permanent walls within Building 2 are constructed of painted masonry block within the manufacturing space or drywall finished with lead-based paint in the basement.

Original drawings depict concrete floors with 18 concrete staircases organized in 3 evenly spaced rows within the manufacturing space (Kahn 1941). These staircases provide limited access to facilities in the basement, such as restrooms and mechanical and electrical spaces. The design intent for these underground spaces was to provide a separate space for employees so that manufacturing activities would not be interrupted by human-need facilities, such as restrooms and lunch rooms. The concrete floor has an assembly line track covered by metal panels. The original finished concrete floor in the basement has been covered with carpet or asbestos tiles.

Overhead clearance on the west side of Building 2 is 40 feet and 20 feet on the east side. Spans of exposed metal trusses support the ceiling and an interior metal track, which moves heavy objects during manufacturing. Replacement industrial hanging lights are attached to the steel trusses. Off the west elevation of Building 2, there are four rectangular footprint-one-story ancillary rooms added in 1968—used as freight or administrative offices (NETR n.d.). There are overhead rolling metal doors, flat metal doors, and wood doors within Building 2.

c. Building 3: The Annex

Building 3 consists of a partial basement and two floors; the partial basement housed mechanical equipment such as electrical transformers. The first floor is entranced by a door centrally located on the south elevation or through the passageway from Building 1 on the west wall. The first and second floors have the same floorplan and consist of an open workroom for the engineering department, with men's and women's restrooms centrally located along the north wall. A concrete staircase is adjacent to the east of the restrooms. The first floor had concrete floors finished with asphalt and vinyl tiles within the staircase (Kahn 1943; McDonnell-Douglas 1957).

2. Mechanical Equipment: Originally, there were two elevators within the facility: one within the entrance lobby of Building 1 and one at the northeast corner loading dock of Building 2 (Kahn 1941). McDonnell-Douglas added two elevators in the 1970s: one at the loading dock on the north elevation and one along the south elevation wall within the east mass of Building 2 (McDonnell-Douglas 1978). Additional mechanical equipment is housed in various locations of the facility. Initially, mechanical equipment was located in the basement of each of the buildings. Currently, there are mechanical penthouses on the roofs of Buildings 1 and 3. Along the east elevation of Building 2, mechanical equipment is located on raised steel platforms and behind a chain-link fence with privacy slats on raised concrete pads.

D. Site

There are asphalt-paved employee parking lots to the south and east of the buildings. An airplane taxiing and maneuvering area, called an apron, is situated south of Building 2 and accessed via the big hangar door on the south elevation. The apron gives access to the airport runways sited southwest of the facility. Two railroad spurs, built to enable easy railroad access

for the delivery and shipping of goods and materials, are along the north elevation of Building 2. Original drawings depict two spurs that each entered one of the loading bay projections on the north elevation of Building 2.

PART III: SOURCES OF INFORMATION

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PART IV: PROJECT INFORMATION

The field investigation was carried out on January 17, 2024, by Jessica R. Wobig with Jacobs. Ms. Wobig photographed the property and is an architectural historian with a Master of Arts (MA) degree in Historic Preservation and more than 15 years of experience. Miles Jenks and Elisabeth Price conducted research and authored this document under the supervision of Ms. Wobig. Miles Jenks is an archaeologist with a Bachelor of Arts (BA) degree in Anthropology, an MA degree in Public History, and 8 years of experience. Elisabeth Price is an architectural historian with a Master of Historic Preservation (MHP) degree in Preservation Studies and 5 years of experience. The project was completed under the direction of architectural historian Sara Orton, who has an MHP degree and more than 25 years of experience.

In accordance with the Memorandum of Agreement (MOA) between the Federal Aviation Administration, the Missouri State Historic Preservation Officer (SHPO), the City of St. Louis Airport Authority (STLAA), the Osage Nation, and The Boeing Company, copies of this documentation will be submitted to the Missouri SHPO as stipulated in the executed MOA. SHPO and the STLAA will hold copies of the documentation.

Draft: 22 April 2024

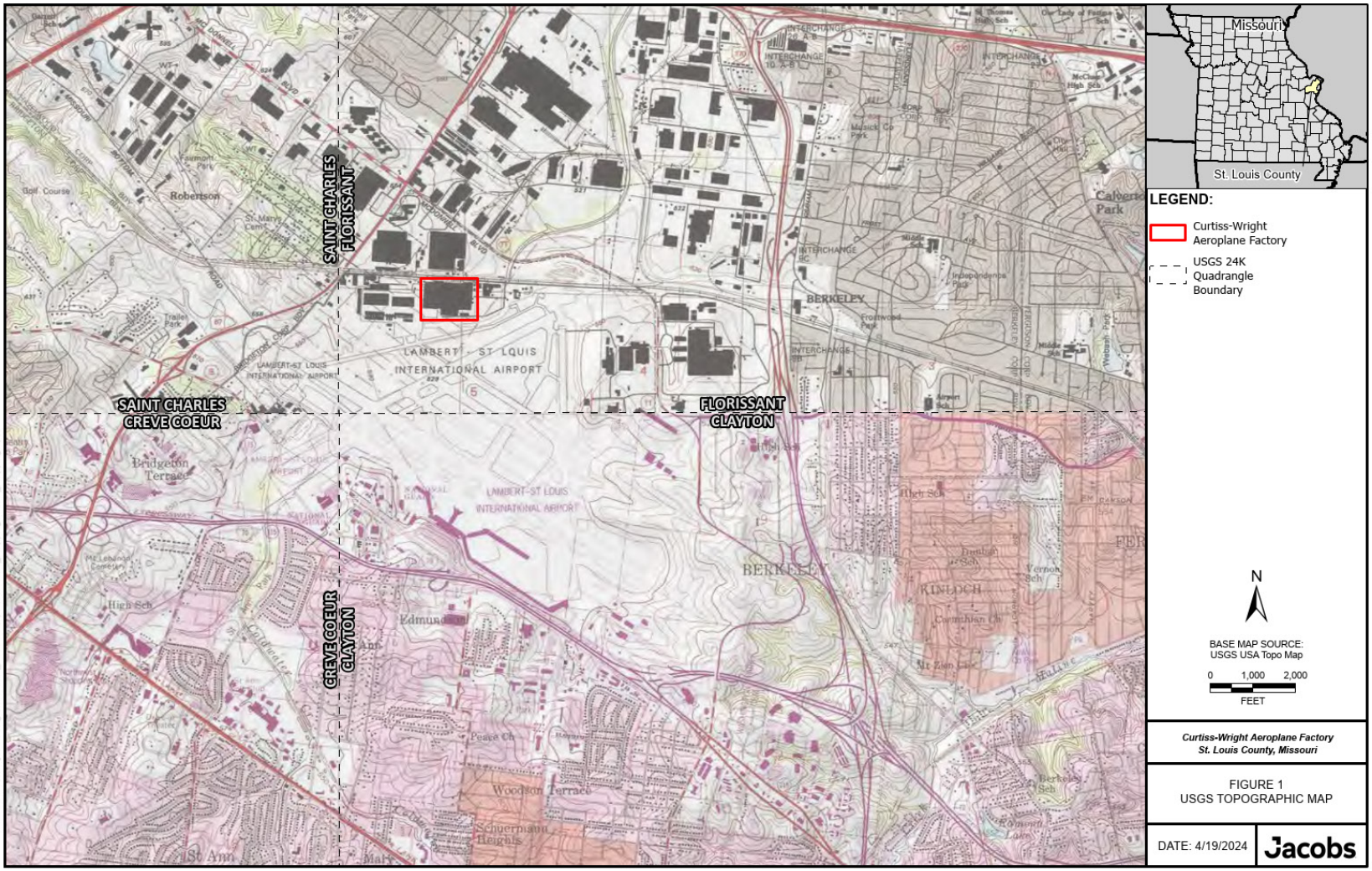

Figure 1. USGS Quadrangle Map Showing the Location of the Curtiss-Wright Aeroplane Factory, Hazlewood, Unincorporated St. Louis County, Missouri

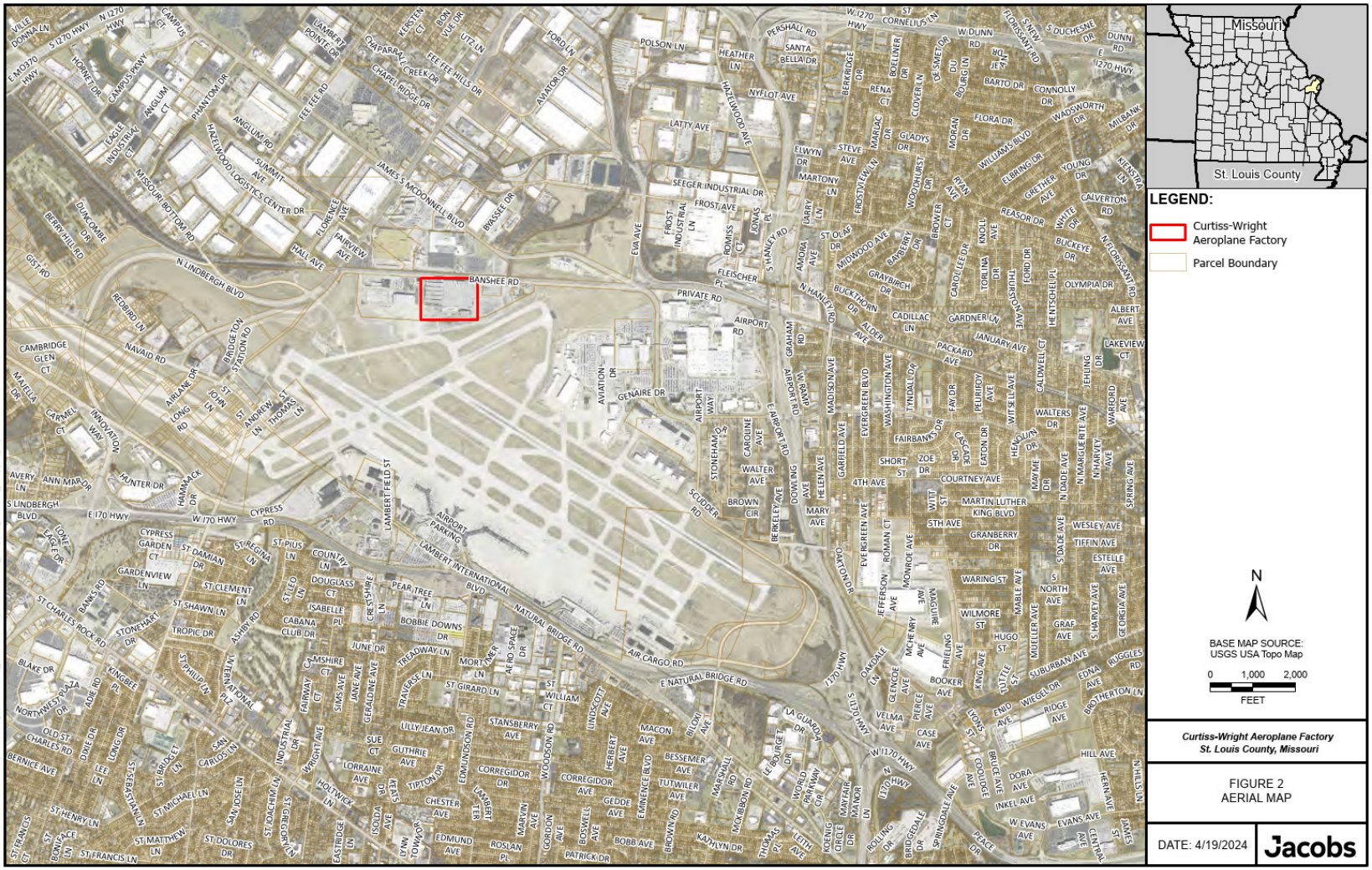

Figure 2. Aerial Map Showing Hazelwood, Unincorporated St. Louis County, Missouri