NPS Form 10-900 OMB No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name: Grants-Milan Flight Service Station
Other names/site number: Grants-Milan Interstate Airway Communication Station, Grants-Milan Air Traffic Communication Station
Name of related multiple property listing:
N/A
(Enter "N/A" if property is not part of a multiple property listing

2. Location

Street & number: Grants-Milan Airport, 1116 N. Dale Carnutte Road
City or town: Grants State: NM County: Cibola
Not For Publication: ☐ Vicinity: ☐

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this _X_ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property _X_ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___national ___statewide _X_local

Applicable National Register Criteria:

_X_A ___B _X_C ___D

Jeff Pappas 5/26/15

Signature of certifying official/Title: **Date**

Dr. Jeff Pappas, New Mexico State Historic Preservation Officer

State or Federal agency/bureau or Tribal Government

In my opinion, the property ___ meets ___ does not meet the National Register criteria.

Signature of commenting official: **Date**

Title : **State or Federal agency/bureau or Tribal Government**

Grants-Milan Flight Service Station | Cibola, New Mexico

Name of Property | County and State

4. National Park Service Certification

I hereby certify that this property is:

✓ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:) _____

per Edson H. Beall 8.3.15

Signature of the Keeper Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private:	☐
Public – Local	X
Public – State	☐
Public – Federal	☐

Category of Property

(Check only **one** box.)

Building(s)	X
District	☐
Site	☐
Structure	☐
Object	☐

Grants-Milan Flight Service Station | Cibola, New Mexico

Name of Property | County and State

Number of Resources within Property

(Do not include previously listed resources in the count)

Contributing	Noncontributing	
1	1	buildings
0	0	sites
1	1	structures
0	1	objects
2	3	Total

Number of contributing resources previously listed in the National Register 0

6. Function or Use

Historic Functions

(Enter categories from instructions.)

Transportation: air-related

Current Functions

(Enter categories from instructions.)

Recreation and Culture: museum

7. Description

Architectural Classification
(Enter categories from instructions.)
No style

Materials: (enter categories from instructions.)
Principal exterior materials of the property: Concrete, Wood: particle board, Metal

Narrative Description
(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

Summary Paragraph

The Grants-Milan Flight Service Station (FSS) is a small air traffic facility located along Interstate 40 in Grants, west of the village of Milan in Cibola County, New Mexico. The complex, which is located adjacent to the Grants-Milan Municipal Airport, includes the flight service station building, constructed in 1953, the delta antenna platform, built in 1955, and three structures that were moved to the site, the generator shed, beacon tower, and Stevenson screen enclosure. The FSS building is a narrow one-story building constructed of prefabricated hardboard panels with metal casement windows. The FSS building rests on a concrete-block stem wall and is covered with a gable roof that includes a catwalk and numerous antennas. The interior plan features a cluster of rooms in the center, near the entrance, for the operations office, mechanical room, storage room, and bathroom. Large rooms on the ends served as a workshop and Operations Room. The delta antenna platform is a triangular wood platform, approximately 20-feet high and supported by three telephone poles. The flat lot includes walkways and parking in their original locations. The site now serves as the Western New Mexico Aviation Heritage Museum.

Narrative Description

The Grants-Milan Flight Service Station (FSS) is a small air traffic facility located along Interstate 40 in Grants, west of the village of Milan in Cibola County, New Mexico. The complex includes the FSS building, constructed in 1953, the delta antenna platform, built in 1955, and three structures that were moved to the site, the generator shed, beacon tower, and the Stevenson screen enclosure. The FSS building is a narrow one-story building constructed of prefabricated hardboard panels with metal-casement windows. When completed, the building was located on a level site, terraced on the north and west sides with several courses of concrete block. The grade has since been lowered, especially on north side. In 1955, the FSS building was lengthened by eight feet (two bays) on the east side and the wooden delta antenna platform was added.

The Grants-Milan Flight Service Station is modular in design and utilitarian in form and function. The FSS is oriented northeast to southwest and measures 13 by 4 framing bays. (For convenience, the main façade on northwest side is described as the north façade.) The steel frames hold 4-foot by 8-foot hardboard panels. The steel frame and hardboard are visible on the exterior. The building rests on a concrete-block stem wall and is covered with a sheet-metal gable roof. The narrow catwalk across the ridge provides access to the numerous antennas. Metal-frame casement windows are located on each façade and allowed station personnel to maintain a visual connection with the skies, terrain, and landing strips.

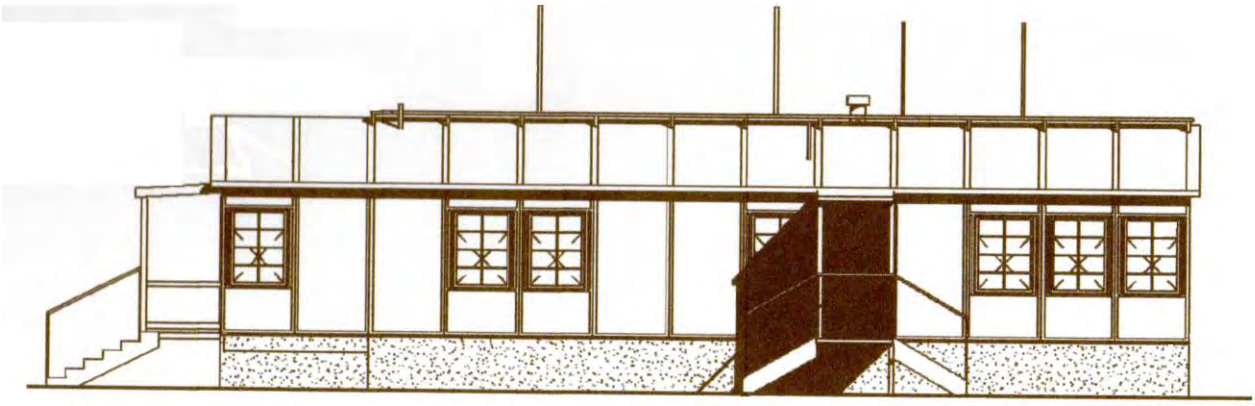

Figure 1. Grants-Milan Flight Service Station, North Elevation. Drawings adapted from Kells and Craig Architects, Inc. "Conditions Assessment and Preservation Plan: Grants-Milan CAA Flight Service Station," February 2013.

The north elevation, which includes the main entrance, front porch, and metal stairs, meaures 13 framing bays. Seven metal casement windows are located across the north (main) façade, including a tripartite window on the east side, adjacent to the entrance. One window fills a framing bay.

The east elevation measures four framing bays. In 1955, two framing bays added to the east end increased the size of the workshop to house additional UHF radio equipment. A second entrance is located on the east side, which serves as the principal entrance for the Western New Mexico Aviation Heritage Museum. This entrance includes a metal landing and handrails constructed of metal plumbing pipes. The east side includes two metal casement windows. A wood door at the foundation provides access to the crawl space. A contemporary weather vane is mounted to the gable peak at this elevation.

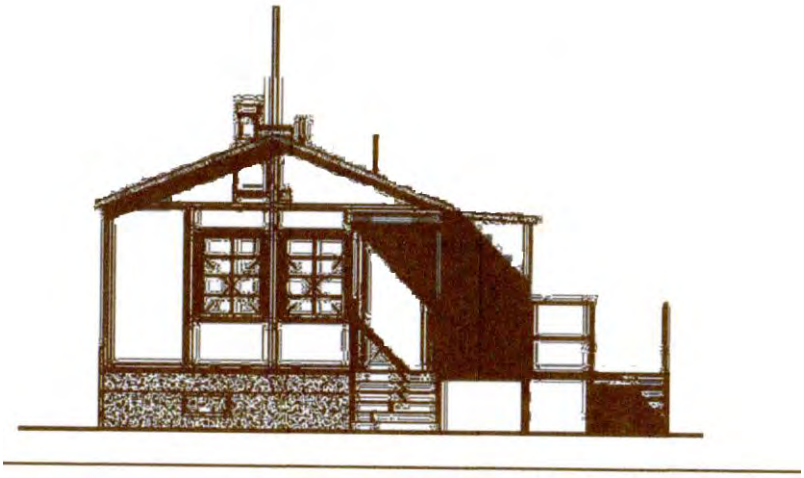

Figure 2. Grants-Milan Flight Service Station, East Elevation.

The south elevation features five individual (rather than grouped or banked) casement windows. A metal stack at the roof vents the gas furnace room. Seven antenna bases and the wood catwalk are attached to the peak of the gable roof.

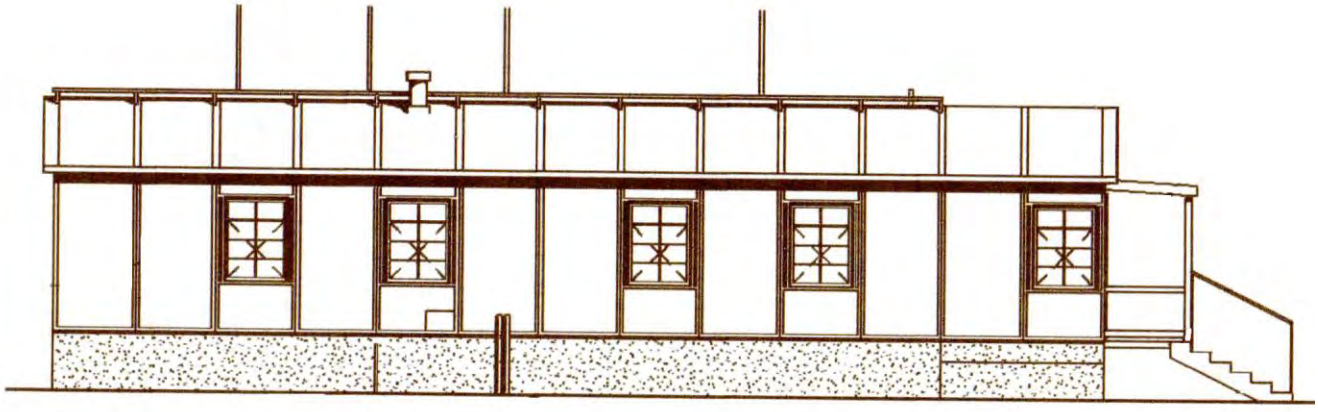

Figure 3. Grants-Milan Flight Service Station, South Elevation.

Antenna/masts have been replaced based on historic photos. On the south elevation, the addition (1955) on east end is visible. The catwalk does not extend over the addition.

The west elevation features two metal casement windows and a wood access door to the crawl space.

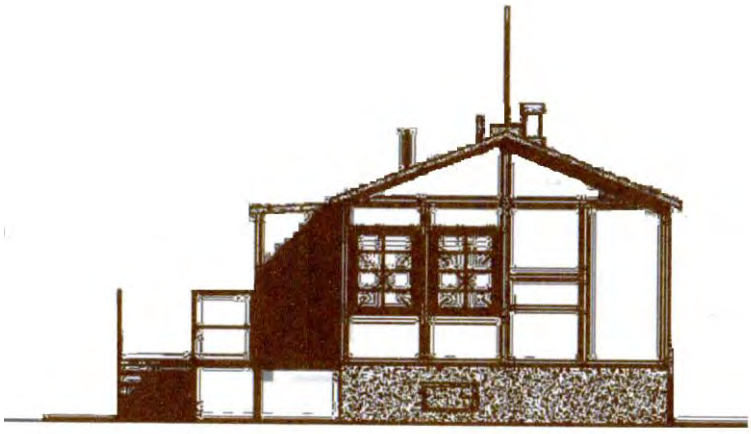

Figure 4. Grants-Milan Flight Service Station, West Elevation.

The interior plan remains intact and includes one large room at each and smaller rooms clustered in the center, near the main entrance. Blueprints from the Dallas-Fort Worth Branch of the National Archives titled, "Equipment Layout and Lighting Plan" and dated "7-10-1959" indicate that the east end of the Flight Service Station (where the main museum exhibits are currently located) functioned as the Supervisory Electronics Specialist's (SES) office and workshop. This room housed the radio receiving and transmitting equipment, equipment racks, and relays that connected to the Ultra-High Frequency (UHF) antennas mounted on the delta antenna platform. The west end of the FFS building served as the Operations Room. The center of the building includes the main entrance, a short corridor, storage room, bathroom, mechanical room (for the gas-fired, forced-air furnace, electrical panel, and hot-water heater) and the office of the Chief Airways Operations Officer, who was in charge of the FSS.

Many of the interior materials and finishes remain. The interior walls are constructed of 2-inch by 2-inch stud framing with insulation and hardboard on each side. Acoustic tiles line the walls and ceiling of the Operations Room. The linoleum-tile floor, which is in poor condition, and the wood baseboard remain. The ceilings are covered with gypsum panels. Hooded florescent tubes are mounted to the ceilings. Most of the window-cranking and latching mechanisms remain in place, and many of the windows remain operational. Additional surviving features includes include light switches, outlets, exposed conduits, and mechanical air registers. The utilitarian interiors with minimal embellishments convey the mission-oriented purpose of the FSS building.

The building, which remained vacant from 1973 until 2010, sustained damage and loss of historic fabric, but retains a high level of historic integrity. The floors, walls, and ceiling panels have deteriorated and the original hardboard roof was replaced with sheet metal. The catwalk was damaged and replaced and several window-crank units have been damaged.

The FFS building is part of landscape that includes resources associated with aviation. The delta antenna platform was constructed in 1953 as improvements in aviation technology necessitated the installation of additional radio and communications equipment. The delta antenna platform is a triangular wood platform, approximately 20-feet high and supported by three telephone poles. The FSS includes the original concrete-block terrace and the sites of the caretaker's residence and other associated outbuildings, all demolished. In 2011, the Cibola County Historical Society acquired a 52-foot beacon tower and a small generator shed, which it relocated to the Grants FSS to aid in historical interpretation of the site. In 2013, the city of Truth or Consequences donated a Stevenson screen enclosure, a small elevated wood box with louvers to protect weather instruments from rain, snow, and the direct rays of the sun. The enclosure is located on the terrace on the north side of the FFS building.

Contributing and Noncontributing Resources

The Grants-Milan Flight Service Station Building is counted as one contributing building.
The delta antenna platform is counted as one contributing structure.

The generator shed is counted as one noncontributing building.
The beacon tower is counted as one noncontributing structure.
The Stevenson screen enclosure is counted as one noncontributing object.

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [X] A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B. Property is associated with the lives of persons significant in our past.
- [X] C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

- [ ] A. Owned by a religious institution or used for religious purposes
- [ ] B. Removed from its original location
- [ ] C. A birthplace or grave
- [ ] D. A cemetery
- [ ] E. A reconstructed building, object, or structure
- [ ] F. A commemorative property
- [ ] G. Less than 50 years old or achieving significance within the past 50 years

Areas of Significance
(Enter categories from instructions.)

Transportation: aviation
Politics/Government
Architecture

Period of Significance
1953 – 1965

Significant Dates
1953—Grants-Milan FSS constructed
1955—FSS addition and delta antenna platform constructed

Significant Person
(Complete only if Criterion B is marked above.)
N/A

Cultural Affiliation
N/A

Architect/Builder
Civil Aeronautics Administration, Facilities Division, Fourth Region (Los Angeles)

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance, applicable criteria, justification for the period of significance, and any applicable criteria considerations.)

The Grants-Milan Flight Service Station is eligible for listing in the National Register at the local level under National Register Criterion A in the area of transportation because it provided en route aviation assistance for the nation's Mid-Continental (Los Angeles-Amarillo) airway from 1953 to 1973. The Grant Milan Flight Service Station is eligible for listing in the National Register at the local level under National Register Criterion A in the area of politics and government because it represents the efforts of the federal government to ensure a safe and reliable nationwide system of flight service stations to serve the needs of general aviation in America. The Grants-Milan Flight Service Station is eligible for listing in the National Register at the local level under National Register Criterion C in the area of architecture because the FSS building is an excellent example of a post-World War II air traffic facility designed by Civil Aeronautics Administration (CAA) according to the modular "Type S" plan. The use of a steel frame and hardboard panels, which served as wall sheathing and roof underlayment, allowed the buildings to be easily dismantled and reassembled to accommodate the changing requirements of CCA.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

The Grants-Milan Flight Service Station was constructed in 1953 by the Civil Aeronautics Authority to provide critical aviation support services along the Los Angeles-Amarillo segment of the nation's Mid-Continental airway. The nearby Acomita CAA airfield was decommissioned in November 1952. Its electrical cables, runway lighting, and other equipment were removed to Grants. The Acomita flight service operation was moved to Grants in April 1953, and a wooden antenna platform was added to that facility in 1955. Twenty years later, the Grants Flight Service Station was decommissioned in January 1973. Recently, in 2011, a c.1929 generator shed and c.1929 beacon tower were relocated to Grants to enhance the historical interpretation of FSS. The property is now operated by the Cibola County Historical Society and serves as the Western New Mexico Aviation Heritage Museum.

According to the Federal Aviation Administration historian, Theresa Kraus, the Grants-Milan FSS is a "prime example of the post-World War II Civil Aeronautics Administration (CAA) construction of an important air traffic control facility" situated along the Mid-Continental Los Angeles-Amarillo air route.[1] The CAA planned the facility with input from the local community, corporate sectors, and the airport authority at the same time that the Grants Municipal Airport was constructed. The FSS opened in 1953 and is one of the last remaining modular buildings of its type.

[1] Letter from Theresa L. Kraus to Steve Owen, May 19, 2014.

The Grants-Milan Flight Service Station is eligible for listing in the National Register at the local level under National Register Criterion A in the area of transportation because it provided en route aviation assistance for the nation's Mid-Continental (Los Angeles-Amarillo) airway from 1953 to 1973. FSS personnel provided a variety of necessary and continuous services when the civil aviation system underwent rapid technological changes. The federal aviation agencies, constrained by challenges of the Second World War and the Korean Conflict, were able to reuse navigation aids, radio components, and teletype equipment from decommissioned facilities. With the nation experiencing substantial increases in private and commercial post-war air traffic, the Grants-Milan airway operations specialists provided critical 24-hour-a-day air-to-ground communication services, including: flight planning information, both instrument and visual; current and predicted weather advisories to both traffic passing over the facility and on the ground; search and rescue operations; and aid to pilots within a radius of 100 to 150 miles of the station location. The FSS also became an important partner in field operations for local Civil Air Patrol units, as well as providing weather and in-flight services for the aircraft associated the nearby uranium-mining and refinery industry.

The Grant Milan Service Station is eligible for listing in the National Register at the local level under National Register Criterion A in the area of politics and government because it represents the efforts of the federal government to ensure a safe and reliable nationwide system of flight service stations to serve the needs of general aviation in America. Since the 1920s, air traffic control had been the domain of the federal government. It was first under the Department of Commerce and then as an independent agency, the Civil Aeronautics Agency, and later the Federal Aviation Administration.

The Grants-Milan Flight Service Station is eligible for listing in the National Register at the local level under National Register Criterion C in the area of architecture because the FSS building is an excellent example of a post-World War II Civil Aeronautics Administration designed in the modular "Type S" plan. The use of redundant hardboard panels that served as wall sheathing and roof underlayment, allowed the buildings to be easily dismantled and reassembled as needed. Earlier "Type K" wood-framed structures were not as easily salvaged and reused. The FSS building and the delta antenna platform maintain integrity of location, design, setting, materials, workmanship, feeling, and association with a period of transition in American civilian aviation.

Developmental history/additional historic context information

Early Aviation in the United States

Early flight was limited to visual cross-country navigation and was possible only in good weather. Daytime methods of navigation that followed railroads, roads, and rivers were supplanted by a series of lighted beacons (later replaced by radio towers) crisscrossing the

country to eventually allow the nighttime transit of long-distance routes.[2] The Civil Aeronautics Administration, and later the Federal Aviation Administration, witnessed steady progress in air traffic control; and private, civil, and military aviation safety in response to air tragedies, legislative mandates, and rapid changes in technology. As early as 1925, the Federal Air Mail Act enabled the U.S. Post Office to use its influence to encourage the manufacture and use of passenger aircraft, rather than cargo planes, to carry the nation's mail. The Air Commerce Act of 1926 "...charged the Secretary of Commerce with fostering air commerce, issuing and enforcing air traffic rules, licensing pilots, certifying aircraft, establishing airways, and operating and maintaining aids to air navigation."[3]

Figure 5. Earl Ward (left) and R. A. Eccles plot air traffic on a table map (no date). Pioneer air traffic controllers had full responsibility for controlling instrument flights between the time the aircraft left the jurisdiction of one terminal area, and entered the jurisdiction of another. They resolved any conflicts that arose between the instrumented aircrafts and those flying visually. Their authority ended only when an aircraft came within the tower operator's visual range (Kraus, 7-8).

In 1934, the Department of Commerce renamed the Aeronautics Branch the Bureau of Air Commerce to reflect the growing importance of aviation to the nation. They continued the construction and operation of the nation's system of lighted airways, a task begun by the Post Office Department. The Department also strived to improve aeronautical radio communications. By 1936, however, a series of high-profile airline crashes created doubts about the department's procedures and the efficacy of existing navigation aids.[4] New legislation in 1938 created an independent Civil Aeronautics Authority (CAA) with expanded roles in civil aviation policy guidance and safety. In 1940, a refocused Civil Aeronautics Administration was shifted back to the Department of Commerce, with air traffic control (ATC) and airway development comprising two of its core missions. On the eve of America's entry into World War II, the CAA began to extend its responsibilities to airport takeoff and landing operations. Mindful of national defense, CAA extended its air traffic control system to include the operation of airport towers. During the postwar era, air traffic control became a permanent federal responsibility at most

[2] Research materials in the developmental history section were provided by Cibola County Historical Society volunteers Steve Owen and Linda Popelish.

[3] Theresa L. Kraus, *The Federal Aviation Administration: A Historical Perspective 1903-2008.* (Washington DC: US DOT Federal Aviation Administration, 2008) , 3.
[4] Kraus (2008), 4.

airports.[5] Numerous nationwide airway communications posts established during the 1940s became the forerunners of later flight service stations.

Early Air Mail Service (1918-1921)

From the lighted airways of the 1920s through the radio navigation improvements in place by World War II; the systems, regulations, and technologies of civil aviation are in fact "the product of decades of experimentation and political negotiation," much of it connected to the development of airmail as the first commercially sustainable use of airplanes.[6]

During the fiscal year 1917-1918, the Postmaster General's office, armed with a Congressional appropriation of $100,000, embarked on a bold experiment to sponsor the growth of commercial aviation through federal benefice. As a prelude to a national network of airways, a short 218-mile section between Washington D.C. and New York City with a stop at Philadelphia was selected for trial flights. On 15 May 1918, a young Lt. George Boyle took off from the Polo Grounds, Washington, D.C. headed for Bustleton airfield near Philadelphia amid much fanfare and anticipation. Dignified onlookers included President Woodrow Wilson and his wife Edith, and the Postmaster General. Swooping low over the field, the Curtiss JN-4, carrying several thousand letters, turned north, and then inexplicably south, where Boyle, now hopelessly lost─ touched down near Waldorf, Maryland—some 25 miles from his starting point—breaking the propeller in the process. The initial lackluster foray served to dramatically underscore the difficulties facing pilots trying to fly cross-country with unreliable compasses and without adequate maps or ground-based navigational aids.

For the next five years, without radios, communications equipment, or maps, airmail pilots resorted to "contact" flying by which a visual connection was maintained with geographic and manmade features. Airmail pilots referred to railroads as the "Iron Compass" due to their visibility and reliability. By 1921, the U.S. Airmail Service had firmly established itself as a day-time-only operation between New York and San Francisco. Mail planes were flown to selected points along the railroad where the plane would land in the evening and transfer the mail to a waiting train, which would move the postal cargo further down the line to be picked up in the morning by another aircraft. According to aviation historian Steve Wolff, this 'leapfrogging' of the mail across the continent drew the ire of Congressional appropriation committees and the scorn of rail officials, as it yielded only a minute commercial advantage.[7]

Air Mail Radio Stations (1920-1927)

[5] Ibid.,5.
[6] Book Review. *Flying the Beam: Navigating the Early US Airmail Airways 1917-1941* by Henry R. Lehrer. (West Lafayette, Indiana: Purdue University Press), n.d.

[7] Steve Wolff, "Sentinels of Airways."
http://atchistory.org/History/FacilityPhotos/WY/MedicineBow/sentinels_of_the_airways.htm.

Oft-cited as perhaps the only far-reaching legislative achievement of the Calvin Coolidge presidency, the Air Commerce Act, enacted in 1926, tasked the Airways Division within the Bureau of Lighthouses with establishing and maintaining safe airways. The first 17 airway radio stations, primitive by today's standards, were situated near airmail landing fields. Messages were sent by code between stations only, not yet to aircraft in flight.[8]

Improving upon marine technology developed by the General Electric Company and the American Gas Accumulator Company, the U.S. Post Office began the construction of lighted airways as early as mid-1923. Workers installed a series of electric and acetylene gas beacons in conjunction with intermediate fields between Cheyenne, Wyoming and Chicago, Illinois. This particular section was chosen because of its relatively flat terrain and proximity to commercial power. More importantly, notes Nick Komons, "mail planes leaving New York westbound, could reach Chicago before nightfall; while eastbound departures from San Francisco could land at Cheyenne before dark."[9]

Aeronautics Branch (1927-1934)

The first seven ground-based, radio-telephone stations, enabling voice or code communications directly with aircraft, were installed in October 1928. A leased teletype system transmitted weather data from site-to-site. A 30-pound airborne receiver and a similarly-sized transmitter were also developed by the CAA at this point in time.[10] Intermediate landing fields were spaced every thirty to fifty miles to provide a safe haven in the event of difficulties.

Regular night service began on July 1, 1925 and by January 1929 an entire transcontinental route was lighted with the illumination of beacons. Westbound flights could now traverse the continent in 34 hours and eastbound service took only 29 hours, besting the railroads by some two days.[11] On clear nights, beacons could be seen at a distance of 40 miles. A new Weather Bureau mapping service was tested in 1931, using data furnished by volunteer ground observers situated along the airways. The service was initially deployed to 78 airfields in 1932.[12] By mid-1933, 90 low-frequency radio stations were activated. More than 18,000 miles of airways could now be safely traversed at night or during bad weather. "Radio had come into its own on the airways."[13] Despite the national stock market crash and its aftermath, and several high-profile airline wrecks, two more transcontinental airways (one central, and one southern) were

[8] Nick Komons A, *Bonfires to Beacons: Federal Civil Aviation Policy Under the Air Commerce Act 1926-1938.* (Washington D.C.: U.S. Department of Transportation, Federal Aviation Administration, 1978) 149-150.
[9] Ibid., 150.
[10] Ibid.
[11] Wolff, 1.
[12] Komons, 152.
[13] Ibid., 158-60.

illuminated for nighttime navigation by 1933. President Herbert Hoover remarked years later that he "felt a personal triumph with every mile of service."[14]

Bureau of Air Commerce (1934-1938)

By the mid-1930s, the fledgling airline business in the United States experienced a period of tremendous growth. The introduction of the Boeing 247 in 1933, Douglas DC-2 in 1934, and the DC-3 in 1936, with enhanced performance and passenger comfort, helped stimulate interest in air travel.[15] At the time, local airport controllers allowed each pilot clearance to land on a first-come, first-served basis. With no en route flight control, pilots waiting for clearance circled to separate his or her plane from other aircraft. With so many planes attempting to land at the same time and place, near misses became typical in terminal areas, especially during inclement weather. With safety threatened, many within the governmental, military, and civil aviation communities began to call for air traffic control that extended beyond individual airports to help coordinate the orderly flow of traffic into terminal areas.

On July 6, 1936, the Department of Commerce's Bureau of Air Commerce began federal control of en route air traffic to improve overall aviation safety. The Bureau of Air Commerce assumed control of three experimental "Air Traffic Control" stations, previously operated jointly by four major airlines, located at Newark, Chicago and Cleveland. Upon the designation of 73 national air routes as being part of a federal "civil airways," the Bureau of Air Commerce issued a new set of regulations for instrument flight that included minimum equipment requirements, and mandatory pilot certifications.[16] Federal flight traffic management created a new government enterprise, and a new profession—dubbed "air traffic control."

Civil Aeronautics Authority (1938-1940)

The Civil Aeronautics Act of 1938 recognized the maturation of nationwide commercial aviation, invoked the Civil Aeronautics Authority (CAA), and eliminated the Bureau of Air Commerce. Although not necessarily intended as a direct consequence, this legislation "assured a growing dependence upon Federal [aviation] policy."[17] In response to the rapid growth of private aviation, the CAA launched the Civilian Pilot Training Program (CPTP) in 1939. The Aircraft Owners & Pilots Association (AOPA) grew to 5,000 members in 10 months. Many authorities regarded this segment of aviation as "the backbone of American air power."[18] By the end of 1938 the nation boasted 22,671 miles of lighted airways, 85 broadcast stations, 170 radio

[14] Komons, 144.
[15] Theresa Kraus, *Celebrating 75 Years of Federal Air Traffic Control*. (Washington DC: Federal Aviation Agency, 2011),1-2.
[16] John Wilson, *Turbulence Aloft: The Civil Aeronautics Administration Amid Wars and Rumors of Wars 1938-1953.* (Washington DC: U.S. Department of transportation, Federal Aviation Administration, 1979),117.
[17] Komons, 116.
[18] Wilson, 25-6.

range stations, 25,460 miles of teletype service, 1,950 airway beacon lights, and 275 intermediate landing fields.[19]

The number of air passengers on U.S. domestic carriers increased from 461,743 in 1934, to a whopping 1,900,000 in 1939.[20] On May 1, 1939, the CAA completed the $7-million airway modernization program launched by the Bureau of Air Commerce in 1937. It extended airways, overlapped radio-range and radiotelephone signals, straightened beacon alignments, and added additional beacons, teletype circuits, and new intermediate airfields.[21] Prior to U.S. entry into World War II, airway radio stations (ARSs), airway keeper stations (AKSs), airway communication stations (ACSs), airway traffic control centers (ATCCs), and airways traffic control stations (ATCSs) dotted the national landscape.

Aviation Industry and World War II

Although federal management of en route air traffic was initiated in mid-1936, federal takeover of airport traffic control officially began on November 1, 1941, under the auspices of the Civil Aeronautics Authority. Five weeks later, after a surprise early morning attack on Hawaii's Pearl Harbor, all Civil Aeronautics Administration (CAA) activities were geared to support the war effort. On December 8, 1941, the CAA ". . . revoked 100,000 airman's certificates, exempting only airline pilots."[22] To regain the license meant undergoing identity checks, fingerprinting, and taking a loyalty oath. Japanese Americans were excluded from the re-licensing process.

Later that same month, a volunteer corps of licensed civilian airmen, each with his own aircraft and equipment was enlisted for wartime tasks under the Office of Civilian Defense. The newly-formed Civil Air Patrol (CAP) permitted non-military pilots to provide security and courier flights, and coastal anti-sub and rescue patrols.[23] A CAP cadet program for high school graduates was established in late 1942. Beginning May 15, 1942, the Army requisitioned half of the nation's commercial airline fleet, leaving them with only 176 of 359 airplanes one year later. The staunch cadre of CAA technicians and radiomen was heavily impacted by the mandatory military draft.[24]

Military requirements created unexpected demands on resources as it became clear that the CAA radio equipment was the best in the world. Upon request, ". . . the CAA quickly removed and shipped overseas those stations whose loss would least handicap the domestic airways. Along

[19] Dale H. Heister, "Airways – End of Seat-of-the Pants Flying." (Los Angeles: Self-published, 1978) 151.
[20] Kraus, 2011, 1.
[21] Wilson, 27.
[22] Ibid., 86.
[23] Wilson, 94-5.
[24] Ibid,88, and Heister, 1978.

with them went CAA personnel."[25] Domestic air traffic controllers were tasked with providing aviation safety and efficiency. Of the two, "safety was fundamentally easier to achieve."[26]

Historian John Wilson notes that technical development in the civil sector "came to a virtual standstill after Pearl Harbor. The war postponed the adoption of the very-high-frequency radio range for five years . . . and slowed CAA technical progress to a snail's pace."[27] Despite wartime challenges that stretched financial resources and personnel, the CAA launched an in-flight advisory service for all non-airline pilots on May 1, 1942. It permitted an airway traffic control center, through an interstate airway communications station, to advise pilots of impending weather conditions.[28]

Department of Commerce (1940-1945)

Although temporarily disruptive, wartime aviation involvement ultimately accelerated the long-term growth of peacetime civil aviation under the auspices of the Department of Commerce. The main purpose of the Commerce Department, from its inception, has been to create jobs, promote economic growth, encourage sustainable development, and improve the standard of living for all Americans.[29] To assist the aviation industry in achieving these aims, the Civil Aeronautics Authority and the Weather Bureau (now the National Weather Service) became a part of the Department in 1940.

In June 1945, the CAA initiated a cost-savings effort to close 231 of its intermediate airfields, offering them to local governments to operate.[30] A federal policy adopted in 1948 designed to improve national navigational capabilities gradually replaced radio ranges with VOR/DME equipment and aircraft transponders. VOR/DME refers to a combined radio navigation station for aircraft, consisting of two radio beacons, placed together; a very high frequency (VHF) omnidirectional range (VOR) and distance measuring equipment (DME). VOR produces an angle between the station and the receiver in the aircraft, while DME does the same for range. Together, they provide the two measurements needed to produce a navigational "fix" using a chart.

The first Victor system of low-altitude, straight-segment flights was deployed in late 1950. Within two years there were 388 omni-ranges on the airways.[31] The following air support facilities succeeded earlier posts: Airway Communication Stations (ACSs) (1945-1956); Interstate Airway Communication Stations (INSACSs) (1940-1956); Air Traffic Communication Stations (ATCSs) (1956-1958); and Air Route Traffic Control Centers (ARTCCs) (1956-1958).

[25] Wilson, 119.
[26] Ibid., 113.
[27] Ibid., 84.
[28] Ibid., 117.
[29] Steve Charnovitz, "Reinventing the Commerce Dept.," *Journal of Commerce*, July 12, 1995.
[30] Wilson, 181.
[31] Ibid., 226-9.

With the transition from wartime to peacetime aviation activities nearly complete, the number of towers providing approach control services was increased to a total of 61 during the fiscal year 1948. The towers monitored an average of approximately 1,600,000 take-offs and landings monthly.[32] The 1950s consequently witnessed dramatic improvements to antennas, frequencies, weather prediction and broadcasting, distance measuring, teletypes, telephones, radios, and other navigational aids and communications equipment.

Postwar Developments (1945-1958)

By the early 1950s, general aviation (previously referred to as personal aviation) had not mushroomed after the war as had been predicted.[33] Light planes would never rival automobiles in utility or cost. Consequently, an expected upsurge in airport needs never materialized. At the same time, community leaders were discouraged from applying for airport funds due to the burdensome restrictions and contractual obligations imposed by the federal assistance programs.[34] President Eisenhower recognized that the government could not continue to fund the nationwide facilities and services. Accordingly, the administration sought and achieved extensive federal aviation budget cuts during the early 1950s.[35]

Despite pleas from local and state administrators, federal officials decreed in early 1954 that approximately half of the standby generators used to power en route and terminal equipment in emergencies would be shut down “in those locations where a reliable alternate commercial source was available." Interstate Communications Stations (INSACS) were to be decommissioned wherever adjacent service sources existed. By mid-1954, federal aviation staffing fell to 1947 levels. These changes came largely at the expense of the small private flier either unqualified or ill-equipped for instrument flight.[36]

In early 1954, an outside evaluation designed to streamline the CAA proposed a massive reorganization and additional cutbacks to an already understaffed agency. It would have eliminated or reassigned functions, such as weather reporting to other agencies, cut out all INSACS services, and reduced core activities, such as inspections and certifications. Although the plan was ultimately rejected, aviation services and funding were funneled to other national infrastructure initiatives. Increasingly, the 200,000 pilots and 50,000 light private aircraft services personnel felt left out of shifting federal priorities.[37]

[32] Heister, 1978, 194-7.
[33] Wilson, 165.
[34] Stuart Rochester, *Takeoff at Mid-Century: Federal Civil Aviation Policy in the Eisenhower Years 1953-1961.* (Washington D.C.: U.S. Department of Transportation, Federal Aviation Administration, 1976), 20.
[35] Ibid., 57.
[36] Ibid., 27.
[37] Ibid., 70.

Also during the 1950s, it was clear that aviation had reached a defining moment. Observes historian Stuart Rochester, the crux of the issue involved a "lagging bureaucracy" struggling to harness a "runaway technology."[38] Despite concerted efforts to improve national safety and efficiency protocols, what was needed "was concentrated funding, and a comprehensive large-scale 'systems' approach"[39] to counteract what had become a patchwork methodology. Airspace control became an increasingly knotty issue. Knowledgeable officials feared that an unprecedented aviation catastrophe was inevitable. During the late 1950s, multiple mid-air collisions between military and commercial planes, and several airliner crashes confirmed their worst fears.

Federal Aviation Agency (1958-1967)

In August 1958, President Eisenhower signed the Federal Aviation Act creating the Federal Aviation Agency. Several factors boosted morale at the new agency, including the increased use of enhanced navigation and communications technologies, the introduction of high-speed commercial jets, and increased federal funding. Staffing was significantly increased and the agency's budget was doubled over two years. Congress realized "we had a fantastic catching up to do."[40] Despite widespread improvements, the Air Line Pilots Association noted as late as 1960 that "85 percent of all air traffic was still conducted under visual flight rules."[41] By end of 1960, the FAA managed 9,500 air traffic control and navigation facilities, including 425 Flight Service Stations.[42]

Flight Service Stations

The FAA was increasingly viewed by the aviation community as a heavy-handed, burdensome, bureaucracy. This perception only worsened with the announcement of the FAA's budget for fiscal year 1965. Author Richard J. Kent Jr. observes that perhaps the most "controversial" aspect of the budget proposal was the plan to phase out a number of Flight Service Stations "in the interests of economy and improved service." The flight service stations were developed in the late 1920s and early 1930s to provide pilots with assistance during cross-country aviation.

During the late 1930s and throughout the 1940s, the stations were an integral link within the air communications network, relaying clearances and position reports between pilots and air-route traffic control centers. "By the early 1950s," explains Kent, "technological advances in airborne communications permitted the introduction of direct pilot-to-controller radio contact, eliminating

[38] Ibid., 6-7.
[39] Ibid., 78.
[40] Ibid., 146-7.
[41] Ibid., 182.
[42] Kraus (2008),12.

the main purpose of the stations. The stations continued to provide air-to-ground communications and weather services to aircraft flying under visual flight rules."[43]

The stations also provided visual aids to navigation. Airways were designated by the first letters of their terminal cities and numbered from west to east and south to north. Beacons were numbered with the mileage from a major terminus point, with the last digit dropped. The Acomita CAA site was located 630 miles from Los Angeles and was thus designated as Site LA-A 63. Large (50- to 60-foot) concrete arrows at the base of each beacon tower pointed eastward to the next (higher-numbered) site.

Aviation historians note that lighted airways were constructed on every conceivable type of terrain, through Georgia swamps, Allegheny mountain tops, along rivers, and in remote desert landscapes. The lighted airways reached a zenith in 1946 when more than 2,000 beacons were in use.

Officials with the Office of the Secretary within the Department of Transportation believed the flight service stations were outmoded and should be eliminated. FAA administrators, however, believed the FSS modernization program was a vital part of the air traffic system and should be given a high priority. The resulting deadlock "temporarily paralyzed the FAA's efforts to modernize."[44] Amid the lull, FSS personnel expanded their services to general aviation pilots. In addition to the normal routines, they gathered weather observations, broadcasted airport advisories, and conducted face-to-face pilot briefings. For most small-plane pilots, ". . . the flight service station became the one helpful and friendly operation" within an otherwise "troublesome FAA bureaucracy."[45]

Evolving Missions of the Department of Transportation (1964-1968)

General aviation increased during the 1960s, leading to fears over aircraft safety. FAA tower traffic jumped 64 percent. Aviation growth choked the airways, the terminals, and the traffic control system. Budget hearings late in the decade concluded that the FAA could not maintain essential safety services given the current mismatch between increased usage and flattened funding. Flight service stations exemplified the tumultuous push and pull between private and public needs, and the confusion regarding fiscal responsibility.

Attempts at cost savings were made to convert flight service stations into remotely controlled facilities, and/or to create different levels of servicing requiring specific levels of staffing at each station. Historian Richard Kent explains that concerns about poor coordination between stations, and the fear of voids created by premature station closures led to a federal mandate that no flight

[43] Richard J. Kent, Jr. *Safe, Separated and Soaring: A History of Federal Civil Aviation Policy, 1961-1972.* (Washington D.C.: U.S. Department of Transportation, Federal Aviation Administration, 1980) 116-7.
[44] Ibid., 324.
[45] Ibid., 116-7.

service station could be decommissioned without prior Congressional consultation. To complicate matters, President Johnson's administration began the process of reevaluating the premise that the federal government should underwrite the cost of allowing "all private pilots to fly anywhere, and at any time."[46] In addition to the flight service stations, the nation's international flight service stations (IFSSs); air route traffic control centers (ARTCCs); airport traffic control towers (ATCTs); radar approach control facility (RAPCON); and radar air traffic control center (RATCC) all underwent similar scrutiny as improvements to aviation safety and efficiency were sought.

Department of Transportation Act (1967)

In 1966, a Cabinet-level Department of Transportation (DOT) was created, combining five diverse major entities of government, including the Federal Aviation Administration. By 1970, "legislation was in place to enhance and expand the aviation facility system,"[47] including the means to develop local master plans regarding airport management. August 20, 1970, marked the "Golden Anniversary" of flight service stations. The FAA marked the occasion with a national observance. In 1972, the last beacon within the Western Region, located on Whitewater Hill, west of Palm Springs, was decommissioned. By the end of August 1974, there were 327 active flight service stations. Legislation enacted in the 1970s, provided air traffic control system improvements, airport development, and increased funding for general aviation.

Expectations for improvements in aviation in the 1970s, according to Nick Komons, were "dashed, for the most part, by the Watergate scandal" that plagued the Nixon administration. Several FAA officials fervently believed that their chief's cooperation with Sam Ervin's investigative committee prompted federal staffers to sabotage the agency in retaliation.[48] Although the inauguration of Gerald Ford brought the promise of a fresh start, the new presidency brought the FAA little relief.

In recent decades, automation and computers have significantly enhanced flight efficiency and safety. Historian Dale Heister reminds us that station "folks" have always "had the closest personal contact with the flying public, and regardless of how sophisticated their working tools become, Stations will continue to be the grass roots of civil aviation."[49] In March 1980, the FAA forwarded an addendum titled, "Master Plan FSS Automation Program," which addressed the modernization of flight service stations, and made nationwide automation one of its highest priorities. Subsequent actions were taken to reduce the roughly 290 flight service stations down to 61 "super stations." In 2005, the government began contracting nearly all of the flight service

[46] Ibid., 215.
[47] Kraus, 20, 34, 37.
[48] Edmund Preston, *Troubled Passage: Federal Aviation Administration During The Nixon-Ford Term, 1973-1977.* (Washington D.C.: United States Department of Transportation, Federal Aviation Administration, 1987), 31, 113.
[49] Heister, 1978, 227.

station duties to Lockheed-Martin. The contract services continue to this day, and are provided at no charge to the flying public.[50]

Aviation in New Mexico

The Town of Grants and the Transcontinental Air Transport Airline

In 1929, the town of Grants, New Mexico, played a peripheral role in the new Transcontinental Air Transport (TAT) airline. Charles Lindbergh was chosen to be the technical advisor on an intrepid new plan for a coast-to-coast passenger service route that combined rail and air travel. At the time, there were almost no lighted airfields, no nighttime navigations aids, and no radio system. Early flights were limited to daylight travel only, weather permitting. As early as February 1929, TAT officials requested that an emergency landing field be established near Grants, but the venture proved to be cost prohibitive. The Acomita emergency landing field (later LA – A Beacon 63) was constructed on McCarty Mesa on Acoma Pueblo lands.

Two months after TAT started its experiment in cross-country passenger service, eight persons were killed in plane crash on Mount Taylor, during a violent summer thunderstorm. The crash was then the worst American airline disaster. By mid-1930, the Department of Commerce declared that this segment of the route must be shifted away from Mount Taylor and south of the Zuni Mountains due to safety concerns.

[50] http://flightservicesigmet.blogspot.com/ and http://wikipedia/flight_service_stations.

Figure 6. "Coast to Coast," Tom Baillieul, www.earthfriendarts.com.

Six months after the Mount Taylor disaster, the original TAT beacon line along Route 66 to Gallup was in the process of being rerouted, and the Department of Commerce was upgrading and expanding the emergency fields. By mid-1931, the revised Los Angeles-Albuquerque airway included intermediate fields at both Acomita and El Morro. In 1951, Chief Communications Officer Ed Myatt decided to survey the area for a location closer to Grants. Once a suitable site was identified, landowners Mr. and Mrs. Salvador Milan, prominent local vegetable growers, donated approximately 300 acres. A *Grants Beacon* newspaper article summarized the upcoming work: "grading, base course, base stabilization, marking and fencing on the airport site, and [the] building of the runway… Arrangements have been made to move the beacon light and communication station from Acomita to Grants when the airport is able to accommodate it."[51]

The new airport was built largely by labor and resources donated by local businesses and volunteers. The electrical cables and runway lights were relocated from Acomita to the new site.

[51] *Grants Beacon*, August 2, 1951.

In November 1952, the Grants Chamber of Commerce held "Airport Day" at the Acomita Airport. The volunteer workers, consisting of 26 school children and approximately 40 businessmen or their representatives, "spent the day removing the lights and cables from the CAA airfield with the aid of trucks and machinery generously donated by various Grants business firm[s]… Meals and lunches were served to the workers at the Airfield…the boys from the Bluewater School said "'they've…never seen that much food before.'"[52]

Volunteer workers at the Acomita Airport pause for refreshments before continuing their work of removing 14,200 ft. of buried cable.

Figure 7. "Volunteer workers at the Acomita Airport pause for refreshments before continuing their work of removing 14,200 feet of cable."

Ray Wilsford, Chairman of the Airport Committee, and a group of five men drove to Aleman, north of Las Cruces, and dismantled a 52-foot beacon tower, which had been donated to the city of Grants by the CAA, for use on the new airport. The relocation process, which was completed by volunteer labor and donated equipment, was done at a savings of approximately $500 to the city of Grants. In April 1953, seven Acomita personnel moved to the Grants-Milan flight service station. The formal dedication of the Grants Municipal Airport took place on September 20, 1953.

In New Mexico during the 1930s and 1940s, six flight service stations operated at Acomita, Anton Chico, Clovis, El Morro, Engle, and Socorro. These stations were decommissioned before 1953. The most stations (14) were in operation in the state in the 1950s. These include stations at Albuquerque, Carlsbad, Deming, Farmington, Hobbs, Las Vegas, Columbus, Otto, Roswell, Santa Fe, Truth or Consequences, Zuni. During the 1960s, one new station (Deming)

[52] Ibid.

was commissioned. Presently, four flight service stations remain in New Mexico: Black rock, Otto, Truth or Consequences, and Grants Milan.

The Grants-Milan INSACS/ATCS/FSS (1953-1973)

Throughout its phenomenal growth in the twentieth century, the aviation industry has always been dependent upon its ground-based support facilities. Just as the early 1930s transcontinental flights relied upon lighted airways, the safety of today's flights remains contingent upon air traffic control and electronic navigational aids. Flight service specialists worked with the FAA to eliminate, mitigate, monitor, or assist with major and minor air disasters, fatal and non-fatal accidents, in-flight structural failures, failures of flight control systems, unwanted contact with the surface, near-midair collisions, midair collisions, air traffic controller errors, natural and manmade disasters, and hijackings.

Commissioned in 1953, the Grants-Milan Flight Service Station helped ensure the safety of aircraft flying along the Los Angeles-Amarillo airway. Retired FAA Headquarters Operations Center manager Jim Davis notes that the flight service station operators were always nearby to help during emergencies, and that to safely and successfully operate the equipment during times of stress requires knowledge and skill.

Davis asks rhetorically, "How important was the specialist's eyes and ears, his advice and knowledge of the area when properly linked to the nations' command and control system?" Many modern pilots, Davis continues, may not realize the importance of the Grants-Milan Flight Service Station in its lifetime: "The engines available and drag components reduced climb rates and other considerations to a point where flyers needed all the help they could get. These factors and the rapidly changing weather found in [the area] were sometimes very hazardous to aviators; wreckages throughout the area attest to that."[53] Others agree, noting that a pilot may not always appreciate the advantages of radio and other ground-based navigation aids until clouds begin to obscure his or her vision. "Then," writes John Wilson, "the existence of facilities such as radio ranges" became not merely a comfort, "but essential to [safety]."[54]

Aviation arrived along the Route 66 corridor of western New Mexico in the first decades of the 20th century. As early as 1926, a "Dry Lake" Emergency Field west of Grants was listed in the federal Aeronautical Bulletin. Early in 1929, an auxiliary landing field was considered at Grants,

[53] Letter from Jim Davis, FAA Headquarters Operations Center manager (retired) to Steve Owen, Museum Chair, Cibola County Historical Society (CCHS). 15 May 2014.
[54] Wilson, 117.

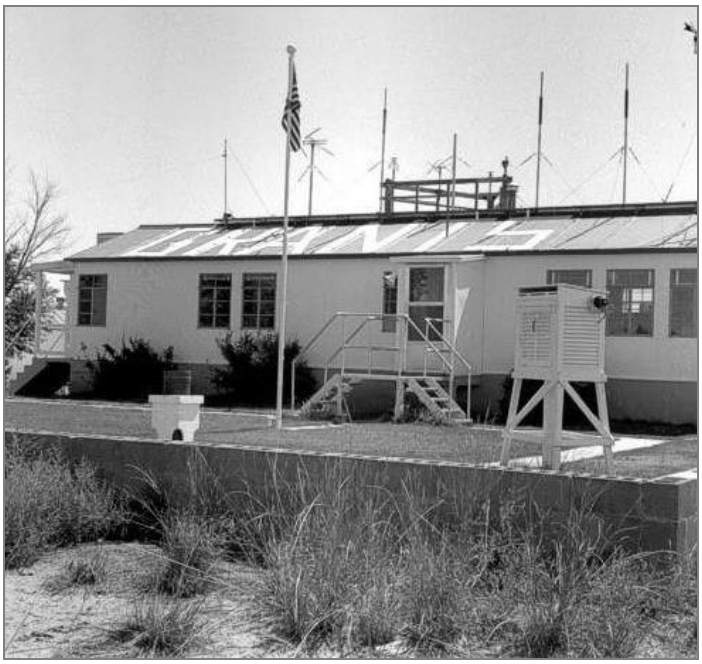

Figure 8. The Grants-Milan Flight Service Station, late 1950s.

but terrain concerns and budget issues arose. Officials decided to use a federal emergency landing field on McCarty Mesa instead. This dirt strip was upgraded by mid-1931 to Department of Commerce standards, featuring three runways, boundary and approach lights, and an airway beacon. By 1933, Acomita Airfield provided a fully-staffed flight services site.

A new modular Type "S" metal building type was developed by the CAA in early 1935. The Bureau announced that buildings would be constructed from pre-fabricated metal sections, bolted together, and would be provided at all new and/or updated facilities. A number of small generator sheds at beacon sites had already been constructed in this manner and were deemed suitable. Unlike the earlier wood-framed buildings, these metal structures could be dismantled quickly and moved on a flatbed truck or by rail.

The move to build modular structures was the result of changing spatial needs due to improved technologies and station relocations. Roughly 200 vacated buildings languished along the nation's airways. Difficult to move, they were not readily salvaged. By contrast, a sectional power shed consisted of ten panels, constructed using double layers of galvanized metal. Depending upon the final width and length, each flight station required a specific number of panels used for the front, sides, back, and roof. Wall panels were doubled, with dead air spaces in between for insulation. The panels were bolted together, and anchored to the concrete foundations with heavy bolts. The joints of the panels were weatherproofed. The official designation was Type "S", and the modular metal buildings ultimately replaced the cottage-style

Types K and KK.[55] Four "Type S" prefabricated flight service stations have been identified in New Mexico. The other three are located at Otto, Truth or Consequences, and Zuni.

Figure 9. Flight service station, Bryce Canyon, Utah, with Type "S" modular design and delta antenna platform.

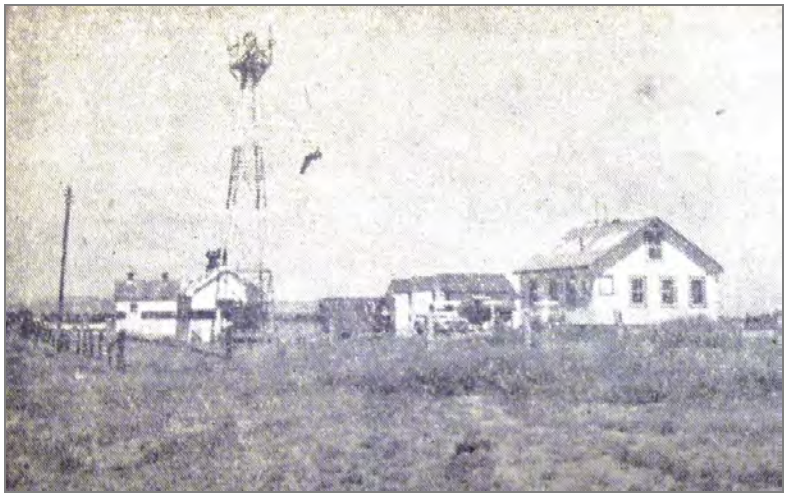

Figure 10. Flight service station, Acomita Airport, Acomita, New Mexico.

[55] Heister 1978, 132.

Figure 11. A typical wood-framed Type "K" building

Figure 12. Flight service station, Acomita Airport, Acomita, New Mexico.

Although the airway beacon line was shifted to the south in 1931, the Acomita airfield remained in service for 20 years as a key site on the Los Angeles-Amarillo airway segment, flourishing as electronic navigation and radio systems improved. However, the CAA, because of its remote location, experienced a steady turnover in operators. This situation contributed to the decision that the Acomita flight services be moved to Grants.

The Grants-Milan Flight Service Station included a gable-roofed caretaker's residence, a large storage shed, a power shed, and two small garages (none survive). Two years later, in 1955, the FSS underwent an eight-foot extension to accommodate ultra-high frequency radio equipment. A large wooden tower platform was completed that year to hold the antennas for the new systems. The "delta" platform, so named because of its triangular configuration, supported the tangle of transmitting and receiving antennas required for each of the station's diverse tasks. The slatted floor boards shed water and the platform was left open for ease of equipment maintenance.[56]

The Grants-Milan FSS served as a never-sleeping nerve center for nearly every airplane that passed its way for two decades. The station chief and airway operations specialists handled ground-to-air communications with aircraft in flight, pre-flight and in-field assistance services, relay of traffic control, scheduled and unscheduled broadcasts of information and notices to airmen, monitoring of air navigational aids, and weather observational duties. They were also on an interphone connected with Albuquerque's control and defense centers. They were also connected to a teletype circuit, which allowed them to send and receive reports to and from airports nearly anywhere in the country.

Beginning in March 1959, during the height of the Cold War, the FFS also provided a base of operations for a wing of the Civil Air Patrol (CAP) in Grants. Thirty young men and 22 young women formed the initial membership. Two-way radio equipment was given to the CAP to provide a nationwide network of communications for use in case of national or local emergencies.

As a civilian organization supported by the Air Force, CAP's main duty was to assist in the search and rescue of downed fliers and missing persons. The CAP unit located numerous crash sites over the years, in addition to rescuing hikers, hunters, and motorists stranded in rugged terrain. They excelled in training exercises and assisted with pilot guidance as needed.[57]

The FSS was responsible for furnishing information to pilots on known and anticipated flight conditions. The station helped plan flight courses, filing and closing flight plans, and reporting field conditions. The station also provided any and all practical assistance in the case of an overdue or unreported aircraft, or one involved in an accident. Runway lights were turned on only upon request. The beacons operated from 15 minutes before sunset until 15 minutes after sunrise. Traffic on the runway averaged about 150 aircraft per month, many of them single-engine, small craft belonging to the uranium industry.

[56] Ibid., (1978), 194.
[57] Ted Spitzmiller and Gwen Sawyer, *Enchanted Wings - History of the New Mexico Wing Civil Air Patrol 1941-2010*. (Bloomington: Universe Press, 2009).

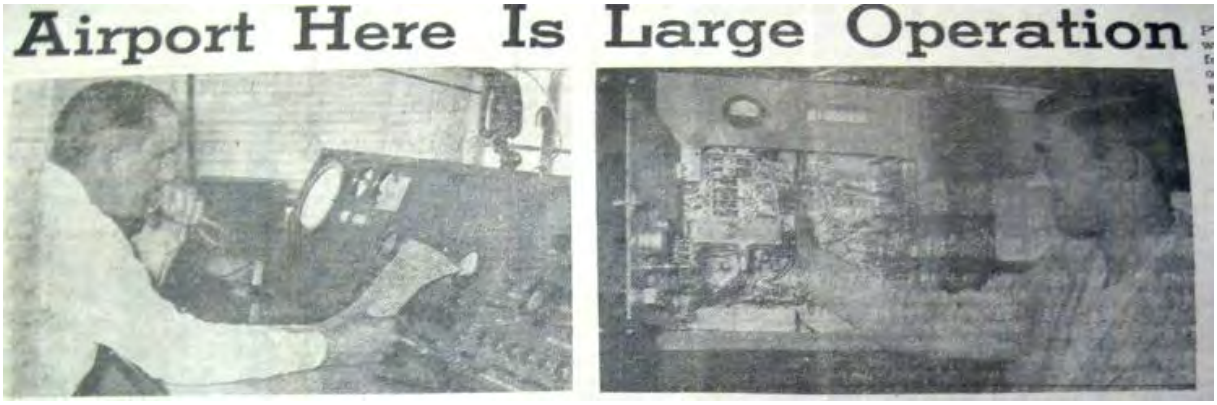

Figure 13. "Bart Starr (left) one of the five highly trained airways operations specialists at the Grants municipal airport, gives an hourly weather report to in-flight aircraft, ranchers and farmers, and anyone else who is tuned to the frequency to receive the news of the coming weather. Elbert Cone (right) the supervisor electronics specialist assigned to the Grants CAA communications station at the municipal airport, is shown above checking the working end of a VHF communications receiver. Cone is in charge of maintaining all of the electronic equipment assigned to the Grants station" (*Grants Beacon*, 1955).

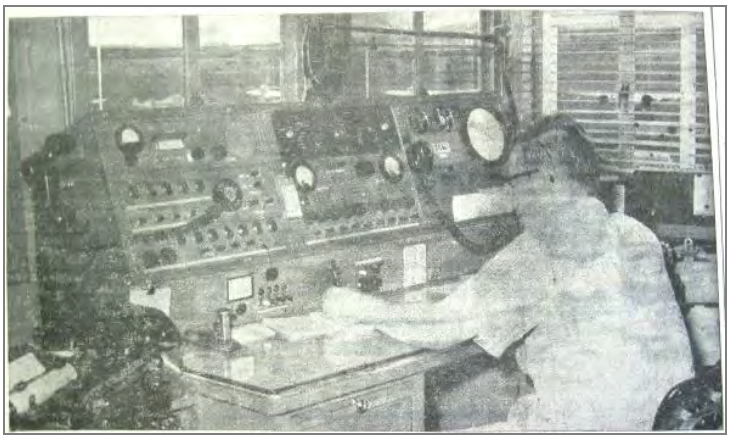

Figure 14. "This big console with its dials, knobs, lights, switches, and dozens of other controls is the center of operations of the CAA air traffic communications station at the Grants municipal airport. The operator is Specialist David L. Lawton. The Grants station averages about 2,000 aircraft radio contacts per month" *Grants Beacon*, June 21, 1958).

The Grants_Milan FSS provided assistance during natural disasters, aided in search-and-rescue operations, and provided support in the aftermath of airplane crashes. Grants had first gained national notoriety when a Transcontinental Air Transport airliner crashed and burned on Mount Taylor on September 3, 1929. It took hundreds of volunteer searchers three days to locate the crash site and two more two days to bring the bodies by mule to Grants. Reporters and photographers from all over the nation traveled to Grants to cover the event.

Figure 15. Grants, New Mexico, November 1954. Representatives from: Mid-Continent Exploration Company; Letheann & Lothmann [?]; Kelly Uranium Company; Westaco Mineral Products; Phillips Petroleum Company; United Western Minerals Corporation; Rio de Oro Uranium Mines, Inc.; Pacific Uranium Mines Company; Ranchers Exploration and Development Corp.; Kermac Nuclear Fuels Corporation; Anderson Development Corporation; Sobre-Pinon Corporation; and Dunn Bros. Dallas, Texas.

The loss of a Lockheed Lodestar in March 1958 resulted in the deaths of four persons. The crash site, located 15 miles southwest of Grants, brought national attention to western Valencia County. Flight service station personnel were also provided assistance when a jet fighter pilot mistakenly shot down an Air Force B-52 bomber over Mount Taylor in 1961 during a training exercise.

Grants-Milan Flight Service Station—Deactivated January 3, 1973

By the mid-1970s, the national network of more than 300 flight service station was staffed by roughly 4,000 specialists, whose primary mission was to aid general aviation. Their most important service was providing preflight weather briefings, but they also monitored navigation aids, observed weather changes, and logged flight plans. Staff sometimes saved lives by 'talking down' pilots who had become lost or disoriented.[58] The flight service stations communicated with pilots on a 24-hour basis to provide airport traffic advisory services, preflight briefings, weather briefings, flight plan services, navigation advisory services, emergency services and air traffic control.

[58] Preston, 182-9.

State and federal officials came to see the FSSs as archaic and inefficient. Compared to the rest of the nation's automated airspace systems, the flight service stations appeared as remote and dependent on obsolete technology. In an effort to reduce costs, many flight services were consolidated, relocated, or decommissioned. As part of a federal effort initiated in the 1960s to consolidate and cut costs, the number of flight service stations operating statewide was reduced to five: Grants, Las Vegas, Carlsbad, Zuni, and Deming. A new modern station at Gallup was commissioned by the FAA, rendering the Grants and Zuni flight service stations obsolete. The Grants-Milan Flight Service Station was closed in January 1973. The Grants-Milan FFS remained vacant from 1973 until 2010, when the Cibola County Historical Society began development of the Grants-Milan Flight Service Station as the Western New Mexico Aviation Heritage Museum.

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Preston, Edmund. *Troubled Passage: Federal Aviation Administration During The Nixon-Ford Term, 1973-1977.* Washington D.C.: United States Department of Transportation, Federal Aviation Administration, 1987.

Rochester, Stuart. *Takeoff at Mid-Century: Federal Civil Aviation Policy in the Eisenhower Years 1953-1961.* Washington D.C.: United States Department of Transportation, Federal Aviation Administration, 1976.

Serling, Robert and George Foster. *Steel Rails and Silver Wings*. Hicksville, NY.: Weekend Chief Publishing, 2006.

Spitzmiller, Ted and Gwen Sawyer. *Enchanted Wings - History of the New Mexico Wing Civil Air Patrol 1941-2010.* Bloomington, IN.: iUniverse, 2009.

Wilson, John. *Turbulence Aloft: The Civil Aeronautics Administration Amid Wars and Rumors of Wars 1938-1953.* Washington D.C.: United States Department of Transportation, Federal Aviation Administration, 1979.

Wolff, Steve. *Sentinels of the Airways*. Flight Service History website (FAA): http://www.atchistory.org/History/FacilityPhotos/WY/MedicineBow/sentinels_of_the_airways.htm

Previous documentation on file (NPS):

____ preliminary determination of individual listing (36 CFR 67) has been requested
____ previously listed in the National Register
____previously determined eligible by the National Register
____designated a National Historic Landmark
____ recorded by Historic American Buildings Survey #_____
____recorded by Historic American Engineering Record # _____
____ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

_X_ State Historic Preservation Office
____ Other State agency
____ Federal agency
____ Local government
____ University
____ Other
Name of repository: _____

Historic Resources Survey Number (if assigned): _____

---

2. Geographical Data

Acreage of Property: Less than one acre

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates (decimal degrees)
Datum if other than WGS84:_____
(enter coordinates to 6 decimal places)

1. Latitude: 35.166812 Longitude: -107.898263
2. Latitude: 35.166343 Longitude: -107.897842
3. Latitude: 35.166012 Longitude: -107.898472
4. Latitude: 35.166435 Longitude: -107.898837

Or
UTM References
Datum (indicated on USGS map):

☐ NAD 1927 or ☐ NAD 1983

1. Zone: Easting: Northing:
2. Zone: Easting: Northing:

3. Zone: Easting: Northing:

4. Zone: Easting : Northing:

Verbal Boundary Description (Describe the boundaries of the property.)

The nominated property is indicated by a heavy red line on an attached map, drawn to scale.

Boundary Justification (Explain why the boundaries were selected.)

The boundary includes the intact portion of the Grants-Milan Flight Service Station, which includes the Grants-Milan FSS building and the delta antenna platform.

3. Form Prepared By

name/title: Jean Fulton, Architectural Historian
organization: TimeSprings, Inc./Conserving Cultural Resources
street & number: 3090 Snow Road
city or town: Las Cruces state: New Mexico zip code: 88005
e-mail: jeanfulton@earthlink.net
telephone: 575. 649.3265
date: August 2014

State Historic Preservation Office

name/title: Steven Moffson, State and National Register Coordinator
organization: New Mexico Historic Preservation Division
street & number: 407 Galisteo Street, Suite 236
city or town: Santa Fe state: New Mexico zip: 87501
e-mail steven.moffson@state.nm.us
telephone: 505.476.0444
date: March 7, 2015

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

Photo Log

Name of Property: Grants-Milan Flight Service Station

City or Vicinity: Grants

County: Cibola State: New Mexico

Photographer: Jean Fulton

Date Photographed: April 24, 2014

Description of Photograph(s) and number, include description of view indicating direction of camera:

1 of 15. Flight Service Station, with (left to right) generator shed, beacon tower, delta antenna platform, FSS building, photographer facing south.

2 of 15. Flight Service Station, with (left to right) delta antenna platform, FSS building, beacon tower, and generator shed, photographer facing northwest.

3 of 15. FSS building, north (main) facade, with retaining walls and Stevenson screen enclosure, photographer facing southeast.

4 of 15. FSS building north and west sides, photographer facing east.

5 of 15. FSS building, main entrance, photographer facing southeast.

6 of 15. FSS building, north and east sides, with delta antenna tower, photographer facing south.

7 of 15. Delta antenna platform and FSS building, south and east sides, photographer facing northwest.

8 of 15. FSS building, south and east sides, photographer facing northwest.

9 of 15. FSS building, east elevation, photographer facing northeast.

10 of 15. FSS Building, interior, Operations Room, photographer facing northwest.

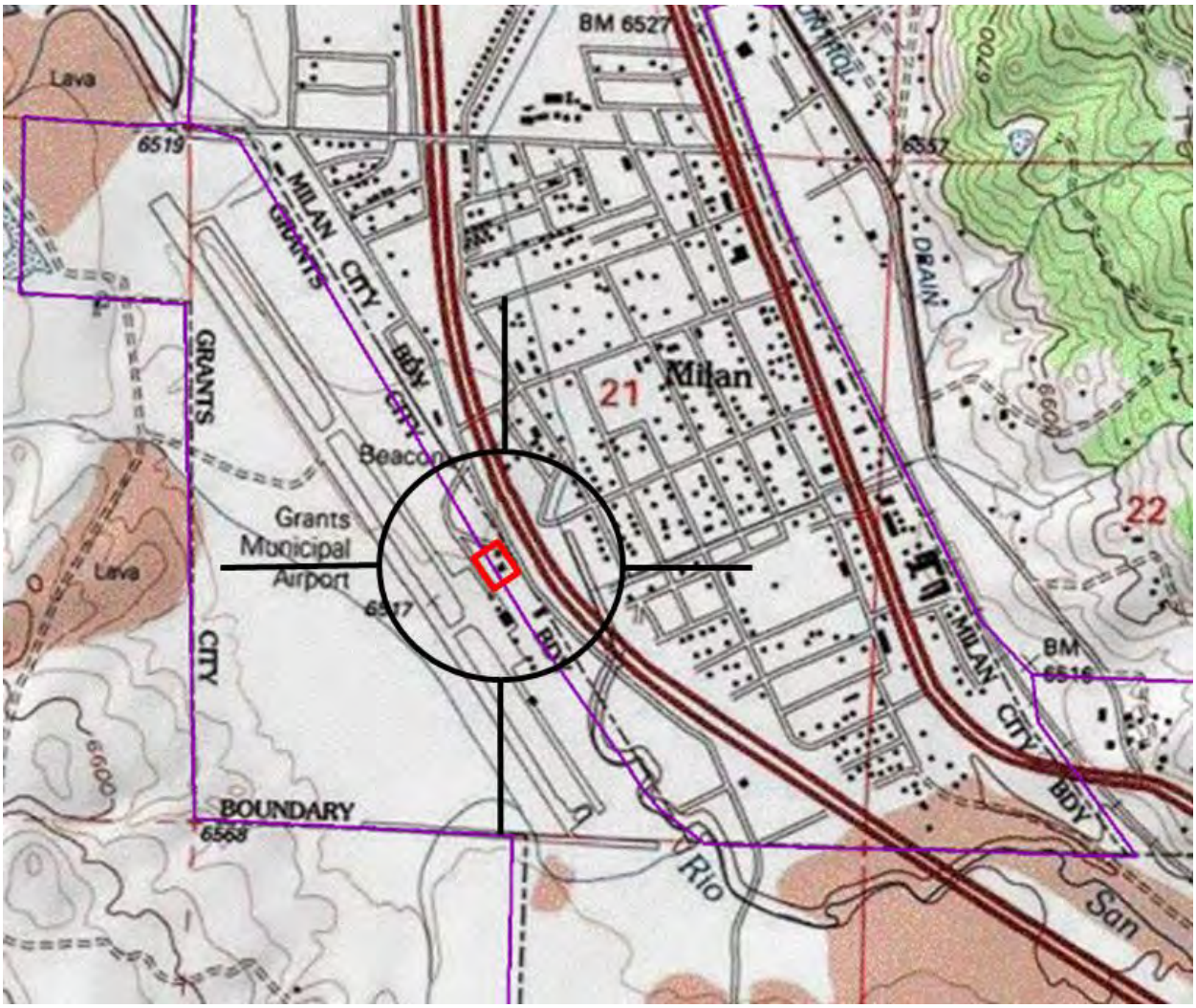
11 of 15. FSS Building, interior, Operations Room, photographer facing southwest.

12 of 15. FSS Building, interior, Operation Room, with view to hall and Supervisory Electronics Specialist's (SES) office and workshop, photographer facing northeast.

13 of 15. FSS Building, interior, SES office and workshop, with view to hall and Operations Room, photographer facing southwest.

14 of 15. FSS Building, interior, SES office and workshop, photographer facing northeast.

15 of 15. Generator shed, photographer facing north.



Grants-Milan Flight Service Station
Cibola County, New Mexico
Location Map

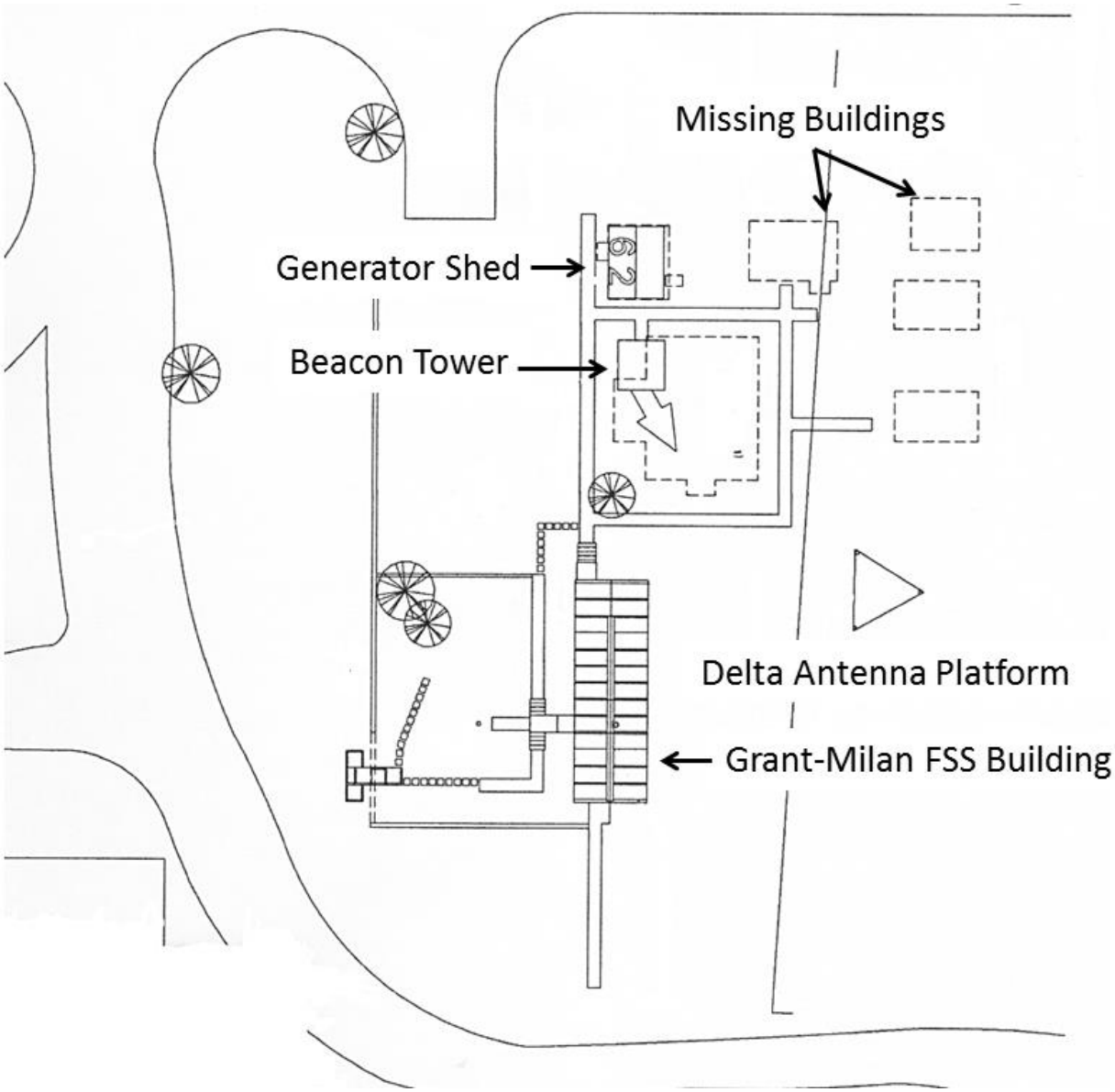
National Register Boundary

Approximate scale: 1 inch = 1,500 feet

Grants-Milan Flight Service Station
Cibola County, New Mexico
Sketch Map

National Register Boundary

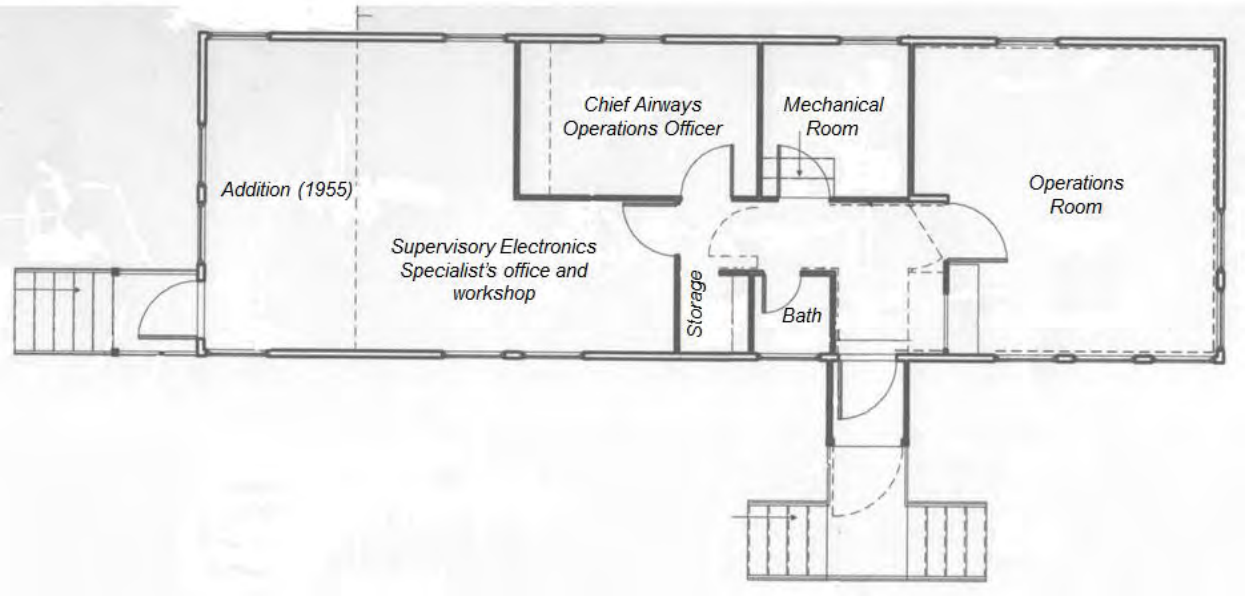
Approximate scale: 1 inch = 75 feet



Grants-Milan Flight Service Station
Cibola County, New Mexico
Site Plan

No scale

Adapted from Kells and Craig Architects, (2013).



Grants-Milan Flight Service Station
Cibola County, New Mexico
Floor Plan

No scale

Adapted from Kells and Craig Architects (2013).

1 of 15. Flight Service Station, with (left to right) generator shed, beacon tower, delta antenna platform, FSS building, photographer facing south.

2 of 15. Flight Service Station, with (left to right) delta antenna platform, FSS building, beacon tower, and generator shed, photographer facing northwest.

3 of 15. FSS building, north (main) facade, with retaining walls and Stevenson screen enclosure, photographer facing southeast.

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14 of 15. FSS Building, interior, SES office and workshop, photographer facing northeast.

15 of 15. Generator shed, photographer facing north.


Welcome To
GRANTS
MILAN
AIRPORT
1116 N.
Dale Carnette
Rd.
GRANTS


L A-A


GRANTS
AIRWAY BEACON
RESTROOMS


GIANTS


35-10 -107-54


JOZ-354


FRAGILE


ALPO


What is CCHS? We are YOUR Cibola County Historical Society
Come Meet, Learn, Share, Volunteer - JOIN US TODAY!
www.cibolahistory.org


LA-A

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY NAME: Grants--Milan Flight Service Station

MULTIPLE NAME:

STATE & COUNTY: NEW MEXICO, Cibola

DATE RECEIVED: 6/19/15 DATE OF PENDING LIST: 7/07/15
DATE OF 16TH DAY: 7/22/15 DATE OF 45TH DAY: 8/04/15
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 15000492

REASONS FOR REVIEW:

APPEAL:	N	DATA PROBLEM:	N	LANDSCAPE:	N	LESS THAN 50 YEARS:	N
OTHER:	N	PDIL:	N	PERIOD:	N	PROGRAM UNAPPROVED:	N
REQUEST:	N	SAMPLE:	N	SLR DRAFT:	N	NATIONAL:	N

COMMENT WAIVER: N

√ ACCEPT ___ RETURN ___ REJECT 8.3.15 DATE

ABSTRACT/SUMMARY COMMENTS:

Entered in
The National Register
of
Historic Places

RECOM./CRITERIA_____

REVIEWER_____ DISCIPLINE_____

TELEPHONE_____ DATE_____

DOCUMENTATION see attached comments Y/N see attached SLR Y/N

If a nomination is returned to the nominating authority, the nomination is no longer under consideration by the NPS.

STATE OF NEW MEXICO
DEPARTMENT OF CULTURAL AFFAIRS
HISTORIC PRESERVATION DIVISION

BATAAN MEMORIAL BUILDING
407 GALISTEO STREET, SUITE 236
SANTA FE, NEW MEXICO 87501
PHONE (505) 827-6320 FAX (505) 827-6338

Susana Martinez
Governor

May 26, 2015

J. Paul Loether
National Park Service
National Register of Historic Places
1201 "I" (Eye) Street, N.W. 8th floor
Washington, D.C. 20005

Dear Mr. Loether:

The enclosed disk contains the true and correct copy of the nomination for the Grants-Milan Flight Service Station in Cibola County, New Mexico to the National Register of Historic Places.

___X___ Disk of National Register of Historic Places nomination form and maps as a pdf

___X___ Disk with digital photo images

___X___ Physical signature page

_____ Sketch map(s)/attachment(s) in hard copy

_____ Correspondence

_____ Other:

COMMENTS:

_____ This property has been certified under 36 CFR 67

_____ The enclosed owner objection(s) do _____ do not _____ constitute a majority of property owners.

_____ Special considerations:

Sincerely,

Steven Moffson
State and National Register Coordinator

Enclosures