

# 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. **Place additional certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).**

## 1. Name of Property

Historic name Strother Field Tetrahedron Wind Indicator

Other names/site number KHRI # 035-311

Name of related Multiple Property Listing World War II-Era Aviation-Related Facilities of Kansas

## 2. Location

Street & number 22215 Tupper Street

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 not for publication

City or town Winfield

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 vicinity

State Kansas Code KS County Cowley Code 035 Zip code 67156

## 3. State/Federal Agency Certification

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

I hereby certify that this  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  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  local Applicable National Register Criteria:  A  B  C  D

### SEE FILE

Signature of certifying official/Title Patrick Zollner, Deputy SHPO Date \_\_\_\_\_

Kansas State Historical Society  
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

## 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:) \_\_\_\_\_

Signature of the Keeper \_\_\_\_\_ Date of Action \_\_\_\_\_

Strother Field Tetrahedron Wind Indicator  
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**5. Classification**

**Ownership of Property**  
(Check as many boxes as apply.)

**Category of Property**  
(Check only **one** box.)

**Number of Resources within Property**  
(Do not include previously listed resources in the count.)

<input type="checkbox"/>	private
<input checked="" type="checkbox"/>	public - Local
<input type="checkbox"/>	public - State
<input type="checkbox"/>	public - Federal

<input type="checkbox"/>	building(s)
<input type="checkbox"/>	district
<input type="checkbox"/>	site
<input type="checkbox"/>	structure
<input checked="" type="checkbox"/>	object

<u>Contributing</u>	<u>Noncontributing</u>	
		buildings
		sites
		structures
1		objects
1		<b>Total</b>

**Number of contributing resources previously listed in the National Register**

0

**6. Function or Use**

**Historic Functions**  
(Enter categories from instructions.)

**Current Functions**  
(Enter categories from instructions.)

Defense: Air Facility (Runway wind instrument)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Transportation: Air-Related (Runway wind instrument)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**7. Description**

**Architectural Classification**  
(Enter categories from instructions.)

**Materials**  
(Enter categories from instructions.)

Other: Tetrahedron object  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

foundation: Concrete Base  
walls: Metal: Tin  
\_\_\_\_\_  
roof: N/A  
other: Three dimensional rotating triangle clad with galvanized tin.

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### **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**

The tetrahedron wind indicator is centrally located between two runways at Strother Field, which is approximately seven miles south of Winfield and seven miles north of Arkansas City in Cowley County, Kansas. The tetrahedron once functioned as a part of the World War II-era Strother Army Air Field in its role in the Battle of Kansas, a highly significant effort to train pilots and test, build, and deliver airplanes to the Pacific front during World War II. The tetrahedron, which retains excellent integrity and is one of just five such objects in Kansas, now serves as a part of a municipal airport and industrial park serving Winfield and Arkansas City.

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### **Elaboration**

Strother Field was built with four runways: two parallel runways with a north-south orientation and two perpendicular crosswind runways in a northeast-southwest and northwest-southeast orientation. The eastern north-south runway remains in use; its designation is Runway 17/35 and is 100' wide and 5,506' long. The western north-south runway was abandoned. The southeast-northwest crosswind runway remains in use; its designation is Runway 13/31 and is 75' wide and 3,137 long. The southwest-northeast runway was abandoned.

The tetrahedron is located in its original location, centered midfield between the extant and functioning runways. It is approximately 1,000' from Runway 13/31, 1,000' from Taxiway A which parallels Runway 17/35. This central location at midfield allowed ease of observation for the cadets that were training during World War II.

The tetrahedron is a three dimensional triangular object that measures: 26'10" long, 15' 2" wide, and 15' 2" tall. Constructed on concrete base, the main support shaft runs up into a large bearing inside the tetrahedron, allowing it to move freely and indicate the wind direction. The exterior is covered in galvanized tin and has a paint scheme. One side is white; with a 22" x 12" black square at each light location with green globes. There are a total of eleven green lights; nine along the bottom and two that run up the side. The back of the object has the same black-and-white color scheme. The other side is orange, with 22" x 12" squares at each light location and a red globe. There are a total of 20 red lights; eleven along the top ridge, nine along the bottom, and two up the side.

The tetrahedron was resided in the mid-1980s, and the lighting was replaced with new conduit, light fixtures, and colored globes. The lights are controlled with a photo cell turning on at dusk, and turning off at sunrise.

The object sits in its original location and operates as it did during the war effort.

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**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.)

- 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.
- 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.)

Property is:

- 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**

Military

Engineering

\_\_\_\_\_

\_\_\_\_\_

**Period of Significance**

1942

1942-1945

**Significant Dates**

1942-1945

\_\_\_\_\_

**Significant Person**

(Complete only if Criterion B is marked above.)

N/A

**Cultural Affiliation**

N/A

**Architect/Builder**

U.S. Army Air Corps

**Period of Significance (justification)**

The period of significance spans the years during which the nominated object was associated with the World War II wartime effort at Strother Army Air Field. The period begins with the construction of the air field in 1942 and ends in 1945 with the end of World War II.

**Criteria Considerations (justification)**

N/A

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### **Narrative Statement of Significance**

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

#### **Summary**

The Tetrahedron Wind Indicator at Strother Field is nominated to the National Register of Historic Places under Criteria A and C for its statewide significance in the areas of Military and Engineering. It is nominated as part of the *World War II-Era Aviation-Related Facilities of Kansas* multiple property nomination. The multiple property document classifies tetrahedron wind indicators as a subtype of the *Airfield* property type. It also identifies this subtype as a primary resource, one that was significant to the operation of the base during the war.

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#### **Elaboration**

##### *Strother Army Air Field as a Contributor to World War II Efforts<sup>1</sup>*

The two city commissions of Winfield and Arkansas City met in February 1941 to approve the construction of a Class 2 airport on 240 acres with one hangar. The airport was to be centrally located, seven and a half miles from each town. In June 1942, the [U. S.] government became interested in the site as a potential flying school. The two cities also agreed to lease approximately 1400 acres of land to the [U. S.] government for one dollar per year, renewable yearly after 25 years. The site was named Strother Army Air Field for Captain Donald Root Strother, the first Cowley County pilot killed in WWII, over Java in February 1942.<sup>2</sup>

Construction at Strother Field began on May 16, 1942 and was to cost nearly \$9 million. The site eventually included four asphalt runways between 5500 and 5840 feet in length. Four taxiways between 700 and 3500 feet connected the runways. The site contained a multitude of structures that included four storage buildings with wood frames and concrete floors, two instructional buildings, six Link trainer buildings, an officer's club, service club, theater, chapel, post exchange, bowling alley, gymnasium, swimming pool, a 141-bed hospital and a library. Housing was also built to accommodate 4404 men and officers...The base also had several hangars.

From the beginning, the two cities of Winfield and Arkansas City, with populations of 10,000 and 12,000, were enthusiastic supporters of the field. Local citizens planned events and projects to improve the morale of the station.

Although construction was still in progress, the base was activated on November 1, 1942. Strother Field's initial mission was to provide basic training for fighter pilots. In June 1944 the purpose changed to serve as a tactical training station. With the end of the war in sight, the base was deactivated during the summer of 1945. Flight training ceased and the field was placed on standby status as an auxiliary field to Pratt AAF.

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<sup>1</sup> The following summary of Strother AAF is quoted from Susan Jezak Ford, *World War II-Era Aviation-Related Facilities of Kansas* National Register Multiple Property Documentation Form (Topeka: Kansas Historical Society, 2012), E32.

<sup>2</sup> Strother died 13 February 1942, just 68 days after the Japanese attack on Pearl Harbor. Mike (George) Lind, "Strother Army Air Field: A Tale of Two Cities." In *Celebrate Winfield History* (Winfield, KS: Cowley County Historical Society, 2006), 27.

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Strother Field's primary role during the war effort was Basic Flight training for cadets. During this period, Army Air Forces cadets were required to master three flight training phases: Primary, Basic, and Advanced. Upon completion of the three phases, a cadet was usually commissioned as a Second Lieutenant. The nine-week Basic training, provided at Strother Field, required a pilot "to master a much more complex aircraft than the one used in Primary training. One of the more significant challenges would be his introduction to flying the aircraft by the instruments located within his cockpit, and without any visual references to the ground."<sup>3</sup> The Vultee BT-13 was the aircraft used by Strother Field cadets training to become fighter pilots.<sup>4</sup> Early on, there were 20 training aircraft, but this number quickly grew to more than 60 in January 1944 and a total of 235 in May 1944.<sup>5</sup>

Approximately 3,886 cadets graduated basic flight training classes, proceeding to the advanced training phase. Through April 1944, "there were at least thirteen deaths in airplane accidents" at Strother Field.<sup>6</sup>

Strother Field received a new training role in June 1944, that of training P-47 pilots. Pilots of other types of aircraft (P-40s and P-63s) also trained at Strother Field that year. The training mission changed again in March 1945 to include P-47 training for Mexican and Brazillian pilots. Training at the base ended August 8, 1945.<sup>7</sup>

### *Tetrahedron Wind Indicators*

Where there is no airport control tower to aid pilots in navigating winds, it is possible to determine wind direction from visual indicators including wind tetrahedrons, wind tees, and wind socks. Wind tetrahedrons "can swing freely, and align themselves with the wind direction."<sup>8</sup> Tetrahedron wind indicators are placed within runway configurations to alert pilots to wind direction, rotating with the breezes. Some indicators were designed with mechanized controls to point the pilot in the right direction in times of low wind speeds. Newspaper articles from the 1960s suggest that remote controlled wind Ts were favored among pilots over wind socks and tetrahedrons. The ideal situation for pilots was to have a control tower, but many small airports did not have this feature and relied on Ts, tetrahedrons, or windsocks to guide pilots.<sup>9</sup>

A review of patent records suggests the earliest tetrahedrons (in the early 20<sup>th</sup> century) were made of canvas, with a light inside to illuminate the object. Versions of this canvas prototype were still in use at least into the 1950s.<sup>10</sup> It is likely that the tetrahedrons found at Army Air Fields in Kansas were built with a metal sheathing featuring exterior lights to aid in navigation. Only those at Herington, Liberal, and Strother fields still retain their lighting. The 2008 survey of Army Air Fields in Kansas noted four tetrahedrons – at Garden City, Pratt, Liberal, and Strother Field – although others may be found in remote runway areas that have not yet been surveyed.<sup>11</sup> At the time of this writing, a fifth tetrahedron has been identified in Kansas at the former Herington AAF, which "was one of three satellite fields associated

<sup>3</sup> Lou Thole, *Strother Army Airfield* (Self-published, 2011), 9. [KSHS: K358 Pam. V. 1, No. 2.]

<sup>4</sup> Ibid.

<sup>5</sup> Ibid., 10.

<sup>6</sup> Ibid., 9-10.

<sup>7</sup> Ibid., 16-17.

<sup>8</sup> Federal Aviation Administration, *Pilot's Handbook of Aeronautical Knowledge* (Washington, DC: Government Printing Office, 2009), 13-10. Accessed 1/6/2015 online <<http://books.google.com/books?id=0l8WO6Drz50C&pg=SA13-PA10#v=onepage&q&f=false>>

<sup>9</sup> See, for example, these newspaper articles about the dispute over traffic direction indicators at McNary Field Airport in Oregon: "McNary to Get Larger Windsock as Stop-Gap," (Salem) *Oregon Statesman*, 2 November 1963, 5; and "Traffic Indicator at Airport Still Argued," (Salem) *Oregon Statesman*, 19 November 1963.

<sup>10</sup> "Local Tetrahedron Is In Bad Shape – Old Skin Wears Out," *Brownsville (TX) Herald*, 26 May 1950, 4.

<sup>11</sup> Ford, F46.

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with the Topeka AAF for final processing of heavy bombardment crews and equipment before being sent overseas.”<sup>12</sup>

The MPDF identifies tetrahedron wind indicators as primary Army Air Field resources and significant to the operation of a base during World War II. It has identified these resources to have the potential to be individually listed in the National Register.<sup>13</sup>

### *Significance/Integrity Discussion*

Tetrahedrons on World War II air bases, airfields, and auxiliary fields of Kansas that are not associated directly with the B-29 are significant on a statewide level because of their strong association with Kansas' role in the outcome of the war. This Strother Field tetrahedron is significant under Criterion A in the area of Military for its direct association with the federal government's wartime aviation operations from 1942-1945. It is significant under Criterion C for its distinctive tetrahedron shape and engineering that allowed it to consistently portray the correct wind direction and to guide pilots as they landed their aircraft.

The MPDF identifies integrity of design, location, association, and setting as having particular importance for tetrahedrons. While some of the original materials have been replaced, the loss of these original materials is not as important a factor, particularly given the rarity of extant examples of this property type. Just five are known to exist in Kansas. Three (the ones at Strother, Herington, and Liberal) still retain their lighting.

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<sup>12</sup> Ford, E23. The Herington AAF was surveyed in 2008 as part of the effort to document World War II-era airbases, but it appears this tetrahedron was overlooked.

<sup>13</sup> Ibid., F36.

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**9. Major Bibliographical References**

**Bibliography** (Cite the books, articles, and other sources used in preparing this form.)

Federal Aviation Administration, *Pilot's Handbook of Aeronautical Knowledge*. Washington, DC: Government Printing Office, 2009. Accessed 1/6/2015 online <<http://books.google.com/books?id=0l8WO6Drz50C&pg=SA13-PA10#v=onepage&q&f=false>>

Ford, Susan Jezak. *World War II-Era Aviation-Related Facilities of Kansas National Register Multiple Property Documentation Form*. Topeka: Kansas Historical Society, 2012. Accessed online 30 December 2013 <[http://www.kshs.org/resource/national\\_register/MPS/worldwarIIAirbases\\_MPDF.pdf](http://www.kshs.org/resource/national_register/MPS/worldwarIIAirbases_MPDF.pdf)>

Lind, Mike (George). "Strother Army Air Field: A Tale of Two Cities." In *Celebrate Winfield History*. Winfield, KS: Cowley County Historical Society, 2006. P. 22-41.

"Local Tetrahedron Is In Bad Shape – Old Skin Wears Out," *Brownsville (TX) Herald*, 26 May 1950, 4.

"McNary to Get Larger Windssock as Stop-Gap," (Salem) *Oregon Statesman*, 2 November 1963, 5.

Thole, Lou. *Strother Army Airfield*. Self-published, 2011. [KSHS: K358 Pam. V. 1, No. 2.]

"Traffic Indicator at Airport Still Argued," (Salem) *Oregon Statesman*, 19 November 1963.

Tupper, Fred, and Donna Avery. "Strother Field Airport/Industrial Park, 1990, updated 2003." Photocopy. Kansas Historical Society, Cultural Resources Division, Topeka.

*U.S. Army and Air Force Wings Over Kansas*. Topeka; Kansas State Historical Society, 1959. Reprinted from the Kansas Historical Quarterly, Summer and Autumn editions, 1959.

**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:**

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other
- Name of repository: Kansas Historical Society

Historic Resources Survey Number (if assigned): \_\_N/A\_\_

**10. Geographical Data**

**Acreeage of Property** Less than one acre

**Provide latitude/longitude coordinates OR UTM coordinates.**

(Place additional coordinates on a continuation page.)

**Latitude/Longitude Coordinates**

Datum if other than WGS84: \_\_\_\_\_  
(enter coordinates to 6 decimal places)

- |   |                               |                                 |   |           |            |
|---|-------------------------------|---------------------------------|---|-----------|------------|
| 1 | <u>37.169216</u><br>Latitude: | <u>-97.038128</u><br>Longitude: | 3 | _____     | _____      |
|   |                               |                                 |   | Latitude: | Longitude: |
| 2 | _____                         | _____                           | 4 | _____     | _____      |
|   | Latitude:                     | Longitude:                      |   | Latitude: | Longitude: |



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**Verbal Boundary Description** (describe the boundaries of the property)

Located in NE ¼ of S 19 T 33 R 4 E of Cowley County KS. A 100-foot radius around the latitude and longitude provide above.

**Boundary Justification**

A 100 foot radius around the tetrahedron will more than encompass the size of the structure. It is located in a grass field between the runways where no structures will be constructed.

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**11. Form Prepared By**

name/title Shawn M. McGrew/Manager  
organization Strother Field Commission date \_\_\_\_\_  
street & number 22193 Tupper Street/P.O. Box 747 telephone (620)221-9280  
city or town Winfield State KS zip code 67156  
e-mail manager@strotherfield.com

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**Property Owner:** The Cities of Arkansas City and Winfield

name The Cities of Arkansas City and Winfield DBA/ Doing Business As Strother Field Commission  
street & number 22193 Tupper Street/PO Box 747 telephone (620) 221-9280  
city or town Winfield state KS, 67156 zip code \_\_\_\_\_

**Paperwork Reduction Act Statement:** This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

**Estimated Burden Statement:** Public reporting burden for this form is estimated to average 100 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management. U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

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**Additional Documentation**

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Submit the following items with the completed form:

**Photographs**

Submit clear and descriptive photographs. The size of each digital image must be 1600x1200 pixels (minimum), at 300 ppi (pixels per inch) or larger. Key all photographs to a sketch map or aerial map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log.

**Photograph Log**

Name of Property: Strother Field Tetrahedron Wind Indicator

City or Vicinity: Winfield

County: Cowley State: Kansas

Photographer: Shawn McGrew

Date  
Photographed: 4/1/2014

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

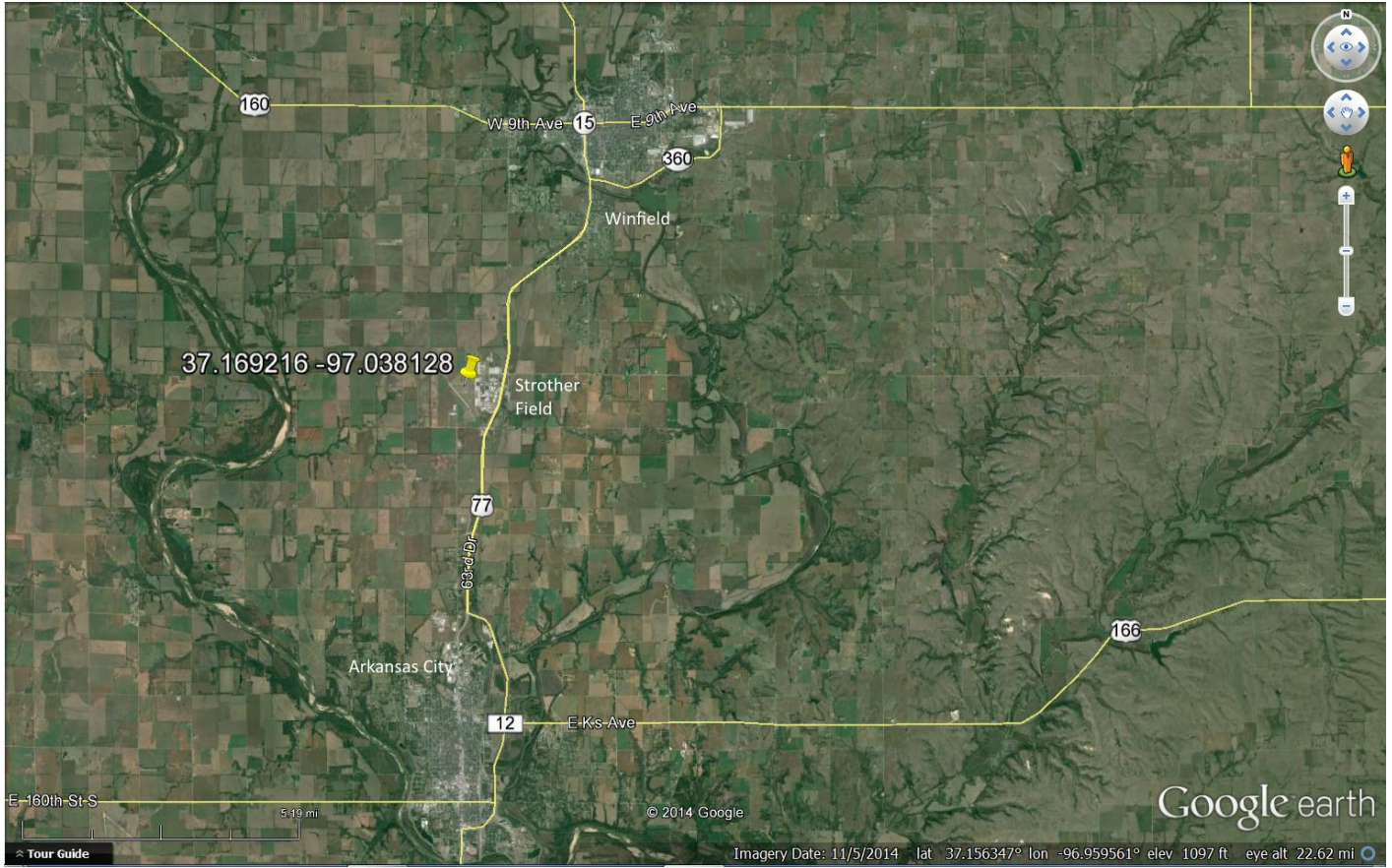
- 1 of 4: Photo is taken from the North,
- 2 of 4: Photo is taken from the East,
- 3 of 4: Photo is taken from the South,
- 4 of 4: Photo is taken from the West.

**Figures**

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Figure 1: Contextual Aerial Image, Google Earth, 2014.



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Figure 2: Close-in Aerial Image, Google Earth, 2014.





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Figure 3: Aerial of Tetrahedron Location



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