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ORIGINAL

STAFF MEMORANDUM

To: THE COMMISSION

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Arizona Corporation Commission

From: Steven M. Olea
Interim Director
Safety Division

2009 NOV -5 A 9:43

DOCKETED

NOV - 5 2009

Date: November 6, 2009

AZ CORP COMMISSION
DOCKET CONTROL

DOCKETED BY [Signature]

RE: IN THE MATTER OF THE APPLICATION OF THE TOWN OF GILBERT TO UPGRADE A CROSSING OF THE UNION PACIFIC RAILROAD AT WILLIAMS FIELD ROAD IN THE TOWN OF GILBERT, MARICOPA COUNTY, ARIZONA, DOT NO. 741-831-F.

DOCKET NO. RR-03639A-09-0430

Background

On September 4, 2009, the Town of Gilbert ("Town") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Union Pacific Railroad ("Railroad") to upgrade an existing crossing at Williams Field Road in the Town of Gilbert, Maricopa County, Arizona at AAR/DOT No. 741-831-F.

Commission Decision No. 48079 approved the installation of automatic warning devices at Williams Filed Road on July 12, 1977.

On August 27, 2007, Commission Safety Division Railroad Staff ("Staff"), the Railroad, Aztec Engineering (consultants to the Town), and the Town participated in a diagnostic review of the proposed improvements at Williams Field Road. All parties present were in agreement to the proposed improvements at the crossing. The following is a break down of the crossing in this application, including information about the crossing that was provided to Staff by the Town and its contractors.

Geographical Information

Gilbert was incorporated on July 6, 1920, and is a relatively new community that has seen tremendous growth during the past two decades. Gilbert has experienced a rapid transition from a historically agriculture-based community to an urban center and suburb in the Phoenix Metropolitan Area. In the last two decades, Gilbert has grown at a pace unparalleled by most communities in the United States, increasing in population from 5,717 in 1980 to over 215,000 in April 2009. As Gilbert has grown, the community has recognized the need to develop a strong, diverse economy while preserving its quality of life.

The rail line in this area runs in a southeast to northwest direction. Williams Field Road is an east to west main arterial through the Town. The general area surrounding the railroad crossing is a mix of residential along with commercial and industrial businesses. (See Attachment "A") Approximately 1.25 miles east of the Williams Field crossing, the Cooley Station Master Planned Community is proposed, however, it is unclear to Staff when

construction of this master planned community will begin. The proposed development will be a mixed residential and commercial development to include single family homes, town homes, apartments and a K-8 school. The commercial site is assumed to have general retail stores.

Williams Field Road

The existing roadway is a four lane road. The proposed project includes widening of the roadway to six lanes with a 16-foot wide raised median. The Town's proposed upgrades will replace the existing incandescent flashing lights, gate mechanisms, bells and detection circuitry, with the latest in industry standards to include: 12-inch LED flashing lights, cantilevers with 12-inch LED flashing lights, median and curb-side gates, bells, and constant warning time circuitry. A new concrete crossing surface will be added, along with replacing any impacted pavement markings. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state. The estimated cost of the proposed railroad crossing upgrade is \$1,138,683. The Town is paying for the entire cost of the crossing improvements.

Traffic data for Williams Field Road was taken from the Towns webpage, (www.ci.gilbert.az.us/traffic/counts08.cfm). The data shows the Average Daily Traffic ("ADT") for 2008 to be 12,009 vehicles per day ("vpd"). Additional data indicates the estimated ADT for the year 2025 to be 29,020 vpd. The current Level of Service ("LOS") for Williams Field Road is LOS B for off-peak hours and LOS C for morning and afternoon peak hours. The projected LOS after the proposed improvements will remain the same

The American Association of State Highway and Transportation Officials Geometric Design of Highways and Streets, 2004, states that the LOS characterizes the operating conditions on a facility in terms of traffic performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. This is a measure of roadway congestion ranging from LOS A--least congested--to LOS F--most congested. LOS is one of the most common terms used to describe how "good" or how "bad" traffic is projected to be.

The posted speed limit on Williams Field Road is 45 mph. Staff records, as well as Federal Railroad Administration accident/incident records indicate no accidents at this crossing.

Alternative routes from this crossing are as follows; to the northwest approximately 2,000 feet is Higley Road, an at-grade crossing, and to the southeast approximately one mile is Recker Road, also an at-grade crossing.

Train Data

Data provided by the Town regarding train movements through this crossing are as follows:

Train Count: 6 trains per day on average (all freight trains/**no** passenger trains)

Train Speed: 60 mph

Thru Freight/Switching Moves: All movements through this crossing are thru freight.
(No switching operations)

Schools and Bus Routes

The Williams Field Road crossing is within the limits of two school districts. The Higley Unified School District No. 60, and the Gilbert Unified School District No. 41. There are several schools located within a three mile radius of the crossing, they are;

Elementary Schools:

- ✓ Higley Elementary – 3391 E Vest Avenue
- ✓ Chaparral Elementary – 3380 E Frye
- ✓ Cortina Elementary – 19680 S 188th St.
- ✓ Eagles Aerie School – 17019 S Greenfield Rd
- ✓ Gateway Pointe Elementary – 2069 S De La Torre Drive
- ✓ Centennial Elementary - 3507 S Ranch House Parkway
- ✓ Coronado Elementary – 4333 S Deanza Blvd
- ✓ Power Ranch Elementary – 4351 S Ranch House Parkway
- ✓ San Tan Elementary – 3443 E Calistoga Dr
- ✓ Surrey Garden Christian School(k-12) – 1424 S Promenade Ln

High Schools

- ✓ Higley High School - 4068 E Pecos
- ✓ Perry High School – 1919 E Queen Creek Road
- ✓ Williams Field High School – 2076 S Higley

According to Mike McGuire, the Transportation Routing Coordinator for the Higley School District, there are 39 daily trips through this crossing.

Hospitals

The nearest hospital or health facility to the Williams Field Road crossing is as follows;

Hospitals:

- ✓ Gilbert Hospital – 5656 S Power Road
- ✓ Mercy Gilbert Medical Center – 3555 S. Val Vista Dr

Health Facilities

- ✓ Urgent Care Express – 920 E Williams Field
- ✓ East Valley Urgent Care – 641 w Warner Road

Hazardous Materials

The Town gave the following response when asked about hazardous materials crossing this crossing:

No data is available for the number of vehicles carrying hazardous materials at this location.

Zoning

Staff requested the Town provide information regarding the type of zoning in areas adjacent to the crossing. The following was the Town's response:

The surrounding area includes a mixture of multi-family/low density residential, Gateway Village Center, and Gateway Business Center. The area east of the crossing is currently being developed and plans have been submitted for the "Cooley Station, Village Center and Business Park".

Spur Lines

The Town gave the following answer regarding spur lines located in the area:

Based on a search of the UPRR website (www.uprr.com), the only data provided for a removal of a spur line in Arizona was the line between Benson and Bisbee which was opened in 1889 and was approved for abandonment in 1996. This is not within 10 miles of this crossing.

FHWA Guidelines Regarding Grade Separation

The Federal Highway Administration ("FHWA") Railroad-Highway Grade Crossing Handbook (Revised Second Edition August 2007) provides nine criteria for determining whether highway-rail crossings should be considered for grade separation or otherwise eliminated across the railroad right of way. The Crossing Handbook indicates that grade separation or crossing elimination should be considered whenever one or more of the nine conditions are met. The nine criteria are applied to this crossing application as follows:

		Williams Field Road
The highway is a part of the designated Interstate Highway System	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
The highway is otherwise designed to have full controlled access	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
The posted highway speed equals or exceeds 70 mph	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
AADT exceeds 100,000 in urban areas or 50,000 in rural areas	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
Maximum authorized train speed exceeds 110 mph	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
An average of 150 or more trains per day or 300 million gross tons/year	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
Crossing exposure (trains/day x AADT) exceeds 1M in urban or 250k in rural; or passenger train crossing exposure exceeds 800k in urban or 200k in rural	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No

Expected accident frequency for active devices with gates, as calculated by the US DOT Accident Prediction Formula including five-year accident history, exceeds 0.5	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	N/A ¹
Vehicle delay exceeds 40 vehicle hours per day	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No

¹ N/A = Not Applicable

Vehicular Delays at Crossings

Based on the current single track configuration, the Town gave the following response about delay time for vehicles at the crossing in this application. The delay time is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

Based on 1 mile of train at 45 mph (45 mph is used in lieu of 60 mph to be conservative and more in line with an average train speed), 25 seconds of preemption time, and 15 seconds for the warning devices to reset, the average delay time per train is 1.9 minutes. At six trains per day, the average delay time is 11.9 minutes per day.

Based on a stopping time of 28 seconds and a time of 125 seconds to accelerate and to clear the track and 25 seconds of preemption time and 15 seconds for the warning devices to reset, the average delay time per train if a train stops on the track is 3.2 minutes. These times are based on one mile of train and charts from Railroad Engineering, Second Edition, John Wiley & Sons, Inc. 1982 (Figure 10.10 to estimate deceleration time and Figure 10.4 to estimate acceleration time to clear one mile of train).

Current delays fall well below the FHWA recommended threshold of 40 vehicle hours delay per day.

Another commonly used measure outlined in the FHWA Guidelines; the so-called Crossing Exposure Index (which is simply the product of the number of trains per day multiplied by the number of vehicles crossing daily) is not currently met at this crossing. It should be noted that the criteria identified in the FHWA material are not mandates, but guidelines established by the FHWA, which serve to alert those having jurisdiction that potential problems may arise.

Grade Separation

With regard to grade separating this crossing, the Town gave the following response:

With the proposed improvements to Williams Field Road, the location of the at-grade crossing remains unchanged. A grade separation would have the following consequences: 1) Impact to 69kV and 230kV overhead power lines currently running parallel to the railroad. 2) Impact to underground utilities in Williams Field Road that cannot support 30 feet of additional embankment needed for a grade-separated crossing. Among these utilities are a critical 42 –

inch reclaimed waterline, a 16 – inch reclaimed waterline and a 24 – inch high pressure natural gas line. 3) There is insufficient right- of-way to accommodate the 20 – foot high embankment slopes along Williams Field Road. 4) There is inadequate distance between the railroad and the Lyons Gate entrance off of Williams Field Road (approximately 420 feet east of the tracks) and between the railroad and the local business entrance (approximately 420 feet west of the tracks) to raise the roadway grade over the railroad without violating sight-distance requirements. 5) Elevating Williams Field Road would cause visual and noise impacts to the adjacent land uses, which include residential.

Staff has utilized the FHWA Guidelines to determine the potential need for grade separation at this crossing. Based on existing conditions, the crossing in this application meets none of the nine criteria for consideration of grade separation. Additionally, future projections do not meet any of the nine criteria.

Crossing Closure

The area surrounding this crossing is highly developed with both commercial and industrial businesses. To close this crossing would have a negative affect on many of the local businesses. Therefore, Staff would not recommend closure of this crossing at this time.

Staff Conclusions

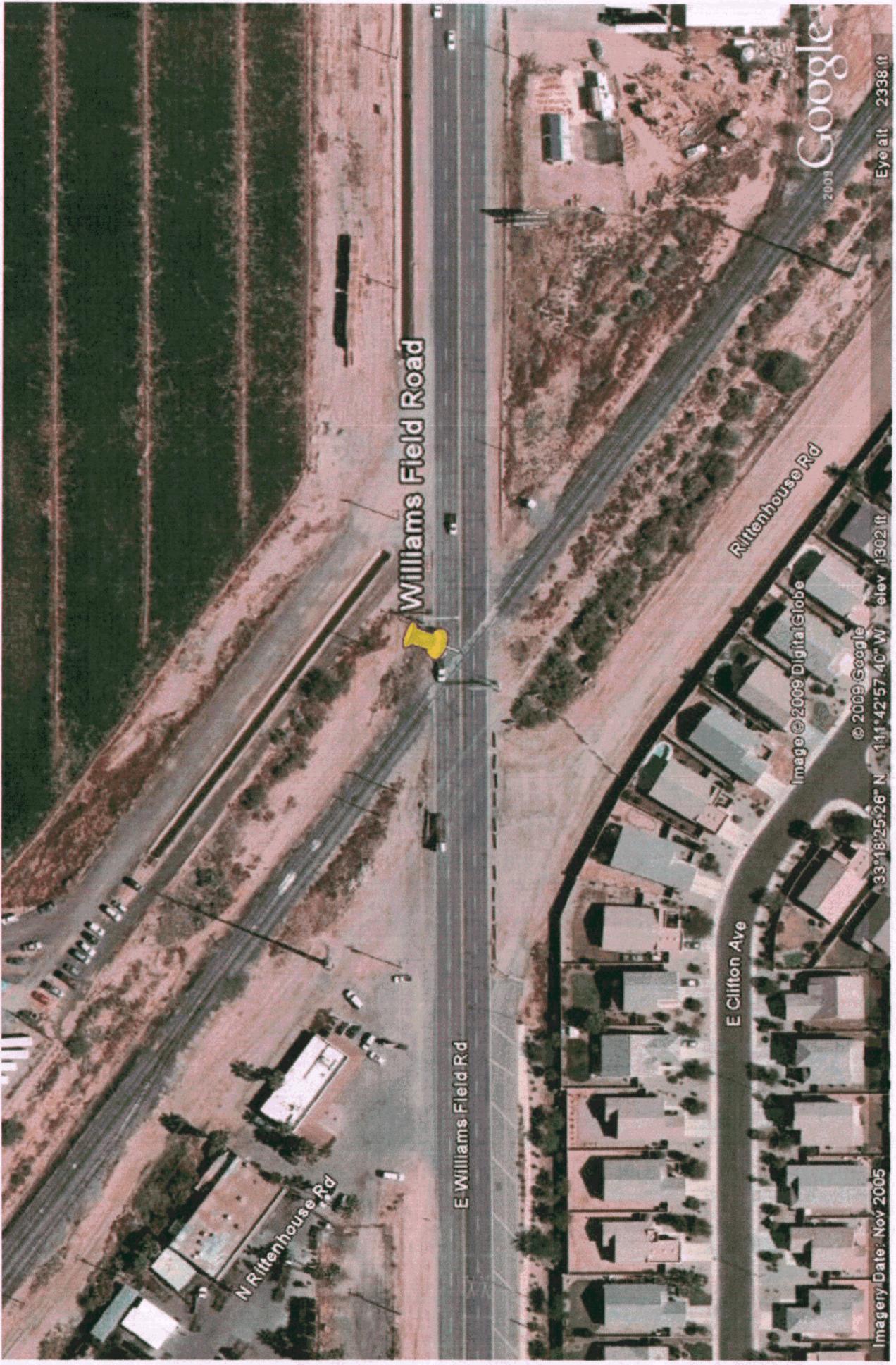
Having reviewed all applicable data, Staff supports the Town's application. Staff believes that the upgrades are in the public interest and are reasonable. Staff believes that the measures proposed by the Town are consistent with other similar at-grade crossings in the State and will provide for the public's safety. Therefore, Staff recommends approval of the Town's application.



Brian H. Lehman
Railroad Safety Supervisor
Safety Division

Originator: BHL

Attachment “A”



Williams Field Road

N Riffenhouse Rd

E Williams Field Rd

E Clifton Ave

Riffenhouse Rd

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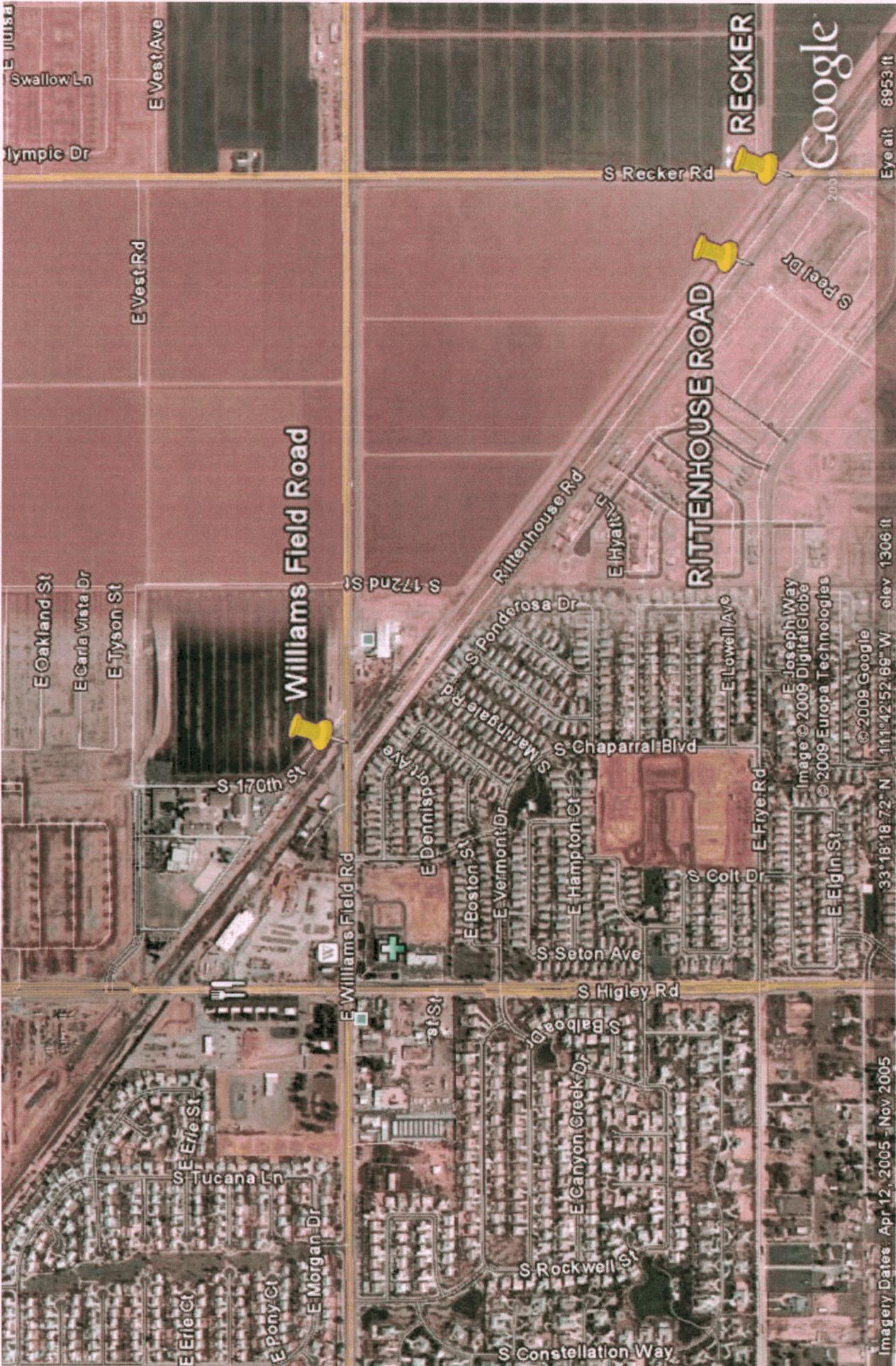
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Eye alt 2338 ft

33°18'25.26" N 111°42'57.40" W elev 1302 ft

Imagery Date: Nov 2005



Google

Williams Field Road

RITTENHOUSE ROAD

RECKER

Imagery Dates: Apr 12, 2005 - Nov 2005
33°18'18.72" N 111°42'52.69" W elev 1308 ft
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Eye alt: 8953 ft

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