

ORIGINAL

STAFF MEMORANDUM



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To: THE COMMISSION

Arizona Corporation Commission

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From: Steven M. Olea
Interim Director
Safety Division

DOCKETED

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AZ CORP COMMISSION
DOCKET CONTROL

RE: IN THE MATTER OF THE APPLICATION OF THE TOWN OF GILBERT TO UPGRADE A CROSSING OF THE UNION PACIFIC RAILROAD AT RECKER ROAD IN THE TOWN OF GILBERT, MARICOPA COUNTY, ARIZONA, DOT NO. 741-832-M.

DOCKET NO. RR-03639A-09-0393

Background

On August 12, 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 Recker Road in the Town, Maricopa County, Arizona at AAR/DOT No. 741-832-M.

Commission Railroad Safety Staff ("Staff") records indicate, Commission Decision No. 46982 approved the installation of automatic warning devices at Recker Road on May 24, 1976.

On August 27, 2007, Staff, the Railroad, Aztec Engineering (consultants to the Town), and the Town participated in diagnostic review of the proposed improvements at Recker 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 consultants.

Geographical Information

Gilbert is a young, affluent community in central Arizona. Incorporated on July 6, 1920, Gilbert 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 highly desirable quality of life.

The rail line in this area runs in a southeast to northwest direction. Recker Road is a north to south main arterial through the Town. The general area surrounding the Recker Road crossing is a mix of commercial, residential and industrial businesses. (See Attachment "A") Just to the northeast of the Recker Road crossing, the Cooley Station Master Planned Community is proposed, however it's unclear to Staff when construction will begin. It 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.

Recker Road

The existing roadway is a paved two lane road. The proposed project includes widening of the roadway to four 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, a cantilever with 12 inch LED flashing lights, median and curb-side automatic 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 \$989,266. The Town is paying for the entire cost of the crossing improvements. The Railroad will maintain the warning devices and the crossing surface.

Traffic data for Recker Road was taken from the Town's webpage, (www.ci.gilbert.az.us/traffic/counts08.cfm). The data shows the Average Daily Traffic (ADT) for 2008 to be 8,614, vehicles per day (vpd). Additional data indicates the estimated ADT for the year 2025 to be 17,170 vpd (August 16, 2006; revised November 16, 2006, Cooley Station Traffic Impact Study, by Task Engineering). The current Level of Service ("LOS") for Recker Road is LOS B for off-peak hours and LOS C for am/pm peak hours. The projected LOS after the proposed improvements will remain the same.

The American Association of State Highway and Transportation Officials (AASHTO) Geometric Design of Highways and Streets, 2004, states that the Level of Service 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 Recker Road is 45MPH. Staff records, as well as Federal Railroad Administration ("FRA") accident/incident records indicate no accidents at this crossing.

Alternative routes from this crossing are as follows; to the northwest approximately one mile is Williams Field Road, an at grade crossing, and to the southeast approximately one mile is the Power and Pecos crossing, also an at grade crossing.

Train Data

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

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

Train Speed: 60 mph

Thru Freight/Switching Moves: All movements through this crossing are thru freight.

Schools and Bus Routes

The Recker 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. The following schools are located within a three mile radius of the crossing:

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 Lane

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 McMuire, Transportation Routing Coordinator for the Higley School District, there are 39 daily school bus trips over this crossing. There are no public bus routes that operate over the Recker Road crossing.

Hospitals

The nearest hospital and health facilities to the Recker Road crossing are 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

No data was available for the number of emergency vehicles utilizing this crossing.

Hazardous Materials

The Town gave the following response when asked about vehicles transporting hazardous materials through 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 adjacent areas from the crossing. The following was their response:

The surrounding area includes a mixture of multi-family/low density residential, public facility/institutions, along with Gateway Village Center, and Gateway Business Center. The area north 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 in the area that were removed by the Railroad:

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:

		RECKER 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 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 delay hours per day. Future delays also do not exceed 40 hours at this crossing. It is very likely that the road authority would entertain some kind of roadway project to address the traffic delays before they got to this point.

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. Based on future traffic projections submitted by the City, the Crossing Exposure Index will not be met in the year 2030. It should be noted that the criteria identified in the FHWA material are not mandates, but guidelines established by the Federal Highway Administration, 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 Recker 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 Recker 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 Recker Road. 4) There is inadequate distance between the railroad and the Higley Unified School District entrance (approximately 550 feet south of the tracks) to raise the roadway grade over the railroad without violating sight-distance requirements. 5) Grade separating the crossing would eliminate private access to Recker Road for 600 to 700 feet north of the tracks. 6) Elevating Recker Road would cause visual and noise impacts to the adjacent land uses, which include residential.

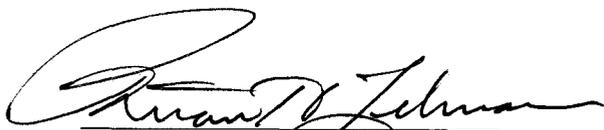
Staff has utilized the FHWA Guidelines to determine the potential need for grade separation at this crossing. Based on existing conditions, the crossing in this application meets none of the nine criteria for consideration of grade separation. Based on future projections by the City, none of the nine criteria will be met by 2030.

Crossing Closure

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

Staff Conclusions

Having reviewed all applicable data, Staff generally supports the Town's application. Staff believes that the upgrades are in the public interest and are reasonable. Staff understands that the decision to grade separate is a complex one involving multiple parties, a number of years of time for planning and construction as well as substantial monetary resources. Having said that, 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”



RITTENHOUSE ROAD

RECKER RAILROAD CROSSING

Rittenhouse Rd

E Yeager Dr

E Parkview Dr

S Peal Dr

E Bridgeport Pkwy

E Faye Rd

Google

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33°17'57.33" N 111°42'14.76" W elev 1314 ft

Imagery Date: Apr 12, 2005

Eye alt: 2971 ft



RECKER RAILROAD CROSSING

RITTENHOUSE ROAD

SCHOOL

Google

© 2009

Eye alt 7365 ft

Image © 2009 DigitalGlobe

33°17'54.04" N 111°42'16.85" W elev 1315 ft

Imagery Dates: Apr 12, 2005 - Nov 2005

S Chaparral Blvd
E Hampton Ln
E Lowell Ave

E Joseph Way
E Elgin St
E Hopkins Rd
E Phelps St

E Morelos Ct
E Geronimo Ct
E Kesler Ln

E Saragosa St
S 173rd Way
S 172nd Way

E Fairview St
E Moreles St
E Geronimo St
E Kesler St
E Frances Ln

S Joshua Tree Ln

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E Hyatt Dr
E Yeager Dr

S Wade Dr

E Frye Rd

S Peal Dr

Rittenhouse Rd

Roosevelt Wcd

Original and thirteen (13) copies
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