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STAFF MEMORANDUM



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To: THE COMMISSION

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From: Steven M. Olea
Interim Director
Safety Division

2012 MAY 22 P 3: 46

MAY 22 2012

Date: May 22, 2012

ARIZONA CORPORATION COMMISSION
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RE: IN THE MATTER OF THE APPLICATION OF THE ARIZONA DEPARTMENT OF TRANSPORTATION TO UPGRADE AN EXISTING CROSSING OF THE UNION PACIFIC RAILROAD AT AGUA VERDE ROAD, NEAR VAIL, PIMA COUTY, ARIZONA, USDOT NO. 741-308-N.

DOCKET NO. RR-03639A-12-0087

Background

On March 7, 2012, the Arizona Department of Transportation (“ADOT”) filed with the Arizona Corporation Commission (“Commission”) an application for approval for the Union Pacific Railroad (“Railroad”) to upgrade an existing crossing at Agua Verde Road near Vail, Pima County, (“County”) Arizona at USDOT No. 741-308-N.

On January 25, 2006, the Safety Division’s Railroad Safety Section, (“Staff”), ADOT, the County and the Railroad participated in a diagnostic review of the proposed improvements to the Agua Verde Road crossing. 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 ADOT.

Federal Highway Administration (“FHWA”) Section 130

This project is federally funded pursuant to 23 U.S.C. § 130 (“Section 130”). The purpose of Section 130 is to comply with legislation seeking to eliminate hazards to pedestrians and highway vehicles at public railway-highway crossings. Only crossings which are located on public roads, and which are not primarily for the benefit of the railroad, are eligible for Section 130 funding. In order to be eligible for Section 130 funding, a crossing must be designated on the Commission’s annual Crossing Array as being a priority to receive safety upgrades. Arizona Revised Statute § 40-337.03 states that:

[T]he commission shall submit to the railroad involved and the city, county and department of transportation in which jurisdiction a public railroad grade crossing is located, an array of such crossings where the installation of automatic warning signals or devices should be considered during the year, or within a reasonable time thereafter depending upon the availability of monies, materials, labor and other factors involved in such installation.

This project was approved for Section 130 funding as part of the 2006 Commission Annual Array approved by Decision No. 68686, dated May 5, 2006. After designation on the

Annual Array, FHWA issues authorizations for design and construction of each project, reimburses ADOT for the cost and conducts a final inspection of each project. The Railroad will invoice ADOT for 100% of the cost of the project.

Agua Verde Road

Agua Verde Road is a two lane north-south dirt roadway used for two-way traffic, consisting of one lane in each direction. Currently, this is a passive crossing consisting of cross-bucks and stop signs. The proposed project consists of providing commercial power service to the crossing and installing state of the art LED flashing lights, automatic gate arm mechanisms, bells and Constant Warning Time circuitry. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the State. The estimated cost of the project is \$435,000.00 funded entirely by federal funds. The Railroad will maintain the warning devices after the upgrade is completed.

Traffic data for Agua Verde Road was provided by ADOT. The data shows the Average Daily Traffic ("ADT") for 2012 to be 300, vehicles per day ("vpd"). Per the County, this is a dirt road in a remote rural location and does not have a Level of Service on record.

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 Agua Verde Road is 15MPH. Staff records, as well as the Federal Railroad Administration's ("FRA") accident/incident records indicate one accident on July 11, 2005 at this crossing, which resulted in a fatality. Records indicate that the driver did not stop at the crossing and was struck by the train.

One alternative crossing route exists approximately 1.7 miles to the east of this crossing at Red Hill Ranch Road. There is no immediate access across the tracks to the west of this crossing.

Train Data

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

Train Count: 46 trains per day including two passenger trains a day, three times a week

Maximum Train Speed: 65 mph

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

Schools and Bus Routes

ADOT gave the following response when asked about schools and school buses:

There are no schools located in the vicinity of the Agua Verde Road crossing. The closest schools are 5 miles to the west of the crossing along Colossal Cave Road. Per Pima County, the school district reports that they do not normally send buses over unmaintained roads, except for special needs students. There are currently no special needs students residing in this area that require transportation. All other students are picked up at Marsh Station Road.

Hospitals

ADOT gave the following response about hospitals and emergency services vehicles:

There are no hospitals within a close vicinity of this crossing and emergency service vehicles do not use this crossing extensively at this point.

Hazardous Materials

ADOT gave the following response when asked about vehicles transporting hazardous materials through this crossing:

Per Pima County, there are no known vehicles carrying hazardous materials that utilize this road.

Zoning

Staff requested information from ADOT regarding the type of zoning in adjacent areas from the crossing. The following was the response given:

The area adjacent to Agua Verde Road is zoned General Rural (GR) with a few houses and state land surrounding the area.

FHWA Guidelines Regarding Grade Separation

The 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:

		Agua Verde
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

Grade Separation

Grade separation was not considered by ADOT as part of this Section 130 safety upgrade.

Vehicular Delays at Crossings

Per the County, there are no significant delays at this crossing.

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. The current crossing exposure is 13,800, far below the 250,000 threshold for rural areas. 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.

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. Therefore, Staff does not recommend a grade separation at the crossing.

Crossing Closure

On May 21, 2012, Staff spoke with William Strickler, Transportation Manager for Pima County Department of Transportation regarding the possible closure of Agua Verde Road. Mr. Strickler stated that Agua Verde Road is the only access for about 30 homes in the area of the crossing and that the County had no intention of closing the crossing.

Staff Conclusions

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



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Railroad Safety Supervisor
Safety Division

Originator: BHL

**COPIES of the foregoing mailed
this 22nd day of May, 2012 to:**

Docket No. RR-03639A-12-0087

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Google earth



Agua Verde Road Crossing

Frontage Rd

Agua Verde Rd

2000

feet

meters

800



Google earth

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