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AZ CORP COMMISSION  
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Docket #(s): \_\_\_\_\_

RR-03639A-16-0007

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Arizona Corporation Commission  
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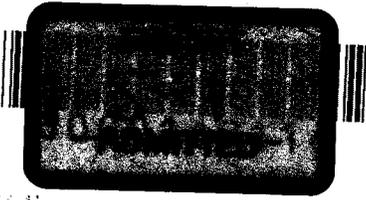
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Exhibit #: 31 \_\_\_\_\_

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STAFF MEMORANDUM



To: THE COMMISSION Arizona Corporation Commission

From: Robert Marvin  
Director  
Safety Division

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MAR 17 2016

Date: March 17, 2016

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RE: IN THE MATTER OF THE APPLICATION OF THE ARIZONA DEPARTMENT OF TRANSPORTATION TO UPGRADE AN EXISTING AT-GRADE CROSSING OF THE UNION PACIFIC RAILROAD AT ALMA SCHOOL ROAD IN THE CITY OF MESA, MARICOPA COUNTY, ARIZONA, USDOT NO. 741-650-B.

DOCKET NO. RR-03639A-16-0007

**Background**

On January 13, 2016, the Arizona Department of Transportation ("ADOT") filed with the Arizona Corporation Commission ("Commission") a request for approval for ADOT to upgrade an existing crossing of the Union Pacific Railroad ("Railroad") at Alma School Road in the City of Mesa ("City"), Maricopa County, Arizona, at USDOT No. 741-650-B.

The Safety Division's Railroad Safety Section, ("Staff"), ADOT, the City and the Railroad participated in several diagnostic review meetings of the proposed improvements to this crossing. All parties present were in agreement to the proposed improvements at the crossing. The following is a breakdown 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 2008 Commission Annual Array approved by Decision No. 70481, dated September 3, 2008. 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.

### **Alma School Road**

Alma School Road is currently used for two-way traffic, consisting of three thru southbound lanes, and three thru northbound lanes. Currently, this crossing is equipped with flashing lights, automatic gates and bells on the outside edge of the roadway, as well as flashing lights and automatic gates on the raised median. The proposed project consists of installing new automatic gates with LED flashing light units on both the outside edges of the roadway and within the raised medians. Two new cantilevers will be installed for the south and northbound traffic lanes with additional concrete panels on the outside edges of the road for new sidewalks. The City will also construct civil improvements including new raised medians, sidewalk adjustments, and road approach improvements to accommodate the Railroad's signal and surface improvements. The total cost of the project is \$749,000, with the City contributing \$7,000 for road surface work. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the State. The Railroad will maintain the warning devices and crossing surface after the upgrades are completed.

Traffic data for Alma School Road was provided to ADOT by the City. Per the City, in 2014, there were 30,500 vehicles per day ("vpd") at this crossing. No Level of Service ("LOS") was given for this crossing.

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 Alma School Road is 40 mph. Staff records, as well as the Federal Railroad Administration's ("FRA") accident/incident records indicate 3 accidents at this crossing. The first was on March 31, 1979, when a train struck an auto and there were no injuries reported. The second occurred on December 5, 1988 when a train struck an auto. No injuries were reported. A third incident occurred on June 30, 2006, when the driver drove through the downed gates and was stuck by the train. One injury occurred. The warning devices were reported to be working as intended in all three incidents.

Alternative routes from this crossing are: to the west 1.0 mile is Dobson Road, and to the east, Extension Road is .5 miles away. Both are at grade crossings.

### **Train Data**

Data provided by ADOT, through the FRA website, regarding train movements through this crossing are as follows:

Train Count: 11 trains per day with no passenger service

Maximum Train Speed: 60 mph



		Alma School 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	No
Vehicle delay exceeds 40 vehicle hours per day	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No

### Grade Separation

ADOT gave the following response about grade separation:

*Grade separation was not considered by ADOT as part of this Section 130 safety upgrade because the crossing does not meet any of the criteria outlined in the FHWA-Grade Separation Guidelines. Cost estimates for grade separating this location would be in the \$30,000,000 range, due to the urbanized location.*

### Vehicular Delays at Crossings

When asked about vehicle delays at this crossing the City gave the following response:

*The City of Mesa has no information or complaints regarding delays, however the delay at the crossing is really a function of the average length of the train and the average speed that it's traveling. For example that a 7,000 foot train traveling 30 miles per hour would cause a traffic delay of approximately 2.5 minutes.*

Another commonly used measure outlined in the FHWA Guidelines; is 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 335,500 at Alma School Road, far below the 1,000,000 threshold for urban 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.

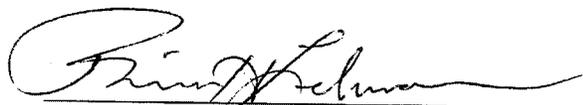
Staff has utilized the FHWA Guidelines to determine the potential need for grade separation at this crossing. Based on existing conditions, Alma School Road meets none of the nine criteria for consideration of grade separation. Staff does not recommend a grade separation at the crossing.

#### **Crossing Closure**

The City has stated they would not like to close this crossing. Doing so would negatively impact numerous businesses in the area. Staff agrees with the City's position not to close the crossing, due to negative impacts on businesses in close proximity of 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.



Brian H. Lehman  
Railroad Safety Supervisor  
Safety Division

Originator: BHL

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ALMA SCHOOL ROAD

feet  
meters

200

80

Google earth

