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STAFF MEMORANDUM

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To: THE COMMISSION

Arizona Corporation Commission

From: Steven M. Olea  
Interim Director  
Safety Division

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AZ CORP COMMISSION  
DOCKET CONTROL

Date: August 12, 2011

DOCKETED BY [Signature]

RE: IN THE MATTER OF THE APPLICATION OF THE ARIZONA DEPARTMENT OF TRANSPORTATION TO UPGRADE AN EXISTING CROSSING OF THE UNION PACIFIC RAILROAD AT LITCHFIELD ROAD IN THE CITY OF GOODYEAR, MARICOPA COUNTY, ARIZONA, USDOT NO. 741-784-A.

DOCKET NO. RR-03639A-11-0245

**Background**

On June 16, 2011, 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 Litchfield Road in the City of Goodyear (“City”), Maricopa County, Arizona at USDOT No. 741-784-A.

The Commission’s Railroad Safety Staff (“Staff”) records indicate the presence of automatic warning devices at Litchfield Road as far back as 1974.

ADOT, the City and Staff met at the crossing several times during 2006 and 2007. 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 2007 Commission Annual Array approved by Decision No 69727 dated July 30, 2007. 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.

### **LITCHFIELD ROAD**

Litchfield Road is a five lane north-south roadway, which consists of 3 lanes south bound and 2 lanes north bound. Currently, there are flashing lights and gates with a rubber crossing surface at the crossing. This project consists of upgrading the flashing lights to LEDs, installing a new cantilever for south bound traffic, and installing a new concrete surface. The measures are consistent with safety measures employed at similar at-grade crossings in the State. The estimated cost of the project is \$481,277. The FHWA will fund 100% of the signal costs and 94.3% or \$185,753.08 of the surface cost. The City of Goodyear will fund 5.7% or \$11,227.92 of the surface cost. The Railroad will maintain the warning devices after the upgrade is completed.

Traffic data for Litchfield Road was provided by ADOT. The data shows the Average Daily Traffic ("ADT") for 2008 to be 8,400, vehicles per day ("vpd"). The current Level of Service ("LOS") for Litchfield Road is LOS B.

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 Litchfield Road is 40 MPH. Staff records, as well as Federal Railroad Administration ("FRA") accident/incident records, indicate two accidents at this crossing. The first occurred on October 15, 1974, and resulted in one injury. The second incident occurred on November 7, 1975, and also resulted in one injury. Records indicate the warning devices were working as intended at the time of the incidents.

Alternative routes from this crossing are as follows: to the northeast approximately 3000 feet is Central Avenue, to the southwest approximately 2.3 miles is Estrella Parkway. Both of these crossings are at-grade.

### **Train Data**

Data provided by the Union Pacific 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: 45 mph

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

### **Schools and Bus Routes**

There are several schools located near the Litchfield Road crossing. They are:

#### **Schools:**

- ✓ Michael Anderson K-8 School
- ✓ Elisea Felix K-8 School
- ✓ Aqua Fria High School
- ✓ Desert Edge High School.

All the schools are within three miles from the crossing.

Based on information provided from the school district offices within the area, Avondale Elementary School District buses utilize this crossing 4 times per day and Agua Fria High School District buses utilize this crossing 12 times per day.

### **Hospitals**

The nearest hospitals to the Litchfield Road crossing are as follows;

#### **Hospitals:**

- ✓ The Cancer Treatment Centers of America – 2 miles north of the crossing
- ✓ The West Valley Hospital – 3 miles north of the crossing.

Per the City of Goodyear, this crossing is used by emergency services vehicles, but not extensively.

### **Hazardous Materials**

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

*Per the City of Goodyear there are no vehicles carrying hazardous materials which utilize this crossing.*

### **Zoning**

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

*The surrounding areas are zoned commercial and industrial.*

### 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:

		<b>Litchfield Road</b>
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 <sup>1</sup>
Vehicle delay exceeds 40 vehicle hours per day	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No

<sup>1</sup> N/A = Not Applicable

### **Grade Separation**

Due to the scope of this Section 130 cantilever and surface upgrade, no grade separation study was performed. Because of the urbanized location, ADOT estimated a grade separation would cost in excess of \$30 million.

### **Vehicular Delays at Crossings**

Per the City of Goodyear, 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 50,400, far below the 1 million 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, 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**

The area surrounding this crossing is highly developed with commercial 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 generally supports ADOT's application. Staff believes that the upgrades are in the public 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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Originator: BHL

COPIES of the foregoing mailed  
This 12th day of August, 2011 to:

Docket No. RR-03639A-11-0245

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