ORIGINAL

STAFF MEMORANDUM

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To: THE COMMISSION

From: Robert Marvin
Director
Safety Division

Date: July 10, 2015

Arizona Corporation Commission
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AZ CORP 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 COMPANY AT PRODUCE ROW IN THE CITY OF NOGALES, SANTA CRUZ COUNTY, ARIZONA, DOT NO. 742-034-T.

DOCKET NO. RR-03639A-15-0146

Background

On May 8, 2015, 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 Produce Row in the City of Nogales ("City"), Santa Cruz, Arizona, DOT No. 742-034-T.

In 2012, the Safety Division's Railroad Safety Section, ("Staff"), ADOT, 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 2012 Commission Annual Array approved by Decision No. 73610, dated December 12, 2012. 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.

Produce Row

Produce Row is located east of Business Route (State Route19B) in the City. It is used for two-way traffic, consisting of one westbound lane that is used for both straight movements and a shared right or left turn. There is one thru eastbound lane. This crossing consists of one mainline with daily usage. It is equipped with automatic gates, flashing lights, bells, constant warning time train detection and simultaneous traffic preemption.

The proposed project consists of upgrading the automatic gates with LED flashing light units on both sides of the crossing and adding advanced traffic preemption to interconnect with the Railroad's equipment and the traffic signals. 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. The maintenance of the advanced traffic signal preemption will be shared between ADOT and the Railroad. The total cost for the project is $380,450.

Traffic data for Produce Row was provided to ADOT by the City. Per the City, in the year 2012, there were 2,229 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 Produce Row is 25 mph. Staff records, as well as the Federal Railroad Administration's ("FRA") accident/incident records indicate one accident at this crossing. It occurred on March 25, 1992. A tractor trailer truck was stopped on the tracks and was struck by a train. The warning devices were reported to be operating as intended. There were no injuries or fatalities.

Alternative routes from this crossing are: Gold Hill Road which is .5 of a mile away to the northwest, and to the southeast is Baffert Road .8 of a mile away.

Train Data

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

Train Count: 5 trains per day
Maximum Train Speed: 25 mph
Thru Freight/Switching Moves: there are no switching movements through this crossing

Schools and Bus Routes

The following are schools near this crossing:

- Wade Carpenter Middle School 595 W. Kino St. Nogales
- Lourdes Catholic School 555 E. Patagonia Hwy. Nogales

Per the Santa Cruz Valley Unified School District, Santa Cruz Valley Union High School District and Nogales Unified District, no school buses use this crossing.

Hospitals

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

Produce Row is not a major emergency services route. The nearest hospital is; Carondelet Holy Cross Hospital, 1171 W. Target Range Road, Nogales Az.

Hazardous Materials

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

The City of Nogales states that it's not aware of any vehicles carrying hazardous materials utilizing this crossing.

Zoning

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

According to the City of Nogales' current Zoning Map, the areas around the crossing are zoned Light 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:

		Produce Row
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 The Crossing

The City of Nogales 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 is traveling. For example that a 7,000 foot train traveling 30 miles per hour would cause a traffic delay of approximately 3.5 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 11,145 at Produce Row, 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, Produce Row 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 and also believes closing the crossing would interrupt the flow of traffic in the area.

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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Safety Division

Originator: BHL

Original and thirteen (13) copies
of the foregoing were filed this
_10th_ day of July, 2015 with:

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