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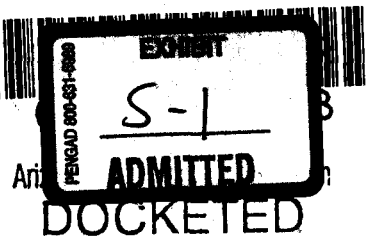
Transcript Exhibit(s)

Docket #(s): RR-03639A-13-0211

Exhibit # : 31

ORIGINAL

STAFF MEMORANDUM



To: THE COMMISSION

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AZ CORP COMMISSION
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AUG 26 2013

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From: Robert Marvin
Director
Safety Division

Date: August 26, 2013

RE: IN THE MATTER OF THE APPLICATION OF THE ARIZONA DEPARTMENT OF TRANSPORTATION TO UPGRADE AN EXISTING CROSSINGS OF THE UNION PACIFIC RAILROAD AT 5TH STREET IN THE CITY OF TEMPE, MARICOPA COUNTY, ARIZONA, USDOT NO. 741-561-J.

DOCKET NO. RR-03639A-13-0211

Background

On June 27, 2013, the Arizona Department of Transportation ("ADOT") filed with the Arizona Corporation Commission ("Commission") an application for approval for Union Pacific Railroad ("Railroad") to upgrade an existing crossing at 5th Street in the City of Tempe ("City"), Maricopa County, Arizona at USDOT No. 741-561-J. (See Appendix "A")

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 2002 Commission Annual Array approved by Decision No. 64988, dated June 26, 2002. 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.

5th Street

5th Street is an east/west paved roadway consisting of one thru lane eastbound, one left-hand turning lane for eastbound traffic headed north onto Ash Avenue and one thru lane westbound. The crossing consists of one mainline and one siding track. Currently, the crossing is equipped with flashing lights and gates, but does not provide warning device coverage for all lanes of traffic in both directions. The proposed project consists of installing two new automatic gates with LED flashing light units on the outside curbs of 5th Street. A raised median will be installed allowing for LED flashing light units along with an automatic gate mechanism to provide warning device coverage for all lanes of traffic. Constant warning time circuitry will also be installed. The City will construct sidewalks, improve the roadway approaches to the crossing and restripe the roadway in advance of the crossing. The total cost, paid entirely by FHWA is $499,400.00. The Railroad will maintain the warning devices and crossing surface after the upgrades are completed. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the State.

Traffic data for 5th Street was provided to ADOT by the City. Per the City, there are 3,508 vehicles per day ("vpd") at this crossing. The Level of Service ("LOS") for this crossing is LOS A.

Note: 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 5th Street is 35mph. Staff records, as well as the Federal Railroad Administration's ("FRA") accident/incident records indicate no accidents at this crossing.

Alternative routes from this crossing are: to the south 0.28 miles University Drive and to the north, 1st Street 0.30 miles away. Both are at-grade crossings.

Train Data

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

Train Count: 8 trains per day with no passenger service

Maximum Train Speed: 20 mph

Thru Freight/Switching Moves: there are switching movements through the crossing on the siding track.

Schools and Bus Routes

The following are schools near the crossing:

- Scales Technology Academy – 1115 W. 5th Street
- Gililland Middle School – 1025 S. Beck Avenue

Per the Tempe Union High School District and Tempe Elementary School District, no school buses utilize this crossing. The City stated that two public bus transit routes utilize the crossing with a total of 168 daily crossings. Bus traffic varies depending on sporting events in the area.

Hospitals

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

Tempe St. Luke's Hospital is located at 1500 S. Mill Avenue. The City of Tempe stated that 5th Street is not a major emergency services route for the hospital.

Hazardous Materials

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

The City of Tempe stated that they are not aware of any vehicles carrying hazardous materials that utilize this crossing.

Zoning

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

The areas adjacent to the 5th Street railroad crossing are zoned as mixed use (MU-4) and City Center (CC).

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:

		5th Street
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 due to the proximity of the crossing to the Arizona State University campus and Mill Avenue, a major street in Tempe, and the overall high cost to complete a grade separation at this location.

Cost estimates for grade separating this location would be in the $30,000,000 range, due to the urbanized location.

Vehicular Delays at Crossing

When asked about traffic delays at the crossing, the City responded as follows:

The delay at the crossing is really a function of the average length of the train and the average speed that it is traveling. The City provided an 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 28,064 at 5th Street, 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, 5th Street 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 City has stated they would not consider closing the crossing. Doing so would negatively impact numerous businesses and residences in the area. Staff does not recommend closing the crossing.

Staff Conclusions

Having reviewed all applicable data, Staff 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.

Brian H. Lehman
Railroad Safety Supervisor
Safety Division

Originator: BHL

Original and thirteen (13) copies
of the foregoing were filed this
_26th_ day of August, 2013 with:

Docket Control
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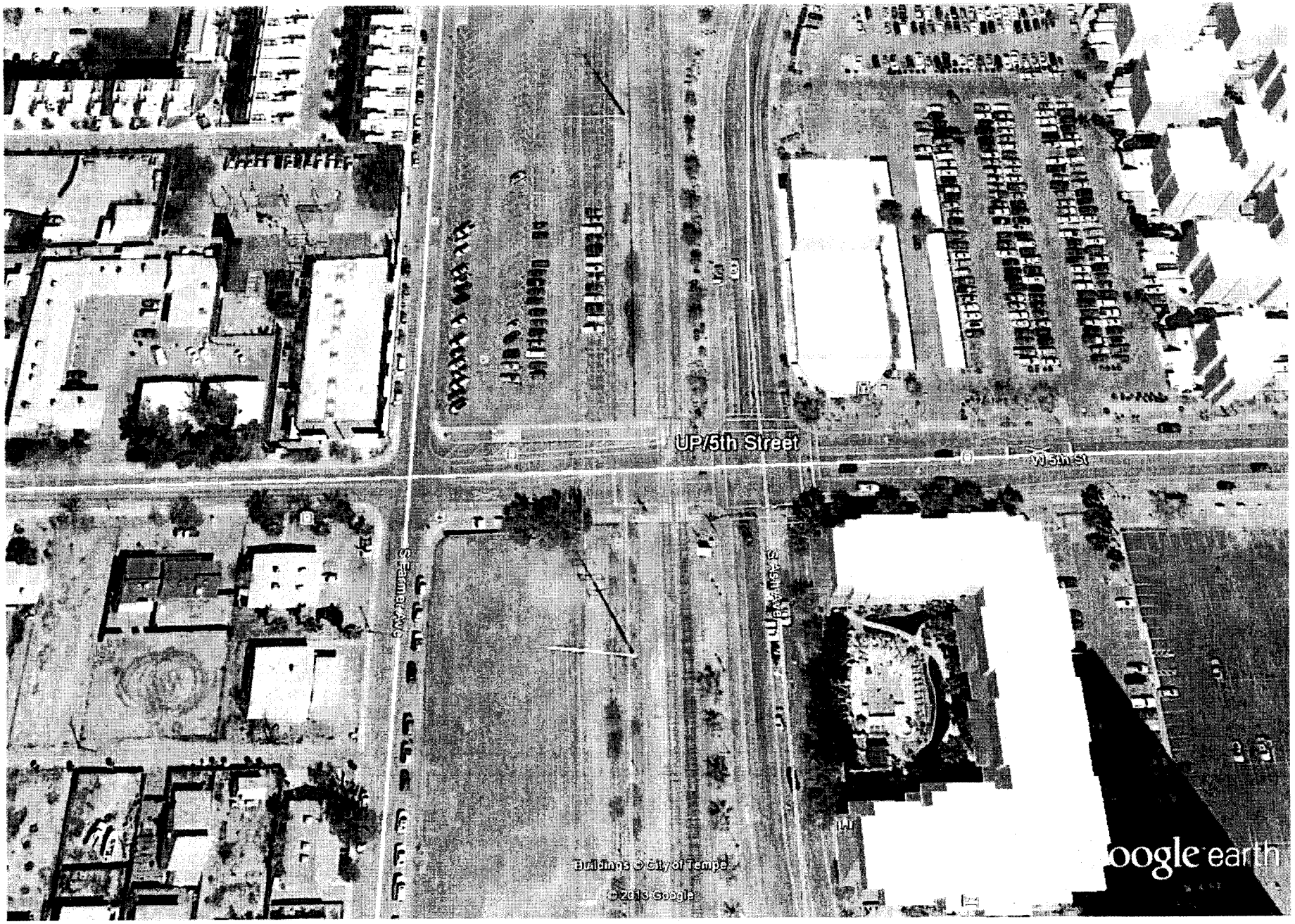

Google earth

feet 500

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Riverside
UP/5th Street
Tempe
W 5th St
W 6th St
W 7th St
S Roosevelt St
S Wilson St
S Farmer Ave
S Ash Ave
S Maple
E 6th St
S Mill Ave
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meters
600