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Transcript Exhibit(s)

Docket #(s): RR-00000B-13-0031

Exhibit # : S1, S2

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AZ CORP COMMISSION
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ORIGINAL

STAFF MEMORANDUM

EXHIBIT
S-1
ADMITTED
APR 19 2013

To: THE COMMISSION

From: Robert Marvin
Director
Safety Division

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AZ CORP COMMISSION
DOCKET CONTROL
2013 APR 19 AM 9 07

DOCKETED BY

Date: April 19, 2013

RE: IN THE MATTER OF THE APPLICATION OF THE ARIZONA DEPARTMENT OF TRANSPORTATION TO UPGRADE EXISTING CROSSINGS OF THE BURLINGTON NORTHERN AND SANTA FE RAILWAY AT THE INDIAN SCHOOL ROAD CONNECTOR AND 35TH AVENUE IN THE CITY OF PHOENIX, MARICOPA COUNTY, ARIZONA, AT USDOT NOS. 025-424-D AND 025-425-K.

DOCKET NO. RR-02635B-13-0034

Background

On February 20, 2013, the Arizona Department of Transportation ("ADOT") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Burlington Northern and Santa Fe Railway Company ("BNSF or Railroad") to upgrade two existing crossings at the BNSF's tracks at the Indian School Road Connector and 35th Avenue, in Phoenix, Arizona, at USDOT Nos. 025-424-D and 025-425-K, respectively.

The Safety Division's Railroad Safety Section, ("Staff"), ADOT, the City of Phoenix ("City") and the Railroad participated in several diagnostic review meetings of the proposed improvements to these crossings. All parties present were in agreement to the proposed improvements at the crossings. The following is a breakdown of the crossings in this application, including information about the crossings 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 2005 Commission Annual Array approved by Decision No. 67777, dated May 2, 2005. 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.

Indian School Connector Road

The Indian School Road Connector is a four lane divided roadway, consisting of two lanes westbound and two lanes eastbound. Currently, this crossing is equipped with flashing lights and gates. A study conducted by the City and Lee Engineering in 2008 determined that a pre-signal[1] was required for northbound traffic on 35th Avenue and the warning devices at Indian School Connector should be re-engineered and replaced. The proposed project consists of installing two new automatic gates with LED flashing light units on the curbside of the Indian School Road Connector. Also, two automatic gates with LED flasher units will be installed within a new raised median. Additionally, two new concrete surface panels and advanced pre-emption[2] will be installed. The City will also complete civil improvements to the sidewalks including approved Americans with Disabilities Act ("ADA") ramps in conjunction with the project. 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 the Indian School Road Connector was provided by the City. It is as follows: as of April 2013, the ADT was 3,782 for eastbound traffic and 3,321 for westbound traffic for a total of 7,103 vehicles per day ("VPD"). The Level of Service ("LOS") is as follows: for AM Peak Hour Period for eastbound traffic a LOS-F. The LOS for PM Peak Hour for eastbound traffic is LOS-F. LOS data for Indian School Road Connector and 35th Avenue was taken from Lee Engineering's "35th Avenue/Indian School Road/Grand Avenue At-Grade Crossing Safety and Improvement Analysis" table 9, dated November 2008. Data for the adjacent Indian School Road overpass is as follows: the ADT in 2007 was 19,111 for westbound traffic, and 24,528 for eastbound traffic. No LOS was given.

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 the Indian School Road Connector is 40MPH. Staff records, as well as the Federal Railroad Administration's ("FRA") accident/incident records indicate 22 accidents at this crossing between January 20, 1975 and February 23, 2010. There were 12 reported injuries and two fatalities, one on March 22, 1975 and another September 28, 1985.

[1] **The Manual on Uniform Traffic Control Devices ("MUTCD") Part 8 Section 8A.01 defines a pre-signal "as a supplemental highway traffic signal face, operated as part of the highway intersection traffic signals, located in a position that controls traffic approaching the railroad crossing and the intersection".**

[2] **Advance Preemption is the notification of an approaching train, forwarded to the highway traffic signal controller unit or assembly by railroad equipment for a period of time prior to activating the railroad active warning devices.**

Alternative routes from this crossing are: to the south .66 miles, Osborn Road, and to the North, 43rd Avenue 1.14 miles away. Both are at grade crossings.

35th Avenue

35th Avenue is a 6-lane roadway, consisting of 4 northbound lanes and 2 southbound lanes. Currently, there are cantilevers with LED flashing lights at the crossing, as well as cross-hatched pavement markings instructing the motorist not to stop in this area and foul the track. The proposed improvements consist of installing advanced pre-emption circuitry, along with a pre-signal south of the existing crossing for northbound traffic on 35th Avenue. The City will also do civil improvements to the sidewalks with ADA ramps in conjunction with the project. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the State. The estimated cost for both projects is $2,041,740.00 funded entirely by federal funds. The Railroad will maintain the existing warning devices and the advanced pre-emption circuits. The City will maintain the pre-signal after the upgrade is completed.

Traffic data for 35th Avenue was provided by the City of Phoenix. It is as follows: the ADT for April 2013 was 10,388 for southbound traffic and 12,759 for northbound traffic for a total of 23,147 VPD. The LOS for 35th Avenue northbound and southbound during AM Peak Hour Period is LOS-F and for PM Peak Hour Period both northbound and southbound, LOS-F.

The posted speed limit for 35th Avenue is 40MPH. Staff records, as well as FRA accident/incident records indicate 83 accidents at this crossing from January 22, 1976 through July 17, 2009. There were 25 reported injuries and one fatality on September 28, 1985.

Alternative routes from this crossing are: to the south .66 miles, Osborn Road, and to the North, 43rd Avenue 1.14 miles away. Both are at grade crossings.

All other data below is the same for both the 35th Avenue and the Indian School Connector Road.

Train Data

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

Train Count: 9 trains per day with no passenger service
Maximum Train Speed: 20 mph
Thru Freight/Switching Moves: there are switching movements through both crossings

Schools and Bus Routes

The following are schools near these crossings:

- Alhambra High School – 3839 W. Camelback Road
- Bourgade Catholic High School – 4602 N. 31st Avenue
- Alhambra Traditional School – 3736 W. Osborn Road
- Pueblo Del Sol Middle School – 3449 N. 39th Avenue
- Pan-America Elementary School – 3001 W. Indian School Road

- West Phoenix High School – 3835 W. Thomas Road
- Granada Primary School – 3232 W. Campbell Avenue

Per the Alhambra School District, there are 14 buses that cross the tracks once in the morning and once in the afternoon, for a total of 28 trips per day.

Hospitals

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

The closest hospital to these crossings is Maryvale Hospital, located at 5102 W. Campbell Avenue. The City of Phoenix stated they do not know if these crossings are used extensively by emergency services vehicles.

Hazardous Materials

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

The City of Phoenix stated they do not have any information pertaining to the use of these crossings by vehicles carrying hazardous materials.

Zoning

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

The area adjacent to the Indian School Connector Road and 35th Avenue are zoned industrial to the southwest, general commercial to the southeast and northwest and intermediate commercial to the northeast.

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:

		ISCR	35th Avenue
The highway is a part of the designated Interstate Highway System	Crossing Currently meets the criteria	No	No
	Crossing meets the criteria by 2030	No	No
The highway is otherwise designed to have full controlled access	Crossing Currently meets the criteria	No	No
	Crossing meets the criteria by 2030	No	No
The posted highway speed equals or exceeds 70 mph	Crossing Currently meets the criteria	No	No
	Crossing meets the criteria by 2030	No	No

AADT exceeds 100,000 in urban areas or 50,000 in rural areas	Crossing Currently meets the criteria	No	No
	Crossing meets the criteria by 2030	No	No
Maximum authorized train speed exceeds 110 mph	Crossing Currently meets the criteria	No	No
	Crossing meets the criteria by 2030	No	No
An average of 150 or more trains per day or 300 million gross tons/year	Crossing Currently meets the criteria	No	No
	Crossing meets the criteria by 2030	No	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	No
	Crossing meets the criteria by 2030	No	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	Yes
	Crossing meets the criteria by 2030	Yes	Yes
Vehicle delay exceeds 40 vehicle hours per day	Crossing Currently meets the criteria	No	No
	Crossing meets the criteria by 2030	No	No

[1] N/A = Not Applicable

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 complexity of the crossing, especially with Grand Avenue as part of the crossing. Indian School Road mainline was grade separated at Grand Avenue and the BNSF railroad several years ago, however the Indian School Connector Road was maintained in order to facilitate traffic needing to connect from Indian School Road to Grand Avenue and 35th Avenue, and this connector requires an at-grade crossing with BNSF.

Cost estimates for grade separating this location would be in the $50,000,000 range, due to the urbanized location.

Vehicular Delays at Crossings

The City of Phoenix stated that the delay in traffic due to train activity varies depending on if the trains are passing or stopped. The delay can be 2 minutes when the train is passing and up to 15 minutes for a stopped train at both the Indian School Connector Road and 35th Avenue.

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 these crossings. The current crossing exposure is 63,927 at the Indian School Connector Road, and 208,323 at 35th Avenue, 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, 35th Avenue meets one of the nine criteria for consideration of grade separation. Staff disagrees with ADOT's response to the 8th criteria of the FHWA Guidelines, "US DOT Accident Prediction Formula" for the year 2030. Because the accident formula is based on the previous 5 years, it's not possible to calculate the previous 5 years before 2030 at this point. Staff does not recommend a grade separation at the crossing.

Crossing Closure

The City has stated, they would not close either crossing and Staff agrees that closing one or both crossings would have a negative effect traffic control.

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

COPIES of the foregoing mailed
This 19th day of April, 2013 to:

Docket No. RR-02635B-13-0034

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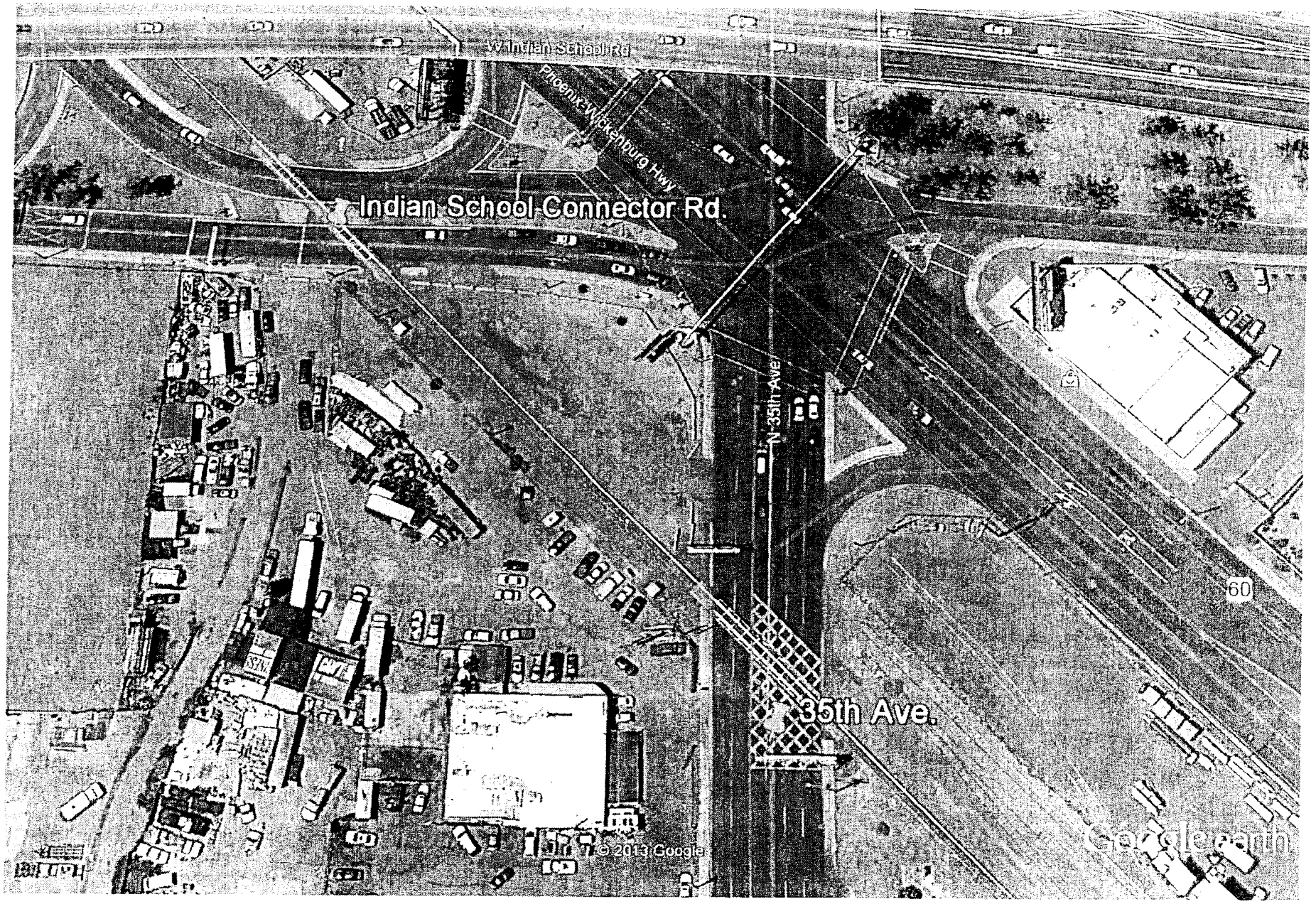

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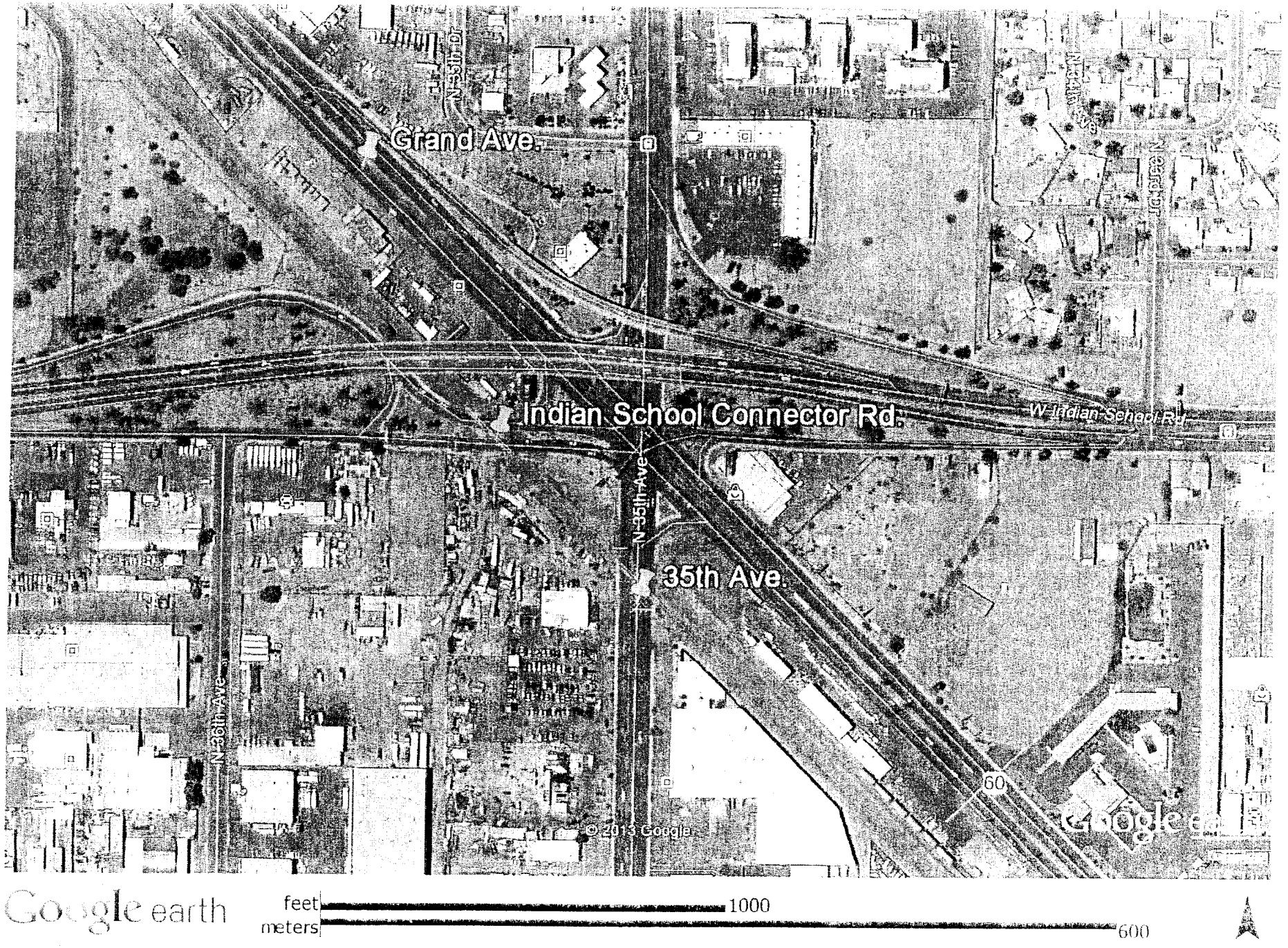

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SUPLEMENTAL STAFF MEM(

EXHIBIT S-2

To: THE COMMISSION

RECEIVED

From: Robert Marvin
Director
Safety Division

2013 MAY 24 P 2:49

AZ CORP COMMISSION
DOCKET CONTROL

MAY 24 2013

DOCKETED BY

Date: May 24, 2013

RE: IN THE MATTER OF THE APPLICATION OF THE ARIZONA DEPARTMENT OF TRANSPORTATION TO UPGRADE EXISTING CROSSINGS OF THE BURLINGTON NORTHERN AND SANTA FE RAILWAY AT THE INDIAN SCHOOL ROAD CONNECTOR AND 35TH AVENUE IN THE CITY OF PHOENIX, MARICOPA COUNTY, ARIZONA, AT USDOT NOS. 025-424-D AND 025-425-K.

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Background

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An evidentiary hearing was held on May 9, 2013. During the hearing, the Commission's Safety Division Railroad Safety Section requested a 30-day continuance due to new information received in the days immediately prior to the hearing. The new information prompted Staff to believe that certain changes had been made or were proposed to be made to the upgrades originally requested by ADOT. In light of the issues involved at the crossing, Staff wanted to further review the Application and understand the basis for the new information. The parties agreed to continue the proceeding and the hearing was continued to June 10, 2013.

Staff Conclusions

On May 23, 2013, Staff met with ADOT, BNSF, and the City of Phoenix to further discuss their concerns. Two days prior to the May 9 hearing, Staff learned that BNSF and the City were possibly discussing adding median gates to 35th Avenue as part of this project, which was not originally included in the application. The new information prompted questions by Staff as to how the advanced preemption was going to work at 35th Avenue if no gates were installed as well as various clarifications on project specifics.

After a meeting on May 23, 2013, it was agreed by all that the original project would move forward as requested in the original application. However, on a going forward basis BNSF and the City would work closely together to further improve 35th Avenue and evaluate measures that will enhance the features requested within the present application. Staff agrees that the upgrades proposed in this application will make both Lower Indian School Road and 35th Avenue safer crossings and are appropriate.

Having reviewed all applicable data, Staff continues to support ADOT's application as filed. 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.

for Brian Lehman

Brian H. Lehman
Railroad Safety Supervisor
Safety Division

Originator: CBW

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This 24th day of May, 2013 to:

Docket No. RR-02635B-13-0034

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