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STAFF MEMORANDUM

To: THE COMMISSION

Arizona Corporation Commission

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From: Robert Marvin
Director
Safety Division

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AZ CORP COMMISSION
DOCKET CONTROL

RE: IN THE MATTER OF THE APPLICATION OF THE ARIZONA DEPARTMENT OF TRANSPORTATION TO UPGRADE TWO EXISTING CROSSINGS AND RE-ALIGN A THIRD CROSSING OF THE ARIZONA EASTERN RAILWAY COMPANY AT NAVAJO ROAD DOT NO. 742-309-Y, HOME ALONE ROAD DOT NO. 742-307-K, AND CENTERPOINT ROAD DOT NO. 742-306-D, IN BYLAS, GRAHAM COUNTY, ARIZONA.

DOCKET NO. RR-02634A-14-0064
DOCKET NO. RR-02634A-14-0065
DOCKET NO. RR-02634A-14-0066

ORIGINAL

Background

On February 27, 2014, the Arizona Department of Transportation (“ADOT”) filed with the Arizona Corporation Commission (“Commission”) an application for approval for the Arizona Eastern Railway Company (“Railroad”) to upgrade the following existing crossings located in Bylas: Navajo Road, DOT NO. 742-309-Y, Home Alone Road, DOT No. 742-307-K, and Centerpoint Road, DOT No. 742-306-D. Bylas is located on the San Carlos Indian Reservation approximately 35 miles southeast of Globe. According to the 2010 Census, the population is 1,962.

The Safety Division’s Railroad Safety Section, (“Staff”), ADOT, the San Carlos Apache Tribe, (“Tribe”) 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

Two of these projects are 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.

Navajo Road and Centerpoint Road were 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.

The third crossing in this application is also being federally funded, albeit using funds provided by the FHWA through the Highway Safety Improvement Program ("HSIP") rather than through the use of Section 130 funds. HSIP is a program created pursuant to 23 USC §148 to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-state-owned public roads and roadways on tribal lands. HSIP will provide 100% of the funding to construct the improvements at Home Alone Road.

Navajo Road

Navajo Road is used for two-way traffic, consisting of one thru westbound and one thru eastbound lane. Currently, this crossing is equipped with flashing lights, bells and automatic gates. The existing active warning devices are being replaced because necessary replacement parts needed to maintain the devices in the future are no longer manufactured. The proposed project consists of installing two new automatic gates with LED flashing lights at the curbside of Navajo Road, as well as bells and constant warning time circuitry. A new concrete crossing surface will also be installed. ADOT will also construct civil improvements including new sidewalks from the existing U.S. 70 to Rope Drive, re-striping and improving the roadway approaches. These civil improvements will help facilitate the necessary railroad safety improvements. 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 Tribe will be responsible for maintaining the road approaches and sidewalks, which are outside of ADOT's and the Railroad's responsibility. ADOT will maintain U.S. 70 within in its own right-of-way. The total cost for the project is \$310,000 funded by FHWA's Section 130 program.

Traffic data for Navajo Road was provided by ADOT. Per ADOT, in 2012, there were 540 vehicles per day ("vpd") at this crossing. No Level of Service ("LOS") was provided.

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 Navajo Road is 25 mph. 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 2.0 miles is Centerpoint Road and also to the south, Home Alone Road is 1.5 miles away. Both are at-grade crossings. There are no at-grade crossings or grade separations to the immediate north.

Train Data

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

Train Count: 2 trains per day with no passenger service

Maximum Train Speed: 10 mph

Thru Freight/Switching Moves: there are no switching movements through the crossing

Schools and Bus Routes

The following are schools near this crossing:

- Fort Thomas Elementary School 15560 W. Elementary School Road
- Fort Thomas High School Highway 70, Fort Thomas
- Mount Turnbull Academy Highway 70, Bylas

Per the Fort Thomas Unified School District, students in Bylas are served by schools in both Bylas and Fort Thomas. Per the school district, school buses use the crossing 36 times per day.

Hospitals

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

Bylas Health Center – 101 Medical Drive. The crossing is on a major emergency services route for the health center.

Hazardous Materials

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

No data available.

Zoning

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

The areas adjacent to the Navajo Railroad crossing are residential.

Grade Separation

ADOT gave the following response about grade separation:

Because this project is Section 130 (Highway-Rail Safety), grade separation was not considered. Cost estimates for grade separating this location would be in the \$30,000,000 range, due to the urbanized location.

Vehicular Delays at Crossings

ADOT stated that 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, 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 1,080 at Navajo 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, Navajo 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 Tribe has stated they do not intend on closing this crossing. Doing so would negatively impact numerous businesses and residents in the area. Staff believes closing the crossing would not be beneficial to the residents living west of the tracks, therefore Staff would not recommend closing the crossing.

Home Alone Road

Home Alone Road is currently used for two-way traffic, consisting of one thru westbound and one thru eastbound lane. Currently, this crossing is equipped with passive warning signs (cross bucks). The proposed project consists of realigning Home Alone Road about 1000 feet north of the existing crossing, so as to have a direct connection with the Health Center across U.S. 70. New automatic gates with LED flashers will be installed on the outside edge of both curbs. A new raised median will be installed with an automatic gate and LED flashers, along with bells, constant warning time circuitry and a new concrete crossing surface. ADOT will also construct new civil improvements including roadway curb and gutters, sidewalks, raised medians, signage and roadway striping. 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 Tribe will be responsible for maintaining the road approaches and sidewalks, which are outside of ADOT's and the Railroad's responsibility. ADOT will maintain U.S.70 within in its own right-of-way. The existing Home Alone crossing will be closed and removed after the new crossing is constructed and put into service. The total cost for this project is \$360,000, paid by FHWA's HISP.

Traffic data for the existing Home Alone Road was provided by ADOT. Per ADOT, in 2012, there were 701 vehicles per day (“vpd”) at this crossing. The LOS for this crossing is A.

The posted speed limit on Home Alone Road is 25 mph. Staff records, as well as the FRA’s accident/incident records indicate no accidents at this crossing.

Alternative routes from this crossing are: to the south 0.5 miles is Centerpoint Road and to the north, Navajo Road is 1.4 miles. Both are at-grade crossings.

Train Data

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

Train Count: 2 trains per day with no passenger service

Maximum Train Speed: 10 mph

Thru Freight/Switching Moves: there are no switching movements through the crossing

Schools and Bus Routes

The following are schools near this crossing:

- Fort Thomas Elementary School 15560 W. Elementary School Road
- Fort Thomas High School Highway 70, Fort Thomas
- Mount Turnbull Academy Highway 70, Bylas

Per the Fort Thomas Unified School District, students in Bylas are served by schools in both Bylas and Fort Thomas. No data is available for the realigned crossing as far as school buses, but the intent of ADOT’s project is to provide safer accessibility to both vehicles and pedestrians.

Hospitals

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

Bylas Health Center – 101 Medical Drive. The crossing is on a major emergency services route for the health center.

Hazardous Materials

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

No data available.

Zoning

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

The areas adjacent to the Home Alone Road and AZER railroad crossing are residential.

Grade Separation

ADOT gave the following response about grade separation:

Grade separation was not considered at this time due to the close proximity of U.S. 70. Cost estimates for grade separating this location would be in the \$30,000,000 range, due to the urbanized location.

Vehicular Delays at Crossings

ADOT stated that 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, 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 1,402 at Home Alone 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, Home Alone 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 current Home Alone Road will be closed after the new construction is completed for the realigned crossing.

Centerpoint Road

Centerpoint Road is used for two-way traffic, consisting of one thru westbound and one thru eastbound lane. The crossing is equipped with flashing lights, bells and automatic gates. The existing active warning devices are being replaced because necessary replacement parts needed to maintain the devices in the future are no longer manufactured. The proposed project consists of installing three new automatic gates with LED flasher units and bells at each curbside location and one automatic gate and flasher in a new raised median. Constant warning time circuitry will also be installed. A new concrete crossing surface will be installed, as well as a new left-hand turn lane, sidewalks, restriping and improvements to the roadway approaches. These civil improvements will help facilitate the necessary railroad safety improvements at the crossing. These 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 Tribe will be responsible for maintaining the road approaches and sidewalks, which are outside of ADOT's and the Railroad's responsibility.

ADOT will maintain U.S. 70 within its own right-of-way. The total cost for this project is \$310,000, funded by FHWA's Section 130 program.

Traffic data for Centerpoint Road was provided by ADOT. Per ADOT, in 2012, there were 859 vehicles per day ("vpd") at this crossing. The LOS for this crossing in 2010 was B.

The posted speed limit on Centerpoint Road is 25mph. Staff records, as well as the FRA's accident/incident records indicate no accidents at this crossing.

Alternative routes from this crossing are: to the north, Home Alone Road is 0.5 miles away and further north 2.0 miles is Navajo Road. Both are at-grade crossings.

Train Data

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

Train Count: 2 trains per day with no passenger service

Maximum Train Speed: 10 mph

Thru Freight/Switching Moves: there are no switching movements through the crossing

Schools and Bus Routes

The following are schools near this crossing:

- Fort Thomas Elementary School 15560 W. Elementary School Road
- Fort Thomas High School Highway 70, Fort Thomas
- Mount Turnbull Academy Highway 70, Bylas

Per the Fort Thomas Unified School District, students in Bylas are served by schools in both Bylas and Fort Thomas. The Fort Thomas Unified School District stated that school buses utilize this crossing 45 times per day. The Tribe's Transit Department stated that an employee casino shuttle may cross the crossing once a night. A transport to the Tribe's Skill Center may cross the crossing Monday-Friday depending on the season, but no exact number was given.

Hospitals

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

Bylas Health Center – 101 Medical Drive. This crossing is on a major emergency service route for the health center.

Hazardous Materials

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

No data available.

Zoning

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

The areas adjacent to the Centerpoint Road crossing are residential.

Grade Separation

ADOT gave the following response about grade separation:

Because this project is Section 130 (Highway-Rail Safety), grade separation was not considered. Cost estimates for grade separating this location would be in the \$30,000,000 range, due to the urbanized location.

Vehicular Delays at Crossings

ADOT stated that 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, 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 1,718 at Centerpoint 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 the Centerpoint Road crossing. Based on existing conditions, this crossing meets none of the nine criteria for consideration of grade separation. Staff does not recommend a grade separation at the crossing.

Crossing Closure

The Tribe has stated they would not like to close this crossing. Doing so would negatively impact numerous businesses and residences in the area. Staff does not recommend closing this crossing.

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 these three crossing applications as follows:

		Navajo Road	Home Alone	Centerpoint
The highway is a part of the designated Interstate Highway System	Crossing Currently meets the criteria	No	No	No
	Crossing meets the criteria by 2030	No	No	No
The highway is otherwise designed to have full controlled access	Crossing Currently meets the criteria	No	No	No
	Crossing meets the criteria by 2030	No	No	No
The posted highway speed equals or exceeds 70 mph	Crossing Currently meets the criteria	No	No	No
	Crossing meets the criteria by 2030	No	No	No
AADT exceeds 100,000 in urban areas or 50,000 in rural areas	Crossing Currently meets the criteria	No	No	No
	Crossing meets the criteria by 2030	No	No	No
Maximum authorized train speed exceeds 110 mph	Crossing Currently meets the criteria	No	No	No
	Crossing meets the criteria by 2030	No	No	No
An average of 150 or more trains per day or 300 million gross tons/year	Crossing Currently meets the criteria	No	No	No
	Crossing meets the criteria by 2030	No	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	No
	Crossing meets the criteria by 2030	No	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	No	No
	Crossing meets the criteria by 2030	No	No	No
Vehicle delay exceeds 40 vehicle hours per day	Crossing Currently meets the criteria	No	No	No
	Crossing meets the criteria by 2030	No	No	No

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. Staff also recommends approval for ADOT's request, as stated in their application for a 36 month period in order to complete these projects.



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Originator: BHL

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