ORIGINAL

MEMORANDUM

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To: THE COMMISSION

From: Robert Marvin
Director
Safety Division

DM

AZ CORP COMMISSION
DOCKET CONTROL

Date: November 30, 2012

2012 NOV 28 PM 3 23

RE: IN THE MATTER OF THE APPLICATION OF THE CITY OF CHANDLER TO UPGRADE AN EXISTING CROSSING OF THE UNION PACIFIC RAILROAD AT OCOTILLO ROAD IN THE CITY OF CHANDLER, MARICOPA COUNTY, ARIZONA, USDOT NO. 741-680-T.

DOCKET NO. RR-03639A-12-0433

Background

On October 9, 2012, the City of Chandler ("City") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Union Pacific Railroad ("Railroad") to upgrade an existing crossing at Ocotillo Road in the City, located in Maricopa County, Arizona at USDOT No. 741-680-T.

Geographical Information

On May 17, 1912, the Town of Chandler was founded and incorporated in 1920. Since its early beginnings, Chandler has become a vibrant, diverse community. Chandler has become the third fastest growing city in the nation. In the 1990's, it doubled in size and today its planning area encompasses 71 square miles. Chandler has successfully diversified its economy. Agriculture is still important, but the City is now a high-tech industry center. According to the latest census, the population of the City has grown to 240,000 residents.

OCOTILLO ROAD

The City, Railroad and the Commission's Railroad Safety Section ("Staff") held a field diagnostic meeting at the project site on June 11, 2008. (See Appendix "A") Ocotillo Road is a paved two lane roadway at the railroad crossing equipped with flashing lights, gates and bells. The project consists of widening the current two lane roadway to a four lane urban major arterial roadway with a 16-foot raised median at the crossing. All new state of the art warning devices will be installed at the crossing and will include: LED flashing lights, curbside and median gates, bells and a new concrete surface. (See Appendix "A")

This project is being funded by the Federal Highway Safety Improvement Plan ("HSIP") and the City of Chandler. The total cost includes $339,186 for the signal equipment, $189,655 for surface improvements, and $65,000 for flagging costs for a total of $593,851.

According to the City, the Average Daily Traffic ("ADT") in 2012 is 11,900 vehicles per day ("vpd"). No future projections were provided. The current Level of Service ("LOS") for

this two lane road is LOS B for the McQueen Road/Ocotillo Road intersection and LOS C for the Arizona Avenue/Ocotillo Road intersection.

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 Ocotillo Road is 45 MPH. Staff and the Federal Railroad Administration's ("FRA") accident/incident records indicate two incidents at the crossing with one injury and no fatalities. The first incident occurred on March 14, 1986 when the driver failed to yield at the crossing and was struck by the train and was injured. At the time of the incident, active warning devices were not installed. The second incident occurred on October 30, 1989 when the driver drove around the gates and was struck by the train. Records indicate the warning devices were reported to be working as intended at the time of the incident.

Alternative routes from this crossing are as follows: Appleby Road is a ½ mile to the north and Queen Creek Road is approximately 1 mile north and to the south approximately 1 mile is Chandler Heights Road. All are at-grade crossings.

Train Data

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

Train Count: average 6 trains per week
Train Speed: 25 mph freight
Thru Freight/Switching Moves: All moves through this crossing are thru freight. This is not a passenger train route.

Schools and Bus Routes

Schools in the vicinity of this crossing are in the Chandler Unified School District ("CUSD"). They include:

- Hamilton High School, .25 miles to the west
- San Tan Elementary School, 1 mile south and 1.25 miles to the east
- Fulton Elementary School, .50 miles west and .75 miles to the south

The CUSD indicates its buses utilize this crossing approximately 60 times per day during the school year. Most of the trips are for the Hamilton High School collection and distribution routes, with a few for the Fulton Elementary routes.

Hospitals

Mercy Gilbert Hospital is the nearest hospital to the crossing, five miles east and two miles to the north. The Ocotillo Road is not a known route for emergency service vehicles.

Hazardous Materials

The City gave the following response when asked about hazardous materials crossing this crossing:

No information on hazardous materials trips. No known hazardous materials industrial companies in the vicinity.

Zoning

Staff requested that the City provide information regarding the type of zoning in adjacent areas from the crossing. The following was the City's response:

The zoning maps and future land use maps from the City of Chandler show commercial/residential development potential surrounding the crossing. Current lands use is commercial west of the tracks and agricultural or vacant land to the east.

Federal Highway Administration ("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:

		Ocotillo Road
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

The following was the City's response to grade-separating the crossing:

Dibble Engineering performed a high level grade separation study for the City of Chandler. Below are there results:

- ***The UPRR Chandler Industrial Lead is a dead end track that ends on the Gila River Indian Community.***
- ***The number of trains has been historically low, approximately 5 to 10 per week.***
- ***The opportunity for increased industrial development for the rail market is limited.***
- ***No records of a highway/railroad crashes have been reported here.***
- ***Overpass or underpass options directly impact built developments including leaving the parcel on the southwest quadrant without access.***
- ***Overpass options impact the 69kv power line and the 230 kv power transmission line.***
- ***Both options directly impact Salt River Project Power's maintenance access to these lines.***

- ***Irrigation culverts on both the north and south sides would be directly impacted.***
- ***Intel is currently constructing 24-inch diameter waterline and a 36-inch diameter force main line under the railroad crossing which would be directly impacted by a bridge.***
- ***The overpass will require lowering the Ocotillo Road speed limits in order to create the sight distance to vehicles approaching the Arizona Avenue intersection. Vehicles traveling with speeds above the reduced speed limit will have reduced sight distance and time to stop if the intersection, especially if the queue at the intersection is more than 3 of 4 cars.***

Preliminary cost estimates performed by Dibble Engineering for constructing an overpass are $11.4 million and $13.2 million for an underpass.

Spur Lines

The City gave the following answer regarding spur lines located in the area:

There have not been any spur lines removed within the area over the last three years, to the City's knowledge.

Crossing Closure

The area surrounding this crossing is highly developed with both commercial businesses and residential dwellings. To close this crossing would have a negative effect on many of the local businesses and limit access to residences. Therefore, Staff would not recommend closure of this crossing.

Staff Conclusions

Having reviewed all applicable data, Staff supports the City's application. Staff believes the upgrades to the crossing are in the public's interest and are reasonable. Staff believes that the measures proposed by the City are consistent with other similar at-grade crossings in the State and will provide for the public's safety. Therefore, Staff recommends approval of the City's application.

Brian H. Lehman
Railroad Safety Supervisor
Safety Division

Originator: BHL

Original and thirteen (13) copies
of the foregoing were filed this
_28th_ day of November, 2012 with:

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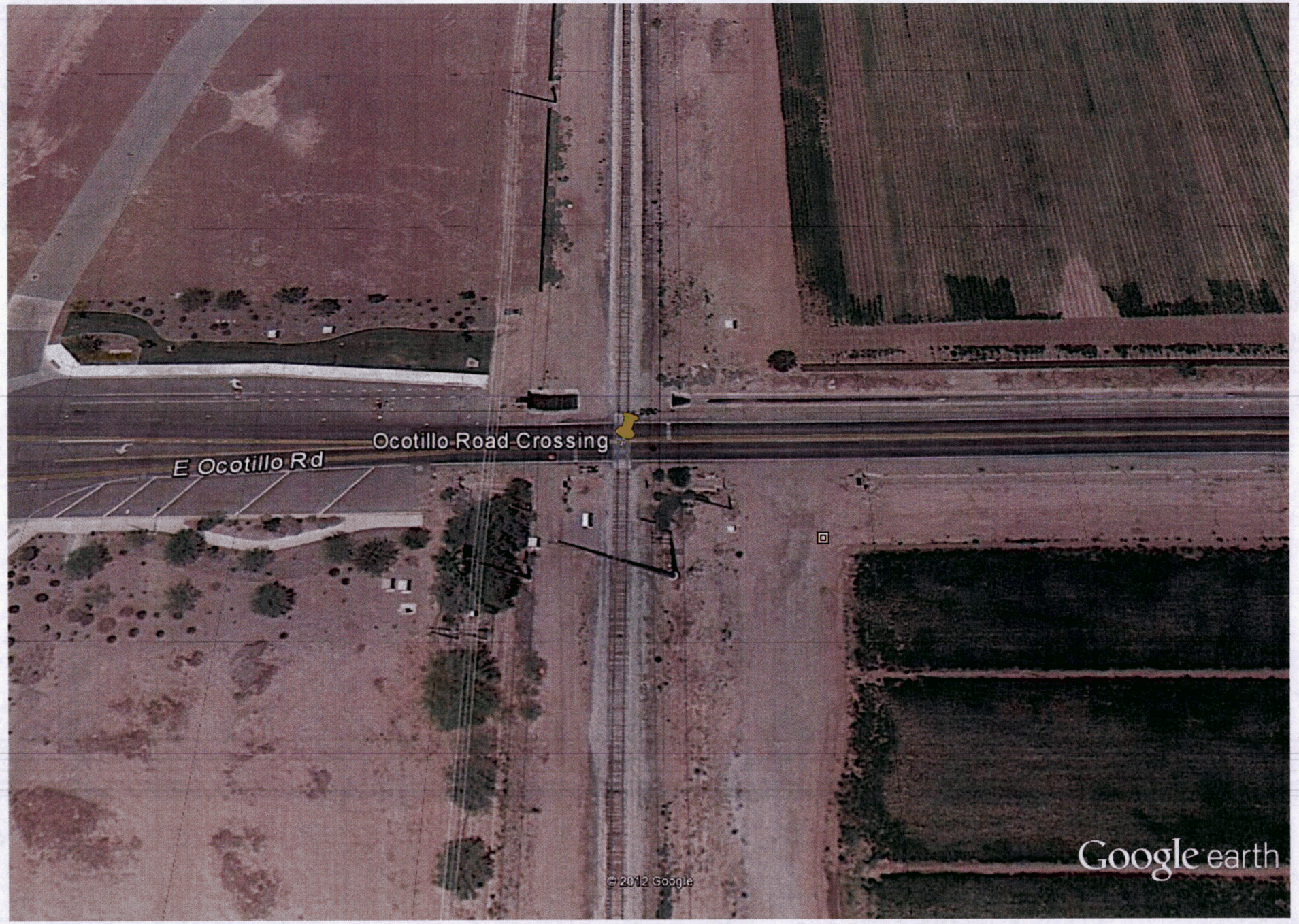
APPENDIX "A"



Google earth

feet 300

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Google earth

feet 2000

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