Transcript Exhibit(s)

Docket #(s): RR-03639A-09-0136

Exhibit # : S1, S2

ARIZONA CORPORATION COMMISSION

Staff Memorandum

To: THE COMMISSION

DOCKET NO. RR-03639A-09-0136

From: Safety Division

Date: May 29, 2009

RE: IN THE MATTER OF THE APPLICATION OF THE ARIZONA DEPARTMENT OF TRANSPORTATION TO CONSTRUCT A GRADE SEPARATED CROSSING OF THE UNION PACIFIC RAILROAD TRACKS AT THE TWIN PEAKS ROAD INTERCHANGE OF INTERSTATE 10, AAR/DOT NO. 924-115-X AND TO CLOSE AND REMOVE THE EXISTING AT GRADE CROSSING AT CAMINO DE MANANA ROAD,AAR/DOT 741-097-U IN THE TOWN OF MARANA, PIMA COUNTY, ARIZONA.

Background

On March 19, 2009, the Arizona Department of Transportation ("ADOT") filed with the Arizona Corporation Commission ("Commission") an application for approval to construct a grade separated crossing of the Union Pacific Railroad ("Railroad") by creating the new Twin Peaks Interchange, AAR/DOT 924-115-X at Interstate 10 ("I-10") and for the closure and removal of the existing at-grade crossing at Camino De Manana Road, AAR/DOT 741-097-U in Marana ("Town"), Pima County ("County"), Arizona.

In Commission Decision No.48561 dated 1/3/1978, flashing lights, automatic gates and bells were installed at the Camino De Manana crossing.

Geographical Information

The future Twin Peaks Interchange and the Camino De Manana at-grade crossing are located in the Town. According to 2006 estimates, the population of the Town is 33,000. Marana was the fourth fastest-growing municipality, among all cities and towns in Arizona of any size from 1990 to 2000. The Town extends along I-10, from the line between Pinal County and the County to the Tucson city line, with the exception of the area around the unincorporated community of Rillito.

The rail line runs in a south-east to north-west direction, parallel to the North I-10 Frontage Road. The Camino De Manana crossing runs in a north to south direction. Camino De Manana terminates at the North I-10 Frontage Road when traveling southbound. Traveling in a northeast direction from the railroad crossing on Camino De Manana, the area is characterized by a mix of scattered residential and undeveloped land. **(See Appendix "A")**

Twin Peaks Interchange

The Town and ADOT completed the final design for this new traffic interchange on I-10 between the existing Avra Valley Road and Cortaro Road interchanges in late 2008. The new roadway will connect Twin Peaks Road, west of the Santa Cruz River, to Camino De Manana and Linda Vista Boulevard on the east side of I-10. The need for a new I-10 interchange has been recommended in local and regional planning studies that date back to the late 1980's. This project was included in the Regional Transportation Authority's (RTA) transportation plan approved by voters in May 2006.

The design of this project took into consideration public comments and feedback, as well as findings from RTA planning studies to develop the new traffic interchange. This project will relieve traffic congestion in the Town and the northwestern area of metropolitan Tucson. The project proposes to build a combination of 4 and 6 lane roadways from the end of the existing Twin Peaks road, west of the Santa Cruz River, to Linda Vista Road, east of the existing Railroad right of way and I-10. The new roadway will provide an all weather crossing of the Santa Cruz River, with a fully functional traffic interchange at I-10, consisting of frontage roads and access to and from I-10, from Twin Peaks road and a 6 lane grade separated crossing of the Railroad right of way. It will also provide infrastructure to aid the rapid growth of northwest Pima County. This area presently continues to experience transportation needs in excess of the transportation infrastructure capacity. **(See Appendix "B")**

Funding

On April 17, 2009, the Arizona State Transportation Board announced that Pulice Construction Incorporated of Phoenix was chosen as the low-bid contractor for the project. Pulice bid $50.5 million, nearly $15 million less than ADOT's estimate. Construction will begin in the summer of 2009 and will take approximately 18 months to complete. The project is fully funded by multiple sources. The Town has committed up to $14 million in impact fees and additionally will incur the cost of a new $1million water line. ADOT will also contribute up to$14 million. The RTA has contributed over $30 million with additional funding coming from Pima Association of Governments, federal, state, and highway user funds. The Railroad will incur a cost of $101,000 for removing overhead signal lines and for the removal of the warning devices and crossing surface after the closure of Camino De Manana. Additionally, per CFR 23, Part 646.210 the Railroad is contributing $657,488 toward the grade separation of the Twin Peaks Road and the Railroad, based on 5% of a theoretical grade separation of a two lane roadway (Camino De Manana).

Camino De Manana Road

The second part of this application requests Commission approval to permanently close the Camino De Manana at-grade crossing after the completion of the Twin Peaks Interchange. The Twin Peaks Interchange project is located approximately 1,200 feet northwest of the existing Camino De Manana at-grade crossing. During the early stages of the second phase (May 2010) of the Twin Peaks Interchange project, the Town is

proposing to close the Camino De Manana at-grade crossing for public use; however it will remain open for construction traffic until the conclusion of the project. At the conclusion of the project and with Commission approval the crossing will be permanently closed, including the removal of the warning devices and the concrete crossing surface. Traffic control and detour plans were not available to Staff, during the different phases of construction.

In Commission Decision No. 70704 date September 16, 2008, approval was granted to the Railroad to upgrade the Camino De Manana crossing in the following manner: by adding a second main track located north of the existing main track and re-profiling a portion of the two lane rural asphalt road to meet the new tracks. Additionally, approval was given to replace the existing incandescent flashing lights, gate mechanisms, bells and detection circuitry with the latest in industry standards to include: 12 inch LED flashing lights, automatic gates, bells, and constant warning time circuitry. A new concrete crossing surface is to be added, along with replacing any impacted pavement markings. The estimated cost of the proposed railroad crossing upgrade is $272,104. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface work, with the signal work costing $248,944 and the crossing surface $23,160.

As of May, 2009, the Railroad has not started the upgrades at Camino De Manana, however according to Decision No. 70704; there is no timeline for completion of the upgrades. It is unclear at this time whether the Railroad will continue with their double tracking project including the installation of the approved upgrades at the Camino De Manana crossing, as a result of the decline in business and timing of the Twin Peaks construction.

Traffic data for Camino De Manana and the Twin Peaks Interchange was provided to ADOT through a traffic study prepared by Kimley-Horn and Associates, Inc. in 2005. The current Average Daily Traffic (ADT) provided by ADOT is 1,670 vpd. The estimated ADT for the Twin Peaks separation at the railroad for the year 2030 is 28,900 vpd. The current and projected traffic data was verified by Staff with ADOT in May 2009. The current Level of Service ("LOS") for this two lane road is LOS A, for both north and south bound traffic.

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 Camino De Manana is 45 MPH. Commission Rail Safety Section records, as well as Federal Railroad Administration ("FRA") accident/incident records indicate four accidents at this crossing, with no injuries and no fatalities. The first accident occurred on 2/26/1979, when a truck failed to stop for the

warning devices and was struck. The second incident occurred on 9/17/1983, when a truck did not stop for the warning devices and was hit. The third accident occurred on 11/11/1984, when a semi truck stopped on the tracks and was struck by a train. On 6/2/2001, accident/incident records indicate a truck stopped on the tracks and was struck by the approaching train. Records indicate the warning devices were reported to be working as intended in all four accidents.

Alternative routes from this crossing are as follows; to the west 4.73 miles to Tangerine Road, and to the east 1.59 miles to Cortaro Farms Road. **(See Appendix "C")**

Train Data

Staff has verified with the Railroad, as of May 22, 2009 the number of train movements through the Camino De Manana crossing is as follows;

Train Count: 24 total average trains per day (22 freight, and 2 passenger trains)
Train Speed: 79 mph passenger / 70 mph freight
Thru Freight/Switching Moves: All train movements through this crossing are thru movements with no switching operations, according to Union Pacific, Manager of Train Operations. This crossing is used by Amtrak twice per day, three times per week.

Schools and Bus Routes

There are three schools in the County and the Town within the area of this crossing. They are:

- ✓ Marjorie W. Estes Elem. School @ 11279 W. Grier Rd, Marana, AZ 85653
- ✓ Marana Middle School @ 11279 W. Grier Rd, Marana, AZ 85653
- ✓ Marana High School @ 12000 W. Emigh Road, Tucson, AZ 85743.

In May 2009, Staff verified with the Transportation Operations Manager for the Marana Unified School District that no school buses use the current crossing, but most likely will use the new grade separated crossing.

Hospitals

The nearest hospital to the existing crossing and the proposed grade separation is North West Medical Center in Marana. The following are the distances from the crossing and the proposed grade separation to the hospital:

- Camino De Manana – 7.0 miles
- Twin Peaks Interchange – 7.25 miles

Hazardous Materials

ADOT gave the following response when asked about vehicles carrying hazardous materials across the Camino De Manana crossing:

It is not known how much hazardous materials traffic uses the existing crossing each day.

Zoning

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

The surrounding area is zoned for commercial Corridor in the immediate vicinity of the crossing. Areas to the east of the crossing are zoned for low density housing.

Spur Lines

ADOT gave the following answer regarding spur lines located in the area:

It is unknown if any railroad spurs have been removed within a 10 mile radius.

FHWA Guidelines Regarding Grade Separation

The Federal Highway Administration (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:

		Camino De Manana
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[1]	Yes
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[2]	Yes
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

This table utilizes the most recent projected ADT data as follows: Camino De Manana – 22,400 for the year 2030.

[1] This table utilizes the most recent projected ADT data as follows: Camino De Manana – 22,400 for the year 2030. The Railroad is projected to exceed 300 million gross tons as of 2016. This projection is based on the fact that the Railroad is currently exceeding 217 million gross tons with 46 trains per day and is projected to run twice the number of trains (at lengths of up to 8,000 feet instead of the current length of 6,000 feet) by 2016.

[2] The projected crossing exposures utilizing the most recent projected VPD data are as follows: Camino De Manana – 1.9 million.

Vehicular Delays at Camino De Manana

A traffic delay and queuing analysis was performed for this application utilizing formulas found in the Transportation and Traffic Engineering Handbook, Second Edition. This document is published by the Institute of Transportation Engineers (ITE). Using the most current ADT data available, it was determined that the current daily vehicle delays at the crossings are as follows:

Camino De Manana Road 0.7 hours of delay per day

Using the most current data regarding projected future ADT and the Railroad's projection of 84 trains per day, it was determined that daily vehicle delays in the year 2030 may be as follows:

Camino De Manana Road 28.5 hours of delay per day

Current delays fall well below the FHWA recommended threshold of 40 delay hours per day. Projected delays for the year 2030 for Camino De Manana continue to remain below the FHWA threshold.

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 currently not met at this crossing. Using future projected traffic volumes for 2030, Camino De Manana is likely to exceed the FHWA threshold for urban areas of one million (1.9 million). It should be noted that the criteria identified in the FHWA material are not mandates, but Guidelines established by the Federal Highway Administration, which serve to alert those having jurisdiction that potential problems may arise.

As described in the attached table, Staff notes that currently, none of the criteria under the FHWA Guidelines are met. By projected year 2030, two of the criteria are met. Consequently, this crossing would have warranted further monitoring and evaluation for potential grade separation in the future.

In reaching the conclusion that the crossing should be grade separated, ADOT, the Town and the RTA further considered regional transportation issues beyond the scope of this specific crossing. Based on their application, this crossing is part of a plan to provide an additional grade separated crossing along the I-10 corridor that spans from Ruthrauff Road to Tangerine Road.

Staff Conclusions

Having reviewed all applicable data, Staff supports ADOT's application. Staff believes that the construction of the Twin Peaks Interchange and the elimination of the current at-grade crossing for Camino De Manana are in the public interest and are reasonable. Staff understands that the decision to grade separate is a complex one involving multiple parties, a number of years of time for planning and construction as well as substantial monetary

resources. Having said that, Staff believes that the measures proposed by ADOT are consistent with other similar grade-separated crossings in the State and will provide for the public's safety. Therefore, Staff recommends approval of ADOT's application.

Brian Lehman
Railroad Supervisor
Safety Division

Appendix "A"

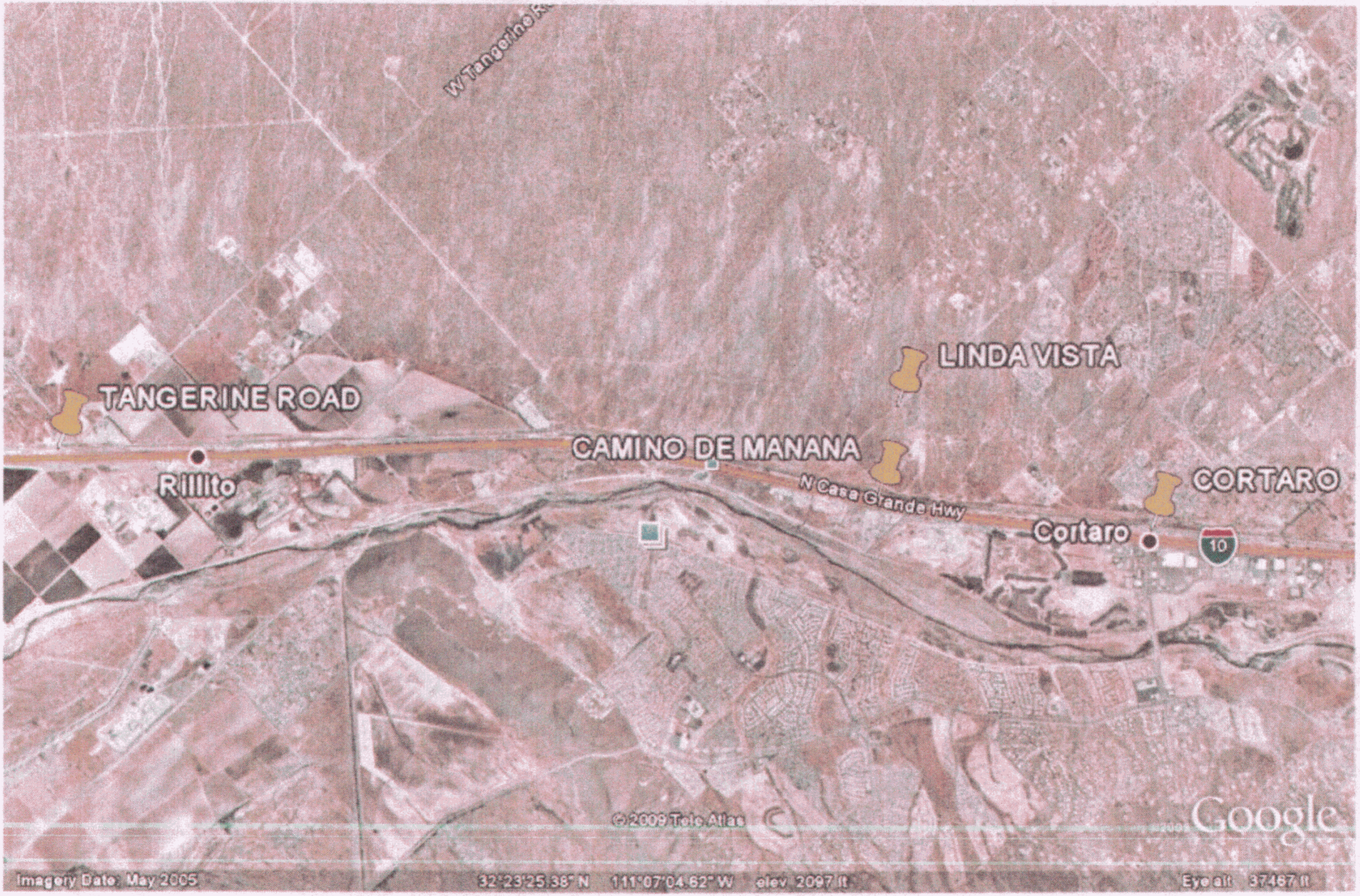

LINDA VISTA
W Camino de Manana
CAMINO DE MANANA
N Casa Grande Hwy
10
© 2009 TeleAtlas
Google
Imagery Date: May 2005
32°22'38.86" N 111°06'23.25" W elev 2124 ft
Eye alt 6528 ft

Appendix "B"

http://www.twinpeaksi-10.com/images/view2e_FINAL_forConstruction.jpg

5/27/2009

Appendix "C"


W Tangerine R
LINDA VISTA
TANGERINE ROAD
CAMINO DE MANANA
Rillito
N Casa Grande Hwy
CORTARO
Cortaro
10
© 2009 Tele Atlas
Google
Imagery Date: May 2005
32°23'25.38" N 111°07'04.62" W elev 2097 ft
Eye alt 37487 ft