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ARIZONA CORPORATION COMMISSION  
UNION PACIFIC'S REVISED RESPONSES TO FIRST SET OF DATA REQUESTS  
DOCKET NO. RR-03639A-08-0036

Camino de Manana Road, Massingale Road, and Joiner Road in Marana, AZ  
July 31, 2008

CW 1.1 Provide Average Daily Traffic Counts ("ADT") for each of the three locations.

**Response:** *Union Pacific Railroad Company ("Union Pacific") must rely on information provided by others to provide ADT's. With that caveat, Union Pacific responds as follows:*

| <i>Crossing</i>              | <i>Current ADT</i> | <i>Source</i>  |
|------------------------------|--------------------|--|
| <i>Camino de Manana Road</i> | <i>1,670</i>       | <i>Traffic Count provided by Keith Brann, Town of Marana, Assistant Director of Public Works</i> |
| <i>Massingale Road</i>       | <i>1,300</i>       | <i>Traffic Count provided by Keith Brann, Town of Marana, Assistant Director of Public Works</i> |
| <i>Joiner Road</i>           | <i>980</i>         | <i>Traffic Count provided by Keith Brann, Town of Marana, Assistant Director of Public Works</i> |

**Source:** 1) Jennifer Crumbliss, HDR Engineering, 8404 Indian Hills Drive, Omaha, NE 68114.  
2) Keith Brann, Assistant Director of Public Works, Town of Marana, 11555 W Civic Center Dr. Bldg A2, Marana, AZ 85653 (Emailed Traffic Counts)

CW 1.2 Please describe the current Level of Service ("LOS") at each intersection.

**Response:** *Union Pacific believes that the level of service analysis is concerned with mobility rather than safety. In addition, Union Pacific must rely on information provided by others to calculate the level of service. With those caveats, Union Pacific responds as follows:*

| <i>Crossing</i>              | <i>LOS</i>                                    |
|------------------------------|---|
| <i>Camino de Manana Road</i> | <i>Northbound (LOS=A), Southbound (LOS=A)</i> |
| <i>Massingale Road</i>       | <i>Northbound (LOS=A), Southbound (LOS=A)</i> |
| <i>Joiner Road</i>           | <i>Northbound (LOS=A), Southbound (LOS=A)</i> |

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**Source:** *Traffic level of service calculations were performed using Synchro and SimTraffic programs under the direction of Heidi Schneider with HDR Engineering, Inc at 5210 E Williams Circle, Suite 503, Tucson, AZ 85711, (520) 584-3600. The train delay times utilized in the analysis were provided by Tom Domres, with TKDA at 750 Shoreline Drive, Suite 100, Aurora, IL 60504, (630) 499-4110 via Union Pacific.*

CW 1.3 Provide any traffic studies done by the road authorities for each area.

**Response:** *1) 2030 Regional Transportation Plan (Pima Association of Governments) on <http://www.pagnet.org/Programs/TransportationPlanning/PlansandPrograms/RegionalTransportationPlanandStudies/2030RegionalTransportationPlan/2030RTPDocuments/tabid/382/Default.aspx>*

CW 1.4 Provide distances in miles to the next public crossing on either side of the proposed project location. Are any of these grade separations?

**Response:** *Union Pacific believes that the last question in CW 1.4 raises an issue that is irrelevant, namely, whether either of the next public crossings is a grade separation. With that caveat, Union Pacific responds as follows:*

| <i>Crossing</i>            | <i>TO THE WEST</i>                    | <i>TO THE EAST</i>                    |
|----------------------------|---------------------------------------|---------------------------------------|
| <i>Camino de Manana Rd</i> | <i>4.73 miles to Tangerine Rd</i>     | <i>1.59 miles to Cortaro Farms Rd</i> |
| <i>Massingale Road</i>     | <i>1.37 miles to Cortaro Farms Rd</i> | <i>0.65 miles to Ina Road</i>         |
| <i>Joiner Road</i>         | <i>0.25 miles to Orange Grove Rd</i>  | <i>2.15 miles to Ruthrauff Rd</i>     |

*Orange Grove Road is the only adjacent crossing that is grade separated.*

**Source:** *HDR's use of the Union Pacific Straight-line Diagrams and [www.MapQuest.com](http://www.MapQuest.com).*

CW 1.5 How and why was grade separation not decided on at this time? Please provide any studies that were done to support these answers.

**Response:** *Union Pacific understands that whether a grade separation is needed is primarily a question of mobility and convenience for vehicular traffic on the roadway, not safety. That is because an at-grade crossing can be safe without constructing a grade separation and eliminating the grade crossing. Based on this understanding, Union Pacific believes the question of whether a grade separation is needed is irrelevant to Union Pacific's application to add a second mainline track at these grade crossings. With that caveat, Union Pacific responds as follows:*

*In addition to the foregoing, grade separation is not appropriate for determination at this time because the local communities and roadway authorities have not finally determined whether grade separations at these crossings are desired by those communities and authorities, what priority grade separations would have with respect to other public projects, when construction of grade separations could be begun and finished, and how grade separations would be funded. Union Pacific is aware that the local communities and roadway authorities are studying these matters outside of the context of Union Pacific's applications for grade crossing alterations. Specifically, Union Pacific is aware that the Town of Marana is planning a grade separation at Camino de Manana. That grade separation is currently in the final design stage and includes an interchange with I-10.*

*Furthermore, Union Pacific believes the three crossings involved in this application are safe without constructing grade separations. This conclusion is supported by the fact that the Federal Highway Administration authorizes the use of gates and lights at multiple-track grade crossings as proposed in this application.*

CW 1.6 If this crossing were to be grade separated, provide a cost estimate of the project.

**Response:** *Again, Union Pacific understands that whether a grade separation is needed is primarily a question of mobility and convenience for vehicular traffic on the roadway, not safety. That is because an at-grade crossing can be safe without constructing a grade separation and eliminating the grade crossing. Based on this understanding, Union Pacific believes the question of whether a grade separation is needed is irrelevant to Union Pacific's application to add a second mainline track at these grade crossings. In addition, any attempt to estimate the cost to construct a grade separation would be speculative in the absence of a detailed study of the particular crossing in question. With those caveats, Union Pacific responds as follows:*

*In connection with its recent application to upgrade the crossing of Union Pacific tracks at the intersection of Power and Pecos Roads, RR-03639A-07-0398, the Town of Gilbert estimated that a grade separation at that location would cost \$22 million. Depending on the particular crossing involved, a reasonable range for the costs of constructing a grade separation would be between \$20 million and \$40 million.*

CW 1.7 Please describe what the surrounding areas are zoned for near this intersection. i.e. Are there going to be new housing developments, industrial parks, etc.?

**Response:** *Union Pacific believes that the second part of CW 1.7 calls for speculation as to whether new housing developments, industrial parks, or other developments will occur in the future. In addition, Union Pacific does not have access to such information, but instead must rely on information provided by others. With those caveats, Union Pacific responds as follows:*

*Pima Association of Governments has a 2007 Land Use Map that matches the field diagnostic observations. The observed land use from the field diagnostics are shown below:*

| <i>Crossing</i>              | <i>2007 Observed Land Use</i> | <i>2007 Existing Pima County Land Use</i> |
|------------------------------|-------------------------------|---|
| <i>Camino de Manana Road</i> | <i>Agricultural</i>           | <i>Agricultural/Ranching</i>              |
| <i>Massingale Road</i>       | <i>Residential</i>            | <i>Medium Residential</i>                 |
| <i>Joiner Road</i>           | <i>Commercial</i>             | <i>Commercial / Industrial</i>            |

*Pima Association of Governments planning departments can better answer the question of future developments. They review development impact studies and regulate zoning.*

**Source:** *1) PAG Land Use Modeling 2007 Land Use Map on <http://www.pagnet.org/Documents/LandUse/LandUse2007.pdf>*

CW 1.8 Please supply the following: number of daily train movements through the crossing, speed of the trains, and the type of movements being made (i.e. thru freight or switching). Is this a passenger train route?

**Response:** *The movements are the same for these three crossings.*

*Train Count: 48 total average trains per day (46 freight, 2 passenger)  
 Train Speed: 79 mph passenger / 70 mph freight  
 Thru Freight/Switching Moves: All moves through these three crossings are thru freight. (According to MTO Rob Henderson there are no switching moves at these crossings.)*

*These crossings are used by Amtrak twice per day, three times per week.*

**Source:** *Union Pacific's Manager of Train Operations, Rob Henderson.*

CW 1.9 Please provide the names and locations of all schools (elementary, junior high and high school) within the area of the crossing.

**Response:**

*There are several schools in Pima County & the Town of Marana within the area of the three crossings in this application.*

*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.*

**Source:**

- 1) Jennifer Crumbliss, Senior Transportation Engineer with HDR, Engineering, Inc. at 8404 Indian Hills Drive, Omaha, NE 68114, (402) 926-7049 used the internet site [www.GoggleEarth.com](http://www.GoggleEarth.com) also,*
- 2) Juan Cruz, Roadway Designer with HDR in Tucson, physically verified hospital and school locations on June 14, 2007.*

CW 1.10 Please provide school bus route information concerning the crossing, including the number of times a day a school bus crosses this crossing.

**Response:** *No school buses currently cross Camino de Manana Road, Massingale Road nor Joiner Road.*

**Source:** *Alisha Meza, Operations Manager of Transportation for Marana Unified School District located at 11279 W. Grier Rd., Suite 103, Marana, AZ 85653 (520) 616-6350*

CW 1.11 Please provide information about any hospitals in the area and whether the crossing is used extensively by emergency service vehicles.

**Response:** *The nearest hospital to these crossings is NW Medical Center in Marana (approximately 7 miles east of Camino de Manana and 2 miles from Joiner Road). To our knowledge, none of these crossings is used extensively by emergency service vehicles.*

**Source:** *Jennifer Crumbliss, Senior Transportation Engineer with HDR, Engineering, Inc. at 8404 Indian Hills Drive, Omaha, NE 68114, (402) 926-7049 used the internet site [www.GoggleEarth.com](http://www.GoggleEarth.com) also, Juan Cruz, Roadway Designer with HDR in Tucson, physically verified hospital and school locations on June 14, 2007.*

CW 1.12 Please provide the total cost of improvements to each crossing.

**Response:**

| <i>Crossing</i>              | <i>Crossing Surface</i> | <i>Signal</i>       | <i>Total</i>        |
|------------------------------|-------------------------|---------------------|---------------------|
| <i>Camino de Manana Road</i> | <i>\$ 23,160.00</i>     | <i>\$248,944.00</i> | <i>\$272,104.00</i> |
| <i>Massingale Road</i>       | <i>\$ 30,880.00</i>     | <i>\$227,141.00</i> | <i>\$258,021.00</i> |
| <i>Joiner Road</i>           | <i>\$ 30,880.00</i>     | <i>\$300,000.00</i> | <i>\$330,880.00</i> |

**Source:** *Union Pacific's Engineering.*

CW 1.13 Provide any information as to whether vehicles carrying hazardous materials utilize this crossing and the number of times a day [a vehicle carrying hazardous materials] might cross it.

**Response:** *Union Pacific has been unable to obtain any information responsive to this request. It is Union Pacific's understanding that any vehicle carrying hazardous materials may utilize public crossings unless otherwise posted, but Union Pacific knows of no way it can investigate or determine whether such vehicles use these crossings or with what frequency.*

CW 1.14 Please provide the posted vehicular speed limit for the roadway.

**Response:**

| <i>Crossing</i>              | <i>Posted Vehicular Speed Limit</i> |
|------------------------------|-------------------------------------|
| <i>Camino de Manana Road</i> | <i>25 mph*</i>                      |
| <i>Massingale Road</i>       | <i>25 mph*</i>                      |
| <i>Joiner Road</i>           | <i>25 mph*</i>                      |

**\*** *The speed limits given are those posted for the roads intersecting each crossing. However as a practical matter, maximum speed for vehicular traffic at each crossing itself is limited to 20-25 mph at best because of the stop condition just north of the railroad tracks at I-10 Frontage Road.*

**Source:** *Jennifer Crumbliss, Senior Transportation Engineer with HDR Engineering, Inc. at 8404 Indian Hills Drive, Omaha, NE 68114*

CW 1.15 Do any buses (other than school buses) utilize the crossing, and how many times a day do they cross the crossing?

**Response:** *Union Pacific does not have access to such information, but instead must rely on information provided by others. With that caveat, Union Pacific responds that it is not aware of any public passenger buses that utilize the crossings involved in this application.*

**Source:** 1) Suntran website <http://www.suntran.com/routes.php>  
2) Pima County Department of Transportation's Rural Bus Route website <http://www.dot.co.pima.az.us/transsys/bus> Contact 520-740-6403 - Patrick McGowan, Public Transportation Program Manager

CW 1.16 Based on the current single track configuration at the crossings specified by this application, please provide the current traffic blocking delay per train. Please indicate the time in which vehicular traffic is delayed (1) to allow the train to pass at a crossing and (2) due to trains stopped on the track for any purpose. The delay is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

**Response:** *Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:*

*Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossings involved in this application operate at timetable speeds of 65 mph and the average length of trains is approximately 6,000 feet. At that train length and speed, the average delay for vehicular traffic (1) to allow the train to pass at this crossing, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is approximately 1.549 minutes.*

*The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.*

*With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C)(7) and Union Pacific's operating*

*practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.*

**Source:** *Union Pacific's Engineering, in consultation with TKDA at 750 Shoreline Drive, Suite 100, Aurora, IL 60504, (630) 499-4110*

CW 1.17 Based on anticipated double tracking at the crossings covered by this application and projected train traffic of 84 trains per day by 2016, please provide the projected (2016) blocking delay per train. Please indicate the time in which vehicular traffic is delayed (1) to allow the train to pass at a crossing and (2) due to trains stopped on the track for any purpose. The delay is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

**Response:** *Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:*

*Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossing involved in this application are projected to operate at timetable speeds of 65 mph and the average length of trains is projected to be approximately 8,000 feet. At that train length and speed, the average delay for vehicular traffic at this crossing in 2016 (1) to allow the train to pass at the crossing, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is projected to be approximately 1.899 minutes.*

*The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.*

*With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C)(7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.*

**Source:** *Union Pacific's Engineering, in consultation with TKDA at 750 Shoreline Drive, Suite 100, Aurora, IL 60504, (630) 499-4110*

CW 1.18 Please indicate whether any spur lines have been removed within the last three years inside a 10 mile radius of any crossings covered in this application. Please include the reason for the removal, date of the removal and whether an at-grade crossing or crossings were removed in order to remove the spur line.

**Response:** *Using the definition of a "spur line" or "spur track" as "a stub track of indefinite length diverging from a main track or other track," ACC Regulation R14-5-101(20), no spur lines have been removed within the last three years inside a 10-mile radius of any crossings covered in this application.*

**Source:** *Union Pacific's Engineering*

CW 1.19 Please indicate which, if any, spur lines have been removed within the last three years inside a 10 mile radius of any crossings covered in this application were done at the direction or request of (1) the relevant road authority, (2) the industry served by the spur line, or (3) by the railroad.

**Response:** *Not applicable. See Response to CW 1.18.*

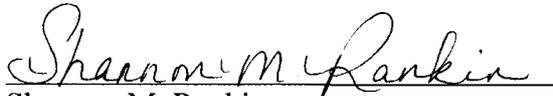
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of the foregoing filed this 31<sup>st</sup> day of  
July, 2008, with:

Arizona Corporation Commission  
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COPY of the foregoing hand-delivered  
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