A General Guide for
The Railroad
&
Corporation Commission
Application/Construction Process

Prepared by Kelly Roy
For the
Maricopa County Department of
Transportation Utility Branch
Note to the user of this guide!

This is only a manual produced to assist people who are new, or not too familiar with, the many facets involved in working around railroad tracks and railroad crossings. All the information provided is as accurate as possible but certainly not without possible flaws, amendments or misspellings. The timelines, contacts and process can change at any time – and often do.

The writers, contributors, agencies included in this manual cannot be held liable for any of the “guide’s” contents in that they are only samples, examples and suggestions. Use the Guide as-is and feel free to update with your own information as necessary and hopefully it will be a useful tool.

With that said, a special Thank You to Robert Travis, ADOT Railroad Liaison, who contributed to both the “Overview” and “Resources & Sources” portions of the Guide.
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Overview

Section 1
This section will give a brief overview of the Railroad Perspective and a rough timeline to clear the project for construction.

Railroad Overview

If the project is proposing work above, at or below track elevation and within the railroad right of way, railroad permission is required. There have been several projects where the road authority thought it would be easy to get railroad permission to construct or modify an existing bridge on railroad right of way, and in the end it took at least 18 months to be cleared to construct. When in doubt, talk to the Railroad representative once you have a concept. They will let you know what kind of permits and/or agreements will be required and how long it will take to clear the project.

For the Union Pacific Railroad and the Burlington Northern Railway, the Manager of Public Projects will be the primary railroad representative. Other personnel you may work with include the Manager of track maintenance, manager of signal installation/maintenance and railroad police. For other railroads, your primary contact may be the Railroad operations manager. A list of all railroads in Maricopa County and the primary contacts are listed in the Resources & Sources.

Remember, the Railroad is in the business to move freight traffic safely and efficiently. They are very protective of their right of way from all types of encroachments. Early communication is key to a timely clearance to build on the railroad right of way. Sometimes decisions are made by corporate offices in another state. These Railroad companies are multi-state corporations and have 80+ road crossing project reviews active most of the time.

When communicating with the railroad; always use the AAR/DOT crossing number, rail mile and subdivision and nearest town/city. This helps the railroad keep the different projects separated. Please include this information in the subject line of correspondence to the Railroad.

The AAR/DOT #, Rail Mile and Name of the crossing should be posted at an existing at-grade crossing, or is available from the Railroad. An Example of this information is as follows:

AAR/DOT # 741 782 L
Sarival Road Crossing
Rail Mile 886.06 Phoenix Subdivision
Located in Goodyear, AZ
Railroads want to minimize impact to their current and future rail operations. This may require a new overpass to span the entire right of way, or at the least, only allow bridge piers within the railroad right of way. Do not plan on having any abutments or embankment inside the railroad right of way. Railroads also have their own communication lines, as well as leasing their right of way to other communication and petroleum pipeline companies. These utilities may not be listed on the Arizona blue stake database. Contact the railroad to determine what utility companies may be in the right of way.

Railroads are under Federal, State and Company policies and guidelines to remove existing at-grade crossings. If your project proposes a new at-grade crossing, be prepared to allow closure of other, existing crossings. If your project involves closing an existing at-grade crossing and replacing it with a grade separated structure, the Railroad is usually willing to contribute money to the new structure.

Any work to the existing track, ballast or railroad signals will be done by the railroad company at the road project's cost. This includes signal and track design, materials and construction. A Construction & Maintenance agreement will be executed by the road authority and the railroad authorizing the railroad to do the track and signal work and to allow the road authority to construct and maintain their road crossing. Insurance, indemnification, notification and track protection will also be covered in the agreement. The road authority will be responsible to construct and maintain the road crossing outside of 2 feet from the tracks (for an at-grade crossing). The agreement will determine who will maintain the different parts of a grade separated structure.

For at-grade crossings, typical railroad work will consist of road crossing signal work, crossing surface installation and installing road traffic signal interconnects with their crossing signals. For grade separation projects, railroad work normally consists of communication line relocation and installing temporary shoe fly tracks to allow excavation under the existing track if needed.

The Construction & Maintenance agreement will only be between the Railroad and the Roadway Authority. If the Roadway Authority will use a Contractor, a “right of entry agreement” will be required between the Contractor and the Railroad.

Where Utility Agreements exist, a “Contractor’s Endorsement” will be required between the contractor and the railroad (effective September 1, 2008).

This right of entry will include insurance, indemnification, notification, safety practices, etc. It may take from 1 to 2 months to get this right of entry executed. The contractor is not allowed into railroad right of way until this right of entry is executed.
Road work within 25 feet of the track (horizontal distance) normally requires railroad flagging. The Railroad Company will advise the project if flagging is needed and only the railroad company will provide the flaggers. These flaggers will monitor the project and notify the construction project if a train is approaching. At the same time, the railroad flagger will also monitor the road project and can stop train traffic if an incident occurs. These 25 feet will include work above the tracks that may allow debris to fall onto the tracks. The 25 feet window can also be expanded to include equipment that could tip and impact the tracks from farther away.

The Railroad may require road work to occur during specific times based on their train schedules. All road work and or bridge work normally has to stop and equipment stay at least 25 feet away from tracks while the train goes thru the work site.

**RR Process Summary**

1. Road authority notifies Railroad about the project. The project concept is given to the railroad for their initial comments. The Railroad may require an authorization for preliminary engineering and plan review at this time. This authorization commits the road authority for paying for railroad review of their project. Discuss how much the railroad review will cost at your initial meeting.

2. A Diagnostic meeting is held onsite. After this meeting, the railroad may be given specific requests for what type of at-grade crossing improvements they need to design. This meeting is generally held within 2 months of the initial railroad contact.

3. Preliminary Engineering authorization is given to the railroad outlining exactly what they need to design for. Examples are signals and track crossing surfaces for an expanded at-grade crossing, or installing temporary shoe fly tracks if new roadway underpass structures are planned. New Overpass structures normally only require plan review and possible relocating overhead communication lines. Railroad design can take 2-4 months for each submittal and will include an estimate for the construction work.

4. Road authority will also determine how much new permanent and temporary construction easement is needed. Provide this information to the railroad. Final price of the easements and terms will be incorporated into the agreement.
5. If Geotechnical drilling/ investigation, surveying or utility designation is needed within the railroad right of way, obtain right of entry permits from the railroad. If new utilities need to be installed in the railroad right of way, obtain permits for them as well. Examples of this include storm drains, conduits for traffic signal lines, electrical lines, etc. Most railroads will require boring under the tracks unless a large pipe is proposed. Open cut installations may require a temporary shoe fly track. Websites for utility and survey/ geotechnical permits are included in the Resources & Sources. The costs of these permits are usually separate from the Construction & Maintenance Agreement and can be applied for before the Construction & Maintenance Agreement is submitted.

6. Once the railroad design and estimates are provided, a draft Construction & Maintenance agreement may be prepared by the railroad. Once an underpass or overpass structure has its 60% plans approved by the railroad that will trigger the new agreement formation.

   The Railroad will require final 100% signed and sealed engineered plans before they can send the Road Authority the Agreement. It normally takes a minimum of 4 to 6 months after designs and estimates are received to finalize the Agreement. **Any change in language will increase the approval timeline.** Once the Road Authority and the Railroad execute the Agreement, the initial ACC application for an Opinion and Order can be filled out.

7. Once you receive the Opinion and Order, you then provide an Authorization to construct to the Railroad. Include a copy of the Opinion and Order for their review. The Railroad will then order supplies and start to schedule the work. For a signal project with new roadway crossing signals, etc., it may take 3 to 6 months to receive the supplies. Railroads also may change the installation schedule based on emergencies and internal projects. Keep in touch with the Railroad representative to see when they will do the work. It may take as much as a year from Notice to Construct to when the Railroad work is completed.

8. If the project involves roadwork that will be done by a contractor, have the contractor notify the Railroad representative once the contractor is allowed to proceed with the work. This will allow the contractor to start the right of entry agreement process, coordinate their work with the railroad and request railroad flagging and track work windows. There will be a lot of coordination with the Manager of Public projects and with the manager of track maintenance during this phase.
Section 2
This section will give a brief overview of the ACC actions and a rough timeline to clear the project for construction.

Arizona Corporation Commission
The Arizona Corporation Commission (ACC) is responsible for oversight of railroad operations and making sure the railroad-public roadway crossings are constructed and maintained in a safe manner. The ACC has no jurisdiction over private crossings.

If there are proposed changes to existing crossing signals, signs or crossing surfaces, an Opinion and Order may be required. This would include installing a new at-grade crossing, major modification of an existing at-grade crossing or to remove an existing at-grade crossing.

ACC Staff are available to discuss the Opinion and Order process. Like the Railroad, it is highly recommended to talk to ACC staff early in the project process to see how much they may need to be involved. ACC Staff contacts are listed in the Resources & Sources section.

If an Opinion and Order is expected for the project, the first formal action with the ACC will be the onsite Diagnostic Meeting. This meeting involves the railroad, the ACC, the road authority and other parties. This meeting will go over what the road project proposes to do in the right of way, with input from all parties on what work by the Railroad and by the Road Authority will be needed.

ACC Process Summary
1. The ACC application is filled out. The ACC process is detailed later in this guideline. A **minimum** of 90 days is needed to obtain the Opinion and Order.
Section I
Railroad Crossing
Application Process
**Initial Diagnostic Meeting**

It is essential that you as the “Applicant” of the project invite all parties involved:
- The Local Railroad Representative
- The ACC Rail Safety Section
- All interested Governmental agencies not only having jurisdiction over the roadway, but any who may have a financial interest (i.e. multijurisdictional IGAs and or projects.)
- Your agency’s Utility Coordinator
- Your agency’s Design Engineer
- The ADOT Railroad Liaison for Quiet Zone issues and coordinated maintenance of their statewide railroad crossing inventory.

The information you need to discuss:
- The exact location of the proposed new grade crossing (if possible, bring the specific plan sheet so everyone can look at your plan as you discuss options)
- Upgrades being considered to the existing crossing
- Discussion of grade separation (over or underpass). Why or Why not?
- Application must state who is paying for the crossing construction and maintenance
- Proposed types of warning devices to be installed.
- ACC Staff’s Data Request
- ACC Staff Report and Recommendations

Timing:
- Once design is complete, there is appropriate funding available and your agency is ready for an agreement, the meeting should be set up.
Good afternoon Aziz-

Thank you for meeting us in the field last week. Per our discussion, I am sending you the written request to initiate the design and estimate of the 107th Ave, RR MP 893.51, Phoenix Sub, Cashion, AZ. DOT No. 741800G. This will be an at-grade crossing. Attached are both our road improvement design and the legal description of the location.

We understand there will be a design fee assessed for this request not to exceed $15,000.00.

Please accept this as our official request. Please contact me if you will need any additional information.

Respectfully,

Kelly Roy
MCDOT Utility Project Coordinator
602-506-5992
2901 W. Durango St.
Phoenix, Az. 85009
EXHIBIT A
LEGAL DESCRIPTION
UNION PACIFIC RAILROAD

A PART OF THE NORTH 22.00 FEET OF THE SOUTH 55.00 FEET OF THE SOUTHWEST QUARTER OF SECTION 34, TOWNSHIP 2 SOUTH, RANGE 5 EAST OF THE GILA AND SALT RIVER BASE MERIDIAN, MARICOPA COUNTY, ARIZONA, THAT LIES WITHIN THE EXISTING 100.00-FOOT WIDE RAILROAD RIGHT-OF-WAY AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTH QUARTER CORNER OF SAID SECTION 34, A FOUND BRASS CAP IN A HANDHOLD, FROM WHICH THE SOUTHWEST CORNER OF SAID SECTION 34, ALSO BEING A FOUND BRASS CAP IN A HANDHOLD, BEARS NORTH 89° 53' 51" WEST 2647.69 FEET; THENCE ALONG THE SOUTH LINE OF SAID SOUTHWEST QUARTER NORTH 89° 53' 51" WEST 50.01 FEET; THENCE NORTH 00° 06' 09" EAST 33.00 FEET TO THE EASTERLY LINE OF SAID RAILROAD RIGHT-OF-WAY, SAID POINT ALSO BEING THE TRUE POINT OF BEGINNING:

THENCE ALONG A LINE PARALLEL TO AND 33.00 FEET NORTH OF THE SOUTH LINE OF SAID SOUTHWEST QUARTER NORTH 89° 53' 51" WEST 134.07 FEET TO THE SOUTHEAST CORNER OF THE CORRECTIVE FINAL PLAT FOR SANTAN VISTA RECORDED BOOK OF MAPS 523, PAGE 06 OFFICE OF THE MARICOPA COUNTY RECORDS AND TO THE WESTERLY LINE OF SAID RAILROAD RIGHT-OF-WAY AND A NON-TANGENT CURVE CONCAVE NORTHWESTERLY WHOSE RADIUS BEARS NORTH 48° 55' 43" EAST A DISTANCE OF 4347.21 FEET;

THENCE ALONG THE EASTERLY LINE OF SAID PLAT AND THE WESTERLY LINE OF SAID RAILROAD RIGHT-OF-WAY AND THE ARC OF SAID NON-TANGENT CURVE 29.15 FEET, THROUGH A CENTRAL ANGLE OF 00° 23' 03"

THENCE ALONG A LINE PARALLEL TO AND 55.00 FEET NORTH OF THE SOUTH LINE OF SAID SOUTHWEST QUARTER SOUTH 89° 53' 51" EAST 133.26 FEET TO THE EASTERLY RAILROAD RIGHT-OF-WAY LINE AND A NON-TANGENT CURVE CONCAVE SOUTHEASTERLY WHOSE RADIUS BEARS NORTH 48° 08' 17" EAST A DISTANCE OF 4247.21 FEET;

THENCE ALONG THE EASTERLY LINE OF SAID RAILROAD RIGHT-OF-WAY AND THE ARC OF SAID NON-TANGENT CURVE 29.67 FEET, THROUGH A CENTRAL ANGLE OF 00° 24' 01" TO THE POINT OF BEGINNING:

SAID PARCELS CONTAIN 2,941 SQUARE FEET OR 0.0675 ACRES OF LAND, MORE OR LESS.
LOT 9
CORRECTIVE FINAL
PLAT FOR SANTAN
VISTA BK 523,
PG 06, MCR

22' HUNT HIGHWAY

33' BCHH
SW COR
SEC 34
T2S, R5E

SCALE 1" = 50'

N 89°53'51" W 134.07'

R = 4247.21
L = 29.67'
Δ = 00°24'01"

R = 4347.21
L = 29.15'
Δ = 00°23'03"

S 89°53'51" E 133.26'

N 89°53'51" W 2647.69'
(BASIS OF BEARING)

BCHH
S 1/4 COR
SEC 34
T2S, R5E

MARICOPA COUNTY, ARIZONA

EXHIBIT A
LEGAL DESCRIPTION
UNION PACIFIC RAILROAD

09/07

SAMPLE 3
**ESTIMATE OF MATERIAL AND FORCE ACCOUNT WORK**

**BY THE UNION PACIFIC RAILROAD**

**DATE:** 2007-05-30

**THIS ESTIMATE GOOD FOR 6 MONTHS EXPIRATION DATE IS:** 2007-11-30

**DESCRIPTION OF WORK:**

INSTALL LED FG SIGNALS W/CABIN AND CMT IN NEW CABIN AT SHUNT RLY. IN CHANDLER HEIGHTS, ARIZ. M.P. 936.14 ON THE CHANDLER END. LOCATED SIGNAL PROJECT NUMBER: LRS RIN 935-7560.

RAILROAD TO PERFORM ALL WORK / COST DISTRIBUTED AS FOLLOWS:

SIGNAL - MARICOPA COUNTY 100%

**PID:** 56273  **AND:** 59242   **MP, SUBDIV:** 936.14, CHANDLER

**CITY:** CHANDLER  **HEIGHT:** STATE: AZ

**DESCRIPTION**  |  **QTY** |  **UNIT** |  **LAVOR MATERIAL** |  **RECOIL** |  **UPER** |  **TOTAL**
--- | --- | --- | --- | --- | --- | ---
**ENGINEERING WORK**  |  |  |  |  |  |  |
**ENGINEERING** | 2044 |  | 2044 |  |  |  |
**LATERAL ADDITIVE 174K** | 10890 | 10890 | 10890 |  |  |  |
**SIGNAL DSP** | 4015 | 4015 | 4015 |  |  |  |
**TOTAL ENGINEERING** | 17149 | 17149 | 17149 |  |  |  |

**SIGNAL WORK**  |  |  |  |  |  |  |
**BILL PREP** | 900 | 900 | 900 |  |  |  |
**CONTRACT** | 7640 | 7640 | 7640 |  |  |  |
**RAIL FILL/ROCK** | 87311 | 87311 | 87311 |  |  |  |
**LATERAL ADDITIVE 174K** | 15000 | 15000 | 15000 |  |  |  |
**PERSONAL EXPENSE** | 38437 | 38437 | 38437 |  |  |  |
**SALES TAX** | 2020 | 2020 | 2020 |  |  |  |
**SIGNAL** | 5078 | 5078 | 5078 |  |  |  |
**TRANSPORTATION CHARGES** | 4513 | 4513 | 4513 |  |  |  |
**RT TRAFFIC CONTROL** | 10993 | 10993 | 10993 |  |  |  |
**TOTAL SIGNAL** | 138389 | 138389 | 138389 |  |  |  |

**LABOR/MATERIAL EXPENSE**  | 155538 | 155538 | 155538 |  |  |  |
**RECOLECTIBLE/UPER EXPENSE** | 364410 | 0 | 364410 | 0 |  |  |
**ESTIMATED PROJECT COST** | 364410 | 0 | 364410 | 0 |  |  |
**EXISTING REIMBURSABLE MATERIAL CREDIT** | 0 | 0 | 0 |  |  |  |
**SALVAGE NONREIMBURSABLE MATERIAL CREDIT** | 0 | 0 | 0 |  |  |  |

RECOLECTIBLE LESS CREDITS

**THE ABOVE FIGURES ARE ESTIMATES ONLY AND SUBJECT TO FLUCTUATION. IF THE EVENT OF AN INCREASE OR DECREASE IN THE COST OR QUANTITY OF MATERIAL OR LABOR REQUIRED, UPER WILL BILL FOR ACTUAL CONSTRUCTION COSTS AT THE CURRENT EFFECTIVE RATE.**

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S4
ESTIMATE OF MATERIAL AND FORCE ACCOUNT WORK
BY THE
UNION PACIFIC RAILROAD

DATE: 2007-05-23

ESTIMATE GOOD FOR 6 MONTHS  EXPIRATION DATE IS  : 2007-11-21

DESCRIPTION OF WORK:
2007 RECOLLECTIBLE PROJECT
M.P. 936.14 CHANDLER INDUSTRIAL LEAD
HUNT HIGHWAY, CHANDLER HEIGHTS, AZ, DOT #741683N
INSTALL 84 T.P. OF CONCRETE CROSSING SURFACE
COST: 100% MARICOPA COUNTY (STANDARD)

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| LABOR/MATERIAL EXPENSE | 49722 | 61864 |
| RECOLLECTIBLE/UPRR EXPENSE | 111586 | 0 |
| ESTIMATED PROJECT COST | 111586 |
| EXISTING REUSABLE MATERIAL CREDIT | 0 |
| SALVAGE NONUSABLE MATERIAL CREDIT | 0 |

THE ABOVE FIGURES ARE ESTIMATES ONLY AND SUBJECT TO FLUCTUATION. IN THE EVENT OF AN INCREASE OR DECREASE IN THE COST OR QUANTITY OF MATERIAL OR LABOR REQUIRED,
UPRR WILL BILL FOR ACTUAL CONSTRUCTION COSTS AT THE CURRENT EFFECTIVE RATE.

S-4
Written Notification to RR to Initiate Preliminary Design & Estimate

What to Provide and How:
- You must send a written request for the design either by e-mail or regular mail (UPRR requires a preliminary engineering/design authorization that they may charge up to $15,000.00 for their design services. BNSF does not charge for their design work)
  - Sample #1
- It must include a Right-of-Way legal description
  - Sample #2
- It must include an engineered designed crossing plan sheet
  - Sample #3
- It must include photos of all four directions North, South, East & West and identify the RR mile post on each photo.
  - Sample #4
- KEEP IN CONTACT WITH YOUR CONTACT AT THE RAILROAD COMPANY
  - They may have questions and possible redesign or tweaking of the original design
  - Sample #4
- Final written acceptance, either by e-mail or regular mail, of the cost estimate is essential to get the Railroad started on their design
  - Railroad reference information.
  - Sample #5

Timing:
- Once the acceptance of the estimate is sent, it can take up to 15 months to get a Crossing Agreement
- Update design plans and estimates before final execution as the Railroad cost estimates are only good for 6 months from the time they are sent out.
NEW PUBLIC ROAD AT-GRADE CROSSING AGREEMENT

BETWEEN

UNION PACIFIC RAILROAD COMPANY

AND

MARICOPA COUNTY

COVERING THE

RECONSTRUCTION AND WIDENING OF THE EXISTING COTTON LANE AT-GRADE PUBLIC ROAD CROSSING

AT

RAILROAD MILE POST 885.04 - PHOENIX SUBDIVISION

DOT NO. 74178 1E

AT OR NEAR

GOODYEAR,
MARICOPA COUNTY,
ARIZONA

Sample #5

Railroad Original
NEW PUBLIC ROAD AT-GRADE CROSSING AGREEMENT

Cotton Lane – DOT No.: 741781E
UPRR Mile Post 885.04 – Phoenix Subdivision
Goodyear, Maricopa County, Arizona

THIS AGREEMENT is made and entered into as of the __ day of ____________, 200 __, by and between UNION PACIFIC RAILROAD COMPANY, a Delaware corporation, to be addressed at Real Estate Department, 1400 Douglas Street, Mail Stop 1690, Omaha, Nebraska 68179 (the "Railroad") and MARICOPA COUNTY, a political subdivision of the State of Arizona, to be addressed at 2901 West Durango, Phoenix, AZ. 85009 (the "Political Body"),

RECITALS:

By instrument dated February 20, 1929, the Arizona Eastern Railroad Company and the Political Body entered into an agreement (the “Original Agreement”) covering the construction, use, maintenance and repair of an at grade public road crossing over Cotton Lane, DOT No. 741781E, at Railroad’s Mile Post 885.04 on it’s Phoenix Subdivision, near Goodyear, Maricopa County, Arizona.

The Railroad named herein is successor in interest to the Arizona Eastern Railroad Company.

The Political Body now desires to undertake as its project (the “Project”):

- the reconstruction and widening of the road crossing that was constructed under the Original Agreement. The structure, as reconstructed and widened is hereinafter the “Roadway” and where the Roadway crosses the Railroad’s property is the “Crossing Area.”

The right of way granted by Arizona Eastern Railroad Company to the Political Body under the terms of the Original Agreement is not sufficient to allow for the reconstruction and widening of the road crossing constructed under the Original Agreement. Therefore, under this Agreement, the Railroad will be granting an additional right of way right to the Political Body to facilitate the reconstruction and widening of the road crossing. The portion of Railroad’s property that Political Body needs a right to use in connection with the road crossing (including the right of way area covered under the Original Agreement) is shown on the location print marked Exhibit A, the detailed print marked Exhibit A-1, described in the legal description marked Exhibit A-2, and illustrated in the print marked Exhibit A-3, with each exhibit being attached hereto and hereby made a part hereof (the “Crossing Area”).

The Railroad and the Political Body are entering into this Agreement to cover the above.
AGREEMENT:

NOW, THEREFORE, it is mutually agreed by and between the parties hereto as follows:

ARTICLE 1 - LIST OF EXHIBITS

The exhibits below are attached hereto and hereby made a part hereof.

Exhibit A  Railroad Location Print
Exhibit A-1  Detailed Print
Exhibit A-2  Metes and Bounds Legal Description
Exhibit A-3  Illustrative Print of Legal Description
Exhibit B  Terms and Conditions
Exhibit B-1  Insurance Requirements
Exhibit C  Railroad’s Track Material and Force Account Estimate
Exhibit C-1  Railroad’s Signal Material and Force Account Estimate
Exhibit D  Railroad Form of Contractor’s Right of Entry Agreement

ARTICLE 2 - EXHIBITS B AND B-1.

The general terms and conditions marked Exhibit B, and the Contractor’s insurance requirements marked Exhibit B-1, are attached hereto and hereby made a part hereof.

ARTICLE 3 - RAILROAD GRANTS RIGHT.

For and in consideration FIFTY-FOUR THOUSAND EIGHT HUNDRED THIRTY-THREE DOLLARS ($54,833.00) to be paid by the Political Body to the Railroad upon the execution and delivery of this Agreement and in further consideration of the Political Body’s agreement to perform and abide by the terms of this Agreement including all exhibits, the Railroad hereby grants to the Political Body the right to establish or reestablish, construct or reconstruct, maintain, repair and renew the road crossing over and across the Crossing Area.

ARTICLE 4 - DEFINITION OF CONTRACTOR

For purposes of this Agreement the term “Contractor” shall mean the contractor or contractors hired by the Political Body to perform any Project work on any portion of the Railroad’s property and shall also include the contractor’s subcontractors and the contractor’s and subcontractor’s respective employees, officers and agents.

ARTICLE 5 - CONTRACTOR’S RIGHT OF ENTRY AGREEMENT - INSURANCE

A. If the Political Body will be hiring a Contractor to perform any work involving the Project (including initial construction and any subsequent relocation or maintenance and repair work), the Political Body shall require the Contractor to:

- execute the Railroad’s then current Contractor’s Right of Entry Agreement
- obtain the then current insurance required in the Contractor’s Right of Entry Agreement; and
- provide such insurance policies, certificates, binders and/or endorsements to the Railroad before allowing any Contractor to commence any work in the Crossing Area.
or on any other Railroad property. The Railroad’s current insurance requirements are described in Exhibit B-1, attached hereto and hereby made a part hereof.

B. The Railroad's current Contractor's Right of Entry Agreement is marked Exhibit D, attached hereto and hereby made a part hereof. The Political Body confirms that it will inform its Contractor that it is required to execute such form of agreement and obtain the required insurance before commencing any work on any Railroad property. Under no circumstances will the Contractor be allowed on the Railroad's property without first executing the Railroad's Contractor's Right of Entry Agreement and obtaining the insurance set forth therein and also providing to the Railroad the insurance policies, binders, certificates and/or endorsements described therein.

C. All insurance correspondence, binders, policies, certificates and/or endorsements shall be sent to:

Senior Manager - Contracts  
Union Pacific Railroad Company  
Real Estate Department  
1400 Douglas Street, Mail Stop 1690  
Omaha, NE 68179-1690  
UPRR Folder No.: 2404-96

D. If the Political Body's own employees will be performing any of the Project work, the Political Body may self-insure all or a portion of the insurance coverage subject to the Railroad's prior review and approval.

ARTICLE 6 - FEDERAL AID POLICY GUIDE

A. If the Political Body will be receiving any federal funding for the Project:
   - the current rules, regulations and provisions of the Federal Aid Policy Guide as contained in 23 CFR 140, Subpart I and 23 CFR 646, Subparts A and B are incorporated into this Agreement by reference, and
   - construction work by the Political Body and Contractor shall be performed, and any reimbursement to the Railroad for work it performs, shall be made in accordance with the Federal Aid Policy Guide.

B. If federal funding is involved, as provided in 23 CFR 646.210(b)(2), the Project is of no ascertainable benefit to the Railroad and the Railroad shall not be obligated to pay or contribute to any Project costs.

ARTICLE 7 - WORK TO BE PERFORMED BY THE RAILROAD

A. The work to be performed by the Railroad, at the Political Body's sole cost and expense, is described in the Railroad's Material and Force Account Estimate(s):
   - Track Surface Estimate of Material and Force Account Work dated April 18, 2006, in the amount of $150,801.00, marked Exhibit C,
   - Signal Estimate of Material and Force Account Work Estimate dated July 25, 2006, in the amount of $378,763.00, marked Exhibit C-1,

each attached hereto and hereby made a part hereof (collectively the "Estimate"). As set forth in the Estimate, the Railroad's combined estimated cost for the Railroad's work
associated with the Project is ($529,564.00).

B. The Railroad, if it so elects, may recalculate and update the Estimate submitted to the Political Body in the event the Political Body does not commence construction on the portion of the Project located on the Railroad’s property within six (6) months from the date of the Estimate.

C. The Political Body acknowledges that the Estimate does not include any estimate of flagging or other protective service costs that are to be paid by the Political Body or the Contractor in connection with flagging or other protective services provided by the Railroad in connection with the Project. All of such costs incurred by the Railroad are to be paid by the Political Body or the Contractor as determined by the Railroad and the Political Body. If it is determined that the Railroad will be billing the Contractor directly for such costs, the Political Body agrees that it will pay the Railroad for any flagging costs that have not been paid by any Contractor within thirty (30) days of the Contractor’s receipt of billing.

D. The Political Body agrees to reimburse the Railroad for one hundred percent (100%) of all actual costs incurred by the Railroad in connection with the Project including, but not limited to, actual costs of preliminary engineering review, construction inspection, procurement of materials, equipment rental, manpower and deliveries to the job site and all of the Railroad’s normal and customary additives (which shall include direct and indirect overhead costs) associated therewith.

ARTICLE 8 - PLANS

A. The Political Body, at its expense, shall prepare, or cause to be prepared by others, the detailed plans and specifications and submit such plans and specifications to the Railroad’s Assistant Vice President Engineering – Design, or his authorized representative, for review and approval. The plans and specifications shall include all Roadway layout specifications, cross sections and elevations, associated drainage, and other appurtenances.

B. The final one hundred percent (100%) completed plans that are approved in writing by the Railroad’s Assistant Vice President Engineering – Design, or his authorized representative, are hereinafter referred to as the “Plans”. The Plans are hereby made a part of this Agreement by reference.

C. No changes in the Plans shall be made unless the Railroad has consented to such changes in writing.

D. Notwithstanding the Railroad’s approval of the Plans, the Railroad shall not be responsible for the permitting, design, details or construction of the Roadway.

ARTICLE 9 - EFFECTIVE DATE; TERM; TERMINATION.

A. This Agreement shall become effective as of the date first herein written, or the date work commences on the Project, whichever is earlier, and shall continue in full force and effect for as long as the Structure remains on the Railroad’s property.

B. The Railroad, if it so elects, may terminate this Agreement effective upon delivery of written notice to the Political Body in the event the Political Body does not commence construction on the portion of the Project located on the Railroad’s property within twelve (12) months
from the date of this Agreement, or from the date that the Railroad has executed this Agreement and returned it to the Political Body for its execution, whichever is applicable.

C. If the Agreement is terminated as provided above, or for any other reason, the Political Body shall pay to the Railroad all actual costs incurred by the Railroad in connection with the Project up to the date of termination, including, without limitation, all actual costs incurred by the Railroad in connection with reviewing any preliminary or final Project Plans.

ARTICLE 10 - CONDITIONS TO BE MET BEFORE POLITICAL BODY CAN COMMENCE WORK.

Neither the Political Body nor the Contractor may commence any work within the Crossing Area or on any other Railroad property until:

- The Railroad and Political Body have executed this Agreement.

- The Railroad has provided to the Political Body the Railroad’s written approval of the Plans.

- Each Contractor has executed Railroad’s Contractor’s Right of Entry Agreement and has obtained and/or provided to the Railroad the insurance policies, certificates, binders, and/or endorsements set forth in the Contractor’s Right of Entry Agreement.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed in duplicate as of the date first herein written.

UNION PACIFIC RAILROAD COMPANY
(Federal Tax ID #94-6001323)

By __________________________
GREGORY L. PINKER
Director Contracts

WITNESS: MARICOPA COUNTY

________________________

Title __________________________

(Seal)

Pursuant to Resolution/Order No. __________________________, 200
hereto attached.

Public Road At-Grade Crossing Agreement
Form Approved, AVP-Law – 05/01/2006

Articles of Agreement
Page 5 of 5

November 8, 2006
RR Crossing Agreement

When the Crossing Agreement Arrives:
- The Original Agreement must be signed and accepted by the person or entity at your agency who has the authority to encumber the funds that will be necessary for the work and materials.
- The Railroad will not sign the Agreement until the Political Body/Road Authority has returned the signed originals back to the Railroad Company with the requested amount of money.
  - Sample #5
- Agreements are between the Railroad and the Road Authority/Political Body ONLY. (Contractors and the agents may need to fill out a separate Contractors Right of Entry referencing the construction and maintenance agreement depending on the work that is being completed and which RR line they are crossing.)
  - UPRR, BNSF, Arizona & California RR reference links

Timing:
- Once the Agreement has been signed and the initial down payment has been sent via regular mail (over-nighting is suggested), you will receive a copy of the Railroad’s executed signed original. This turn around takes approximately two to three weeks.
Section II
Corporation Commission's
Application Process
To: Arizona Corporation Commission Office of Railroad Safety  
Attn: Chris Watson  
1200 W. Washington Street  
Phoenix, AZ 85007  

Subject: Arizona Corporation Commission Application for UPRR and Queen Creek Road  
Project: Queen Creek Road, Arizona Avenue to McQueen Road  
Project: MCDOT Cn-Call Contract, 2005-72, A  
Number: MCDOT Project No. 68966 (TT087)  
AZTEC Project No. AZE0718  

From: Curt Slageit, P.E.  

Date: January 17, 2008  

This memo is submitted to the Arizona Corporation Commission (ACC) as an application to request an upgrade to an existing Union Pacific Railroad (UPRR) crossing, on behalf of Maricopa County Department of Transportation (MCDOT).

i. Location of Crossing  
The Queen Creek Road, Arizona Avenue to McQueen Road project includes the improvements of Queen Creek Road to a six lane roadway with a 16-foot wide raised median across the UPRR right-of-way. The UPRR and Queen Creek crossing is approximately 1,370 feet east of Arizona Avenue and 1,260 feet west of Hamilton Street. Representatives from the ACC, UPRR, MCDOT, and consultants attended a field meeting on March 1, 2006.

ii. Why the Crossing is Needed  
The railroad crossing at Queen Creek Road is existing. This project is a roadway widening of the existing crossing.

iii. Why the Existing Crossing Cannot be Grade Separated  
With the proposed improvements to Queen Creek Road, the location of the at-grade crossing remains unchanged. A grade separation would have the following undesired consequences: 1) Access to existing farm roads and to anticipated development would be severed for approximately 2,000 feet (1,000 feet each side of the tracks) along Queen Creek Road; 2) There are several utilities in Queen Creek Road that cannot support 30 feet of additional embankment needed for a grade-separated crossing; 3) There is insufficient right-of-way to accommodate a 30-foot high embankment slopes along Queen Creek Road; and 4) There is inadequate distance between the railroad and the existing Arizona Avenue/Queen Creek Road intersection to raise the roadway grade over the railroad without violating sight-distance requirements.

iv. Type of Warning Devices to be Installed  
The warning devices for eastbound and westbound traffic included in the design are as follows: gates with flashing lights will be installed in the median and outside the roadway near the sidewalk; cantilever flashing railroad signals will be installed outside the roadway near the sidewalk; and railroad crossing warning signs will be placed per MUTCD, Part 8 standards.

v. Who will Maintain the Crossing Warning Devices  
UPRR will own and maintain the physical elements of the crossing (crossing surface, gates, flashing lights). The City of Chandler will own and maintain the approaching surface, signing and movement markings on Queen Creek Road.

vi. Who is Funding the Project  
MCDOT and City of Chandler are funding this project.

c: Kelly Roy/MCDOT  
Project File: AZE0718
ACC Application

How to start the Process:
- An application letter must be submitted describing the scope of the project to include but not limited to:
  - Location of crossing
  - Why the crossing is needed
  - Why the proposed or existing crossing can’t be grade separated (lack of funding is not an acceptable answer)
  - Type of warning devices to be installed
  - Type of warning devices currently installed at crossing
  - Who will maintain the crossing warning devices
  - Who is funding the project

- A conceptual drawing (not an engineered stamped plan sheet) must be on 8 1/2” x 11” paper indicating changes to crossing including all warning devices and pavement markings
  - Samples # 6

- One original copy of the signed agreement between the Railroad and the Road Authority with jurisdiction at the crossing

- One original copy of both the Application, conceptual drawing and the Railroad agreement AND thirteen (13) copies of each must be submitted to:
  Arizona Corporation Commission, Attn. Docket Control, 1200 W.
  Washington St. Phoenix, AZ. 85007
June 25, 2008

Kelly Roy
Utility Project Coordinator
Maricopa County DOT
2901 West Durango Street
Phoenix, Arizona 85009-6357

Re: Staff's First Set of Data Requests to Union Pacific Railroad Company
Docket No. RR-03639A-08-0311

Dear Mrs. Roy:

Please treat this as Staff's First Set of Data Requests to Union Pacific Railroad Company in the above matter.

For purposes of this data request set, the words "Union Pacific Railroad," "Company," "you," and "your" refer to Union Pacific Railroad Company and any representative, including every person and/or entity acting with, under the control of, or on behalf of Union Pacific Railroad Company. For each answer, please identify by name, title, and address each person providing information that forms the basis for the response provided.

These data requests are continuing, and your answers or any documents supplied in response to these data requests should be supplemented with any additional information or documents that come to your attention after you have provided your initial responses.

Please respond within ten (10) calendar days of your receipt of the copy of this letter. However, if you require additional time, please let us know.

Please provide one hard copy as well as searchable PDF, DOC or EXCEL files (via email or electronic media) of the requested data directly to each of the following addressees via overnight delivery services to:

(1) Chris Watson, Railroad Safety, Arizona Corporation Commission, 2200 North Central Avenue, Suite 300, Phoenix, Arizona 85004.


Sincerely,

Charles H. Hains
Attorney, Legal Division
(602) 542-3402

CHH:sab
Enclosure
cc: Chris Watson

1200 WEST WASHINGTON STREET; PHOENIX, ARIZONA 85007-2927 / 400 WEST CONGRESS STREET; TUCSON, ARIZONA 85701-1347
www.cc.state.az.us

SAMPLE #7
Subject: All information responses should ONLY be provided in searchable PDF, DOC or EXCEL files via email or electronic media.

CW 1.1 Provide Average Daily Traffic Counts for each of the locations.

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

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

CW 1.4 Provide the population of the City the crossing is located in.

CW 1.5 Provide what warning devices are currently installed at the crossing.

CW 1.6 Provide distances in miles to the next public crossing on either side of the proposed project location. Are any of these grade separations?

CW 1.7 How and why was grade separation not decided on at this time? Please provide any studies that were done to support these answers.

CW 1.8 If this crossing was grade separated, provide a cost estimate of the project.

CW 1.9 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.

CW 1.10 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?

CW 1.11 Please provide the names and locations of all schools (elementary, junior high and high school) within the area of the crossing.

CW 1.12 Please provide school bus route information concerning the crossing, including the number of times a day a school bus crosses this crossing.

CW 1.13 Please provide information about any hospitals in the area and whether the crossing is used extensively by emergency service vehicles, also how far away the hospitals are from the crossing.

CW 1.14 Please provide total cost of the railroad improvements to each crossing.

CW 1.15 Provide any information as to whether vehicles carrying hazardous materials utilize this crossing and the number of times a day they might cross it.
Subject: All information responses should ONLY be provided in searchable PDF, DOC or EXCEL files via email or electronic media.

CW 1.16 Please provide the posted vehicular speed limit for the roadway.

CW 1.17 Do any buses (other than school buses) utilize the crossing, and how many times a day do they cross the crossing.

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.

CW 1.19 Please fill in the attached FHWA Grade Separation Guidelines Table, (from FHWA’s 2007 revised second edition Railroad Highway Grade-Crossing Handbook, page 151) with a yes or no answer as to weather each item applies. Also, please provide all information to support your answers of yes or no (i.e. vehicle delay numbers, any calculations that were performed to get the answers).

CW 1.20 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.
<table>
<thead>
<tr>
<th>Crossing 1</th>
<th>Crossing 2</th>
<th>Crossing 3</th>
<th>Crossing 4</th>
<th>Crossing 5</th>
<th>Crossing 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossing needs the criteria by 2020</td>
<td>Crossing needs the criteria</td>
<td>Crossing needs the criteria by 2020</td>
<td>Crossing needs the criteria</td>
<td>Crossing needs the criteria</td>
<td>Crossing needs the criteria</td>
</tr>
<tr>
<td>Vehicle delay exceeds 0.5 second</td>
<td>Vehicle delay exceeds 0.5 second</td>
<td>Vehicle delay exceeds 0.5 second</td>
<td>Vehicle delay exceeds 0.5 second</td>
<td>Vehicle delay exceeds 0.5 second</td>
<td>Vehicle delay exceeds 0.5 second</td>
</tr>
<tr>
<td>Heavier than 1500 lb</td>
<td>Heavier than 1500 lb</td>
<td>Heavier than 1500 lb</td>
<td>Heavier than 1500 lb</td>
<td>Heavier than 1500 lb</td>
<td>Heavier than 1500 lb</td>
</tr>
<tr>
<td>Low crossing operations exceed 200 per year</td>
<td>Low crossing operations exceed 200 per year</td>
<td>Low crossing operations exceed 200 per year</td>
<td>Low crossing operations exceed 200 per year</td>
<td>Low crossing operations exceed 200 per year</td>
<td>Low crossing operations exceed 200 per year</td>
</tr>
<tr>
<td>Grade separation is required</td>
<td>Grade separation is required</td>
<td>Grade separation is required</td>
<td>Grade separation is required</td>
<td>Grade separation is required</td>
<td>Grade separation is required</td>
</tr>
</tbody>
</table>

Right of way whenever one or more of the following conditions exist:

- The highway is identified as a highway where a crossing is to be located
- The highway is determined to have a grade crossing
- The highway is determined to be a part of the highway system

PHWA - Grade Separation Guidelines
July 1, 2008

Chris Watson
Railroad Safety, Arizona Corporation Commission
2200 N. Central Ave., Suite 300
Phoenix, AZ 85004

Charles H. Hains
Attorney, Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85004

Dear Mr. Watson & Mr. Hains:

Subject: MCDOT Project TT083 - Staff's First Set of Data Request to UPRR Company - Docket No. RR-03639A-08-0311

We have received your Staff's First Set of Data Request to UPRR Company and are currently in the process of gathering the required information and documentation you have requested. We understand further that the information you have requested be provided to you within ten calendar days of receipt of your initial letter.

It is our intention to provide you with the clearest answers possible. In order to do this effectively we are requesting additional time to gather necessary information.

Should you have questions, I can be contacted at 602-506-5992.

This letter will be delivered via overnight delivery as directed in your initial letter.

Sincerely,

Kelly L. Roy
MCDOT Utility Project Coordinator

KR:amr

cc: Zahit Katz, PB Engineering
## Train in Movement Condition

<table>
<thead>
<tr>
<th>Year</th>
<th>Meet Criteria (&gt;40)?</th>
<th>Total Delay (veh*hours)</th>
<th>Train Passage Time (sec)</th>
<th>Gate Movement Time (sec)</th>
<th>Traffic Rate (veh/sec)</th>
<th>AADT</th>
<th>Train Length (ft)</th>
<th>Road Width (ft)</th>
<th>Train Speed (MPH)</th>
<th>No. of Daily Thru Train</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Not Met</td>
<td>1.266</td>
<td>246.55</td>
<td>35</td>
<td>0.02</td>
<td>1656</td>
<td>9000</td>
<td>40</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>2030</td>
<td>Not Met</td>
<td>4.699</td>
<td>247.64</td>
<td>35</td>
<td>0.07</td>
<td>6099</td>
<td>9000</td>
<td>80</td>
<td>25</td>
<td>3</td>
</tr>
</tbody>
</table>

Train Passage Time:  \(\text{length of train+roadway width}) \times (3600)/5280 \times \text{speed}\)

Gate Movement Time:  \(\text{Taken from "Preemption of Traffic Signals Near a Railroad Crossing", page 12}\)

Total Delay:  \([\text{number of trains} \times (\text{traffic rate}) \times (\text{train passage time+gate movement time})^2/(3600)]\)

No. of Trains:  Based on e-mail from Steve Newman (UPRR) on July 16, 2008.

## Stopped Train Condition

<table>
<thead>
<tr>
<th>Year</th>
<th>Meet Criteria (&gt;40)?</th>
<th>Total Delay (veh*hours)</th>
<th>Train Stopped Time (sec)</th>
<th>Gate Movement Time (sec)</th>
<th>Traffic Rate (veh/sec)</th>
<th>AADT</th>
<th>Train Length (ft)</th>
<th>Road Width (ft)</th>
<th>Train Speed (MPH)</th>
<th>No. of Daily Thru Train</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Not Met</td>
<td>6.440</td>
<td>600.00</td>
<td>35</td>
<td>0.02</td>
<td>1656</td>
<td>9000</td>
<td>40</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>2030</td>
<td>Not Met</td>
<td>23.720</td>
<td>600.00</td>
<td>35</td>
<td>0.07</td>
<td>6099</td>
<td>9000</td>
<td>80</td>
<td>25</td>
<td>3</td>
</tr>
</tbody>
</table>

Based on field observations, trains were stopped at the crossing for a duration of less than 10 min. Ten minutes were used to calculate the stopped Condition Delay as shown in the table above.
Factors for Collision Prediction Calculations:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Formula/Value</th>
<th>Description</th>
<th>Taken From</th>
</tr>
</thead>
<tbody>
<tr>
<td>K=</td>
<td></td>
<td>Formula Constant</td>
<td>Table 16</td>
</tr>
<tr>
<td>c=</td>
<td></td>
<td>Annual # of highway vehicle per day</td>
<td>Design</td>
</tr>
<tr>
<td>t=</td>
<td></td>
<td>Annual average of trains per day</td>
<td>Design</td>
</tr>
<tr>
<td>MT=</td>
<td>$e^{(0.2912 \times mt)}$</td>
<td></td>
<td>Calculated</td>
</tr>
<tr>
<td>mt=</td>
<td>1</td>
<td>Number of main tracks</td>
<td></td>
</tr>
<tr>
<td>DT=</td>
<td>1</td>
<td>Factor of number of through train per day during daylight</td>
<td>Table 16</td>
</tr>
<tr>
<td>HP=</td>
<td>1</td>
<td>Highway paved</td>
<td>Table 19</td>
</tr>
<tr>
<td>MS=</td>
<td>1</td>
<td>Maximum timetable speed</td>
<td>Table 16</td>
</tr>
<tr>
<td>HT=</td>
<td>1</td>
<td>highway type factor value</td>
<td>Table 16</td>
</tr>
<tr>
<td>HL=</td>
<td>$e^{(0.1036(hl-1))}$</td>
<td></td>
<td>Calculated</td>
</tr>
<tr>
<td>hl=</td>
<td></td>
<td>Number of highway lanes</td>
<td>Design</td>
</tr>
</tbody>
</table>

Note:
All factors and reference to tables are based on information shown at:
Railroad-Highway Grade Crossing Handbook, Section 3. Assessment of Crossing Safety and Operation
Online Link: http://safety.fhwa.dot.gov/xings/07010/sec03.htm
ATTACHMENT F

FHWA GRADE SEPARATION GUIDELINES TABLE AND SUPPORT CALCULATIONS
ATTACHMENT E

CITY OF GOODYEAR POPULATION
<table>
<thead>
<tr>
<th>Intersection or Driveway Relationship</th>
<th>Avg</th>
<th>Loc</th>
<th>Junc. Pct</th>
<th>Resi</th>
<th>Commercial</th>
<th>Pedestrian</th>
<th>Cyclist</th>
<th>Corridor Obstr</th>
<th>Overhead</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intersection</td>
<td>86</td>
<td>0</td>
<td>66</td>
<td>87</td>
<td>24</td>
<td>2</td>
<td>16</td>
<td>1</td>
<td>21</td>
<td>303</td>
<td></td>
</tr>
<tr>
<td>Driveway</td>
<td>8</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>No Relationship</td>
<td>2</td>
<td>6</td>
<td>15</td>
<td>38</td>
<td>29</td>
<td>5</td>
<td>24</td>
<td>11</td>
<td>15</td>
<td>145</td>
<td></td>
</tr>
<tr>
<td><strong>Corridor Total</strong></td>
<td>96</td>
<td>6</td>
<td>87</td>
<td>133</td>
<td>56</td>
<td>9</td>
<td>41</td>
<td>12</td>
<td>36</td>
<td>474</td>
<td></td>
</tr>
</tbody>
</table>

*Does not include the 44 additional crashes in the MC-85/Dyart Road area reported by the Avondale Police Department.

Source: Arizona Department of Transportation, 2004
<table>
<thead>
<tr>
<th>Location</th>
<th>All</th>
<th>Front End</th>
<th>Left Turn</th>
<th>Right Turn</th>
<th>Side Impact</th>
<th>Sideswipe Opposite Direction</th>
<th>Sideswipe Same Direction</th>
<th>Other</th>
<th>Runaway</th>
<th>Wer</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>75th-107th Ave</td>
<td>28</td>
<td>1</td>
<td>33</td>
<td>51</td>
<td>13</td>
<td>1</td>
<td>10</td>
<td>3/0</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>159</td>
</tr>
<tr>
<td>107th Ave-Litchfield Rd ^1,^2</td>
<td>32</td>
<td>1</td>
<td>25</td>
<td>31</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>2/0</td>
<td>8</td>
<td>1</td>
<td>8</td>
<td>123</td>
</tr>
<tr>
<td>Litchfield Rd-Estrella Pky ^3</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0/1</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>Estrella Pky-Jackrabbit Trail ^4</td>
<td>9</td>
<td>1</td>
<td>10</td>
<td>20</td>
<td>10</td>
<td>3</td>
<td>0</td>
<td>0/0</td>
<td>8</td>
<td>4</td>
<td>2</td>
<td>67</td>
</tr>
<tr>
<td>Jackrabbit Trail-Watson Rd ^5</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0/1</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>Watson Rd-Miller Rd ^6</td>
<td>8</td>
<td>0</td>
<td>6</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>2/0</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Miller Rd-SR 85 ^7</td>
<td>10</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0/0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Corridor Total</td>
<td>96</td>
<td>6</td>
<td>87</td>
<td>131</td>
<td>45</td>
<td>11</td>
<td>15</td>
<td>7/2</td>
<td>41</td>
<td>12</td>
<td>21</td>
<td>474</td>
</tr>
</tbody>
</table>

\^1 Includes crashes at 107th Avenue intersection
\^2 The City of Avondale provided dates and severity of 44 additional crashes that occurred in the MC-85/Dysart Road area from April 2003 through September 2004, but no data on the manner of collision; therefore, these crashes are not included here.
\^3 Includes crashes at Litchfield Road intersection
\^4 Includes crashes at Estrella Parkway intersection
\^5 Includes crashes at Jackrabbit Trail intersection
\^6 Includes crashes at Watson Road intersection
\^7 Includes crashes at Miller Road intersection

Source: Arizona Department of Transportation, 2004
<table>
<thead>
<tr>
<th>Intersection</th>
<th>Existing Signal?</th>
<th>Traffic Lanes</th>
<th>Estimated ADT</th>
<th>Planning Warrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>75th Ave</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>83rd Ave</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>91st Ave</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>99th Ave</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>107th Ave</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Avondale Blvd</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>El Mirage Rd</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Dysart Rd</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Litchfield Rd</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Bullard Ave</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Estrella Pkwy</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Sarival Ave</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Cotton Ln</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Southern Ave</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Perryville Rd</td>
<td>No</td>
<td>3</td>
<td>2</td>
<td>&gt;18,000</td>
</tr>
<tr>
<td>Jackrabbit Tr</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Airport Rd</td>
<td>No</td>
<td>2</td>
<td>2</td>
<td>&gt;18,000</td>
</tr>
<tr>
<td>Dren Rd</td>
<td>No</td>
<td>2</td>
<td>2</td>
<td>&gt;18,000</td>
</tr>
<tr>
<td>Rainbow Rd</td>
<td>No</td>
<td>2</td>
<td>2</td>
<td>&gt;18,000</td>
</tr>
<tr>
<td>Watson Rd</td>
<td>No</td>
<td>2</td>
<td>2</td>
<td>&gt;12,000</td>
</tr>
<tr>
<td>Apache Rd</td>
<td>No</td>
<td>2</td>
<td>2</td>
<td>&gt;12,000</td>
</tr>
<tr>
<td>Miller Rd</td>
<td>No</td>
<td>2</td>
<td>2</td>
<td>&gt;12,000</td>
</tr>
<tr>
<td>Rooks Rd</td>
<td>No</td>
<td>2</td>
<td>2</td>
<td>&gt;12,000</td>
</tr>
</tbody>
</table>

Sources: MCDOT PPG and DMJM Harris

3.5 Recent Crash History

ADOT provided MCDOT with detailed information on 474 crashes (traffic accidents) reported along the MC-85 corridor during the three-year period beginning October 1, 2001 and ending September 30, 2004. It is important to note that at least one major gap exists in the ADOT data, so the list should not be viewed as all-inclusive. The ADOT records contain only two crashes at the busy MC-85/Dysart Road intersection in downtown Avondale—far fewer, for example, than the 39 reported at the Avondale Boulevard intersection or even the 18 reported at Litchfield Road over the same three years. The City of Avondale Police Department was able to supplement the ADOT data with limited information on 44 additional crashes that occurred at or near the MC-85/Dysart Road intersection from April 2003 through September 2004 only.

Table 3.10 presents the number of ADOT-reported crashes by manner of collision for each of the seven corridor segments. Multi-vehicle collisions were divided into eight categories: angle, head on, left turn/U-turn, rear end, sideswipe (same direction), sideswipe (opposite direction), pedalcyclist, and other (e.g., backing). The 76 single-vehicle collisions, representing 16% of the 474, consisted of two collisions with pedestrians, 41 crashes into fixed objects, 12 overturnings,
Table 3.7: ADT Volume Warrant

<table>
<thead>
<tr>
<th>Major Street</th>
<th>Minor Street</th>
<th>ADT Major Street</th>
<th>ADT Minor Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>10,000</td>
<td>3,000</td>
</tr>
<tr>
<td>2 or more</td>
<td>1</td>
<td>12,000</td>
<td>3,000</td>
</tr>
<tr>
<td>2 or more</td>
<td>2 or more</td>
<td>12,000</td>
<td>4,000</td>
</tr>
<tr>
<td>1</td>
<td>2 or more</td>
<td>10,000</td>
<td>4,000</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>15,000</td>
<td>1,500</td>
</tr>
<tr>
<td>2 or more</td>
<td>1</td>
<td>18,000</td>
<td>1,500</td>
</tr>
<tr>
<td>2 or more</td>
<td>2 or more</td>
<td>18,000</td>
<td>2,000</td>
</tr>
<tr>
<td>1</td>
<td>2 or more</td>
<td>15,000</td>
<td>2,000</td>
</tr>
</tbody>
</table>

Source: MCDOT Traffic Engineering Policy/Procedure Guideline (PPG), Section 4.6, Subject 4.6

3.4.1 Signal Warrant Review

This project included a signal warrant review for intersections along MC-85. The signal warrants were evaluated based on traffic conditions expected in 2015 and 2026. The ADT volumes at the intersections are based on the traffic projections discussed earlier in this chapter.

Tables 3.8 and 3.9 show whether the warrants are expected to be met in 2015 and 2026, based on the traffic projections discussed earlier and on whether these projections exceed the minimum volumes shown in Table 3.7. Traffic signals will be installed at each intersection when MCDOT finds that the warrants have been met.
Table 3.5: Existing 2005 Peak Hour Intersection Level of Service and Delay (Cont)

<table>
<thead>
<tr>
<th>Control</th>
<th>MC-85 Intersection</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOP</td>
<td>Dean Rd</td>
<td>B (10.8)(^1)</td>
<td>B (12.5)(^1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B (11.4)(^2)</td>
<td>B (13.1)(^4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A (0.2)(^3)</td>
<td>A (0.5)(^4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A (0.6)(^4)</td>
<td>A (0.7)(^4)</td>
</tr>
<tr>
<td>STOP</td>
<td>Rainbow Rd</td>
<td>C (15.2)(^1)</td>
<td>C (17.8)(^1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B (14.5)(^2)</td>
<td>C (19.3)(^2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A (2.2)(^3)</td>
<td>A (2.7)(^3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A (0.3)(^4)</td>
<td>A (0.1)(^4)</td>
</tr>
<tr>
<td>Signal</td>
<td>6th St</td>
<td>A (8.4)</td>
<td>A (9.5)</td>
</tr>
<tr>
<td>STOP</td>
<td>Miller Rd**</td>
<td>B (10.3)(^1)</td>
<td>B (12.4)(^1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B (11.1)(^2)</td>
<td>B (13.2)(^2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A (9.7)(^3)</td>
<td>B (11.5)(^3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B (11.1)(^4)</td>
<td>C (15.2)(^4)</td>
</tr>
<tr>
<td>STOP</td>
<td>Rocks Rd</td>
<td>B (10.6)(^1)</td>
<td>B (10.3)(^1)</td>
</tr>
</tbody>
</table>

*Conditions may have changed owing to the recent opening of a fourth (south) leg at this intersection.
**Traffic control has recently been changed from a two-way to a four-way STOP.

1Northbound traffic only
2Southbound traffic only
3Eastbound left turns only
4Westbound left turns only

Boldface denotes a level of service generally considered unacceptable.


3.3.2 Future Year Conditions and Level of Service

AM and PM peak hour intersection levels of service were estimated for future year 2015 and 2026 conditions, using the method described in Section 3.3.1. For the year 2015, major intersections along the existing MC-85 alignment were used (Figures 3-7 and 3-8); existing lane configurations were assumed to remain in place, except at the following locations where MDOT has programmed improvements: 75th, 83rd, 91st, 99th and 107th Avenues, Estrella Parkway, Sarival Avenue, and Cotton Lane. For 2026, the study team used the existing MC-85 alignment from 75th Avenue to approximately Perryville Road, and the proposed South Bypass from that point to SR 85. The assumed intersection layouts are shown in Figure 3-10.

Table 3.6 reports the resulting 2015 and 2026 peak hour intersection levels of service and average peak hour delay per entering vehicle. Existing (year 2005) signalized intersection data from Table 3.5 are also included for comparative purposes. In the year 2015, an unacceptable intersection LOS (E) is expected to occur only at the MC-85/Southern Avenue intersection, in both the AM and PM peak hours.
Table 3.4: Intersection Control Delay

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Signalized Intersection Delay (seconds)</th>
<th>STOP-Controlled Intersection Delay (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt; 10</td>
<td>&lt; 10</td>
</tr>
<tr>
<td>B</td>
<td>10 - 20</td>
<td>10 - 15</td>
</tr>
<tr>
<td>C</td>
<td>20 - 35</td>
<td>15 - 25</td>
</tr>
<tr>
<td>D</td>
<td>35 - 55</td>
<td>25 - 35</td>
</tr>
<tr>
<td>E</td>
<td>55 - 80</td>
<td>35 - 50</td>
</tr>
<tr>
<td>F</td>
<td>&gt; 80</td>
<td>&gt; 50</td>
</tr>
</tbody>
</table>

Source: Exhibits 16-2 and 17-2, 2000 Highway Capacity Manual

These criteria were applied to a capacity analysis of existing AM and PM peak hour conditions at 20 signalized and unsignalized intersections along MC-85. The following assumptions were used in the operational capacity analysis of both existing and future conditions:

- "T" (percent heavy trucks): 8% (0.08)
- Peak hour factor (the peak hour volume divided by (four times the volume occurring in the peak 15-minute period)): 90% (0.9)

Table 3.5 reports the results of the analysis. At signalized locations, the reported LOS represents an aggregate for the intersection as a whole. At STOP-controlled intersections, it is not possible to compute a composite level of service for the entire intersection, because through movements on the MC-85 mainline flow freely. Therefore, an individual LOS for each minor (STOP-controlled) approach and for left turns from MC-85 was calculated instead.

Table 3.5 indicates that an unacceptable LOS (E or F) currently occurs at only one of the analyzed intersections: MC-85/El Mirage Road. Here the estimated LOS for northbound traffic is E during the AM peak hour and F in the PM peak, with average delay exceeding 45 seconds in the morning and 90 seconds in the afternoon. It should be noted that these are minor movements at an unsignalized intersection that MCDOT has programmed for signalization.
Figure 3-10 depicts the proposed lane configuration at each major intersection along MC-85 in 2026. From Perryville Road west to SR 85, MC-85 is assumed to have been rerouted along the South Bypass alignment, resulting in a “T” intersection wherever a north-south roadway terminates. All the intersections in Figure 3-10 are expected to be signalized by 2026. Along MC-85 itself, exclusive right-turn lanes are anticipated at 75th and 83rd Avenues, 91st Avenue (eastbound only), 99th and 107th Avenues (westbound only), Avondale Boulevard (westbound only), El Mirage Road, Dysart and Litchfield Roads, Estrella Parkway, Sarival Avenue, Southern Avenue, Perryville Road, existing MC-85, and Dean, Rainbow, Watson, Apache, Miller and Rooks Roads. Dual left turn lanes are expected to be warranted westbound at 99th Avenue and Jackrabbit Trail, and also on several cross roads.

The projected AM and PM peak hour turning volumes are shown in Figures 3-11 and 3-12. All volumes are rounded to the nearest multiple of 50, except that volumes below 50 are reported as 50. The Cotton Lane intersection is omitted from Figures 3-10 through 3-12 because its future status is unclear, in view of the potential routing of the SR 303 freeway along the Cotton Lane alignment. The turning movement volumes in Figures 3-11 and 3-12 were used as inputs to calculate the year 2026 levels of service reported in Section 3.3 below.

3.2.3 Additional Future Traffic Issues

- The future alignment of the SR 303 freeway at its junction with MC-85 remains uncertain at this time. SR 303 could cross MC-85 either near Cotton Lane or farther west in the general vicinity of Perryville Road and Jackrabbit Trail. The absence of year 2026 turning movement projections for the MC-85/Cotton Lane intersection results from this uncertainty.
- The MAG socioeconomic projections used to generate the 2015 and 2026 traffic forecasts are much lower than the actual amount of planned and entitled development in West Valley, especially in the Town of Buckeye. MAG and the local jurisdictions are in the process of updating these projections to include the latest information. The revised projections were not completed in time for this study, but will be fully incorporated in such subsequent planning efforts as the Town of Buckeye General Plan Update and the MAG Interstate 10-Hassayampa Valley Roadway Framework Study. Meanwhile, because many of the available 2015 socioeconomic projections in the Buckeye area yield turning movement forecasts that are actually lower than today’s counts, this report shows no 2015 turning movements or intersection levels of service west of Perryville Road.

3.3 Traffic Operational Analysis

3.3.1 Existing Conditions and Level of Service

As described in Section 2.13.2, the concept of level of service (LOS) uses qualitative measures that characterize operational conditions within the traffic stream. The six levels of service are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. In urban areas, the minimum acceptable LOS is usually considered to be D.

Table 3.4 shows the level of service criteria contained in the Highway Capacity Manual for signalized and unsignalized (STOP-controlled) intersections. "Intersection control delay" means delay due to the operation of intersection traffic control devices.
3.2 Projected Traffic

3.2.1 Interim Forecast Year 2015

The MC-85 study team used the latest available MAG regional socioeconomic projections and traffic forecasts to estimate segment ADT and peak hour turning volumes for two future years: the interim year 2015 and the study horizon year 2026. The MAG model generated directional ADT volumes on each one-mile segment of every arterial roadway in the study area. From these daily segment-level traffic volumes, the study team derived year 2015 AM and PM peak hour turning movement volumes at key intersections along MC-85. The mathematical derivation process made use of existing turn movement percentages and applied appropriate balancing factors to equalize entering and departing volumes at each intersection.
Access Control and Corridor Improvement Study
MC-85, 75th Ave to Turner Rd

Existing AM Peak Hour Turning Movement Distribution

Figure 3-4

Legend
1 - Total Entering Volume
14 - Percent by Turn Movement

Source: DMJM Harris, March-April 2005
Figure 3-2
Access Control and Corridor Improvement Study
MC-85, 75th Ave to Turner Rd

Source: DMJM Harris, March-April 2005

Existing AM Peak Hour Turning Volumes
Source: 2002 Counts - City of Phoenix
2003 Counts - MAG and MCDOT
2004 Counts - MCDOT and City of Avondale
2005 Counts - DMLJM Harris

Figure 3-1
Existing Daily Traffic Volumes

Access Control and Corridor Improvement Study
MC-85, 75th Ave to Turner Rd

Legend
- 2005 Count
- 2004 Count
- 2003 Count
- 2002 Count (shown only where more recent counts are not available)
- All counts are in thousands of vehicles per weekday.

Legend:
- 2005 Count
- 2004 Count
- 2003 Count
- 2002 Count (shown only where more recent counts are not available)
- All counts are in thousands of vehicles per weekday.
ATTACHMENT D

ACCESS CONTROL AND CORRIDOR IMPROVEMENTS STUDY,
MC 85 75TH AVE TO TURNER RD

CHAPTER 3 TRAFFIC ANALYSIS
3.6 2020 Level of Service

3.6.1 Unsignalized Intersections: 15 unsignalized intersections along the MC 85 corridor were analyzed for level of service using 2020 traffic projections. Significant intersection delays are projected to occur during peak periods at Baseline Road, Rainbow Road, Cotton Lane, Sarival Avenue, Estrella Parkway, and Lower Buckeye Road. Each of these locations has been identified as warranting consideration of traffic signal control.

3.6.2 Signalized Intersections: 14 signalized intersections along the MC 85 corridor were analyzed for LOS using 2020 traffic projections. All of the signalized intersections will operate under capacity except for Dysart Road and 75th Avenue. The Dysart Road intersection can be improved to acceptable level of service by adding a westbound right turn lane with continuous “free flow” yield operation. The 75th Avenue intersection can be improved to an acceptable level of service by adding a westbound right turn lane and adding an additional northbound through lane.

3.6.3 Multi-Lane Highway Segments: It is assumed that the entire corridor will be improved to 4 through lanes and left turn lanes before the year 2020. All MC 85 roadway segments will operate at a LOS of A except the segments from Estrella Parkway to Bullard Avenue, from Litchfield Road to Dysart Road, and from 83rd Avenue to 75th Avenue, which will operate at a LOS of B.

3.7 Transyt-7f Analyses

3.7.1 General: Transyt-7f is a traffic operations modeling software program that was developed in the United Kingdom, and was adapted for the Federal Highway Administration by the University of Florida Transportation Research Center. This software was used to model and analyze the project study corridor. Transyt-7f calculates measures of effectiveness (MOEs), which are traffic performance indicators. The MOEs include intersection delays, stops, total travel time, and queuing. The corridor was analyzed for the peak hour traffic conditions.

3.7.2 1997 Existing: The corridor was analyzed for the 1997 traffic volumes for the existing geometry, peak hour volumes (PHVs), and existing signal phasing. The results indicate there are no problems with mainline through traffic on MC 85. There are, however, a few movements on side streets with LOS E. These include the southbound through movements on
TABLE 3.4
MC 85 GOODYEAR PROJECTED AVERAGE DAILY TRAFFIC (ADT)

<table>
<thead>
<tr>
<th>Location</th>
<th>2020 Traffic (ADT)</th>
<th>Build out Traffic (ADT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perryville Road to Southern Avenue</td>
<td>25,000</td>
<td>35,000</td>
</tr>
<tr>
<td>Southern Avenue to Cotton Lane</td>
<td>25,000</td>
<td>35,000</td>
</tr>
<tr>
<td>Cotton Lane to Sarival Avenue</td>
<td>37,000</td>
<td>51,000</td>
</tr>
<tr>
<td>Sarival Avenue to Estrella Parkway</td>
<td>37,000</td>
<td>51,000</td>
</tr>
<tr>
<td>Estrella Parkway to Bullard Avenue</td>
<td>31,000</td>
<td>48,000</td>
</tr>
<tr>
<td>Bullard Avenue to Litchfield Road</td>
<td>31,000</td>
<td>48,000</td>
</tr>
</tbody>
</table>

3.4.2 Intersecting Roadways 2020 ADT’s: The 2020 MAG ADT projections for the roadways intersecting MC 85 are summarized in Table 3.5 below. The highest volume locations are the north and south approaches of 75th Avenue, the north approach of Dysart Road and the west approach of Baseline Road. The traffic projections for Estrella Parkway at MC 85 seem to be underestimated based on current traffic and development activity. 2015 volumes from the Estrella Parkway Candidate Assessment Report indicate an ADT of 26,425 vehicles per day on Estrella Parkway south of MC 85 and 20,425 vehicles per day north of MC 85. A design value of 30,000 vehicles per day is currently being used to design improvements to Estrella Parkway.

TABLE 3.5
INTERSECTING ROADWAYS 2020 AVERAGE DAILY TRAFFIC (ADT)

<table>
<thead>
<tr>
<th>Location</th>
<th>ADT (North)</th>
<th>ADT (South)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 85</td>
<td>8,700</td>
<td>12,100</td>
</tr>
<tr>
<td>Rooks Road</td>
<td>-</td>
<td>&lt;1,000</td>
</tr>
<tr>
<td>Miller Road</td>
<td>7,300</td>
<td>&lt;1,000</td>
</tr>
<tr>
<td>Baseline Road</td>
<td>16,000</td>
<td>-</td>
</tr>
<tr>
<td>Rainbow Road</td>
<td>8,800</td>
<td>-</td>
</tr>
<tr>
<td>Airport Road</td>
<td>2,100</td>
<td>1,600</td>
</tr>
<tr>
<td>Jackrabbit Trail</td>
<td>1,300</td>
<td>1,600</td>
</tr>
</tbody>
</table>
3.3.2 Unsignalized Intersections: Fifteen unsignalized intersections along the MC 85 corridor were analyzed for level of service using 2005 traffic projections. Significant intersection delays are projected to occur during peak periods at Baseline Road and Lower Buckeye Road. Each of these locations is identified in the traffic report for consideration for traffic signal control.

3.3.3 Signalized Intersections: Fourteen existing signalized intersections along the MC 85 corridor, and Estrella Parkway, Baseline Road, and Lower Buckeye Road intersections were analyzed for level of service. The MC 85 intersections will operate at LOS B or better with 2005 project volumes.

3.3.4 Two-Lane Highway Segments: The two-lane highway segment from SR 85 to Miller Road will operate at LOS A with the 2005 projected traffic volumes. The projected 2005 volumes indicate that the segment of MC 85 from Jackrabbit Trail to Sarival will provide a LOS B in the AM peak hour while the PM peak hour traffic will operate at LOS C. The two-lane segment from Sarival Avenue to Litchfield Road will operate at LOS C in the AM peak, while the PM peak hour traffic slips to LOS D. LOS C is generally considered to be the minimum acceptable level of service when designing rural and suburban roadways. Increasing the capacity of this segment of roadway prior to 2005 is recommended.

3.3.5 Multi-Lane Highway Segments: The multi-lane highway segments of the MC 85 corridor are located from Miller Road to Jackrabbit Trail and from Litchfield Road to 75th Avenue, and all segments will operate at LOS A with 2005 projected traffic volumes.

3.4 2020 Projected ADT’s

3.4.1 MC 85 2020 ADT’s: The 2020 MAG ADT projections for MC 85 are summarized in Table 3.3 below. The highest volume locations are from Cotton Lane to Litchfield Road and from 99th Avenue to 75th Avenue.
3.2.2 Unsignalized Intersections: Fifteen unsignalized intersections along the MC 85 corridor were analyzed for levels of service. Level of Service (LOS) A, which is the best level of service, requires an average total delay per vehicle of less than 5 seconds. All the intersections analyzed have average total delays considerably less than 5. The highest delays were in the AM and PM peak hours at the intersection of Miller Road (2.6 and 3.0 seconds, respectively), the PM peak at the intersection of Estrella Parkway (2.4 seconds) and the PM peak at the intersection of Baseline Road (2.1 seconds).

3.2.3 Signalized Intersections: Fourteen signalized intersections along the MC 85 corridor were analyzed for level of service. For LOS A, the average total delay per vehicle is less than 5 seconds, while LOS B, which still provides efficient traffic operation, the average total delay per vehicle is less than 15 and more than 5 seconds. Most of the intersections analyzed operate at a LOS B. The highest delays were in the AM and PM peak hours at the 83rd Avenue Intersection (7.2 and 9.2 seconds respectively), and the AM and PM peak hours at the 75th Avenue Intersection (7.3 and 8.0 seconds).

3.2.4 Two-Lane Highway Segments: The two-lane highway segments of the MC 85 corridor are located from SR 85 to Miller Road and from west of Jackrabbit Trail to Litchfield Road. These roadway segments generally operate at LOS A in the AM peak hour and LOS B in the PM peak hour.
ATTACHMENT C

MC HIGHWAY 85
STATE ROUTE 85 AT OGLESBY TO 75TH AVENUE
FINAL CORRIDOR IMPROVEMENT STUDY

SECTION 3 TRAFFIC AND ACCIDENT DATA
<table>
<thead>
<tr>
<th>Date</th>
<th>Road</th>
<th>Direction</th>
<th>Distance</th>
<th>Traffic Count</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/1/2006</td>
<td>AVE</td>
<td>N</td>
<td>B</td>
<td>2076</td>
<td>800</td>
</tr>
<tr>
<td>6/15/2006</td>
<td>SARIVAL AVE</td>
<td>S</td>
<td>MC 85</td>
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</tr>
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<td>OLIVE AVE</td>
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<td>2170</td>
</tr>
<tr>
<td>5/1/2006</td>
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<td>US 60</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>5/1/2006</td>
<td>SARIVAL AVE</td>
<td>N</td>
<td>VAN BUREN ST</td>
<td>B</td>
<td>NC</td>
</tr>
<tr>
<td>5/1/2006</td>
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<td>N</td>
<td>YUMA RD</td>
<td>B</td>
<td>NC</td>
</tr>
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<td>7/10/2006</td>
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<td>CAVE CREEK RD</td>
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<td>192</td>
</tr>
<tr>
<td>2/13/2006</td>
<td>SIGNAL BUTTE RD</td>
<td>N</td>
<td>BROADWAY RD</td>
<td>B</td>
<td>15627</td>
</tr>
<tr>
<td>2/22/2006</td>
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<td>N</td>
<td>BROWN RD</td>
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</tr>
<tr>
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<td>N</td>
<td>OCOTILLO RD</td>
<td>B</td>
<td>3300</td>
</tr>
<tr>
<td>2/28/2006</td>
<td>SIGNAL BUTTE RD</td>
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<td>UNIVERSITY DR</td>
<td>B</td>
<td>5298</td>
</tr>
<tr>
<td>2/28/2006</td>
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<td>N</td>
<td>US 60</td>
<td>B</td>
<td>10081</td>
</tr>
<tr>
<td>10/31/2006</td>
<td>SISSION RD</td>
<td>E</td>
<td>363RD AVE</td>
<td>B</td>
<td>25</td>
</tr>
<tr>
<td>3/21/2006</td>
<td>SOSSAMAN RD</td>
<td>N</td>
<td>CHANDLER HEIGHTS RD</td>
<td>B</td>
<td>5328</td>
</tr>
<tr>
<td>3/21/2006</td>
<td>SOSSAMAN RD</td>
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<td>ELLIOT RD</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
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<td>6319</td>
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<td>S</td>
<td>RIGGS RD</td>
<td>B</td>
<td>2912</td>
</tr>
<tr>
<td>5/23/2006</td>
<td>SOUTHERN AVE</td>
<td>E</td>
<td>35TH AVE</td>
<td>B</td>
<td>8573</td>
</tr>
</tbody>
</table>

Response: Per phone conversation with Lynn Rumble (Avondale Elementary School District Transportation Supervisor), there is one school bus that crosses the intersection twice daily.

CW 1.13 Please provide information about any hospitals in the area and whether the crossing is used extensively by emergency service vehicles, also how far away the hospitals are from the crossing.
Response: The main hospital in the area is West Valley Hospital located at 13677 W. McDowell Road, Goodyear, Arizona 85395, which is approximately 7.5 miles away from the intersection. Per a phone conversation with the hospital, we were advised that the emergency service vehicles select their route based on the shortest distance to their destination.

CW 1.14 Please provide total cost of the railroad improvements to each crossing.
Response: It is estimated that the cost for the railroad crossing improvements will be $575,057.

CW 1.15 Provide any information as to whether vehicles carrying hazardous materials utilize this crossing and the number of times a day they might cross it.
Response: We are unable to provide specific traffic counts for vehicle carrying hazardous materials. Based on information from the Maricopa County department of Transportation, there are no restrictions on vehicles carrying hazardous materials on this roadway. Sarival Avenue is not registered in the National Hazardous Material Route Registry.

CW 1.16 Please provide the posted vehicular speed limit for the roadway.
Response: Posted speed is 45 mph.

CW 1.17 Do any buses (other than school buses) utilize the crossing, and how many times a day do they cross the crossing.
Response: Valley Metro does not have Sarival Avenue on its routes. The closest bus line route is along Litchfield Road, which is located approximately 4 miles east of the RR crossing.

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: We were unable to get this information from the UPRR. As soon as this information becomes available, we will amend the response to this question.

CW 1.19 Please fill in the attached FHWA Grade Separation Guidelines Table, (from FHWA’s 2007 revised second edition Railroad Highway Grade-Crossing...
Response: Two design documents covering the crossing area were prepared for MCDOT and are listed below:

1. July 1998 MC Highway 85, State Route 85 at Oglesby to 75th Avenue Final Corridor Improvement Study, Section 3 Traffic and Accident Data prepared by Sverdrup Inc.
2. The July 2006 Access Control And Corridor Improvements Study, MC 85 75th Ave to Turner Rd prepared by DMJM Harris.

The traffic analysis sections from both reports are provided as Attachments C and D, respectively.

CW 1.4 Provide the population of the City the crossing is located in.
Response: From the City of Goodyear web site, the population in the City is 56,000. (See Attachment E).

CW 1.5 Provide what warning devices are currently installed at the crossing.
Response: The warning devices currently installed for northbound and southbound traffic include: gates with flashing lights and cantilever flashing railroad signals outside the roadway pavement; and railroad crossing warning signs.

CW 1.6 Provide distances in miles to the next public crossing on either side of the proposed project location. Are any of these grade separations?
Response: Cotton Lane crossing is 1 mile to the west, and the Estrella Parkway crossing is 1 mile to the east. Both crossings are at-grade crossings.

CW 1.7 How and why was grade separation not decided on at this time? Please provide any studies that were done to support these answers.
Response: No studies were performed to evaluate if an overpass was required. With the proposed improvements to the intersection of MC 85 and Sarival Avenue and the close proximity of the railroad crossing from the proposed intersection (approximately 200-ft north of MC 85) the location of the at-grade crossing remains unchanged. A grade separation would have the following undesirable consequences. 1) Access to existing businesses along Sarival Avenue would be severed for approximately 2,300-ft north of the railroad tracks; 2) Access to existing farm fields along MC 85 would be severed for approximately 4,600-ft along MC 85 (2,300-ft east and west of Sarival Avenue); 3) There are several existing utilities in Sarival Avenue that cannot support 30-ft of additional embankment needed for a grade-separated crossing; and 4) There is insufficient right-of-way to accommodate 30-ft high embankment slopes along Sarival Avenue and MC 85.

CW 1.8 If this crossing was grade separated, provide a cost estimate of the project.
Response: Our initial calculations yield a cost of $20,000,000 to construct a grade separated crossing. The estimate includes the cost for a bridge over the UPRR tracks; the
Staff Memorandum

To: THE COMMISSION

From: Safety Division

Date: August 11, 2008

RE: IN THE MATTER OF THE APPLICATION OF THE MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION TO UPGRADE AN EXISTING CROSSING OF THE UNION PACIFIC RAILROAD AT SARIVAL AVENUE IN THE CITY OF GOODYEAR, MARICOPA COUNTY, ARIZONA, AT AAR/DOT NO. 741-782-L.

Background

On June 19, 2008, the Maricopa County Department of Transportation ("MCDOT") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Union Pacific Railroad ("Railroad") to upgrade an existing crossing at the Railroad’s tracks at Sarival Avenue, in the City of Goodyear, Maricopa County, Arizona at AAR/DOT No. 741-782-L. Commission Safety Division Staff ("Staff") issued data requests and those data requests and MCDOT’s responses (without attachments), are included as attachments to this memorandum.

MCDOT’s filing in this application requests approval for the Railroad to upgrade an existing crossing of the Union Pacific Railroad at Sarival Avenue. MCDOT is the controlling road authority for Sarival Avenue. Flashing lights and automatic gates were first put into service at this location by Commission Decision No. 50800 in 1980.

The following is a break down of the crossing in this application, including information about the crossing that was provided to Staff by the City and the Railroad.

Geographical Information

This railroad crossing is located at Sarival Avenue just north of Maricopa County Highway 85 ("MC 85") in Goodyear, Arizona (estimated population of 56,000 as of 2007). Sarival Avenue runs on a north-south trajectory with the rail line traversing Sarival Avenue on an east-west angle. For a map of the area, see Appendix A of this staff report.
The posted speed limit on Sarival Avenue is 45 MPH. Commission Rail Safety Section, as well as Federal Railroad Administration ("FRA") accident/incident records indicate no train/vehicle accidents on Sarival Avenue.

Regarding alternative routes from this crossing, to the west approximately one mile is Cotton Lane and to the east approximately one mile is Estrella Parkway. Both crossings are at-grade crossings.

The estimated cost of the railroad crossing improvements is $575,057. MCDOT and the City of Goodyear are sharing the cost of the crossing improvements.

**Train Data**

Data provided by the Railroad regarding train movements through this crossing are as follows:
- **Train Count:** Average of 2-3 trains per day
- **Train Speed:** 25 mph
- **Thru Freight/Switching Moves:** There are thru train movements as well as switching movements at this crossing.

**Schools and Bus Routes**

Information about schools and school buses in the area was provided by MCDOT. There are ten schools near the Sarival Avenue crossing. The Sarival Avenue crossing is in the Avondale Elementary School District No. 44 and Agua Fria Union High School District. The following are the schools in the districts:

**High Schools:**
- Agua Fria Union High School, 750 East Riley Drive, Avondale 85323
- Estrella High School, 5100 N. Central Ave, Avondale, 85323

**Elementary Schools:**
- Centerra Mirage School, 15151 W Centerra Dr. South Goodyear, AZ 85338
- Desert Star School, 2131 South 157th Avenue Goodyear, AZ
- Desert Thunder School, 16750 W. Garfield Goodyear, AZ 85338
- Lattie Coor School, 1406 N. Central Avenue Avondale, AZ 85323
- Michael Anderson School, 45 S. 3rd Ave, Avondale, AZ 85323
- Wildflower School, 325 S. Wildflower Drive, Goodyear AZ 85338
With regard to grade separating Sarival Avenue, MCDOT gave the following response:

*No studies were performed to evaluate if an overpass was required. With the proposed improvements to the intersection of MC 85 and Sarival Avenue and the close proximity of the railroad crossing from the proposed intersection (approximately 200-ft north of MC 85) the location of the at-grade crossing remains unchanged. A grade separation would have the following undesirable consequences:*

- Access to existing businesses along Sarival Avenue would be severed for approximately 2,300-ft north of the railroad tracks.
- Access to existing farm fields along MC 85 would be severed for approximately 4,600-ft along MC 85 (2,300-ft east and west of Sarival Avenue).
- There are several existing utilities in Sarival Avenue that cannot support 30-ft of additional embankment needed for a grade-separated crossing.
- There is insufficient right-of-way to accommodate 30-ft high embankment slopes along Sarival Avenue and MC 85.

MCDOT’s initial calculations yield a cost of $20,000,000 to construct a grade separated crossing. The following are included in the cost for a bridge over the UPRR tracks:

- The cost for retaining walls along the east and west legs of MC 85 and the north leg of Sarival Avenue in order to retain slopes within the existing right of way.
- The cost for new right of way along the south leg of Sarival Avenue as the County does not have any existing right of way along the south leg of Sarival Avenue.
- The cost to reconstruct Sarival Avenue as needed due to the bridge construction.

**FHWA GUIDELINES**

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:

<table>
<thead>
<tr>
<th>The highway is a part of the designated Interstate</th>
<th>Crossing Currently meets the criteria</th>
<th>Sarival Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>
Staff Conclusions

Having reviewed all applicable data, Staff supports MCDOT's application. Staff believes that the upgrades are in the public interest and are reasonable. Therefore, Staff recommends approval of this application.

__________________________  ____________________________
Dave Raber             Brian H. Lehman
Director               Railroad Supervisor
Safety Division        Safety Division
ACC Staff’s Data Request

What these questions are generally about:

- Within approximately two weeks, you will receive by both e-mail and hard mail, an ACC Rail Safety Staff set of Data Requests to include but not limited to:
  - Average Daily Traffic Counts
  - Number and type of train movements per day along with the speed of the trains
    - *Federal Railroad Administration Safety Analysis reference link*
  - Completed traffic studies, including traffic projections and any Design Concept Reports (DCRs)

- A response to these Data Request questions must be completed within ten (10) calendar days. If you require additional time, send the ACC contacts both an e-mail and hard copy of your need for the additional time.
  - *Sample #7*

- All evidence to support your answers must be included with your response. Provide one hard copy, as well as searchable PDF, DOC or EXCEL files (via e-mail or electronic media), of the requested data directly to each of the following addressees via overnight delivery services:

  **Chris Watson**, Railroad Safety, Arizona Corporation Commission, 2200 N. Central Ave, Suite 300, Phoenix, Arizona 85004

  **Charles H. Hains**, Attorney, Arizona Corporation Commission, 1200 West Washington Street, Phoenix, Arizona 85007

  - *Sample #8*

Staff’s Memorandum:

- This will be sent to you and to the Administrative Law Judge prior to the ACC ALJ Hearing
  - *Sample #9*
BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS
MIKE GLEASON, Chairman
WILLIAM A. MUNDELL
JEFF HATCH-MILLER
KRISTIN K. MAYES
GARY PIERCE

IN THE MATTER OF THE APPLICATION OF
THE MARICOPA COUNTY DEPARTMENT
OF TRANSPORTATION TO UPGRADE A
CROSSING OF THE UNION PACIFIC
RAILROAD AT QUEEN CREEK ROAD IN
MARICOPA COUNTY, ARIZONA, AAR/DOT
NO. 741-678-S.

DOCKET NO. RR-03639A-08-0066

PROCEDURAL ORDER

BY THE COMMISSION:

On February 4, 2008, the Maricopa County Department of Transportation ("MCDOT") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Union Pacific Railroad ("Railroad") to upgrade an existing crossing at Queen Creek Road in Maricopa County, Arizona at AAR/DOT No. 741-678-S.

Pursuant to A.A.C. R14-3-101, the Commission now issues this Procedural Order to govern the preparation and conduct of this proceeding.

IT IS THEREFORE ORDERED that the request of the Maricopa County Department of Transportation shall be considered an application for the Railroad to upgrade an existing crossing pursuant to A.R.S. § 40-337, et seq.

IT IS FURTHER ORDERED that the Railroad shall be considered as the Respondent in this proceeding.

IT IS FURTHER ORDERED that the hearing on the application shall be held on April 22, 2008, at 9:30 a.m., or as soon thereafter as is practical, at the Commission's offices, 1200 West Washington Street, Hearing Room 1, Phoenix, Arizona.

IT IS FURTHER ORDERED that within five business days of receipt of this Procedural Order, the MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION SHALL PROVIDE THE RAILROAD AND ANY MUNICIPALITY OR INTERESTED PARTY that
may be affected by the application with a copy of the application and this Procedural Order by certified mail.

IT IS FURTHER ORDERED that the Commission’s Railroad Safety Section ("Staff") shall prepare a written Staff Report and associated exhibits to be presented at hearing and file copies of them with Docket Control on or before 4:00 p.m. on March 28, 2008.

IT IS FURTHER ORDERED that any objections to the Staff Report and associated exhibits shall be reduced to writing and filed with Docket Control on or before 4:00 p.m. on April 10, 2008.

IT IS FURTHER ORDERED that intervention shall be in accordance with A.A.C. R14-3-105, except that all motions to intervene must be filed on or before April 11, 2008.

IT IS FURTHER ORDERED that the Maricopa County Department of Transportation shall provide public notice of the hearing in this matter, in the following form and style:

IN THE MATTER OF THE APPLICATION OF THE MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION TO UPGRADE A CROSSING OF THE UNION PACIFIC RAILROAD AT QUEEN CREEK ROAD IN MARICOPA COUNTY, ARIZONA, AAR/DOT NO. 741-678-S.

(DOCKET NO. 03639A-08-0066)

On February 4, 2008, the Maricopa County Department of Transportation ("MCDOT") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Union Pacific Railroad ("Railroad") to upgrade an existing crossing at Queen Creek Road in Maricopa County, Arizona at AAR/DOT No. 741-678-S.

The application is available for inspection during regular business hours at the offices of the Commission in Phoenix, at 1200 West Washington Street, Phoenix, Arizona, and on the internet via the Commission website (www.azcc.gov) using the e-docket function.

The Commission will hold a hearing on this matter commencing on April 22, 2008, at 9:30 a.m., at the Commission’s offices, 1200 West Washington Street, Phoenix, Arizona. Public comments will be taken on the first day of the hearing.

The law provides for an open public hearing at which, under appropriate circumstances, interested parties may intervene. Intervention shall be permitted to any person entitled by law to intervene and having a direct and substantial interest in the matter. Persons desiring to intervene must file a written motion to intervene with the Commission, which motion should be sent to Applicant or its counsel and to all parties of record, and which, at the minimum, shall contain the following:

1. The name, address, and telephone number of the proposed intervener and of any party upon whom service of documents is to be made if different than the
2. A short statement of the proposed intervener's interest in the proceeding (e.g., a customer of Railroad, a neighboring property owner, a crossing user, etc.).

3. A statement certifying that a copy of the motion to intervene has been mailed to the Applicant or its counsel and to all parties of record in the case.

The granting of motions to intervene shall be governed by A.A.C. R14-3-105, except that all motions to intervene must be filed on or before April 11, 2008. The granting of intervention, among other things, entitles a party to present sworn evidence at hearing and to cross-examine other witnesses. However, failure to intervene will not preclude any customer from appearing at the hearing and making a statement on such customer's own behalf.

If you have any questions about this application, you may contact the applicant at [insert telephone number]. If you wish to file written comments on the application or want further information on intervention, you may write the Consumer Services Section of the Commission at 1200 West Washington Street, Phoenix, Arizona 85007 or call 1-800-222-7000 or appear at the hearing and make comment.

The Commission does not discriminate on the basis of disability in admission to its public meetings. Persons with a disability may request a reasonable accommodation such as a sign language interpreter, as well as request this document in an alternative format, by contacting Linda Hogan, ADA Coordinator, voice phone number (602) 42-3931, E-mail lhogan@azcc.gov. Requests should be made as early as possible to allow time to arrange the accommodation.

IT IS FURTHER ORDERED that the Maricopa County Department of Transportation shall cause the above notice to be published at least once in a newspaper of general circulation in the city/county where the crossing is located, with publication to be completed no later than March 21, 2008.

IT IS FURTHER ORDERED that notice shall be deemed complete upon the mailing/publication of same, notwithstanding the failure of an individual or entity to read or receive the notice.

IT IS FURTHER ORDERED that the MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION SHALL FILE CERTIFICATION OF NOTICE WITH THE COMMISSION'S DOCKET CONTROL AS SOON AS PRACTICABLE after the mailing/publication of notice ordered herein has been completed.
IT IS FURTHER ORDERED that the presiding Administrative Law Judge may rescind, alter, amend, or waive any portion of this Procedural Order either by subsequent Procedural Order or by ruling at hearing.

DATED this 22nd day of February, 2008.

MARC E. STERN
ADMINISTRATIVE LAW JUDGE

Copies of the foregoing mailed/delivered this 22rd day of February, 2008 to:

James H. Smith
UNION PACIFIC RAILROAD COMPANY
10031 Foothills Boulevard
Roseville, California 95747

Kelly L. Roy, Utility Coordinator
MARICOPA COUNTY
2901 West Durango Street
Phoenix, Arizona 85009-6357

John Syers
Railroad Engineering Coordinator
ARIZONA DEPARTMENT OF TRANSPORTATION
205 South 17th Avenue, M/D 618E
Phoenix, Arizona 85007

Dick Schaner
Special Transportation Project Manager
TOWN OF QUEEN CREEK
22350 South Ellsworth Road
Queen Creek, Arizona 85242

Christopher Kempley, Chief Counsel
Legal Division
ARIZONA CORPORATION COMMISSION
1200 West Washington Street
Phoenix, Arizona 85007

By: Debra Broyles
Secretary to Marc Stern
IT IS FURTHER ORDERED that the presiding Administrative Law Judge may rescind, alter, amend, or waive any portion of this Procedural Order either by subsequent Procedural Order or by ruling at hearing.

DATED this 20th day of February, 2008.

MARC E. STERN
ADMINISTRATIVE LAW JUDGE

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UNION PACIFIC RAILROAD COMPANY
10031 Foothills Boulevard
Roseville, California 95747

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Christopher Kempley, Chief Counsel
Legal Division
ARIZONA CORPORATION COMMISSION
1200 West Washington Street
Phoenix, Arizona 85007

By: Debra Broyles
Secretary to Marc Stern
2. A short statement of the proposed intervenor's interest in the proceeding (e.g., a customer of Railroad, a neighboring property owner, a crossing user, etc.).

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may be affected by the application with a copy of the application and this Procedural Order by certified mail.

IT IS FURTHER ORDERED that the Commission's Railroad Safety Section ("Staff") shall prepare a written Staff Report and associated exhibits to be presented at hearing and file copies of them with Docket Control on or before 4:00 p.m. on March 28, 2008.

IT IS FURTHER ORDERED that any objections to the Staff Report and associated exhibits shall be reduced to writing and filed with Docket Control on or before 4:00 p.m. on April 10, 2008.

IT IS FURTHER ORDERED that intervention shall be in accordance with A.A.C. R14-3-105, except that all motions to intervene must be filed on or before April 11, 2008.

IT IS FURTHER ORDERED that the Maricopa County Department of Transportation shall provide public notice of the hearing in this matter, in the following form and style:

IN THE MATTER OF THE APPLICATION OF THE MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION TO UPGRADE A CROSSING OF THE UNION PACIFIC RAILROAD AT QUEEN CREEK ROAD IN MARICOPA COUNTY, ARIZONA. AAR/DOT NO. 741-678-S.

On February 4, 2008, the Maricopa County Department of Transportation ("MCDOT") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Union Pacific Railroad ("Railroad") to upgrade an existing crossing at Queen Creek Road in Maricopa County, Arizona at AAR/DOT No. 741-678-S.

The application is available for inspection during regular business hours at the offices of the Commission in Phoenix, at 1200 West Washington Street, Phoenix, Arizona, and on the internet via the Commission website (www.azcc.gov) using the e-docket function.

The Commission will hold a hearing on this matter commencing on April 22, 2008, at 9:30 a.m., at the Commission's offices, 1200 West Washington Street, Phoenix, Arizona. Public comments will be taken on the first day of the hearing.

The law provides for an open public hearing at which, under appropriate circumstances, interested parties may intervene. Intervention shall be permitted to any person entitled by law to intervene and having a direct and substantial interest in the matter. Persons desiring to intervene must file a written motion to intervene with the Commission, which motion should be sent to Applicant or its counsel and to all parties of record, and which, at the minimum, shall contain the following:

1. The name, address, and telephone number of the proposed intervener and of any party upon whom service of documents is to be made if different than the
BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS
MIKE GLEASON, Chairman
WILLIAM A. MUNDELL
JEFF HATCH-MILLER
KRISTIN K. MAYES
GARY PIERCE

IN THE MATTER OF THE APPLICATION OF
THE MARICOPA COUNTY DEPARTMENT
OF TRANSPORTATION TO UPGRADE A
CROSSING OF THE UNION PACIFIC
RAILROAD AT QUEEN CREEK ROAD IN
MARICOPA COUNTY, ARIZONA, AAR/DOT
NO. 741-678-S.

DOCKET NO. RR-03639A-08-0066

PROCEDURAL ORDER

BY THE COMMISSION:

On February 4, 2008, the Maricopa County Department of Transportation ("MCDOT") filed
with the Arizona Corporation Commission ("Commission") an application for approval for the Union
Pacific Railroad ("Railroad") to upgrade an existing crossing at Queen Creek Road in Maricopa
County, Arizona at AAR/DOT No. 741-678-S.

Pursuant to A.A.C. R14-3-101, the Commission now issues this Procedural Order to govern
the preparation and conduct of this proceeding.

IT IS THEREFORE ORDERED that the request of the Maricopa County Department of
Transportation shall be considered an application for the Railroad to upgrade an existing crossing
pursuant to A.R.S. § 40-337, et seq.

IT IS FURTHER ORDERED that the Railroad shall be considered as the Respondent in this
proceeding.

IT IS FURTHER ORDERED that the hearing on the application shall be held on April 22,
2008, at 9:30 a.m., or as soon thereafter as is practical, at the Commission’s offices, 1200 West
Washington Street, Hearing Room 1, Phoenix, Arizona.

IT IS FURTHER ORDERED that within five business days of receipt of this Procedural
Order, the MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION SHALL

PROVIDE THE RAILROAD AND ANY MUNICIPALITY OR INTERESTED PARTY that
SAMPLE #11
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Article Addressed to: Smith &amp; Smith Land Company 510 N. Old Litchfield Rd. Litchfield Park, AZ 85340</td>
</tr>
<tr>
<td>2.</td>
<td>Service Type: Certified Mail, Registered, Insured Mail, C.O.D.</td>
</tr>
<tr>
<td>3.</td>
<td>Restricted Delivery? Extra Fee: Yes</td>
</tr>
<tr>
<td>4.</td>
<td>Signature: X Rochel Beaulie</td>
</tr>
<tr>
<td>5.</td>
<td>Material Delivery, Inc. 2815 E Rose Garden Ln Phoenix, AZ 85050</td>
</tr>
<tr>
<td>6.</td>
<td>Date of Delivery: 7/19/05</td>
</tr>
<tr>
<td>7.</td>
<td>Restricted Delivery? Yes</td>
</tr>
<tr>
<td>8.</td>
<td>Service Type: Certified Mail, Registered, Insured Mail, C.O.D.</td>
</tr>
<tr>
<td>9.</td>
<td>Restricted Delivery? Extra Fee: Yes</td>
</tr>
</tbody>
</table>
| 10.  | Signature: X Charles Fusch
Ed Carlise, being first duly sworn, upon oath deposes and says: That of the Arizona Business Gazette, a newspaper of general circulation in the county of Maricopa, State of Arizona, published weekly at Phoenix, Arizona, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates indicated.

7/24/2008

Sworn to before me this 22ND day of AUGUST 2008

Notary Public
ACC Administrative Law Judge Order & Hearing

The Procedural Order:
- The now Docketed application will also be scheduled for hearing by an Administrative Law Judge (ALJ). A Procedural Order will be issued by the ALJ with instructions to be followed. **Failure to follow the Procedural Order may result in delaying the hearing process.**
  - *Sample #10*

Follow all Orders accordingly:
- It will be Ordered that within 5 business days of receipt of the Procedural Order that the Applicant SHALL provide the Railroad and any municipality or interested party that they may be affected by the application with a copy of the Application and the Procedural Order by certified mail. (This includes but is not limited to adjacent property owners, schools, hospitals, fire stations etc.)
  - *Sample #11*

- Another important Order to note, states the Applicant SHALL provide public notice of the hearing in this matter, in the following form and style:…..
  - *Sample #12*

- **Thirteen (13)** copies of the followed Procedural Order along with copies of the required certified receipts and an Affidavit of publication must be submitted to:
  - **Chris Watson**, Railroad Safety, Arizona Corporation Commission, 2200 N. Central Ave, Suite 300, Phoenix, Arizona 85004
  - **Charles H. Hains**, Attorney, Arizona Corporation Commission, 1200 West Washington Street, Phoenix, Arizona 85007

Who needs to attend the ALJ Hearing:
- As this is a formal legal hearing in front of a judge, the Applicant and legal counsel **MUST** both attend the hearing.
- It is essential also that the consultant engineer, municipal engineers and/or anyone else who participated in the gathering of information regarding the project and providing the answers to the ACC Staff’s Data Requests attend this hearing.
How to prepare for the Hearing:
- At least two weeks prior to the hearing date, gather the people most familiar with the project and/or the area and your legal counsel.
  - Go over the questions and the responses you gave to the ACC Staff’s Data Request
  - Determine who will speak on the different topics. (For example, the City Engineer regarding zoning in the City, the Consultant engineer regarding the results of the traffic impact study etc…)
  - Prepare a poster size expanded areal view of the crossing and label the surrounding area to use in court (Your Counsel should have an 8 ½” x 11” copy of the same areal to enter into court as an exhibit)
    - Sample 12-A
  - The Court will need copies of anything you use as evidence.
  - Wear appropriate business attire
  - Communicate with the ACC Staff. If you have questions on the application or hearing process please call Chris Watson or Brian H. Lehman at (602-262-5601)

Timing:
- At the conclusion of the hearing process a recommended Opinion and Order from the ALJ will be issued. The hearing before the Commission is set 1-2 months after the ALJ hearing.
Opinion and Order of Application

What kind of Hearing is this:
- This is a public hearing, not a formal hearing, in front of the Arizona Corporation Commissioners
- **Both the Applicant and Legal Counsel must attend**
- In the event the Commission has a specific question it is advisable to have the person most familiar with the scope of the project there as well
Final ACC Approval or Rejection

Timing:
- A decision will be mailed to the Applicant approximately 2 weeks after a decision has been formally entered and documented.
- The entire ACC process normally takes 90-120 days, depending on hearing and open meeting calendars.
- Note the Opinion and Order may contain a time limit for when the work must be completed by. If the project requires extra time, contact the ACC staff for an extension.
Encroachment, Right of Entry and Temporary Occupancy

UPRR’s permitting process categorizes the various types of work to be done in their Right-of-Way and thus, have a variety of procedural outlines and application forms. Please see the link below for complete instruction, all necessary application forms and any applicable specifications.

http://www.uprr.com/reus/index.shtml

BNSF Railway has a similar permitting process of that of the UPRR, however, they have a third party Licensing Agent, Jones Lang LaSalle.

For any work that an agency will be performing (for survey work, geo-technical, field shots, boring, etc) will need a “Temporary Occupancy Permit”. The permit will include the necessary requirements regarding insurance, flagman, safety, etc.

Please use the link below to be taken to the BNSF Property Permits and Licenses web page. You will find the “Temporary Occupancy” application along with others applications listed on that page. This application will be processed through BNSF Railway’s Licensing Agent, Jones Lang LaSalle (formally, Staubach Global Services).

A review of your project by the BNSF Railway’s Project Engineer in Albuquerque, NM will be requested by Jones Lang LaSalle, if necessary.

http://www.bnsf.com/markets/services/realestate/permitslicenses.html
The American Railway Engineering and Maintenance-of-Way Association

http://www.arema.org/eries/scriptcontent/index.cfm