

We've Been Working with the Railroad, all the live long day



Apache Gold Casino Entrance

**Presented by Robert Travis, PE
ADOT Railroad Liaison
June 14, 2012**

ADOT

Utility & Railroad Section

- **U&RR handles 3 primary Railroad functions**
 - **Liaison between ADOT and the Railroads**
 - **Includes oversight of FHWA projects on non-ADOT system**
 - **Management of the FHWA Railroad-Highway Safety Program**
 - **Management of the Statewide Crossing Inventory**

Arizona Railroads (Service Status and Ownership)



- | | |
|--|------------------------|
| Railroad Status | — State Highway System |
| — In Service | + Cities and Towns |
| — Out of Service | [] County Boundaries |
| — Abandoned (1960 - 2007) | |
| — Abandoned (1950 - 1979) | |



Prepared by
Arizona Department of Transportation
Planning Division, Data Bureau/GIS Section
Source: Public Transportation Division
(800) 712-7333 March 2007

0 20 40 80 Miles

ADOT U&RR Funding Sources

- ADOT U&RR primarily uses FHWA Section 130 funds for safety projects
- Section 130 provides \$2,320,000 per year for statewide project work
- Other non-Section 130 projects need to identify funding requirement during project scoping

Management of the Federal Highway Administration Railroad-Highway Safety program



BACKGROUND

- 23 CFR Section 130 provided a Nationwide program to improve safety at Railroad-Highway crossings (Also known as the Section 130 Program)
- Section 130 used for existing public crossings
- Section 130 can not be used for new or proposed widening of an existing crossing
- Section 130 projects consist of Protective Devices or Hazard Elimination (crossing surface) projects.
- Protective Device work typically includes:
 - New railroad signals
 - Update signing and striping
 - Review and update railroad signal preemption
 - FHWA funds 100% of Protective Device work
- Local Agency match required for hazard elimination work.

Section 130 Project Development

- Project selection and management done by ADOT U&RR using crossing inventory and input from Stakeholders
- From kickoff to project completion is approximately 4 years
- Intergovernmental Agreement with local agency required
- U&RR will manage the project including any agreements with the Railroad, Arizona Corporation Commission approval, and other approvals

Railroad Crossing Inventory

- Inventory information is used to update the Federal Railroad Administration (FRA) Database and for the ADOT database
- Railroad and ADOT both provide inventory updates to FRA
- Current FRA inventory shows 993 total public open crossings, including 771 at-grade
- ADOT currently performing inventory of all public crossings in Arizona
- Future Crossing will be inventoried when notified of a new crossing or a modified crossing
- Provide updated traffic counts, bus useage, etc. to Railroad Liaison

SAN CARLOS APACHE NATION INVENTORY SUMMARY

- Total of 39 crossing (public and private)
- 12 Public Crossings
 - **8 At-grade**
 - Apache Gold Casino Road
 - Cutter Road
 - BIA 101/ Sam's Crossing
 - BIA 2 Road
 - Navajo Road
 - BIA 105 Road
 - Center Point Road
 - BIA 105 Road only passive crossing. All others updated to active signals

Apache Gold Casino Road

- DOT 742 342 Y
- flashing lights, gates
- Rubber crossing surface



Cutter Road

- DOT 742 339 R
- Rubber Crossing surface
- Flashing lights and gates



Sam's Crossing/ BIA 101 road

- DOT 742 336 R
- Flashing Lights
- Concrete Surface
- Installed in 2011



SR170

- DOT 742 335 N
- Flashing Lights and Gates
- Concrete crossing surface



BIA 2 Road

- **DOT 742 317 R**
- **Flashing lights, gates**
- **Concrete Crossing Surface**
- **Installed in 2011**



Apache Trail/ Navajo Rd

- DOT 742 309 Y
- Flashing Lights and hydraulic gates
- Asphalt crossing surface



BIA 105 Road

- DOT 742 307 K
- Passive Warning
- Asphalt Crossing Surface



Center Point

- DOT 742 306 D
- Flashing lights and hydraulic gates
- Asphalt crossing surface



Agency- Railroad Design Considerations

Overview

- Project process flow
- General Information
- Railroad Agreements
- At-grade crossing project
- Grade Separated project

Project Process Flow

- **Agency determines project scope**
- **Concept plan shared with Railroad, Railroad authorized to perform preliminary engineering**
- **Onsite Diagnostic Meeting**
- **Railroad and Agency design project**
- **Construction & Maintenance agreement executed**
- **Railroad easement agreement executed**
- **Arizona Corporation Commission Opinion and Order issued (as needed)**
- **Railroad performs work**
- **Agency performs work**

Railroad Agreements

Construction & Maintenance Agreements

- Allow Agency to construct and maintain crossing with Agency forces
- Allows Railroad to install/relocate infrastructure as needed
- Allows Railroad to provide railroad flagging and inspection services
- Allow Agency to purchase temporary and permanent easements
- 12+ month process

Consent Letter/ Temporary Occupancy Permit

- Allow agency to do minor work such as pavement preservation, restriping, sidewalk within existing easements
- 1-2 month process

Railroad Agreements Cont.

Utility License Agreement

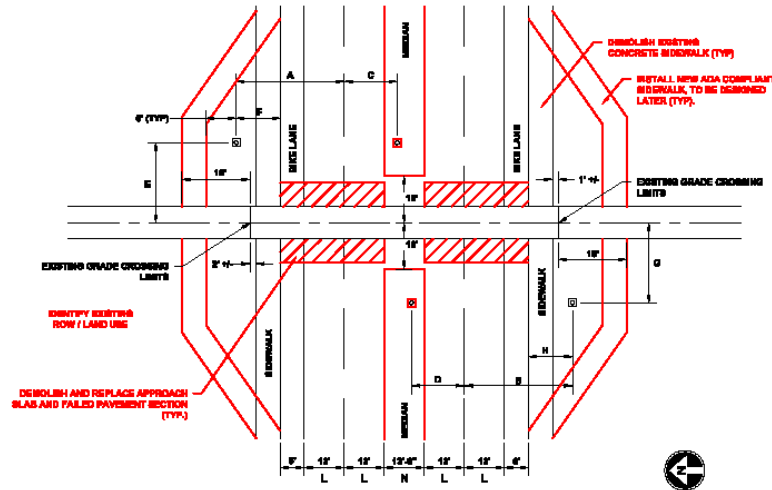
- Separate from Construction & Maintenance Agreement
- Allow for installation and maintenance of facility
- Railroad guidelines for each type of utility available online
- Individual license for each utility
 - Waterline for irrigation/ storm drain lines
 - Electrical for street lighting, traffic signal wires, Intelligent traffic system cables, etc.

AT-Grade crossing Project



Design considerations

- New At-grade railroad crossings are very hard to get approved. Project may need to remove existing public crossing
- Plan on no more than 2 traffic lanes per gate.
- 10 foot median may be needed for a median gate if more than 2 lanes in one direction
- Plan on sidewalks behind railroad gates
- Concrete road approaches are not encouraged
- Railroad will do all railroad signal, track and crossing work
- Agency is responsible for sidewalk, median and road approach work
- Agency responsible for traffic signal interconnection/ preemption request & design
- Arizona Corporation Commission review and approval needed for new crossings or widened crossings



Xx = BELL NA
SIDE LIGHTS IF NEEDED SHOW PLACEMENT NA
GATE A FOR 6' BIKE LANE + 12' LANE + 4'-3"
GATE B FOR 6' BIKE LANE + 12' LANE + 4'-3"
GATE C FOR 12' LANE + 4'-3"
GATE D FOR 12' LANE + 4'-3"
E = CL OF MAST TO CL OF TRACK 10'
F = EDGE OF TRAVELED WAY TO CL OF MAST 4'-3"
G = CL OF MAST TO CL OF TRACK 10'
H = EDGE OF TRAVELED WAY TO CL OF MAST 4'-3"
I = EDGE OF End TO NEAR RAIL NA
J = EDGE OF TRAVELED WAY TO EDGE OF End NA
K = ANGLE OF CROSSING 90°
L = LANE WIDTHS 12'
M = WIDTH OF ROADWAY (PARALLEL TO TRACK, IF CROSSING IS OTHER THAN 90°) NA
N = WIDTH OF MEDIAN 12'-6"
ANY ADDITIONAL INFORMATION THAT IS NEEDED TO COMPLETE THIS PROJECT SHOULD BE ADDED;
BIKE LANE IS 6'

CITY TEMPE
STATE ARIZONA
STREET NAME UNIVERSITY DRIVE
MILE POST 914.89
SUBDIVISION PHOENIX
DOT NA
DATE 5/21/2010

Sample Road layout

Example of 3 lane crossing with sidewalk behind gates



Grade Separation Projects



Grade Separation Projects

- Try to have new road bridges over railroad tracks
- BNSF Railway/ UPRR Joint Guidelines for Grade Separation Structures
- Clear span Railroad right of way if possible, otherwise piers only allowed in Railroad Right of way
 - Railroad requires minimum of 23 ft 4 inch clearance above their tracks
 - Railroad requires fencing over tracks
 - Railroad encourages precast girders and stay in place deck forms

OTHER RESOURCES

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




Prepared by Kelly Roy
For the
Maricopa County Department of
Transportation Utility Department

BNSF RAILWAY - UNION PACIFIC RAILROAD

GUIDELINES FOR RAILROAD GRADE SEPARATION PROJECTS



REVISIONS	
NO.	DESCRIPTION
1	Prepared for BNSF
1	
1	
1	
1	
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1	

	
BRIDGE STANDARDS <small>GRADE SEPARATION PROJECTS</small>	
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Further information

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- 602-712-6193 rtravis@azdot.gov
- www.azdot.gov/Highways/Utilities/index.asp

UP/ BNSF Joint Guideline for Grade Separated Structures

http://www.uprr.com/aboutup/operations/specs/attachments/grade_separation.pdf

Maricopa DOT Railroad guideline

- <http://www.mcdot.maricopa.gov/technical/eng-manuals/railroad.pdf>