

US 70, SAFFORD TO SOLOMON



Final  
Design Concept Report

Prepared for  
THE ARIZONA HIGHWAYS



Arizona Department of Transportation



September 2005

#EJ-7196  
FD 34836  
DAW

## 2.6 TRAFFIC AND ACCIDENT DATA

The AQOT Traffic Design Section is measurable in the traffic analysis for the project and the preparation of a separate Traffic Study occurrence. The discussion located within this section of the DCR is a summary of AQOT Traffic Design findings.

### 2.4 TRAFFIC ANALYSIS

#### 2.4.1 Introduction

The purpose of this traffic study is to determine and document the future traffic requirements for a segment of US 70 between approximately milepost 340.0 and milepost 344.7. The project is located partially within the limits of the City of Safford, the Graham County seat. Most of the project limits are east of the Safford City limits, but are within Graham County. There is existing roadboard signage for the community of Saltonstall just east of milepost 346.

The primary end use along both sides of US 70 within the study area is provide consisting of agricultural lands and residential properties. Several future developments are expected along or near the section of US 70.

US 70 is a rural arterial between the Safford City limits and the Hope Maricopa State Line. West of Safford, US 70 continues in a general west/northwest direction to Thatcher, Blythe and Globe. East of the project limits, US 70 continues to Duncan, about seven miles from the New Mexico State Line, and to Lordsburg, New Mexico, where it connects with Interstate 10. Within the study area, beginning about half a mile west of the west end of the project and extending to approximately milepost 339.5, US 191 overlaps US 70. US 191 starts Safford from the town, connecting Safford with Interstate 10 approximately 25 miles south of Safford. From approximately milepost 339.5, US 191 continues in an east-northeast direction toward Clifton in Graham County and, and Morehead, the site of a major Phoenix Dodge dealer name. Further north, US 191 continues northeast along the Coronado Trail near the western edge of Arizona ID Alpine, Springerville and St. Johns. Besides the communities identified earlier in the paragraph a significant destination for traffic heading east on US 70 is San Jose Road, located about a mile

east of the east end of the study limits, which accesses a distal portion of Phoenix Dodge. It will be operating a new facility around 2026, to be accessed from Sanchez Road thereby creating a significant increase in the amount of heavy truck turning traffic at the Bowie Avenue/Sanchez Road intersection.

#### 2.1.2 Existing Traffic Conditions

US 70 is primarily a two-lane 40 foot roadway within the study limit at the current time. However, at the beginning of the project by 8<sup>th</sup> Street, US 70 transitions from a two-lane roadway consisting of two-lanes in each direction and a two-way left-turn lane, to a three-lane roadway consisting of one through lane in each direction and a two-way left-turn lane. The center lane continues approximately 800 feet east of the intersection of Lone Star Road, located at approximately milepost 341.56. Around milepost 341.74, the roadway tapers to create a two-lane, two-way roadway with approximately 12 feet lanes and 5 feet shoulders. The two-lane 40 foot roadway continues throughout the rest of the project except in the immediate vicinity of Bowie Avenue, the south leg, and Sanchez Road, the north leg of the intersection at approximately milepost 344.37. At this intersection, the 5 feet shoulders reduce to 2 feet to accommodate 12 feet left-turn lanes for eastbound and westbound US 70. In addition, there is a 12 feet right-turn lane for westbound traffic turning south onto Bowie Avenue within the two-lane section of US 70. Passing is generally allowed in both directions. The exceptions occur on the westbound approach to the two-way left-turn lane by Lone Star Road, on the eastbound approach to the taper for the turn lanes at the Bowie Avenue/Sanchez Road intersection, and on both approaches to the San Simon River bridge located approximately between milepost 343.35 and milepost 343.36.

The traffic meters, obtained October 22, 2002 from AQOT's Transportation Planning Group for this section of US 70 are as follows: D = 51%, T = 8%, K (milepost 340.00 - milepost 341.65) = 11% and K (milepost 341.65 - milepost 344.70) = 14%. The AQOT figures vary for Year 2000 from 10,563 vpd by milepost 340.00 to 6,892 vpd by milepost 344.35 to 2,898 vpd total of milepost 344.35. For Year 2020, the AQOT figures vary from 12,811 vpd by milepost 340.00 to 6,562 vpd by milepost 344.35 to 3,974 vpd total of milepost 344.35. *Assumes 20% increase in traffic volume.*

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US 70 SURROUND TO SLOWDOWN

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341 371 and Lone Star Road (approximately milepost 341.56) intersections. Consideration should be given to providing concrete bollards between these two intersections and possibly to constructing the conduit by Meyhem Lane to the end of the conduit run by the east city limit of Safford. Because there are retained roads located close to the southern edge of pavement along US 70, this study recommends the conduit be placed on the north side of the roadway, whenever possible.

There are two school districts operating buses within the study limits, Safford Unified School District and Safford Unified School District. There is one existing bus pickup within the study limits. Safford District has requested the pickup be removed. Bus services with the two school districts should be coordinated in the future to ascertain if and where school buses may be stopping along US 70 within the study limits. To avoid the need for school buses to stop along US 70 thereby interfering to stop multiple buses of traffic in each direction of US 70 while picking up and discharging school children, it is recommended that this issue be given serious consideration. If school buses would need to pick up and discharge school children along US 70 and the bus stops could not be located away from the US 70 roadway, bus pullouts -- physically separated from the widened US 70 roadway as they exist on US 70 -- would not need to stop while school buses pick up and discharge school children -- should be considered at locations where the school buses would be stopping. It would probably be best to pursue options so that the bus stops could be located away from the US 70 roadway.

Although the existing speed break between the posted 45 MPH and 55 MPH speed limits occurs around milepost 340.55, there may be merit in considering adjusting the speed break to occur at a location a few hundred feet east of Lone Star Road, possibly by milepost 341.7, in conjunction with future roadway improvements. In any case, there should be a speed study to assess the posted limits approximately six months after the roadway improvements along the section of US 70 are completed.

**2.1.4 Work Zone Traffic Control**

Regarding work zone traffic control for the future construction projects, it appears US 70 can be widened while maintaining traffic on the existing roadway and/or future roadway improvements. Traffic control will include channelization devices alongside the edges of pavement during the

widening and flagging setups, as necessary where it is necessary to limit traffic to alternating movements and/or to stop traffic for short periods of time.

There will be no need for a detour to take traffic off the existing roadway to construct the San Simon River Bridge. It appears that traffic can be maintained on the existing roadway and/or future bridge roadway widened sections. While the bridge is being replaced it is expected that temporary concrete barriers will be necessary along one side of the roadway. Once the widening on this side of the roadway is complete and new bridge barriers in place, traffic could be shifted to the other side of the roadway and work could begin on the other side of the roadway. Under no circumstances should the project plans allow simultaneous widening work to occur on both sides of the roadway which would reduce the width of the pavement available to US 70 traffic. However, substructure work which would not adversely affect traffic on US 70 may be allowed to occur for both sides of the widening simultaneously. The construction sequencing evaluation of the recommended bridge replacement alternative provides adequate roadway width to maintain no-passing limits of travel.

**2.1.5 Level of Service**

Traffic data were collected over three different time periods: November 6, 2000 through November 13, 2000; December 6, 2000 through December 12, 2000; and January 22, 2001 through January 28, 2001. Projected volumes for the various traffic movements were then calculated for the years 2015 and 2025 using existing traffic volumes and growth factors to account for future development. These traffic volumes were used to calculate the level of service for turning movements at four major intersections and the level of service for each segment of US 70 between these intersections. Level of service grading ranges from A to F with A being the best, unrestricted traffic flow and F being the worst, severely restricted traffic flow. Four sections were used when computing the 2015 and 2025 level of service values, the sections varying only with respect to the roadway cross-section being considered. These four cross sections were the existing three-lane and two-lane roadway sections, a consistent three-lane section, a four-lane section, and a five-lane section. The results of the level of service analyses are given in Tables 2.1 through 2.3.

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Table 2.2. Segment Level of Service - PM Peak

Segment	Level of Service	LEVEL OF SERVICE			
		From US 70 to Main Street	Main Street to US 70	US 70 to US 70	US 70 to US 70
Eastbound	C	C	C	C	C
Westbound	-	-	-	-	-
8015	D	D	D	D	C
8015	A	A	A	A	A
8015	A	A	A	A	A
8015	-	-	-	-	-
8015	D	D	D	D	D
8015	A	A	A	A	A
8015	A	A	A	A	A

Existing traffic data and 1000-hour volume projections were also used to determine whether segment A or B will be warranted at any of the four major intersections along the study section. Segmentation is considered when traffic volumes and other pertinent data regarding the intersection area result in an intersection meeting one or more of the 11 warrants provided in the MUTCD. None of the studied intersections along US 70 meet any warrants by the year 2015. By 2020, the intersections of US 70 with Main Street (milepost 341.47), Lane Spur Road (milepost 341.67), Barney Lane (milepost 342.47), and Bowie Avenue/Sanchez Road (milepost 344.47) meet 2, 3, 0, and 1 warrants, respectively.

9.2 ACCIDENT DATA

In the five-year period between May 1, 1998 and April 30, 2003, there were 55 reported accidents on US 70 between milepost 340.00 and milepost 344.70. There were no fatal injury accidents, 32 non-fatal injury accidents, and 23 property damage only accidents. The primary types of accidents reported were rear end accidents (14 of 55) and angle accidents (8 of 55). Each of the other reported types of accidents were 5 or less.

Table 2.4. Summary of Accidents

Type of Accidents	Number of Accidents
Rear End	14
Angle	8
Sideswipe (Same)	5
L/R Turn	4
Collision with Fence	3
Collision with Traffic Sign	3
Collision with Bridge Culvert	2
Collision with Motor Vehicle (other)	2
Overturning	2
Sideswipe	2
L-Turn	2
All other Non-Collision	1
Breakage of Vehicle	1
Collision with Lumber	1
Collision with Other Fixed Object	1
Collision with Other Non-Fix	1
Collision with Pooled Vehicle	1
Collision with Utility Pole	1
Total Number of Accidents	55



1489	US 70	331.8	Alber St	331.5	Alber St - Thatcher	331.5	Alber St - Thatcher	331.5	3600	2700	7600
443	US 70	335.5	West St - Thatcher	335.5	West St - Thatcher	335.5	West St - Thatcher	335.5	14000	14000	13000
1490	US 70	338.83	1st Ave	338.83	1st Ave	338.83	1st Ave	338.83	17500	15100	15900
1491	US 70	337.56	20th Ave	337.56	20th Ave	337.56	20th Ave	337.56	21000	20100	16700
444	US 70	338.56	6th Ave - Safford	338.56	6th Ave - Safford	338.56	6th Ave - Safford	338.56	9000	8500	13600
447	US 70	338.48	US 191 South	338.48	US 191 South	338.48	US 191 South	338.48	7000	6000	10900
1492	US 70	340.05	Highwood Dr	340.05	Highwood Dr	340.05	Highwood Dr	340.05	4700	3600	10000
1493	US 70	341.05	20th St	341.05	20th St	341.05	20th St	341.05	3000	3900	8800
445	US 70	344.37	Brown Ave / Safford Rd	344.37	Brown Ave / Safford Rd	344.37	Brown Ave / Safford Rd	344.37	1100	1000	4000
450	US 70	349.48	US 191 North	349.48	US 191 North	349.48	US 191 North	349.48	1200	1700	2300
451	US 70	378.48	Wilson St	378.48	Wilson St	378.48	Wilson St	378.48	1200	1300	1400
452	US 70	378.91	SR 75 - Duncan	378.91	SR 75 - Duncan	378.91	SR 75 - Duncan	378.91	1800	1600	2300
453	US 70	378.79	7th St	378.79	7th St	378.79	7th St	378.79	1400	1700	1900
454	SR 71	385.25	New Mexico State Ln	385.25	New Mexico State Ln	385.25	New Mexico State Ln	385.25	4400	650	700
455	SR 71	382.81	US 83	382.81	US 83	382.81	US 83	382.81	740	670	690
855	SR 72	388.06	SR 89 - Congress	388.06	SR 89 - Congress	388.06	SR 89 - Congress	388.06	2700	2000	2800
856	SR 72	37.04	Mean St - Bouquet	37.04	Mean St - Bouquet	37.04	Mean St - Bouquet	37.04	2800	2300	2300
456	SR 72	48.91	US 50	48.91	US 50	48.91	US 50	48.91	2400	2300	2300
457	SR 73	319.77	Center Green	319.77	Center Green	319.77	Center Green	319.77	1000	730	830
458	SR 73	318.77	Center Green	318.77	Center Green	318.77	Center Green	318.77	1000	800	1300
459	SR 73	315.04	BIA Rte 46 (Road to Fort Apache Casino)	315.04	BIA Rte 46 (Road to Fort Apache Casino)	315.04	BIA Rte 46 (Road to Fort Apache Casino)	315.04	4700	3100	4400
1200	SR 73	338.25	White River High School entrance	338.25	White River High School entrance	338.25	White River High School entrance	338.25	9000	11300	11300
1201	SR 73	338.06	BIA Rte 55	338.06	BIA Rte 55	338.06	BIA Rte 55	338.06	7600	8700	8900
775	SR 73	341.08	White River Hospital entrance	341.08	White River Hospital entrance	341.08	White River Hospital entrance	341.08	4900	3000	4000
800	SR 74	3.02	US 80 - Mountain	3.02	US 80 - Mountain	3.02	US 80 - Mountain	3.02	4100	4600	4100
1206	SR 74	20.68	Woodley Dam Lagoon Rd	20.68	Woodley Dam Lagoon Rd	20.68	Woodley Dam Lagoon Rd	20.68	8100	4600	5600
610	SR 74	32.28	New River Rd / Lake Phoenix Rd	32.28	New River Rd / Lake Phoenix Rd	32.28	New River Rd / Lake Phoenix Rd	32.28	7800	6600	11200
611	SR 74	379.48	US 75 - Duncan	379.48	US 75 - Duncan	379.48	US 75 - Duncan	379.48	3000	2000	2700
612	SR 75	379.48	Viriam Rd	379.48	Viriam Rd	379.48	Viriam Rd	379.48	1200	1300	1300
613	SR 75	391.85	Apache Grove Rd	391.85	Apache Grove Rd	391.85	Apache Grove Rd	391.85	2200	2500	1600
614	SR 75	391.85	Apache Grove Rd	391.85	Apache Grove Rd	391.85	Apache Grove Rd	391.85	34000	25300	30000
1210	SR 77	68.44	Oracle Rd / Mesquite Hill	68.44	Oracle Rd / Mesquite Hill	68.44	Oracle Rd / Mesquite Hill	68.44	4600	5200	4800
1211	SR 77	70.3	Prince Rd	70.3	Prince Rd	70.3	Prince Rd	70.3	4700	5200	5100
1212	SR 77	70.6	Rogge Rd	70.6	Rogge Rd	70.6	Rogge Rd	70.6	4800	5200	5200
1213	SR 77	71.3	Wilmers Rd	71.3	Wilmers Rd	71.3	Wilmers Rd	71.3	4800	5200	5200
1214	SR 77	72.08	River Rd	72.08	River Rd	72.08	River Rd	72.08	4500	4700	4000
1215	SR 77	72.08	Orange Grove Rd	72.08	Orange Grove Rd	72.08	Orange Grove Rd	72.08	4800	54700	50200
1216	SR 77	74.84	Ina Rd	74.84	Ina Rd	74.84	Ina Rd	74.84	51500	53100	51400
1217	SR 77	75.87	Maple Rd	75.87	Maple Rd	75.87	Maple Rd	75.87	7800	51300	5800
1218	SR 77	75.87	Maple Rd	75.87	Maple Rd	75.87	Maple Rd	75.87	4800	51400	55100
1219	SR 77	78.97	Hobby Rd	78.97	Hobby Rd	78.97	Hobby Rd	78.97	43700	51600	50100
1220	SR 77	81.88	Tempesta Rd	81.88	Tempesta Rd	81.88	Tempesta Rd	81.88	4900	31900	28700
1221	SR 77	82.75	Rancho Viejas Rd	82.75	Rancho Viejas Rd	82.75	Rancho Viejas Rd	82.75	29100	36000	38100
1222	SR 77	85.73	Golden Ranch Rd	85.73	Golden Ranch Rd	85.73	Golden Ranch Rd	85.73	27400	32300	34300
857	SR 77	91.14	SR 79 - Oracle Junction	91.14	SR 79 - Oracle Junction	91.14	SR 79 - Oracle Junction	91.14	12600	28700	30000
		100.28	OSADA Rd / Old Hwy 77 - Oracle	100.28	OSADA Rd / Old Hwy 77 - Oracle	100.28	OSADA Rd / Old Hwy 77 - Oracle	100.28	6800	9300	8300

**ARIZONA DEPARTMENT OF TRANSPORTATION**  
**STB DRAFT ENVIRONMENTAL ANALYSIS REVIEW COMMENTS**

<b>Project Name:</b>	<b>US 70 AZER Railroad Spur Crossing</b>	<b>Project No</b>	<b>STB Finance Docket #34836</b>
<b>Reviewed By:</b>	<b>Paul R. David, Development Engineer</b>	<b>Discipline/Office</b>	<b>Safford District Development</b>

Item No	Reference	Comment	Disposition	
			initial	Final
1	SEA Cover Letter	Paragraph 4 - The SEA lists the relatively low number of existing and projected future vehicle trips and the low frequency and short duration of projected train trips as the criteria for warranting an at grade crossing. As described this sounds very subjective. The warrant analysis criteria are not present in this EA nor have they been provided to the ADOT Safford District for review.		
2	Executive Summary - 1	Paragraph 2 - Phelps Dodge has been purchased by the Freeport McMoRan Gold & Copper Company. This change of ownership should be in this EA.		
3	Executive Summary - 1	Paragraph 3 - There is a desire by the City of Safford to construct an industrial park at the airport but there is no existing current demand or need. A front page news article in yesterday's local paper discussed placing a prison at the airport, not an industrial park.		
4	Executive Summary - 2	Paragraph 3 - The statement that the reduction or elimination of truck traffic to the mine as a result of the railroad spur is a spurious claim. The nearby FM1 Moreno Mine has an active rail spur yet still requires over half of their supplies to be delivered by trucks which travel along US 70.		
5	Executive Summary - 2	Paragraph 1 - The transport of copper anodes and sulfuric acid by the AZER is just one small component of the material transport required by the mine. The FMI Morenci Mine has an active rail spur yet they continue to ship anodes and acid by truck on US 70.		
6	Page 3-2	Paragraph 5 - US 70 is correctly listed as a 2 lane highway within the project area. A construction project is scheduled for June of 2008 to increase this segment to 3 lanes as a result of increasing traffic volumes and concerns expressed by residents that a protected center turn lane be added.		
7	Page 3-11	Paragraph 6 - The AADT for 2005 was used by not 2006 data which shows an increase of 15% in traffic volume in one year.		
8	Page 3-13	The historical growth rate derived from linear interpolation is 1.85%. The growth rate fails for both 2006 and 2007. The impact on traffic by a rail crossing will be greater than the model predicts.		
9	Page 3-13	The existing and future traffic volume tables are missing the percentage of trucks, which is critical information. Many trucks and school buses are required by law to stop at railroad tracks. The tracks will create traffic impacts and some minor queuing even when trains are absent.		
10	Page 3-10	The delays of the railroad crossing on first responders and this is not addressed in this draft EA.		
11	Page 4-1	Paragraph 5 - Does the phrase "Below the Gila River" refer to downstream or South of the Gila River?		

12	Page 4-5	Unless the AZER is currently employing 0.5 -- 1.0 person per lane mile of existing track the claim that 12 miles of track will provide 6 -- 12 jobs is suspect. There is no footnote citing a source for this claim.	plsposjttton	
13	<del>Page 4-8</del>	Paragraph 4 - Rather than include a generalization about fires on trains why not list the safety record for AZER. Within the last month a locomotive was destroyed by fire near Globe. Because of current track conditions and budgetary problems I believe that the AZER has a much higher incident rate than national and regional carriers. This accident rate should be listed and utilized when discussing the probability of spills, accidents and fires.		
14	Page 4-9	Paragraph 1 - The future configuration for US 70 which will begin design in 2010 is for a 5 lane section, not the listed 4 lane. This project is listed in the report as unfunded which is untrue. A costly and comprehensive Design Concept Review has been completed and funds for design have been allocated by the state. This project is not on the District's "wish list" but on our construction list.		
15	Page 4-10	<b>Paragraph 4</b> - While LOS B & LOS C are acceptable for future (20 year) plans the degradation of LOS from A to 8 is a serious matter that should be mitigated. Small, medium and large development are required by ADOT's Safford District to mitigate their capacity degradations with both safety and capacity improvements. Other than some federally mandated safety features at the crossing this Draft EA does not require any capacity improvements to be made by the AZER,		
<del>16</del>	Page 4-11	<b>Paragraph 2</b> - Sight distance for AZER motor vehicles entering US 70 from the access roads is not addressed. These vehicles will be looking through crossing arm equipment and bridge barriers for crossing traffic. Using current standards these access roads would probably not receive an encroachment permit due to the crest vertical curve which is currently present.		
17	<del>Page 4-10</del>	Paragraph 4 - The SEA conclusion that the Proposed Action will have a minimal impact on natural drainage, sedimentation and erosion patterns does not address the flooding created by the upstream impoundment of water by the railroad bed. Why isn't flooding specifically discussed? There are no studies or sources cited in the very general conclusions of this paragraph,		
18	Page 6-1	The proposed traffic mitigation measures only cover construction and raising the at grade crossing to the level of the bridge deck. How about some meaningful mitigations such as an extra lane for trucks and buses which must stop at the tracks or incorporating the layout of the soon to be constructed five lane configuration so that the crossing arms and other safety devices only have to be constructed once, not now and then later.		