

EXECUTIVE SUMMARY

Introduction

This Final Design Concept Report (DCR) presents the results of an investigation of alternatives for improving State Route (SR) 86 between Sandario Road and Kinney Road, Project No. 086 PM 156 H6806 01L, Federal No. STP-086-A(APA).

The project is listed in the 2010- 2014 Arizona Department of Transportation (ADOT) Five-Year Transportation Facilities Construction Program, March 2010 Board Actions, as follows:

- **Item #11508:** A programmed cost of \$22,000,000 using STP Funds and \$1,540,000 using PAG 2.6% funds for Construct roadway widening to 4 lanes in FY 2011.

The Arizona State Transportation Improvement Program (STIP) for FY 2010-2013; TIP Amendment #5 – Approved 01/28/2010, shows the following:

- \$475,000 using PAG 2.6% funds and \$5,700,000 using ASTP funds for design and construction in FY 2010.
- \$22,000,000 in FY 2011 and \$7,000,000 in FY 2012 for construction using ASTP funds.

Currently the project is programmed as “Valencia Road – Kinney Road, Construct roadway widening to 4 lanes.” The programmed project limits are from Milepost (MP) 159.5 to MP 166.1. Subsequently at the initial stages of the development of this DCR, the team agreed to extend the westerly project limits by 2.62 miles and the easterly limits by 0.48 miles. The new limits begin at MP 156.88 and end at MP 166.58. The project name has been changed from SR 86, Valencia Road – Kinney Road to SR 86, Sandario Road – Kinney Road.

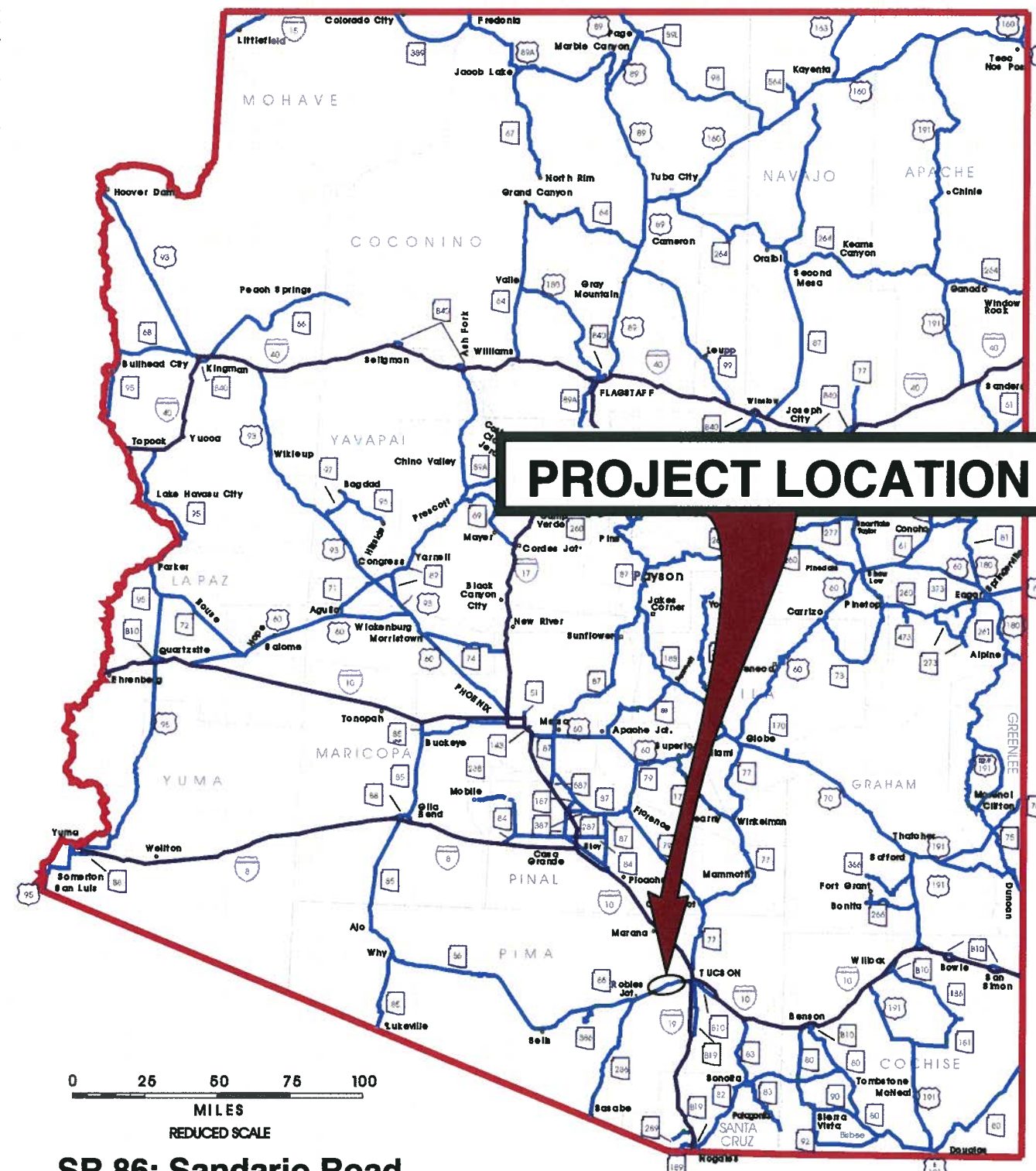
This Final DCR will document the development and evaluation of alternatives for improvement of SR 86 between Sandario Road and Kinney Road to enhance safety and traffic operational characteristics of the roadway and to meet current and future traffic needs. This Final DCR is intended to provide a long-range plan that will guide future decisions and design regarding the improvements to this section of SR 86.

Existing SR 86 between the easterly end of this project, just east of Kinney Road, and I-19 is currently a four lane roadway. With the

rapidly growing population and increasing volumes of traffic to the west of Kinney Road, the existing four lane roadway from Kinney Road to I-19 and the existing two lane roadway to the west will become increasingly congested in the near future. Capacity and safety improvements for this segment of SR 86 will be needed to accommodate the increased traffic in coming years.

A number of governmental agencies have been involved in the study including the Federal Highway Administration (FHWA), Pima County Department of Transportation, Pima County Flood Control District, Pima County Department of Environmental Quality (DEQ), the City of Tucson, Arizona Department of Public Safety (DPS), Tucson Water Department, Drexel Heights Fire District, Arizona State Land Department, Arizona Department of Environmental Quality, U.S. Bureau of Land Management (BLM), U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Tucson Airport Authority, Central Arizona Project (CAP), several Divisions within ADOT, and various public utilities.

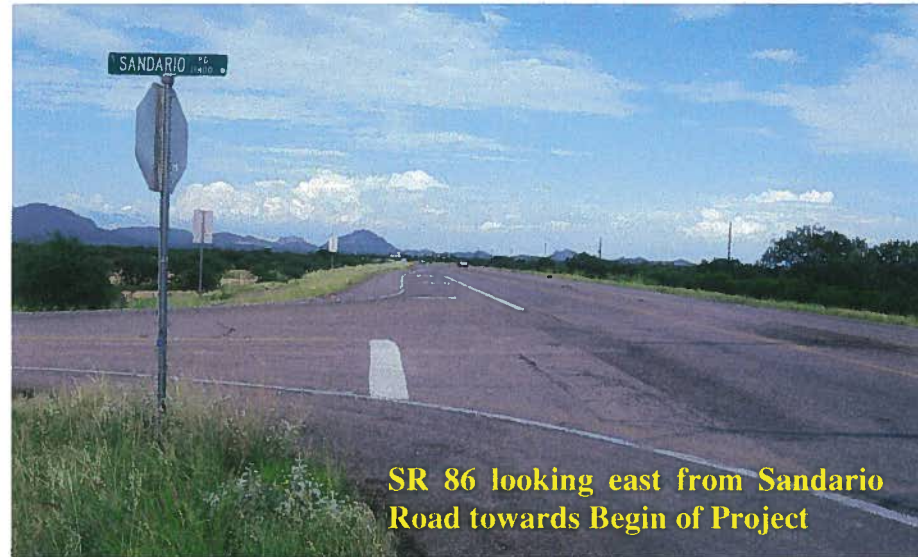
The Design Concept Study begins at MP 156.88, just east of the intersection of SR 86 and Sandario Road, and proceeds easterly to MP 166.58 east of the intersection of SR 86 and Kinney Road. The study route is located within Pima County and lies within the ADOT Tucson District. **Figure 1** shows the location of the study.



SR 86; Sandario Road to Kinney Road Location Map Figure 1

Purpose and Need

SR 86 serves as a regional transportation route connecting the Tucson metropolitan area to the communities of Sells and Ajo and serves the sparsely populated areas in south-central Arizona.

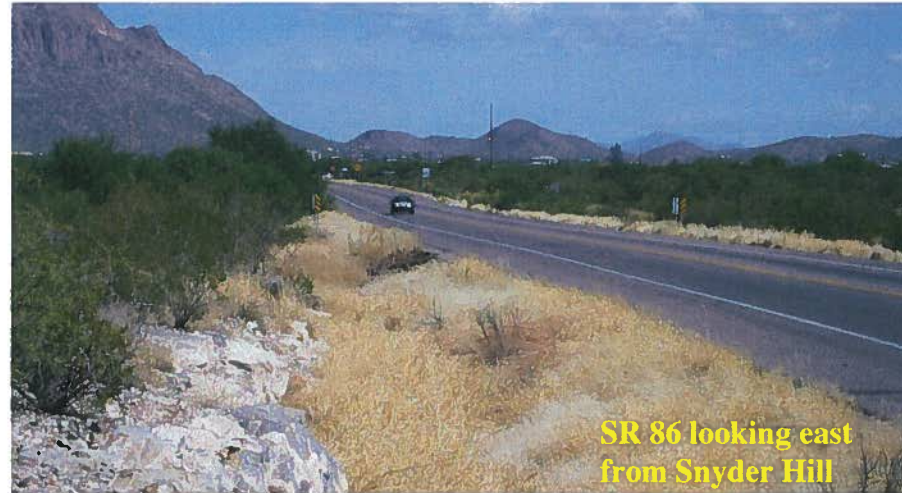


SR 86 looking east from Sandario Road towards Begin of Project

SR 86 is experiencing a steadily increasing volume of commuter traffic between the developing residential areas to the west and the employment destinations in Tucson. Large developments that are in the planning stage to the west of San Joaquin Road will accelerate the growth of traffic as they are completed and contribute commuting traffic to SR 86. A traffic analysis showed that without improvements, the mainline level of service (LOS) of SR 86 in 2007 at peak hour was D – E east of San Joaquin Road and C – D west of San Joaquin Road. In 2030 the peak hour LOS will decline to F east of San Joaquin Road and E – F west of San Joaquin Road. See **Section 2, Traffic and Crash Data**.

The frequency of crashes is increasing, particularly at intersections. The crash history at the intersection of SR 86 and Camino Verde has warranted the installation of a traffic signal using federal HES funding. The signal, which was installed and became operational in July 2008, will alleviate the crash problems at the intersection for several years. However, as the traffic volumes grow and the mainline LOS drops, the Camino Verde intersection will exceed its design capacity with SR 86 as a two-lane roadway.

Improvement of SR 86, to increase capacity of the mainline and intersections, is necessary to provide a safe, efficient highway for both the near future and through design year 2030.



SR 86 looking east from Snyder Hill

The Arizona Department of Transportation and Pima County will develop a Joint Project Agreement (JPA) for improvements to Kinney Road and other local roads intersecting SR 86 where adjustments to the local roads extend outside the ADOT Right-of-Way (R/W). The JPA will address the funding responsibilities of each agency. ADOT will construct the intersections with local roads as agreed are necessary to provide functional intersections with SR 86.



Looking north across SR 86 at Kinney Road

Design Concept Alternatives

SR 86 is considered a fringe urban highway for design year 2030 analysis. The ADOT Roadway Design Guidelines (RDG) requires a design year LOS of C-D for fringe urban highways.

The traffic analysis for SR 86 within the project limits shows that a four-lane roadway is necessary to accommodate projected 2030 traffic volumes on the mainline roadway. Signalization of major intersections will be required to accommodate turning movements. It will also be necessary to add additional through-traffic lanes at the signalized intersection of Kinney Road and SR 86.

No-Build Alternative:

The No-Build Alternative provides no improvements to the capacity, safety and operational features of the existing roadway, and involves no cost and no apparent change to the environmental features of the SR 86 corridor. However, the No-Build Alternative:

- Will require continuing expenditures to rehabilitate and maintain the existing, aging roadway;
- Will not fulfill the purpose and need of improving the capacity, safety, and traffic operational characteristics of the route.

Therefore, the **No-Build Alternative is not recommended** and has been eliminated from consideration.

The following alternatives have been identified for consideration to achieve the desired improvements in highway capacity, safety, and operating conditions. All of the alternatives will provide similar improvements to the ability of the highway to accommodate traffic both on the SR 86 mainline and at the intersections of SR 86 and the crossroads.

Alternative A:

Alternative A consists of constructing a new 2-lane westbound roadway on the north side of the existing 2-lane roadway to provide a 4-lane divided highway for the entire length of the project. The existing roadway will be converted to carry eastbound traffic. Crossroad intersections will be improved. Signalization and turn lanes will be constructed at major intersections. Where required, local roads will be realigned at their intersection with SR 86.

Alternative B:

Alternative B consists of constructing a new 2-lane eastbound roadway on the south side of the existing 2-lane roadway to provide a 4-lane divided highway for the entire length of the project. The existing roadway will be converted to carry westbound traffic. Crossroad intersections will be improved. Signalization and turn lanes will be constructed at major intersections. Where required, local roads will be realigned at their intersection with SR 86.

Alternative C:

A third alternative, Alternative C, was identified that essentially combines elements of both Alternatives A and B to better fit the corridor, minimize adverse impacts to adjacent properties and utilize as much of the existing Right-of-Way, drainage channels, and dikes as is feasible. Alternative C will provide a 4-lane divided roadway, and will utilize the existing 2-lane roadway for one direction of travel through the majority of the length of the project. The horizontal alignment will be modified to shift the location of the new 2-lane roadway from one side of the existing 2-lane road to the other. Existing SR 86 will be used as the westbound roadway and a new eastbound roadway will be

constructed from the beginning of the project at MP 156.88 to approximately MP 160.1. From MP 160.1 to MP 160.4 the horizontal alignment transitions to the north. Through the transition the existing roadway will be removed and new eastbound and westbound roadways will be constructed.

From MP 160.4 to MP 163.2 the existing 2-lane roadway will be converted to the eastbound roadway and a new westbound roadway will be constructed.

Between MP 163.2 and MP 163.6 the horizontal alignment will again transition to the south with the existing roadway being removed and new eastbound and westbound roadways being constructed.

From MP 163.6 to MP 164.2 the existing 2-lane roadway will be converted to the westbound roadway and a new eastbound roadway will be constructed.

At MP 164.2 the alignment will transition to being symmetrical with respect to the existing roadway with new eastbound and westbound roadways being constructed from MP 164.2 to approximate MP 166.58 where the roadway will match the existing SR 86 eastbound and westbound roadways.

Preferred Alternative:

Evaluation of the alternatives indicates the following:

- Alternative C has significantly less adverse impact on adjacent improved properties than Alternative A or B.
- Alternative C will require less new R/W than Alternative A or B.
- The cost of Alternative C is approximately 4.2% higher than Alternative A and 3.7% higher than Alternative B. The slightly higher cost is more than offset by the reduced impact on adjacent properties and the lesser amount of new R/W and Easements required.

Alternative C is the Preferred Alternative to be carried forward for further development.

The summary cost for the preferred alternative (**Alternative C**) for SR 86 is shown in **Table 1: Summary of Estimated Costs for SR 86**. The summary cost for the preferred alternative (**Alternative C**) for local roads is shown in **Table 2: Summary of Costs to Pima County for Local Roads**.

As a result of coordination with the Utility Owners it was determined by ADOT that the R/W for SR 86 will be widened enough to allow most of the utility lines that are now within the SR 86 R/W to relocate within the expanded SR 86 R/W. Utility lines that are currently outside the SR 86 R/W, but that will be within the expanded SR 86 R/W may

TABLE 1: SUMMARY OF ESTIMATED COSTS FOR SR 86

Segment No.	Segment Name	Begin MP	End MP	Length (miles)	SR 86 Construction Costs (\$)	SR 86 Design Costs (\$)	SR 86 R/W & DE Costs (\$)	SR 86 Utility Relocation Costs (\$)	Envir. Mit. (\$)	Total Project Costs (\$)
C1	Sandario Rd. to San Joaquin Rd.	156.88	163.23	6.35	42,280,000	3,382,000	1,785,000	200,000	0	47,647,000
C2	San Joaquin Rd. to Kinney Rd.	163.23	166.58	3.35	20,290,000	1,623,000	2,171,000	1,000,000	800,000	25,884,000
Project Totals				9.70	62,570,000	5,005,000	3,956,000	1,200,000	800,000	73,531,000

TABLE 2: SUMMARY OF ESTIMATED COSTS TO PIMA COUNTY FOR LOCAL ROADS

Segment No.	Construction (\$)	Design (\$)	R/W & DE (\$)	Total (\$)
C1	189,000	15,000	27,000	231,000
C2	6,166,000	493,000	925,000	7,584,000
Total	6,356,000	508,000	952,000	7,816,000

be accommodated within the expanded R/W or may relocate outside the expanded R/W. Specific conflicts between the utility facilities and the improvement of SR 86 will be determined through further coordination between the utility owners and ADOT during the Design Phase of the improvement of SR 86. Estimated costs associated with relocation of utility lines that are located outside the existing ADOT R/W, and have prior rights, have been included in the Summary of Estimated Costs for SR 86 based on information available.

Access Management Plan

State highways such as SR 86 that are located close to urban areas, in this instance, the City of Tucson, are intended to allow commerce to take place and the public to travel safely and efficiently, whether commuting or traveling to and from the urban area for other purposes. Management of access by restricting the number of access points and by locating and designing permitted access points to minimize conflicts with through traffic is a successful strategy for maintaining a high level of service on the highway while accommodating increasing numbers of vehicles to and from adjacent developments.

The section of SR 86 within the study limits of this project is currently being proposed for improvement to a four-lane facility from Sandario Road to just west of Kinney Road. SR 86 will be improved to a six-lane facility through the Kinney Road intersection. Implementation of access management in conjunction with the added capacity provided by additional lanes will preserve the function of the highway as a safe and efficient transportation corridor.

Access to adjacent properties will be in accordance with the current publication of the ADOT Access Category System: **Characteristics and Requirements for Approach Permitting**. A “Proposed” publication is now available. When adopted the approved publication is to be used. The **Access Category Assignment** for SR 86 within the project limits is MR as shown in **Section 6.1**.

Spacing of intersecting streets, roads and highways will be planned on intervals of three-quarters to one mile. One-half mile spacing of public roadways may be permitted to the highway when no reasonable alternative access to the general street system exists.

Median crossovers will be provided at major intersections. Intermediate median crossovers will be provided as requested by the Arizona Department of Public Safety and to provide reasonable access from all directions to right-in/right-out turnouts, subject to a one-half mile minimum spacing. Eastbound and westbound traffic on SR 86 will have the opportunity to make U-turns at median crossovers as discussed in **Section 6.4**. The access control features are shown on the plans for the preferred alternative in **Appendix B**.

All properties fronting on SR 86 will continue to have reasonable access to a public road. Where private access is available to a local road, the private access to SR 86 may be revoked. Where private access is permitted, turnouts will be right-in/right-out only. New private access points will be spaced no closer than ¼-mile. Existing private access points that are less than ¼-mile apart may be permitted if revocation would result in a property being landlocked. Frontage/access roads will not be constructed as part of the reconstruction of SR 86.

Access management will be implemented utilizing the highway planning and improvement authority of ADOT and the planning and land use powers of Pima County in a cooperative partnership.

Access control will be implemented as the construction to provide a four-lane divided highway is completed. Future access to SR 86 will be determined by cooperative actions of ADOT and Pima County. ADOT and the County should jointly determine the type and location of access

points that will preserve the functionality of SR 86 while accommodating the needs of developers of adjacent properties.

Implementation Plan

It is anticipated that the total improvement of SR 86 from Sandario Road (MP 156.88) to Kinney Road (MP 166.58) will be implemented in two phases to address the most urgent needs first and to make improvements that can be accomplished with available funds. The final limits of each segment will be dependent on funding availability.

The priority of construction segments will proceed from east to west along the SR 86 corridor and will provide useable improvements to logical termini. Segment C2 will be constructed initially; however, the limits of construction may vary depending on availability of funds. The improvement of local roads adjacent to the SR 86 mainline will be included with the appropriate segment. The costs for local roads outside the ADOT R/W are attributed to Pima County (see Table 3).

The estimated cost of each improvement segment includes design, construction and R/W costs for the SR 86 mainline and for each local road requiring construction outside the ADOT R/W. An amount of \$1,200,000 is included for relocation of utility lines that will be attributable to ADOT where the utility substantiates a claim of prior rights. The extent of utility relocations and the responsibility for the cost of utility relocations will be determined during the design phase.

Total Est. Cost Segment C1:		Total Est. Cost Segment C2	
SR 86:	\$47,647,000	SR 86:	\$25,884,000
Local Roads:	\$231,000	Local Roads:	\$7,584,000
Total Cost:	\$47,878,000	Total Cost:	\$33,468,000

Estimate of Future Maintenance Costs

An estimate of the additional future annual maintenance costs that would result from the additional roadway lane miles added to this section of SR 86 was developed for the project. The additional future annual maintenance costs for SR 86; Sandario Road to Kinney Road are estimated to be approximately \$124,411 (See Section 7.3 of this Design Concept Report).

TABLE 3: IMPLEMENTATION PLAN

Segment	Name and (Location)	Description	R/W and Drainage Easements (DE) (Acres)	Utility Relocation (\$)	Estimated Cost (\$)
C2	San Joaquin Rd. to Kinney Rd. (MP 163.23 to MP 166.58)	SR 86 Mainline from just west of San Joaquin Rd. to the End of Project east of Kinney Rd.	R/W & DE: 37.37	1,000,000	25,884,000
	Local Roads Outside ADOT R/W	• San Joaquin Rd. (Pima Co. Cost)	R/W: None		217,000
		• Camino Verde (Pima Co. Cost)	R/W: 4.32		2,158,000
		• Tucson Estates Pkwy. (North) (Pima Co. Cost)	R/W: 1.85		650,000
		• Spencer St. (Pima Co. Cost)	R/W: 2.00		231,000
		• Oklahoma St. (Pima Co. Cost)	R/W: 2.15		592,000
		• Sunset Blvd. (South) (Pima Co. Cost)	R/W: 1.51		731,000
		• Sheridan Ave. (Pima Co. Cost)	R/W: 0.07		134,000
		• Kinney Road (Pima Co. Cost)	R/W: 2.30		2,871,000
		TOTAL: Local Roads; SEGMENT C2	Total R/W; Local Roads – 14.20		7,584,000
C1	Sandario Rd. to San Joaquin Rd. (MP 156.88 to MP 163.23)	SR 86 Mainline from Begin of Project east of Sandario Rd. to just west of San Joaquin Rd.	R/W & DE: 76.80	200,000	47,647,000
	Local Outside ADOT R/W	• Continental Rd. (Pima County Cost)	R/W: None		99,000
		• Valencia Rd. (Planning, design & construction by Pima Co.)	R/W: None		None
		• Old Ajo Hwy. (Pima Co. Cost)	R/W: 0.28		132,000
		TOTAL: Local Roads; SEGMENT C1	Total R/W; Local Roads - 0.28		231,000

Mitigation Measures

Following are the Mitigation Measures that have been provided as part of the Final Environmental Assessment submitted to FHWA on April 5, 2010. A Finding of No Significant Impact was issued by the Federal Highway Administration on April 16, 2010.

The following mitigation measures and commitments are not subject to change without the prior written approval of the Federal Highway Administration.

Arizona Department of Transportation Design Responsibilities

1. During final design, the Pima County Regional Flood Control District floodplain manager will be provided an opportunity to review and comment on the design plans.
2. During final design, the design plans will be reviewed to verify the extent of impacts to Waters of the United States. The Arizona Department of Transportation will prepare and submit an application to the United States Army Corps of Engineers for a Clean Water Act Section 404 permit and Section 401 Water Quality Certification for the project.
3. No work will occur within Waters of the United States until the appropriate Clean Water Act Section 404 permit and Section 401 Water Quality Certification are obtained.
4. During final design, the United States Fish and Wildlife Service list of threatened, endangered, proposed, and candidate species and the Arizona Game and Fish Department Heritage Data Management System will be reviewed by a qualified biologist to determine if new species or critical habitat has been identified or any changes in listing status have occurred. The Biological Evaluation and Biological Opinion will be updated to reflect any changes.
5. Prior to the start of construction, the Arizona Department of Transportation will acquire 60 acre-credits in a United States Fish and Wildlife Service-approved conservation bank for Pima pineapple cactus. Any change in the scope of the project that may occur during final design will require a reevaluation of impacts to Pima pineapple cactus habitat.
6. Invasive species control will be conducted both prior to and during construction to minimize colonization of disturbed areas by non-native grasses that may degrade potential Pima pineapple cactus habitat. The Arizona Department of Transportation Natural Resources Management Section will begin invasive species control two years prior to the commencement of work on the roadway project.
7. During final design, the Arizona Department of Transportation will develop a project-specific Plan for Control of Noxious and Invasive Plant Species, which would address appropriate control of occurrences of invasive plant species within the right-of-way during construction. The plan will include such provisions as vehicle inspection to prevent movement of noxious and invasive species seeds to and from the work site; procedures for collection, removal, and disposal of noxious and invasive plants; and proposed methods of control, such as application of herbicides and mechanical or manual removal, to be used for each plant species at various stages of plant development.
8. During final design, the Arizona Department of Transportation will develop a plan for topsoil salvage in natural areas where construction disturbance will occur and invasive species are not present. In these areas, 4 to 8 inches of surface soil will be salvaged and stockpiled to be redistributed over the cut and fill slopes adjacent to the new roadway upon completion of construction. During final design, a survey by a qualified biologist will be conducted to determine the presence of invasive species in the project area. In areas where topsoil is determined to contain invasive species seed banks, topsoil will not be reused.
9. All disturbed soils that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity.
10. The Arizona Department of Transportation will develop a native plant salvage plan for the project during final design. Plant species protected under the Arizona Native Plant law will be avoided by construction to the extent practicable. If impacts to native plants cannot be avoided, the plants will be treated in accordance with state law. The plan will include salvaging all Pima pineapple cactus within the area of permanent disturbance and replanting them at a location approved by a qualified biologist. Any Pima

- pineapple cactus that are not within the area of permanent disturbance, but present within the right-of-way, will be flagged by a qualified biologist prior to the commencement of work in order to avoid accidental damage to the plants during construction.
11. Protected native plants within the project limits will be impacted by this project; therefore, the Arizona Department of Transportation Roadside Development Section will determine if Arizona Department of Agriculture notification is needed. If notification is needed, the Arizona Department of Transportation Roadside Development Section will send the notification at least 60 calendar days prior to the start of construction.
 12. The Arizona Game and Fish Department will be invited by the Arizona Department of Transportation to participate in agency partnering during final design.
 13. During final design, the Arizona Department of Transportation project manager will contact the Arizona Department of Transportation Environmental Planning Group noise coordinator to arrange for qualified personnel to review and update the noise analysis.
 14. During final design, the Arizona Department of Transportation project manager will contact the Arizona Department of Transportation Environmental Planning Group hazardous materials coordinator (602.712.7767) to arrange for the preparation of an updated Preliminary Initial Site Assessment, lead-based paint assessment, and asbestos assessment.
 15. During final design, the Arizona Department of Transportation Historic Preservation Team will develop and implement a data recovery plan for site AZ AA: 16.5 (ASM).
 16. During final design, the Arizona Department of Transportation will consider extending the Option C proposed westbound outside lane into the Sandario Road/State Route 86 intersection to connect to the eastbound to northbound right-turn lane.

Arizona Department of Transportation Tucson District Responsibilities

1. No work will occur within Waters of the United States until the appropriate Clean Water Act Section 404 permit and Section 401 Water Quality Certification are obtained.

2. Prior to construction, the Arizona Department of Transportation Engineer will have the contractor review the “Environmental Protection on Arizona Department of Transportation Projects Instructions to Contractors” and review and sign the “Checklist for Environmental Compliance.” The Arizona Department of Transportation Engineer will also sign the checklist and return it to the United States Army Corps of Engineers seven calendar days prior to construction.
3. The Arizona Department of Transportation Engineer will submit the contractors’ Arizona Pollutant Discharge Elimination System Notice of Intent and the Notice of Termination to the District environmental coordinator.
4. The Arizona Department of Transportation Engineer will contact the Arizona Department of Transportation Environmental Planning Group biologist to schedule the preconstruction meeting on a mutually agreeable date to ensure a qualified biologist would be available to attend the meeting.
5. No work will occur within the right-of-way or proposed new right-of-way between milepost 161.3 and milepost 161.8 until the Arizona Department of Transportation Environmental Planning Group informs the Engineer that data recovery has been completed in accordance with the terms and stipulations of the project’s Memorandum of Agreement.

Contractor Responsibilities

1. No work shall occur within Waters of the United States until the appropriate Clean Water Act Section 404 permit and Section 401 Water Quality Certification are obtained.
2. Prior to construction, the contractor shall review the “Environmental Protection on Arizona Department of Transportation Projects Instructions to Contractors” and review and sign the “Checklist for Environmental Compliance.”
3. The contractor shall comply with all terms, general conditions, and special conditions of the project’s Clean Water Act Section 404 permit and Section 401 Water Quality Certification.

4. The contractor, in association with the Engineer, shall submit the Arizona Pollutant Discharge Elimination System Notice of Intent and the Notice of Termination to the Arizona Department of Environmental Quality only after the Engineer has reviewed and approved the Stormwater Pollution Prevention Plan.
5. The contractor shall adhere to the topsoil salvage plan developed by the Arizona Department of Transportation.
6. All disturbed soils that shall not be landscaped or otherwise permanently stabilized by construction shall be seeded using species native to the project vicinity.
7. The contractor shall adhere to the native plant salvage plan developed by the Arizona Department of Transportation.
8. The contractor shall avoid all flagged and/or otherwise designated sensitive resource areas within or adjacent to the project area.
9. If any Sonoran desert tortoises are encountered during construction, the contractor shall adhere to the Arizona Game and Fish Department's *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* (Revised October 23, 2007).
10. Prior to construction, the contractor shall employ a qualified biologist to present an environmental awareness program to all personnel who would be on-site, including, but not limited to, contractors, contractors' employees, supervisors, inspectors, and subcontractors working at project locations on SR 86 in Pima County. This program shall contain, at a minimum, information concerning the biology and distribution of the Sonoran desert tortoise, legal status and occurrence in the project area, measures to avoid impacts to tortoises, and procedures to be implemented in case of desert tortoise encounters.
11. The contractor shall adhere to the project-specific Plan for Control of Noxious and Invasive Plant Species developed by the Arizona Department of Transportation.
12. To prevent the introduction of invasive species seeds, all earth-moving and hauling equipment shall be washed at the contractor's storage facility prior to entering the construction site.
13. To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site.
14. The contractor shall ensure that all exhaust systems on equipment will be in good working order and properly designed engine enclosures and intake silencers will be used where appropriate. To minimize noise impacts during construction, idling equipment shall be located as far away from sensitive receivers, such as residences, as possible.
15. No work shall occur within the right-of-way or proposed new right-of-way between milepost 161.3 and milepost 161.8 until the Engineer informs the contractor that data recovery has been completed in accordance with the terms and stipulations of the project's Memorandum of Agreement.
16. With the exception of temporary, short-term closures (not exceeding 2 to 3 hours) of driveways, the contractor shall maintain driveway access to all businesses and residences throughout construction. If a given property has multiple driveways, at least one will remain open at all times.

Standard Specifications Included as Mitigation Measures

1. According to the Arizona Department of Transportation's Standard Specifications for Road and Bridge Construction, Section 104 Scope of Work, Subsection 09 Prevention of Landscape Defacement; Protection of Streams, Lakes, and Reservoirs (2008 Edition), "The contractor shall take sufficient precautions, considering various conditions, to prevent pollution of streams, lakes, and reservoirs with fuels, oils, bitumens, calcium chloride, fresh Portland cement concrete, raw sewage, muddy water, chemicals or other harmful materials. None of these materials shall be discharged into any channels leading to such streams, lakes or reservoirs."
2. According to the Arizona Department of Transportation's Standard Specifications for Road and Bridge Construction, Section 104 Scope of Work, Subsection 09 Prevention of Landscape Defacement; Protection of Streams, Lakes, and Reservoirs (2008 Edition), "The contractor shall give special attention to the effect

- of its operations upon the landscape and shall take special care to maintain natural surroundings undamaged.”
3. According to the Arizona Department of Transportation’s Standard Specifications for Road and Bridge Construction, Section 104 Scope of Work, Subsection 08 Prevention of Air and Noise Pollution (2008 Edition), “The contractor shall control, reduce, remove or prevent air pollution in all its forms, including air contaminants, in the performance of the contractor’s work.” Fugitive dust generated from construction activities will be controlled in accordance with the Arizona Department of Transportation’s Erosion and Pollution Control Manual for Highway Design and Construction, special provisions, and local rules or ordinances. The contractor will comply with all applicable air pollution ordinances, regulations, and orders during construction. All dust-producing surfaces will be watered or otherwise stabilized to reduce short-term impacts associated with an increase in particulate matter attributable to construction activity.
 4. According to the Arizona Department of Transportation’s Standard Specifications for Road and Bridge Construction, Section 104 Scope of Work, Subsection 08 Prevention of Air and Noise Pollution (2008 Edition), “The contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract. Each internal combustion engine used for any purpose on the work or related to the work shall be equipped with a muffler of a type recommended by the manufacturer.”
 5. According to Arizona Department of Transportation’s Standard Specifications for Road and Bridge Construction, Section 107 Legal Relations and Responsibility to Public, Subsection 07 Sanitary, Health, and Safety Provisions (2008 Edition), “During construction operations, should material be encountered which the contractor believes to be hazardous or contaminated, the contractor shall immediately do the following: a) stop work and remove workers within the contaminated areas b) barricade the area and provide traffic control, and c) notify the Arizona Department of Transportation Engineer.” The Arizona Department of Transportation Engineer will arrange for proper assessment, treatment, or disposal of those materials. Such locations will be investigated and proper action implemented prior to the continuation of work in that location.
 6. According to the Arizona Department of Transportation’s Standard Specifications for Road and Bridge Construction, Section 107 Legal Relations and Responsibility to Public, Subsection 05 Archaeological Features (2008 Edition), “When archaeological, historical, or paleontological features are encountered or discovered during any activity related to the construction of the project, the contractor shall stop work immediately at that location and shall take all reasonable steps to secure the preservation of those resources and notify the Engineer.” The Arizona Department of Transportation Engineer will, in turn, notify the Arizona Department of Transportation Historic Preservation Team to evaluate the significance of the resources. If human remains are encountered during any phase of the project on non-federal land, all work must stop and the Engineer will contact Arizona Department of Transportation Historic Preservation Team and the Arizona State Museum. If human remains are discovered on Bureau of Land Management property, the Bureau of Land Management Tucson Area archaeologist must be notified as well.